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IRISH FORESTRY

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THE COVER DESIGN.

The photograph reproduced on the cover is from the collection of Rev. Fr. Browne of Emo Park, Portarlington, and is reproduced with his kind permission. This scene from the College grounds at Emo illustrates well the play of spring sunshine on the trunk of the Spanish Chestnut in the foreground and the luxuriance of the daffodils growing under ideal conditions.

The Editor invites members to submit photographs for use in the cover deisgn of future numbers.

IRISH FORESTRY

VOLUME IV APRIL, 1948 NUMBER 2

DOES OUR FOREST POLICY NEED AN OVERHAUL?

By T. CLEAR, B.Agr.Sc.

The Food and Agricultural Organisation of U.N.O. is devoting a major part of its efforts to the shaping of a world forest policy. It has created a Division of Forestry and appointed a Director and staff to organise the collection and dissemination of information on forestry. In its reports and in its new magazine *Unasylva* the need for a vigorous effort for the creation of a world forest consciousness is stressed. In view of these trends in forestry a discussion of forest policy generally, and of Irish forest policy in particular, in our Journal should not be considered inopportune or out of place. There is a natural reticence on the part of our members to entering into this somewhat controversial field. Further, foresters, preoccupied with day to day problems of silviculture and forest management, may feel that questions of general policy are best left to politicians and special committees. It should not be forgotten, however, that it was largely as a result of the activities of a forestry society at the beginning of this century that state afforestation became a reality. Mr. Forbes recalls in his recent account of " the revival of Forestry in Ireland " how the Irish Forestry Society " sat on the Government's doorstep " and would not be moved until something was done. In Mr. Forbes' words: " It was not until the Irish Forestry Society was brought into existence by Dr. Cooper that the question had to be seriously considered by the Government." In these days when the state is active in every sphere of economic development it may be unnecessary for a forestry society to use " suffragette " methods to publicise the part which state afforestation might be made to play in the development of the country. There is always need, however, for publicity for forestry—more so, perhaps, than for any other enterprise requiring the expenditure of state funds. During recent years there has been a notable lack of reference in the press to Irish forestry. On the other hand we have had reports and papers on housing, health, rural electrification and peat development. The professions are vocal in the advocacy of their achievements; the engineers, the architects, the farmers are telling of their great works and making, with success, ever increasing demands on the public purse. The forester alone is inarticulate. Our Society, if it is to be faithful to the objects for

which it was constituted and if it is to serve the best interests of forestry in Ireland, should come more into the open and bring the case for forestry more before the public. Only too few realise the importance or value of the work being done, only too many have never heard of forestry—to say nothing of having considered views on forestry policy in this country.

FACTORS INFLUENCING DEVELOPMENT OF FOREST POLICY.

Forest policy has been defined as the attitude of the state towards the existing woodland area and its reduction or extension as the case might be. The past century has witnessed a steady and, in some cases, a spectacular exploitation of the virgin forests of the Northern Hemisphere. At the same time there has been a growing recognition of the importance of forest cover in the protection of land from the influences of erosion and the value of timber as a raw material for native industry. The recognition of these facts has led practically every country to take active measures to prevent further forest devastation and to endeavour as far as possible to become self-supporting in regard to timber supplies. The need for the adoption by the state of a definite forest policy has long been recognised in continental European countries. The reason for this is not far to seek. In the mountainous parts of Europe the evils of forest destruction on mountain slopes have brought home more closely to the public and the authorities the necessity for preserving forest cover in regions subject to avalanches, flooding and erosion in times of melting snow. Thus Switzerland, France and Germany came early to recognise the value of protective forests and for some centuries past have followed a policy of preventing forest clearances for agriculture or stockraising in areas designated protective forest.

Another factor influencing the early adoption of a policy of forest conservation was the necessity for maintaining a supply of timber and firewood to meet the needs of the local populations. Prior to the development of railways and roads central Europe was poorly served with overland transport and, coal being scarce, fuelwood was of vital importance in view of the length and severity of the winters. Those of us who had to provide for fuel during the continental cold of the winter and spring of 1947 can readily appreciate the preoccupation of the average European with the fuel supply position. In the North and East of Europe, the forest constitutes the primary crop and the industrial development of Norway, Sweden, Finland and Russia depends to a great extent on the orderly exploitation of the virgin timber and the regeneration of the forest. The climate over much of these regions limits agriculture and stock raising to a considerable degree. Much of the land is too light and infertile for tillage, while heavy winter snow and summer drought combine to prevent the management of permanent pasture as we know it here.

Thus we see in central and northern Europe there were many incentives to encourage the early adoption of a policy of forest conservation, which policies, with the growing enlightenment of the people, readily became constructive as well. The science of forestry became a matter for study and received as much attention as the sister industry of agriculture. The growing populations and increasing standards of living created increasing demands for food, timber and fuel. Only by more intensive cultivation and the reclamation of waste land could these be obtained from the limited areas of land.

IRELAND'S TIMBER DEMANDS SUBNORMAL.

In Ireland the necessity for maintaining forests for the protective, fuel and industrial needs of the country has only recently, if even yet fully, been conceded by our legislators. Not indeed that Ireland ever lacked forestry advocates. Since the time of Arthur Young or Hayes of Avondale, forestry "Sinn Feiners" have sought to interest the nation in a self-sufficiency forest policy for Ireland. Their efforts were unavailing largely because they were made at a time when social, political and economic conditions seemed to conspire to prevent the development of a forestry consciousness here. When growing populations and industrialisation led to an appreciation of forestry values in every country in Europe Ireland was being denuded of people by famine and emigration. When countries like Denmark, France and Holland were reclaiming lands for forests and holdings, the mud-walled cabins of Ireland were being levelled to make room for sheep and cattle and the Irish D.P's. were filling the growing cities of Britian and the New World. For over a century now the population has been dwindling and with this has been associated a decline in agriculture and industries based on the soil. A minimum of new buildings or repairs to houses or fencing or shelter for stock are marked features of rural Ireland and the liberal use of timber was never a feature of our economy. It is, therefore, apparent that, with a falling population and a low marriage rate, and a housing legacy as bad as in any country in war-scarred Europe, Ireland's timber demands have been subnormal for a very long time. There is an estimated shortage of 100,000 dwellings to house those urgently needing accommodation. In addition it is no exaggeration to say that in many a town more than 60 % of the houses could do with stripping and retimbering if not complete rebuilding. Ireland's position with regard to timber needs is therefore unique in many respects. The social and industrial trends associated with the decay of the nation have fostered an old and well founded belief that our forest needs are not to be measured by continental or, for that matter, any other standards.

Any discussion on a self-sufficiency policy for this country must take into consideration not alone these and past trends in timber consumption and the factors influencing them but the desirable and

probable future line of economic and social development. It is this factor which makes for such wide divergence of opinion as to what constitutes an adequate forestry programme for the country. Any forestry plan should recognise minimum timber consumption standards just in the same way as minimum food standards are recognised. Further, future uses and not past uses should be studied and our requirements should be assessed not on pre-war standards but in the new, it is hoped, improved conditions of to-morrow.

PRESENT POLICY. IS IT ADEQUATE ?

In the report of the Departmental committee of 1908 Ireland's needs in respect of timber supplies are discussed as follows: " The more Ireland develops industries in which wood is used, the more she raises her standard of comfort, the higher these needs will rise. . . There is, however, one point of view from which this question may be looked at more definitely. To conduct her agriculture and her industries and to maintain the life of her people at a normal level of efficiency and comfort, a nation requires to consume a certain quantity of timber. How much timber does Ireland consume ? And how much for this purpose ought she to consume." After comparing figures for timber consumption in different countries including Denmark, 26 cu. ft., Holland, 22, the report goes on to say " Ireland if she is to advance in efficiency and prosperity must consume a very great deal more timber than she does now . . . even if consumption of 10 cubic feet per head of population is to be met from home supplies, it would call for a woodland area of from 1,000,000 to 1,200,000 acres to meet it."

Present stated policy aims at the creation of a forest area of 600,000 acres and it has even been suggested that a smaller acreage say of 400,000 acres would be sufficient for our needs.

The future needs of this country are now put at far less than was anticipated in 1908, this in spite of the fact that every development points to the contrary. In a time of growing world scarcity of forest products, the consumption of timber in Ireland has risen steadily reaching something like 10 cu. ft. per head in 1938. That there is room for considerable expansion in this direction can be gauged from the fact that the *per capita* consumption of timber in Denmark is more than twice ours and that in Finland over 10 times.

It would appear that our forestry programme is designed only to meet our minimum or emergency needs from home woods. Now unless we visualise a considerable fall in our standard of living or a static or declining population any self sufficiency forestry plan should be based rather on a greatly increased total and *per capita* consumption since at present we use less timber than any comparable country in Europe. That a forest area of 600,000 acres is far from adequate, if reasonable self sufficiency is the aim, can be adduced from a further comparison with Denmark. The latter country with

a forest area of over 900,000 acres of the most productive forest in Europe has still to import an average of 30,000,000 cubic feet of primary forest products each year.

PROGRESS FALLS SHORT OF TARGET.

But first let us consider the progress already made on the road to self-sufficiency in timber supplies. It is now almost 40 years since the state began its afforestation programme. In that time approximately 100,000 acres have been planted. Now any forester knows that, at this rate of planting, we could not hope to maintain even our present forest acreage. A study of the felling statistics would appear to show an actual diminution of the area under forest and these statistics do not reveal the true position by any means. In the last 10 years at least 160 million cubic feet of timber has been felled in Ireland, or say the equivalent of 50,000 acres of mature timber. Over the whole period from 1908 it is not inconceivable that more than the equivalent of 100,000 acres has been felled and much of the land still recorded as forest is forest in name only. On the credit side we have 100,000 acres of new plantation, mostly under 20 years of age and a not inconsiderable portion of this is on poorly productive and inaccessible land. Forest devastation has been going on apace and many cleared or devastated areas, the belts, groves and small woodlands, our most productive and accessible woodlands in fact, are not being restocked. We are poorer in timber resources than ever before in our history. So far as timber supplies are concerned the road to self-sufficiency has become a veritable treadmill for the Irish forester. In spite of much ado and seeming progress all the steps taken so far have just barely kept him and his woods from going under. The official prophesies and warnings in the 1908 report of an approaching timber famine have been only too well fulfilled.

The early plantations too have come nearly to fruition and stand now as mute witnesses of the things that might have been if the nation had had the courage and foresight to do the recommended thing for forestry. If the nation had adopted a truly well planned forestry programme in 1908, instead of a few hundred acres of truly remarkable timber stands as at Baunreagh, Camolin, Avondale and Rathdrum, there would be many thousand acres of such crops and more to come. Instead of looking anxiously at a future barren as far as this generation is concerned, of home timber supplies and hardly daring to consider the consequences of another emergency, we could be planning to take advantage of the wonderful new developments in timber utilization to create new and thriving industries, industries which need not terminate in time of crises, because of the cessation of the supply of raw material.

NEED FOR BOLDER MARGINAL LAND USE POLICY.

Due to the absence of a constructive land use policy, large acreages very suitable for afforestation and which are entirely

non-arable and of little grazing value have been carved up and parcelled out among a multitude of smallholders. The State has been even more irresponsible than the displaced landlords in its attitude towards marginal land. Instead of retaining control over such land so as to ensure that its productivity would be maintained or improved, it was passed on, very often, to those least able to reclaim or improve it. This policy of division of marginal land has resulted in a situation where most land suitable for forestry is held by tenant farmers and can only be acquired after tedious and expensive legal transactions. It is now extremely difficult to develop an orderly scheme of afforestation or land improvement. The result of this lack of policy can be seen in many mountainy areas to-day, where large numbers of half starved stock range over a wide area of uncultivated land, which ought, under a proper system of management to be producing several times as much in various forms of produce. The living conditions and housing accommodation are often primitive and there is evidence of wholesale deterioration in the productivity of the land. In County Wicklow it is evident from comparison with earlier surveys that bracken and furze are spreading at an alarming rate over the rough grazings attached to the small holdings that dot the glens. This development is doing more to make the holdings uneconomic than the acquisition for forestry would have done and, unlike forestry, is providing no alternative to emigration. If the apellation " Cromwellian " is to be applied to any form of land policy it suits best the one that is condemning the population of the glens and hills to slow annihilation. The growing depopulation of those areas most suited to large scale forestry development is a matter of grave concern. Most foresters complain that it is no longer possible to find enough men to carry out the work of tending plantations already established to say nothing of new afforestation. The day seems to be fast approaching when land acquisition will be the least difficult problem confronting the forester. The failure to recognise in time the usefulness of this land as forest must now result in a complete change in social structure. That hitherto reliable pool for the recruitment of the best forest labour, the small holding, is no longer providing its quota. The houses from which the forester expected his future workers are now very often inhabited by old people or bachelors. The holdings they occupy will fall eventually as ripe plums into the hands of the forester but, perhaps by that time there will be no local labour to do the work of afforestation. The marginal farmer grazier is disappearing and unless steps be taken to replace him by permanent forest workers on suitable holdings it may be impossible to recruit or maintain a forest working staff. The change is so insidious that the arable land suitable for these holdings may be planted up if this present piecemeal acquisition policy be adhered to.

The time is ripe for a revision of marginal land use policy in

Ireland. The plantations of exotic conifers laid down in the past 40 years now provide ample evidence of the timber producing potentialities of such soils. Our Associate members were duly impressed by their visit to the Slieve Blooms in June, 1947. Here indeed is an area which shows the tree growing possibilities of our hill climates. Such areas are the " shop windows " for Irish Forestry and the Society is to be complimented on its efforts to make them known to the public. It comes as a shock to anyone standing under the spruces at Baunreagh to learn that in spite of these self-evident forest possibilities we rank even behind the desert states of the near East and North Africa in native timber resources and percentage of forest cover. It is time we started earnestly to exploit more fully these forest potentialities and to make tree growing a live national issue rather than an interesting and praiseworthy sideline.

It is now over 40 years since there was a full review of the forest possibilities of the country. Many things have happened since 1908 which make a review of the whole position very desirable. There seems to be a considerable lack of unanimity among legislators as to the forestry prospects in this country. The absence of reliable publications and the infrequency of the official reports on forestry progress have contributed to the general ignorance and apathy that prevails. Two great world wars have come and gone leaving behind a host of new problems social, political and economic. Is it not desirable that forest policy should be reviewed in the light of this new situation ? There is indeed an urgency about the country's timber situation that could not have been visualised in 1908, an urgency that calls for a new approach to the problem. After an exhaustive examination of the timber supply position in the world to-day the F.A.O. report states that everything leads to one significant conclusion, " A world wide wood shortage exists and threatens to become critical." No one can deny that the possibility of another war is something with which we have to reckon or that a future emergency causing a stoppage of imports would have a disastrous effect on our economy and standard of living.

Cheap Land Policy is Bad Economics.

The varying measure of success achieved with exotic conifers in state forestry is also worthy of review. The increasing cost and scarcity of labour would make it desirable in the interest of national economy to seek means of lowering the cost of timber production. In this connection the flourishing stands of Sitka, Japanese larch, Tsuga and other new conifers to be seen in every forest district are in marked contrast to the many stands of Scots pine and European larch which are a veritable eye-sore to the forester. The fast growing conifers have, where conveniently situated, been of inestimable value to the community and, though immature, have already contributed no mean quota of useful timbers. On the other hand the large areas

of heath-covered and pan-bound land afforested with pines during the " boom " period of afforestation, with little attempt to provide the cultivation and manuring requisite to success, are even more worthy of attention in these days of high labour costs. We cannot afford this waste and disappointment and more attention must be given to such matters as productive capacity of land and its location relative to existing or prospective markets. The annual growth of timber in our plantations varies from 250 cubic feet or more per acre to less than 30. The former yields are possible on suitable soils with the western American conifers, while returns approaching the latter figure are all too probable on exposed and uncultivated heather-clad hills. The difference between the profitability of afforestation on good quality sites with such conifers as Sitka, Japanese larch or Norway spruce as compared with Scots pine on exposed heather ground has to be calculated to be believed. It would appear that the cultivation of spruce on spruce ground is a very attractive proposition and that an early harvest in the shape of pulpwood or boxwood is a distinct possibility. The cultivation of Scots pine on the other hand seems a doubtful proposition at best. In view of this it is amazing to note that almost 50 % of the planting done in the past has been with pine. Is there some good reason for this pine policy or is it a question of land acquisition, seed supply or sheer sentiment? The arbitrary maximum price for forest land fixed in pre-war days still holds in these days of grossly inflated land values and much suitable land is thereby put beyond the reach of forestry. There is very good reason for a review of this policy. Cheap land will not produce cheap timber. Any policy which forces forestry on to light, gravelly, panbound mountain tops when, for the sake of a pound or two more, the bracken-covered loams or waterlogged clays or fertile peats admirably suited to spruces could be purchased instead, is demonstrably bad and wasteful in the light of our present needs. In the past Governments have strictly adhered to the unwritten policy that forest land should be cheap land. Now it can be discovered by simple actuarial tests that the price of forest land, when divorced from the productive capacity and accessibility of that land has no meaning. Good class spruce ground would be cheap at £10 an acre and poor pine ground is dear at any price. It may be claimed that if the ceiling price at which the State is permitted to acquire land is raised this would upset land values and cause hardship to the farming community. This problem would be avoided by recognising definite forest regions and the question of the best use of the land, whether as farm or as forest, could be decided on the basis of an approved land use policy. It would be better and fairer in the long run for the occupier to receive a worth-while price and be able to purchase, perhaps, a more suitably located holding than to have to wait until the pressure of circumstances, economic or social, force him to sell. By adhering to an unreasonably low and arbitrarily

fixed maximum price for forest land the Government can condemn state forestry to the role of a subsidized or at best economically marginal industry and anyone connected with it, be he forester or labourer, will suffer as a result. Given reasonable scope to develop, Irish forestry could be a sound national investment and could support its workers at a reasonable level of comfort. It is simply a question of output per acre, per man, or per unit of capital.

National Security Demands a Revised Planting Programme.

The immediate aim of any forest policy in this country should be to secure the vital timber supplies of the nation in the shortest possible time. Early returns from young plantations indicate that there is definite possibility of achieving a measure of security in a relatively short time. This security, however, can only be achieved by a drastic revision of our current afforestation and land acquisition policy. The sooner we bring our afforestable land under production the better. In the past afforestation programmes have been influenced by adherence to the strictly orthodox plan of an equalised annual programme over a long rotation. Thus we are told that the aim is to afforest 600,000 acres at the rate of 10,000 a year so that after 60 years it is presumed that there will be 10,000 of mature forest fit to fell and replant annually. This system is all right in a country blessed with a store of virgin forest but by no means meets the case of a country with absolutely no reserves of timber. There is no longer any need to think in terms of a 60 years rotation. Forest crops are utilizable from 20 years and every new development in wood use is increasing the relative value of small sized timbers. In addition to early security, we could achieve a real industrialization on a wood base in a very short time if afforestation could be accelerated and confined to reasonably productive land. By accelerating the rate of planting to 20,000 or 30,000 acres a year it should be possible to plan directly for industries based on wood, such as pulp, fibreboard, woodwool and boxboards, in view of the advanced state of many of the present plantations. At present our woods are too small to provide a sufficiency of raw material for any new home industry and we may of necessity have to seek outside markets to dispose of thinnings. Difficulty of marketing can be due as much to having too little as to having too much of a particular grade of material.

Alterations in policy are not a sign of weakness or admission of inadequacy of past policy, they are a recognition of changed times and needs. Overseas we find Britain planning to increase her annual planting programme from 20,000 acres to 100,000 acres, South Africa has adopted a revised programme of 35,000 acres as against 15,000 before the war. The same story comes from every source. Ireland alone, though poorer in timber resources than any comparable country, is holding to an admittedly inadequate pre-war policy

which, it is seen, has fallen far short of achieving even the modest aim set for it. Due to one thing and another, be it emergencies, lack of funds, or staff, the progress towards self-sufficiency is painfully slow.

It is time we had a reaffirmation of the country's belief in the value of the forest as a source of wealth and enjoyment for the nation. If forestry is to play its appropriate role in the future welfare of the country we must plan anew the road ahead with vision and courage. The great need is to set an objective worthy of achievement. At present there is evidence of a spirit of lethargy which was foreign to Irish forestry in its early pioneer days. Our older members will agree that the spirit of adventure, the eagerness to try new methods or species, the pride and enthusiasm in the profession that were part and parcel of the earlier years are not so evident to-day. In the opinion of thinking foresters there is a growing feeling that forestry is an unwanted thing, a cinderella. It is apparent to the forester and the labourer that forestry in Ireland has all the marks of a relief scheme, poor wages, poor equipment, hand-to-mouth planning, absence of research.

In these days the labourer knows that he can only expect decent wages in a mechanised or properly equipped industry. While he continues to scratch out roads with pick and shovel and bare hands, to plant the untilled heath or haul out timber on his bare back he knows in his heart and soul no industry worthy of the name could thrive on such " coolie " methods. The need is for constant improvement in technique and equipment with research going on all the time. Only in this way can the necessary go-ahead spirit be revived in the organisation.

Our Society has been fortunate in gathering into its ranks the most enthusiastic and courageous members of the profession and it has the spirited support of a fine body of associate members. There is a danger, however, that for want of an ideal or a vision the Society will lose its appeal. The younger foresters are not joining and this in itself is symptomatic of the state of affairs. One forester stated recently that all he could look forward to from our Society—or from forestry for that matter—was an obituary notice in our Journal. Is this the general feeling towards forestry and forestry progress in this country? If it is, the sooner the obituary notice of Irish forestry is written the better; the body is there but the spirit is gone. Our Society should set itself the task of reawakening professional, general and State interest in forestry, to bring back the spirit of enthusiasm, to create an aim or a vision towards which to strive. " Without a dream a people perish ! "

THE UNRELIABILITY OF TREE GROWTH IN SITE ASSESSMENT

By Malachy Sharkey.

One of the most exacting essentials in reafforestation is the assessment of sites and soils as a necessary preliminary to selection of species. The choice of species has an effect which extends far beyond the early stages of the new crop and whether it is correct or not may often not be clear until the stand is well advanced, by which time mistakes cannot be rectified without drastic treatment and heavy expenditure.

The safest basis for choice of species is the purely ecological one, which normally consists of two steps, namely, an inductive process or an assessment of the principal locality factors, and secondly, a deductive process or selection of a species whose requirements throughout life are likely to be supplied by the site in question. In practice the nature, quality and depth of soil are ascertained by digging test holes or by profile analysis. For further indications of the timber producing potentialities of a site the nature of the surface vegetation and any pre-existing tree growth are taken into account, since the reaction of the living vegetation present on the site is usually indicative of two very important factors, namely, soil fertility and soil moisture conditions.

It is generally accepted that the most reliable and conclusive indicator in site assessment is the quality or success of an existing stand of timber on the site or on a similar site in the locality. A species which gave good results would naturally be repeated, while an existing species which proved a failure would be avoided. But here a note of warning must be introduced. Many are the pitfalls which await the unwary forester. He must tread " cautiously lest he rushes in to judge rashly." *Existing low grade tree growth should not always be taken at its face value—without first considering the history of the accusatory stand.* In this short article I intend to dilate somewhat on this all important aspect of site assessment, namely, the unreliability of existing poor quality timber stands as site indicators without due reference to the history of the stands. As an illustration I will cite two examples from my limited experience as they presented themselves here at Broadford Forest.

Compartment 13, Violet Hill property, has a moderately exposed location with a south-westerly aspect. Most of the area carried a light scrub covering of Birch, Hazel, Mountain Ash and Furze, with occasional scattered conifer standards, apparently the remnants of a former clear-cut wood. The soil generally is of a mild, moderately fresh, friable nature, with a sandstone foundation, and

sufficiently deep to permit of normal root development. The surface vegetation is typical of its Birch-Rowan association and for the most part consists of Bracken, Briar and fine grasses, with scattered areas of fern (Dryopteris filix-mas), and Scabious (Scabiosa succisa L.), with a bottom layer of Bedstraw (Galium saxatile L.) and mosses (Hylocomium squarrosum L. and Polytrichum commune L.).

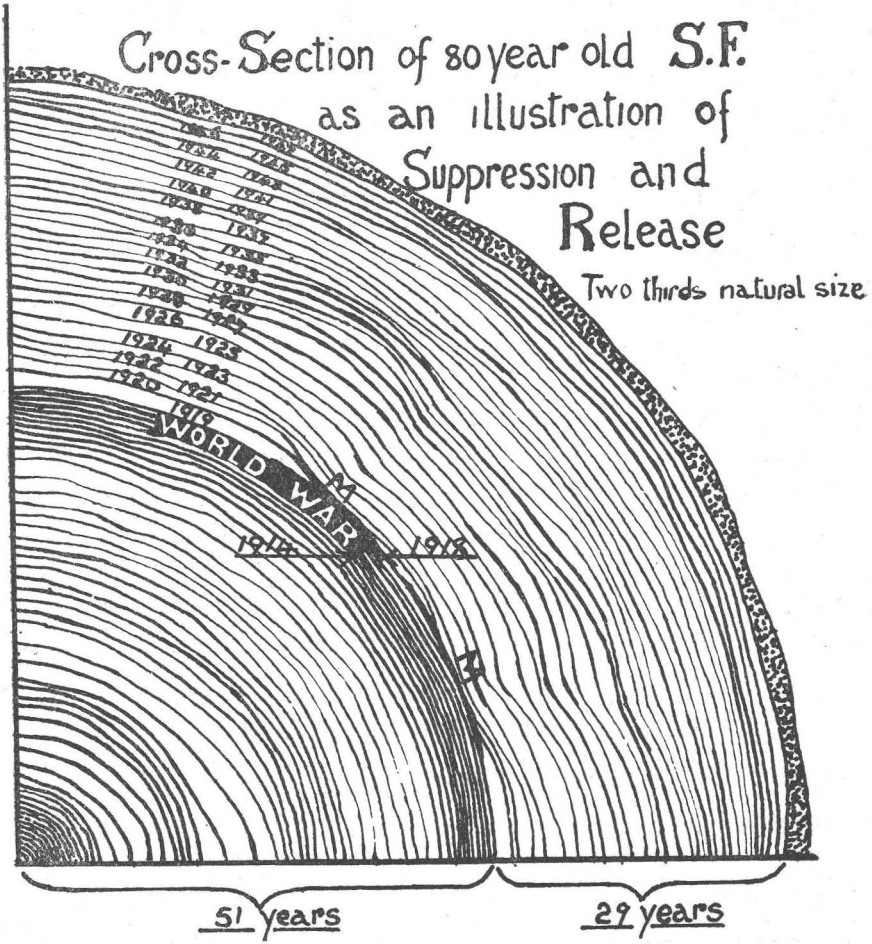
This was clearly a good European larch site as indicated by all locality factors—except one—the presence of a small plot of poor quality larch to the north of the compartment on a site of average soil qualities. These unhealthy E.L. showed various signs of premature stagnation—retarded annual growth, dense covering of lichens on trunks and main branches, and a thick spongy bark. A ring count of a felled specimen showed their age to be approximately 35 years, while their average height was about 30 feet. Their presence on this apparently ideal larch site strongly suggested that at some stage of their existence or perhaps all through their life-growth some inhibitory factor or factors interfered with their normal growth. Fortunately, the one-time estate steward who supervised the laying out of all the younger plantations lived nearby. His testimony vindicated my presumptions. The area under review once carried " the finest larch in Ireland." When this was felled most of the compartment was again planted with E.L. pure. Precautions, however, were not taken against the ubiquitous arch-enemy, the rabbit, who soon made short work of their luscious shoots, resulting in the complete failure of this E.L. crop. Some years later a plot of E.L. culls from another planting area were carelessly planted and protected against vermin only by a temporary fence. Without subsequent attention these few score trees were left to survive amidst encroaching undergrowth until to-day they present themselves—a discredit to their environment.

In example No. 2 the accompanying drawing of a quadrant of a Silver fir cross-section will serve as " Exhibit A." This cross-section was taken from an inferior stunted Silver fir, which, from a ring count, seems to be over 80 years old. It was one of about a dozen similar growing in moderately heavy fertile soil, amidst a stand of oak in compartment 8, Violet Hill property. Some of the oak was recently cleared in the operating of a fuel scheme and the cleared area—on which a moderately dense covering of selected oak standards was retained—was prepared for planting.

And so we come to the selection of species. Judging by the soil and the surface vegetation and bearing in mind that a shade-bearing species was necessary, Silver fir appeared the most suitable species for the new crop. Here again the quality of the old crop, which in this case was the incriminating S.F., growing on the area pointed reproachfully against this species. The forked stunted growth of these Silver fir on such an apparently suitable site appeared inexplicable.

In the course of clearing the area one of the Silver fir was felled—and so, the retarded growth was explained. On the cross-section of the S.F. stump is was noticed that about midway between centre and bark a very dense band of annual rings was visible (see illustration). This cycle of very poor annual growth was followed by a period of very active growth as indicated by the comparatively broad rings immediately adjoining (externally).

What was the cause of this sudden change of growth, or when did it occur ? By counting the number of rings between the dense band and the outer ring it was ascertained that 29 years elapsed since the tree revived its growth activity: 29 years subtracted from



1947 (year in which tree was felled) gave 1918—the last year of the first world. The solution was complete. Obviously, in the exigencies of that stringent period some trees must have been removed from this area, which was conveniently adjacent to a public road. The estate steward later verified that my deductions were correct.

The actual facts were that in 1918 all the better quality S.F. and some of the oak were removed from this area. The only S.F. left standing were semi-suppressed specimens and other inferior types. Even these were damaged in the extraction of the good quality stems, as the old bark wounds (MM), which are visible on the cross-section, indicate. Having obtained liberty and light these suppressed weaklings immediately looked upwards and belatedly recommenced growth until in 1947 they stood—figuratively and almost literally—a question mark.

Thus, in the above two instances a reference to the history of the existing misleading timber crops explained their presence and revealed the causes of their low quality growth. If within the confines of a small forest two such examples of the unreliability of existing low grade tree growth as a conclusive indicator in the assessment of sites so impressively presented themselves, doubtless the very chequered history of Irish woods with their repeated " culling " in successive emergencies—national and international—must provide many pitfalls and false leads to Irish foresters. This must be guarded against, as not only is the timber crop an expression of site qualities, but it is a reflection of site history and management.

NOTE ON THE EXTRACTION OF FIREWOOD

By J. J. Deasy.

Foresters, fuel merchants and others faced with the task of bringing firewood to a point accessible to wheeled transport often meet with rough ground where every way out is beset with many obstacles and the going is extremely tough. They know that extraction, even of firewood, is an expensive job and while " crawler" tractors, cableways, etc. form the dream-stuff of many who interest themselves in this particular phase of forestry, all of them would welcome any practical cost-cutting ideas capable of being put into immediate effect.

Many engaged in extraction work employ the system of dragging by means of a chain looped around the logs. This method is heavy on draught and in wet weather the logs become covered with mud which greatly hampers handling, and the grit (some is picked up even in dry weather) rapidly dulls the edge of saws. Indeed, in yards where facilities are available, the sawyers think it fit to play a hose on such logs before putting them on the bench.

Some hardship can be avoided and the extraction speeded up by the use of a sled. The type described in this note is used by farmers in many parts of the country for the purpose of moving ploughs, harrows and other farm implements over hard roads. It has the merit of being simple to put together and is easily adapted for use in woods. The body is formed from an Ash fork, the main stem of which is shortened to 6″ and the arms (about 4″ in diam.) extending to a distance of approximately 6′ being from $2\frac{1}{2}$′ to 3′ apart at the ends. Any irregularities of the sliding surfaces are removed and, if considered desirable, they can be shod with light wheel-band iron. If this is done the iron would require to be countersunk into the timber in front where the strips of iron end. It will also be necessary to countersink the irons to receive the bolt heads. Ash battens are fixed securely across the arms, the foremost being about 2′ long and the hindmost long enough to reach both arms while not projecting over the sides. The main stem is pared so as to produce a gentle upward curve or " prow " in front. A pin is passed through it horizontally to which is permanently attached a draught chain which can be connected with the " whipple-tree " or " swingles " by an " S " hook. For the purpose of binding the load, two lengths of chain are attached to the arms at opposite points; these are tightened in the usual way of securing a load by loosely hooking them and tightening with a twisting stick or " sticker."

It is advisable to have a greater number of sleds than horses so that it is possible always to have one loaded in readiness for the horse

that is bringing back an empty one. In this way very little horse time need be lost.

A sled of the type just described can also be used with advantage in difficult situations for the haulage of fence stakes, road poles, pit props and light saw-logs. In addition it can be adapted for the collection of road metal from points where the nature of the ground or tree crop does not allow of the use of wheeled vehicles.

MASS DESTRUCTION OF RABBITS

The following description of an effective method of reducing rabbit stocks on farmland is taken from an article in the *Scottish Journal of Agriculture*, July, 1940. As this method seems to have possibilities on forest land—especially where trapping and ferreting are hindered by thicket-stage plantations—it is reproduced (with suitable adaptations) here with acknowledgements to the author and inventor.

In essence the idea is to erect an oblong rabbit-netting enclosure (as in Fig. 1), the netting on one or two sides being held open by trigger sticks which can be quickly released to close the trap when the rabbits are feeding inside (see Fig. 2). In the forest a grassy opening or ride would form a suitable site and baiting the trap with roots or greens in the period before the trap is set off should help.

The following material is required:—

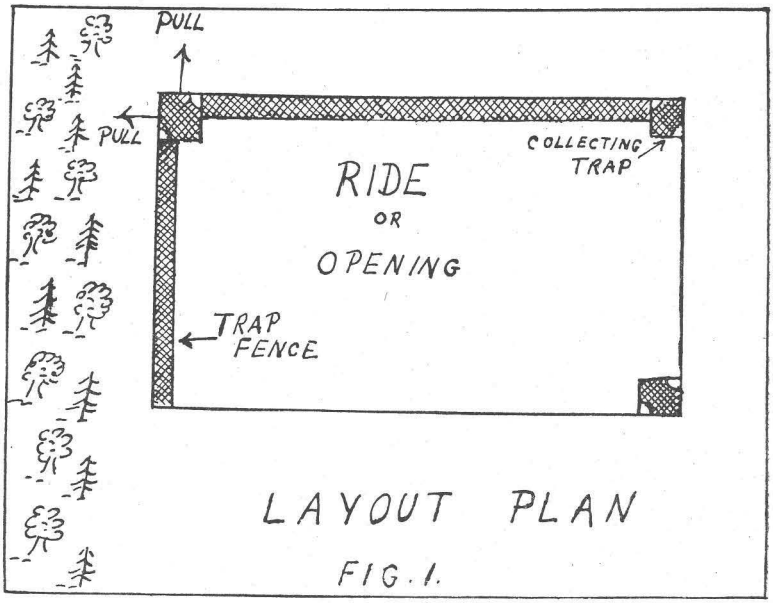
1. Rolls of 1¼"-1½" mesh rabbit wire netting 3-3½ feet wide.
2. Rolls of 1¼"-1½" mesh rabbit wire netting 1½ feet wide.[1]
3. Paling Posts.
4. Staples.
5. Forestry tying wire.
6. A number of small slates.
7. A supply of wooden pegs 6 or 7 inches long. Tops smooth, notched one inch from bottom.
8. Flexible wire or strong cord for the pull.

ERECTING THE TRAP FENCE.

Posts should be erected as if for an ordinary wire fence. The distance between the posts should be at least seven feet. The 18-inch wire netting should now be unrolled on the outer side of the posts and at a distance of three to four feet from them. When this is done the three-foot netting should be unrolled nearer the posts so as to overlap at its bottom end a breadth of 9 inches of the 18-inch netting (see Fig. 2). Where the two sets of wire netting join they should be

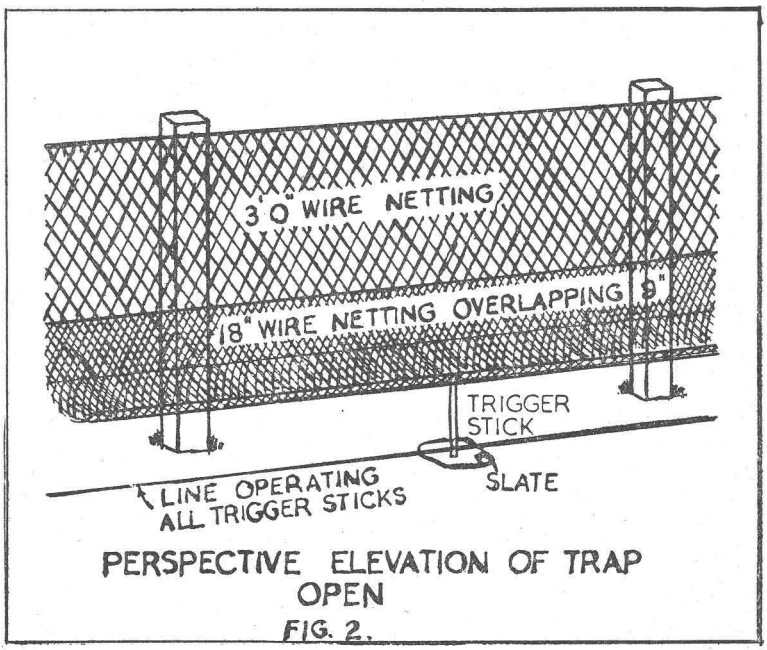
[1] If the 18-inch netting is one gauge heavier than the 3-foot netting it will snap more strongly. On the other hand, the difference in gauge may cause some difficulty in rolling the netting.

MASS DESTRUCTION OF RABBITS



LAYOUT PLAN

FIG. 1.



PERSPECTIVE ELEVATION OF TRAP OPEN

FIG. 2.

laced together with tying wire. This is necessary, as will be explained later, to give sufficient spring for the lower wire. The laced wire netting is now securely stapled to the stobs in such a manner that at least six inches of the lower wire sweeps along the ground. The bottom staples securing the two-ply portions of netting should be about five or six inches from the ground. Difficulties with bends or uneven ground can be avoided by pegging down the trap permanently for the necessary distance and by passing the pulling wire round a post set outside in the direct line of the pull.

The flap of the 18-inch wire netting is now propped up off the ground by pegs at a sufficient height to enable the rabbits to pass freely under the netting on their way to and from their feeding ground, care being taken not to spoil a run (see Fig. 2).

Erecting the Dummy Fence.

When this has been done the remaining part of the trap should be closed by erecting a light temporary rabbit-proof wire netting fence.

Rabbits will very soon resume their normal habits becoming familiar with the slates and cord and entering the trap underneath the flap. At an opportune moment, when most of the rabbits are feeding, the flap should suddenly be allowed to drop. All exits are then closed to the rabbits.

In order that the impounded rabbits may be easily taken, wing wire catches should be erected at the points where the wings of the dummy fence meets the trap fence. These allow the rabbits to enter but not to leave. To prevent rabbits escaping at the corners by piling up and jumping the fence, care should be taken to have these roofed over with netting wire. The man entering the killing pen should be careful to close a flap behind him.

Final Setting of the Trap.

Good results ought to be assured after ten or fourteen days. On the morning of the day when operations are intended to be carried out the temporary supporting pegs should be replaced by pegs to which a pulling cord or wire is attached.[1] This cord or wire should be fixed to the peg by a clove hitch about an inch from the bottom. By placing the lower end of the peg on a slate the peg slips easily when the cord is pulled. The top end of the peg should lean slightly away from the direction of the pull and just support the outer edge of the wire. When the pegs slip the double ply of netting wire acts like a spring and the flap of the wire comes firmly down to the ground. In placing these supporting pegs in position care

[1] The pegs with cord attached should be placed in a handy position when the fence is erected, so that the rabbits may become familiar with them. To introduce the cord only on the day on which it is to be used might spoil the scheme.

should be taken to have only one between each two posts. The end of pulling wire or cord should be run out to a point well clear of the trap to which the operators may approach unseen and unheard.

THE PULL.

One sharp pull ought to release the spring; if more than one operator is required the simultaneous pulling of the cords or wires can be effected by acting on a whistle signal. Once the cord or wire is pulled immediate steps should be taken to see that there have been no hitches and that the whole of the netting is lying close to the ground so as to prevent any rabbits escaping underneath. When this is done the beaters may be started. Torches and bicycle lamps or dogs and switch lines may be employed. Usually, however, the majority of the rabbits make a dash for home only to find that their retreat is cut off. The rabbits can easily be driven into the wing catchers where they can be taken.

Experience has shown that two men can erect a complete 300-yard trap in the course of a working day, and considerably more on existing fences.

SOME COMMENTS ON IRISH FORESTRY

By H. BERESFORD-BARRETT, M.A.

The following thoughts were provoked by attendance at the Society's annual excursion in June, 1947, when I had my first opportunity since my return to Ireland to study on the ground the work of the Irish forestry service.

Let me say first that I cannot remember a holiday I enjoyed more and that I greatly appreciated the many kindnesses shown me by members and, last but not least, a most delightful and instructive drive through a part of the country more or less unknown to me whereby I got a good way home in comfort!

I was surprised to find how much I did *not* know about forestry in Ireland and others are much better fitted than I to discourse on silvicultural matters. It did occur to me, however, that seeds of birch and other hardy species might be scattered in places now considered too high or too infertile for economic planting. They should improve the soil in time and so gradually increase the plantable area.

I would, in all diffidence, make from the economic point of view three suggestions:—

1. That a silviculturist be appointed.
2. That a Working Plans officer be appointed.

3. That there be more decentralisation, combined with more co-ordination with County Councils and other local bodies.

1. SILVICULTURIST.

It must be very obvious to anyone who comes in contact with its officers that we have here a keen and able Forest Service. We must, however, bear in mind three facts:

(*a*) Organised forestry in Britain and Ireland is very new, only 25 years or so old, less than half the shortest timber rotation.

(*b*) The climate and the numerous geological changes over comparatively small areas makes forestry here a much more difficult and diverse affair silviculturally than on the Continent so that we must evolve our own technique.

(*c*) Owing to the lack of large private forest estates we have little or no data to go on.

Individual officers make valuable experiments and acquire much useful knowledge but the information, however important, is of little use unless it is easily and quickly available so that results from different parts of the country can readily be looked up and compared. Having to hunt through files is laborious, and, besides, officers get transferred and we have not all the same interests so that experiments started by one officer may or may not be continued. I think we need a large number of experimental plots of various kinds. As an example, in one forest we visited we found natural regeneration of almost every kind of tree—a silviculturist's dream, this. If we had a silviculturist all experiments could be carried out systematically and their results would be easily accessible as and when required. In this way knowledge gained would be cumulative and comparable, not haphazard and uncorrelated.

2. WORKING PLANS.

In Burma we had reached the stage of having a Working Plan for each Forest Division—as the executive administrative unit was called. These plans varied from rough " paper " plans for the less developed areas to concise and detailed ones based on countings for the more advanced areas. Even in the " paper " plans Part I contained the past history and the appendices full statistics, while Part II at any rate gave the objects of management and the broad lines of approach. Thus each officer coming to a new Division knew immediately where he was. Proposals always included a list of areas to be examined for " reservation." This would correspond to areas to be examined for acquisition here. Incidentally, much stress was laid on the need for completion of " reservation " as soon as possible

and a definite programme in order of urgency had to be prescribed. In this way continuity of effort—so necessary in long-term work like forestry—was assured. This, I submit, can be accomplished only when there is a Working Plans Officer with a permanent establishment to co-ordinate all work.

3. Decentralisation and Co-ordination with Local Bodies.

Forestry is very young here and in consequence there is a general, though vague, feeling that we should have more timber. But if anyone tries to acquire land for growing it the reaction often is, I imagine, that "there's plenty of land elsewhere for these fellows from Dublin." I think that the Working Plans Officer, having got in the necessary reports from the officers in his District is thereby in a better position to discuss local affairs in his Division than an overworked administrative head in Dublin could possibly be. I think that four or five "Sub-directors" should be appointed for different parts of the country. We should by now be reaching the stage when the service has a number of senior experienced officers.

Again, while opinion is vaguely favourable to forestry, few have much idea of what it really means. I started a correspondence in the *Irish Statesman* over twenty years ago. Two schools of thought emerged. One rhapsodised on the green hills and valleys of Erin, all once covered with trees. How the large herds of cattle our ancestors had could have lived in this unbroken forest I do not know. The other school looked up the area of the State, subtracted the areas of cultivated land, lakes, towns, etc., and the remainder was to be planted up at once! It did not occur to anyone that a steady annual output of x cubic feet of timber is of more use than 50x for ten years followed by nil for another ten years. These Sub-directors by holding conferences from time to time with County Councillors and so on could spread a knowledge of forestry which would produce practical as distinguished from academic co-operation.

BACK NUMBERS

The following is the complete list of back numbers of *Irish Forestry*, all of which are obtainable from the Secretary:—

Volume I.	Number 1 (1943)	Price 5/-.
Volume I.	Number 2 (1944)	
Volume II.	Number 1 (1945)	Price 3/-.
Volume II.	Number 2 (1945)	
Volume III.	Number 1 (1946)	
Volume III.	Number 2 (1946)	
Volume IV.	Number 1 (1947)	

Reviews

Scottish National Forest Park Guide (Argyll). His Majesty's Stationery Office. Price 1/6.

This is an unusual guide book. It takes the reader by the hand and leads him to a fascinating region of mountain, lake and glen lying northwards of the city of Glasgow and the Firth of Clyde and tells its inspiring story.

The National Park of Argyll covers 58,000 acres and includes some of the finest mountains of the Western Highlands. It belongs to the Forestry Commission who have set aside for tree planting about 21,000 acres. The remainder, too high or too poor for profitable afforestation, has been opened to the public and here the nature student and the hiker, the mountaineer and the camper are free to enjoy themselves.

It is the purpose of this guide book to instruct the visitors so that they may make full use of the park with all its potentialities for interest and recreation. It is written by a team of experts who have contributed chapters on its history and folklore, botany, wild life, geology and mountains. The section on forestry describes in non-technical language the why and the wherefore of cultural operations in nursery and plantation. It lists the species used in the park and gives pointers to their identification and explains the ultimate aim of this part of the national afforestation scheme.

The value of the publication is enhanced by the photographs and the maps. There are views of mountain crag and wooded lake shore and vistas of extensive tracts of the park. A picture of the Benmore School Nursery shows the students, stripped to the waist, busy sprinkling pinches of tree seed in drills. Their sparse clothing indicates a spring time warmth that must be a rare occurrence in Scotland. The maps are hand drawn and are the least satisfactory part of the whole guide book. They show the approaches to the park by road, and in large scale, the lay-out of the park itself and trace roads and paths and indicate youth hostels and camp sites.

The chief interest of this guide book to Irish readers is that it is an example of what might be done in this country. Already we have the site for a National Forest Park in the State-owned property of Muckross, Killarney. It is a place of enchanting beauty and its flora and fauna are of abiding interest to the student and nature lover. Information such as is given in this Scottish publication is available and it would be a simple matter to compile in handy pocket form. The first step, however, is the dedication by the Government of the land for the formation of the first Irish Forest Park, a purpose for which it is admirably suited.

H. M. F.

Forestry and Forest Products. World Situation 1937-1946. By the Food and Agriculture Organisation of the United Nations.

In August, 1946, the Forestry section of the Food and Agriculture Organisation of the United Nations issued a report entitled *Forestry and Forest Products—World Situation 1937-1946.* The report runs to 93 pages and includes a preface by Sir John Boyd Orr, Director General of F.A.O. In the introduction the statistical deficiencies with which the compilers had to contend are outlined.

In Part I of the report the forestry position in the world—both pre-war and up to 1947—is presented. Table I gives figures of forest area, output, consumption for the various regions of the world, Europe, U.S.S.R., Middle East and North Africa, North America, Central and South America, Africa, South and East Asia, and Pacific Area. The situation in each region is discussed and summed up.

In Part II the estimated requirements and supplies of timber, pulp, firewood and other forest products are presented.

In conclusion the report stated that the facts presented in Parts I and II lead to one significant conclusion—a world-wide wood shortage exists and threatens to become critical.

While the Tables of Statistics with which the report is richly furnished are no doubt of intense interest, there is so much about forestry that figures cannot tell that a study of the broad conclusions reached by the able compilers of this report are of far greater significance than the figures in the balance sheets.

In this connection the Preface by Sir John Boyd-Orr is excellent; it puts the case of forestry before the lay reader in a very convincing manner. The following quotations are of special application to Ireland:—

" Lumber is man's chief building material. . . . Since building trades normally provide the backbone of economic prosperity and high employment levels—this shortage of structural woods if allowed to continue may seriously impede the expansion of world economy.

" The basic factors contributing to the world chronic timber shortage are deforestation, inadequate forest management, failure to develop mature forests, incomplete utilization and insufficient technical personnel.

" The remedy, too, is clear. The forest must be managed as perpetually renewable crops. Afforestation must be undertaken on a scale never before dreamed of, to create forest values in areas now barren and restore millions of hectares lost to agriculture. . . . The number of trained foresters must be increased many times."

To state our own forestry position and needs one would require only to substitute the word " Ireland " for " the world " in the above extracts from this ably written preface. Those seeking to make the

case for the forest and the products of the forest might well learn the following quotation from Sir John's preface by heart:—

" Wood is shelter and warmth. It is the paper you hold, the book you read. It is the world's most versatile raw material. No other substance provides fuel, fibre, sugar, alcohol, synthetic rubber, explosives, and even protein food, while serving endless structural uses. And year by year these products multiply. In the laboratory, under electronic microscopes, and in test tubes, wood that yesterday was looked on only as lumber or fuel is being taken apart and its character profoundly altered. The chemical possibilities have barely been touched, and fibre chemistry is opening up an entire new field of plastics and textiles, and permits the economic pulping of almost any wood species and of much waste from the sawmills. Large factories are being built to convert sawdust and wood unsuitable for lumber and pulp into ethyl alcohol, cattle feed and chemicals. Scientists believe they may soon duplicate in minutes what nature took millions of years to do, and, by converting wood into hydrocarbons, enable the renewable forests to augment the nonrenewable reserves of oil."

T. C.

Roadside Trees in Town and Country. Maurice FitzPatrick. Irish Roadside Tree Association, 19 Dawson Street, Dublin. 2/6.

It is with particular pleasure that we welcome the appearance of this 48 page booklet on Roadside Trees published by our sister organisation and written by one of the most prominent members of our own Society. It is attractively produced by the Dundalgan Press and the exclusively Irish illustrations are of a very high quality, adding considerably to its value and aptly illustrating the text.

The problems of the roadside tree planter and the special requirements which have to be met are fully discussed and emphasis is rightly laid on the importance of planned development of new roads to fit trees into a harmonious scheme which will allow ease of movement for the vehicles which are likely to use these, provision for telegraph and transmission lines, adequate lighting and so on.

Separate chapters deal with street, suburban, county road and seaside planting so that information is readily accessible on any particular aspect of roadside planting. Much useful information is also given on soil preparation, planting, staking, watering, pruning, spacing, protection and general care.

This booklet is essential to all who are concerned with town and country planning and with the care and upkeep of streets, roads and parks. It is also very useful to city dwellers who wish to beautify their gardens with trees or shrubs and to the country landowner with avenues and roadside trees to care. It may also be recommended strongly to the forester—if only to prevent his developing

that warped mentality which looks at everything other than utilitarian economic planting with a jaundiced eye. In its pages he will get inspiration for his roadside, ride line and marginal belt planting, ideas which will add to the beauty and interest of his forest and serve to sharpen his aesthetic sense.

T. McE.

Also received:

Annual Report of the Forestry Commission for the year ending September 30th, 1946. H.M.S.O. 1/3 net.

The Forest, Forestry and Man. Empire Forestry Association. 4/-.

Abstract

From **Forestry Abstracts,** Vol. 8, No. 4. 1947. Wittich, W. Sur la possibilité d'une afforestation des sols de formation old-red-sandstone en Irlande. (On the possibility of afforesting soils of old red sandstone formation in Ireland). Intersylva 2 (3), (321-9).

Soils of the old red sandstone formation are common in Ireland and show a marked degree of podsolization; attempts at afforestation have mostly failed. These soils were formed from the sedimentation of inland lakes and consist mostly of quartz with an extremely low lime content. The moist climate with its cool summers is very unfavourable to the decomposition of vegetable matter, which has caused the development of thick layers of raw humus and peat. The A horizon reaches a depth of about 25 cm., the extremely condensed A/B horizon about 40 cm., followed by 7-10 cm. of extremely compact hardpan. The results of physical and chemical analyses of a typical soil profile are given. Nutrient conditions are unfavourable, but cannot alone be responsible for the complete failure of the Pine plantations. The physical qualities are decisive, as the impermeable A/B and B horizons cause water-logging after heavy rain. The main task of soil improvement would be to restore the permeability of the soil. The hardpan lies too deep to be broken up and treatment should probably be confined to mixing the upper layers and fertilizing them with lime. This would be feasible where the peat has not been removed and the hardpan lies deep. Pinus contorta, P. montana and perhaps P. nigra var. austriaca, seem to thrive better in these soils than P. sylvestris.

(It is hoped to publish a complete translation of this very interesting article dealing with one of our most important problems in a future number.—EDITOR).

Report of the Annual Excursion, 3rd, 4th and 5th June, 1947

Contributed by O. V. MOONEY, B.Agr.Sc. in collaboration with the Editor.

For its 1947 outing the Society chose Portlaoighise as its operating centre. This choice gave anticipation of a really interesting three days' tour, with the inclusion of some of the Forestry Department's oldest and most important forests on the itinerary, and the addition of a visit to Count de Vesci's demesne at Abbeyleix, one of the finest wooded demesnes in the country, gave a prospect of a really intrigueing time in store. The inclusion of a film show, a novel item to the Society's outings, in place of the usual reading of a paper and discussion, also added to the pleasurable anticipation.

Such favourable forecasts were very satisfactorily substantiated but it must be admitted that the weather, for once, was not on our side and the enjoyment of the second day was considerably detracted from by an even downpour which greeted the party's entry into Baunreagh and continued throughout the day. If such had not been the case it would have been difficult to get the party away from the interests of this area, but as it was, the members withstood the misery of the weather with great fortitude and the ultimate retirement was not much before the scheduled conclusion of the day. The accommodation was somewhat spreadeagled, which militated against the members generally getting together in the evenings, but when they did, it was to enjoy the film show which proved to be one of the highlights of the excursion.

The attendance throughout was a little below average of previous outings in numbers, but certainly not in keenness, as was well proved in the difficult conditions at Baunreagh. The names of the members and others who attended at the various functions are as follows:—T. Almack, P. Barry, H. Beresford-Barrett, M. Bogue, L. Brannigan, Miss N. Brunner, Miss S. Cahill, T. Clear, W. V. Chisholm, M. Connolly, J. Crammond, R. Crerand, P. Cronin, T. Donovan, M. Dalton, D. Forde, H. M. FitzPatrick, Captain Hamilton, H. Jeffers, Mrs. Kane, H. R. Langley, D. Mangan, S. McMenamin, T. McEvoy, T. H. McCarthy, O. V. Mooney, D. McGuire, J. Murphy, M. O'Beirne, J. O'Leary, M. Sharkey, J. J. Sheils, K. L. Schorman, M. Swan.

First Day—3rd June. Emo Forest.

The party assembled at the demesne gate at Emo at 9.30 a.m. After general preliminary greetings among the members, Mr. O'Beirne (Vice-President) in welcoming the party regretted the

unavoidable absence of Mr. Meldrum (President) and wished everyone present a very enjoyable and interesting excursion. Mr. P. Barry then welcomed the party on behalf of the Department. The Convener for the excursion, Mr. FitzPatrick, then addressed the party. He thanked the Department for the facilities extended and said that while his duties should really be confined to keeping the party together, he would like to give a short outline of the history of Emo State Forest. The estate, he said, was formerly owned by Lord Portarlington and was taken over by the Irish Land Commission in 1928. Subsequently in 1929 some 910½ acres within the walls of the demesne passed into the hands of the Forestry Division and the mansion and surrounding grounds were bought by the Jesuit Fathers. The remainder of the estate was divided up into agricultural holdings. This area now formed the main block of Emo Forest, though subsequent to 1929 a number of other properties were added and the total area of the forest was now some 2,900 acres, of which 2,329 acres have been laid down in new plantations. In Emo demesne itself, which was mainly made up of old Oak woodlands and open park land with scattered trees, some 750 acres had been planted and 136 acres of the old woodland maintained. The ground at Emo Park was not generally exposed and lay between the comparatively low elevations of 250′ to 350′. Soils varied throughout the area both as to depth and texture, but generally the ground could be described as limestone gravel drift overlying carboniferous limestone. There were also some lesser areas of surface peat on the N.E. side of the estate. It was of interest to note that before the formation ot the new Forestry School at Avondale, Emo Park functioned as a training ground for the Foresters, many of the senior Foresters in the country to-day having been schooled there.

The party then set off, led by the Convener and Messrs. O'Leary, Crerand and Cronin. The route first took course between plantations laid down in 1931-32 and mainly composed of S. Pine/E. Larch 50 % mixtures and pure D.F. The S. Pine/E. Larch plantations did not show remarkable progress, usually lying between 12′ and 15′, and it was generally noted that Scots Pine had outgrown and suppressed the European Larch, while on some higher ground European Larch was the predominant tree. Conjecture was general, without being conclusive with regard to the cause of the suppression of the Larch. Some were of the opinion that this was not altogether suitable ground for the species, but it was declared that the Larch, when planted, were a very poor, weak type of plant and severely attacked by *Meriae laricis* (or Larch Leaf Cast disease) and that they had fallen behind from the beginning, the Scots Pine getting a much better start. A soil pit on the ground in question was then inspected and revealed a surprisingly light sandy gravel of good depth, and looked indeed as if it should be a good subject for Scots and Common Larch. Shortly afterwards the party paused at a

16 year old Douglas fir plantation, and this subject gave rise to vehement and general discussion which disclosed many different schools of thought. The crop had reached an average height of about 20'-25' and was well closed in and had come to the stage where weeding and pruning were indicated. The crop was characterised by a majority of coarse-branched trees with which they were not infrequently covered as to stem from ground level. Though in the minority, there was, however, an even scattering of finer-branched straight trees. Many opinions favoured replacing the Douglas Fir with some other species but there was also a strong contingent who advocated selective treatment in favour of the finer stems and who thought that there were definite possibilities in the crop and that weeding and pruning treatment should be put in hand at once. It was interesting to hear from some of the members who had worked at Emo in the past that a most gloomy view had been taken with regard to this particular crop when it was between five and ten years old, and that it was then considered that it would not succeed at all. Those members were able to testify to the great improvement in the health and vigour of the crop since its early days—even since 1941—and an optimistic note was struck by them.

The party then took a course along the margin of the woods and along the Wellingtonia Avenue. This avenue, about half a mile long, was lined on either side with tall Wellingtonias (*Seq. Gig.*) from 60 to 90 feet in height and about 80 years old. This was quite a remarkable spectacle, though the trees themselves did not appear to be in a too vigorous condition—certainly due to the severe cold winds of the preceding winter to which a general discolouration in foliage was due.

At Sweeney's Hill the party divided, the car owners returning to the gate, the remainder proceeding to a mutual objective at Compartment 19.

Here again, Douglas fir was the subject. In this, the spectacle was that of a sixteen-year-old plantation which was being replaced by other species. Apparently here the view already expressed by some members earlier had been accepted, and it had been decided that the possibilities of the Douglas fir crop did not warrant its retention for the full rotation. The Douglas fir crop had been opened out, belts and groups of the original crop being left at intervals. The cleared ground had been planted in the previous season with Scots pine, ash and oak, the produce from the fellings being marketed mainly for pit props. The main interest of the party was, however, centred in the general principle and actual carrying out of the replacement of the Douglas fir.

Mr. O'Leary explained the details of the operation and indicated that in choosing the belts and groups of Douglas fir to be left standing, an eye was kept as to shelter and to retention of the better class trees. The groups and belts were always made large enough to

provide for edging them back and felling inwards without damaging the new crop when such work became necessary. It was noticed that a considerable number of windfalls had already appeared in the retained belts and clumps.

Further discussion took place on the ground, and the party then proceeded to the forest headquarters, where a very pleasant lunch was partaken of, with tea very efficiently supplied by Mr. Cronin and his staff.

Lunch-Time Discussion.

After lunch Mr. McEvoy introduced a discussion on the burning question of the day—whither Douglas fir ? He said that, judging by the many private expressions of view on the ground, he felt sure that the members were far from unanimous with regard to the right method of treatment and general policy to be applied to young Douglas fir plantations such as the party had seen. The subject was one of contemporary interest, not alone at Emo, but in relation to many plantations in the country.

Mr. Barry, the " father " of many Emo plantations, then spoke and said that, in regard to the operation of replacing Douglas fir which the party had just seen, he thought that only the very best clumps and belts should be left standing and that where openings were made they should be bigger; also that, owing to the great variation in soil and ground conditions, the clearings should be far less regular and much more adapted to particular circumstances of the ground. He thought generally, however, that it might not be at all good policy indiscriminately to replace Douglas fir now and that the matter should be approached with far greater caution. His opinion was that a more optimistic view should be taken of the future capabilities as to successful timber production of these Douglas fir crops.

Mr. Clear said that, in his opinion, the policy of accepting such young Douglas fir plantations as a failure and replacing them with other species was not a sound one, and that there were not sufficient sound reasons for concluding that Douglas fir would not succeed.

Mr. Beresford-Barrett said that, in the particular case we had just seen (i.e., Compartment 19), the opening out of the crop into belts and clumps such as had been done was a process of artificially creating frost hollows for the newly-planted trees in the intervening spaces. In his opinion the shelter given by the standing groups was negligible and he expected that they would be eventually blown down by the wind. Mr. Crammond reiterated the view that in the area viewed in Compartment 19 the openings made were not sufficiently large but, generally, he thought that more faith should be placed in the future of Douglas fir.

Mr. O'Beirne said that the Douglas fir had been left standing in such a way that they had no chance of withstanding the wind.

The most desirable way of handling such a crop would be to treat it in the ordinary way and carry out weeding, the produce from which would be readily saleable at the moment; the better trees should be treated as an ultimate timber crop.

Many other opinions were contributed, and the discussion could have been a long one had the Convener not called our attention to the time. The members accordingly moved along to the Department's Nursery, passing on the way a small area of very promising young Norway spruce some three years planted.

Emo Nursery.

In this nursery the members were mainly interested in the hardwood seed beds and in a remarkable variety of Poplar cuttings which were in stock. Amongst the Poplar species were Populus trichocarpa, P. serotina, P. generosa, P. candicans, P. nigra. Mr. O'Beirne gave some interesting botanical notes on the Poplars and Mr. Bogue turned attention to some natural C. macrocarpa in the oak seed beds.

An interesting item in this nursery was the rows of Alder which had been planted some 12 yards apart in a N.S. direction between sections of seed beds running in the same direction. These single rows of Alder were some 12′ to 16′ high shading good seed beds of hardwoods, amongst which Alder, Beech, Hornbeam and Oak were represented. The original object of this lay-out was to afford protection to the seed beds from early sun and the accrueing frost-lift and, perhaps, also, to serve the purpose of drawing up the hardwood seedlings. The rows of Alder appeared now to be getting too tall and rather closing in the seed beds and the opinion was expressed by Mr. Barry that every alternate tree in the rows might be removed in order to allow freer air circulation between the rows and make the working of the seed beds easier.

From the nursery the party proceeded in brilliant sunshine to the Grapery, now the pleasure grounds of the Jesuit College, the invitation to visit being kindly extended by the Fathers. Here the variety and stature of numerous copper beeches were an immediate subject for admiration as also were the ordinary green-leafed Beeches which were of massive dimensions. After some photographic groups were taken, the party deployed to inspect the individual specimen trees which included some very fine conifers. The members who were on the alert found grounds to question the labelling of some of the trees. A tree labelled *Acer pictum* was found to be a *Platanus orientalis*, while a *Pinus strobus* was likewise incorrectly labelled *Pinus sylvestris*. Diverse discussions took place, including one on the correlation of the phenomena of sunspots and ring growth on trees. It was again difficult to draw the party away from the lure of this park.

Oak Fall.

This proved to be an area of very openly stocked heavy mature Oak, hardly warranting the description of a wood. We were told that this crop had suffered severely from the great storm of 1903 and later fellings had further depleted the wood. Both pedunculate and sessile Oak appeared to be represented but the quality of the trees was not high, clean straight butts being only occasional, and it was reported that the timber from this area was of poor quality, particularly prone to " shake." The ground vegetation displayed mainly strong grasses (especially Holcus mollis), briars and bracken, overlying a sandy gravelly loam—perhaps soil conditions too light for growing really good Oak. This stand was partially underplanted with Oak and natural regeneration of Oak was also quite frequently in evidence.

It was said that the Oak Fall was held to be a remnant of a primeval Oak wood, but whether or not this was the case many thought that the trees at present standing were planted.

Emo. Compartment 8.

This area proved to be fare to stimulate the most stoic of foresters to vent expressions of enthusiasm.

Mr. FitzPatrick introduced the subject with some very interesting details and said that in this wood we were viewing what was probably one of the finest examples of natural regeneration of Beech in the country. He explained the French Uniform System of natural regeneration with seeding fellings and drew a parallel with this wood, in which the same process approximately had taken place—though here it had occurred in part accidentally. The regeneration in this wood was strongly established and there was a dense thicket crop of Beech of uneven height from 4′ to 10′. The standards or seed trees were standing rather too closely together, with an almost closed overhead canopy in places, and it was generally agreed, the young crop having now become firmly established, that the removal of a number of the old trees with spreading crowns, with the retention of a more open distribution of best-shaped standards, would be beneficial. Mr. Crammond said that the wood had been treated for natural regeneration during the Department's management and that fellings had been made accordingly. Mr. Barry thought that the older Beech in this wood were not of a good type, and that the introduction of Norway Spruce on this moist site might have been better policy in the first place. However, Mr. Bogue on the other hand maintained that the mature Beech looked sound enough from a timber point of view and a good risk for any timber merchant, and that where you have got good regeneration of Beech such as was to be seen here, advantage should be taken of it. Mr. FitzPatrick concurred. Mr. Beresford-Barrett said that this area of natural regeneration was as good as anything he had seen under the Uniform System in France or on the continent.

This small area was a lesson to all foresters as to what could be attained in Beech natural regeneration in this country. It showed what was possible, but a further lesson was, perhaps, also presented. Such a success in natural regeneration may be assumed to be possible in many other of our not numerous or extensive pure Beech woods, and it was borne in on one's mind that the important factor is the method by which the conditions for successful natural regeneration of not only Beech, but other species too, are brought about. The need for sound silvicultural observation and recording would probably be admitted by all so that, later on at least, this work could be undertaken with a confident hand. The field of investigation is varied and complicated and we have much to learn of the factors bearing on success such as the receptiveness of the forest floor to seed and the conditions then governing germination; of the study of the light intensities favourable to seedling growth, yet checking the inimical growth of weeds and grasses—truly the most delicate of balances; of the periodicity of good seed years and so on.

Garryhinch.

The party drove from Emo through Portarlington to Garryhinch, an outlying property of Emo Forest.

Before entering the area, Mr. FitzPatrick introduced the property, which, he said, was once a part of the Warburton Estate. 810 acres were sold to a firm of timber merchants in 1932. This firm re-sold 523 acres to the Department for forestry purposes in 1935. Most of the ground we would see had been under mature hardwoods, planted when part of the Estate. These hardwoods were mainly replaced by conifers in the Department's planting, with the reservation of some hardwood standards and Ash regeneration. The area was more or less flat, ranging from 240′ to 250′ and soils were usually of a strongly calcareous nature. The party then walked along the Compartments 9, 8, 7, 6 and 5 where some very promising Norway Spruce plantations, eight years old, were seen with occasional clumps of good Ash saplings. A luxuriant and varied vegetation brought the botanists into action and Miss Brunner and Mr. McEvoy were prominent. Virburnum opulus and Euonymous europeus, were prominent in the vegetation while Prunus padus (Bird Cherry) appeared occasionally and was the subject of some argument before being finally identified.

Cush Bog.

In Compartments 1, 2 and 3 there was an abrupt change in conditions and a flat, wet-looking area was viewed which had been planted with Scots Pine about eleven years ago, the trees now having reached a height of some 10 to 12 feet. Calluna and some tussocky molinia were evident in the vegetation here with some briar and grasses. It was noticed immediately that many of the

Scots Pine were showing distinct signs of check with much yellowing and discolouration of the needles. A soil pit was inspected, which revealed a surface black, amorphous, alkaline peat layer to about 9" to 12", overlying a sticky marl. The bottom of the pit was inundated with water which lay at about 2' from surface level and probably much higher in the winter months. This was assumed by some to be the minimum water table and it was generally thought that the tree roots had now penetrated down to the wet zone and were being adversely affected despite the intensive drainage already carried out. This bog was within half a mile of the River Barrow and probably lies at a lower level than the river itself in flood periods. It was said that the Scots pine were originally intended as nurses for Norway Spruce whose surface rooting system would not be so readily affected by the high water table.

A further item of note was met in Compartments 7 and 8 on the way back to the cars. This was in a very good eight-year-old Norway spruce plantation with Oak groups. The Spruce had made an even growth to about 4'-6' but the Oak groups had fallen very far behind and the plants had rarely grown beyond 1½' though it seemed that they had now come out of check and were coming away. Mr. Clear drew attention to the late and early flushing types in the Norway Spruce, some of which had not broken bud while others were well flushed. The contrast was very striking and Mr. Clear elaborated on the benefit to be had if the source of such seed strains could be traced and late flushing types raised with certainty, thus providing a sound assurance against damage by late Spring frosts. The day's outing was then concluded and the party returned to base.

Second Day—7th June.

It was painfully evident from early morning that only a miracle could cause the sky to clear and it was already raining quietly when the party set out from Portlaoighise. Driving through Mountrath and climbing gradually into the Slieve Blooms the rain became heavier until, entering the main gate at Baunreagh, it became a steady and penetrating downpour which eased only very rarely during the day. At Baunreagh House the members were greeted by Mr. Dalton (Head Forester), Mrs. Dalton and family, whose hospitality and consideration throughout the day will long be remembered.

Mountrath Forest. Baunreagh.

There was some delay in starting while the party waited in hopes of the rain easing off, but eventually it was decided to brave the elements and the Convener got the party moving. Baunreagh property, one of the oldest forestry centres, was originally acquired from a Mr. William Fogarty in 1911. At that time 1,926 acres were taken over, but later, as Mountrath Forest, the area was considerably

added to and the total area of the forest is now some 3,909 acres. The Baunreagh block itself is situated in a deep-cut valley, about two miles long, at the eastern end of the southern side of the Slievebloom Mountains. The valley runs in a S.E. to N.W. direction and rises sharply on either side from the Delour river to elevations well over 1,400′. The valley slopes are thus sheltered from all points except the S.E. The main underlying rocks are Silurian shales and Old Red Sandstone and the soils are mainly local drifts. At the time of acquisition there were a few small woods of Scots pine, European larch and Norway spruce, but in the main the ground was a bare flush rush-grass type with peaty surface conditions predominating on the upper slopes and mountain flats. Conditions generally were very wet and intensive drainage was carried out over large areas. The planting was continued over a period from 1913 to 1926 and the moist soil conditions and humid local climate have proved well suited to the raising of good quality Spruce on the lower valley slopes. The party first saw a 32-year-old stand of Sitka spruce which was very densely stocked and of very fine height growth, but generally giving the impression of sub-normal girths. In more recent times, this stand had received periodical light thinnings but in discussion the general view held was that the better trees now required much more growing space to put on bulk and that the work would have to be tackled very cautiously owing to the danger of wind-throw on the heavy soil. Frequent and progressively heavier thinnings were recommended. It was remarked that competition would have been even more severe if the Norway spruce, which originally formed 50 % of the crop, had not been completely suppressed and eliminated by the faster-growing Sitka.

As a matter of interest the members laid out a 1/10th acre sample plot with the following findings:—

Average Total Height	72½′.
Average Timber Height	53′ (To 3″ Q.G.)
Quarter Girth (base)	6½′.
Mid Quarter Girth	5″.
Volume of Average Tree	9·2 c. ft. (Over bark).
	8·9 c. ft. (Under bark).
Stems per acre	650.
Volume per acre (o.b.)	5,980 c. ft.
(u.b.)	5,382 c. ft.
Form Factor	·446.

In comparing these results with the Forestry Commission Yield Tables three items of note emerge. The height growth places this stand in Quality Class I, while the volume per acre is slightly below that class. The Form Factor at ·446 is remarkably high but the number of stems per acre is above average. A taper figure of ⅔″ in 10 feet was also worked out, which is very low.

Continuing on their way, the party walked through this stand

for some time before emerging onto a forest road beside which some small stands of very mediocre Scots pine and European larch were noted. The road itself then became a subject of discussion. It was of the " corduroy " type and Mr. Dalton explained how it was laid down with Spruce poles placed crosswise on heavier " runners " and wired together—generally raised above the water table with marginal drains excavated. An exchange of views indicated two schools of thought, one of which agreed with the methods employed and the other which did not. Mr. O'Beirne was strongly of the latter way of thinking and pointed out that the Germans, who were experts at this work, went on an entirely different principle. He contended that, far from raising the " decking " above the water table, the very reverse should be the case. He argued that the more wood is exposed to alternate wetting and drying—as occurs at the soil surface—the more speedily it will decay from fungoid attacks. On the other hand, if buried in the soil, the exclusion or partial exclusion of air militated against rapid decay and was a far sounder and more lasting method of construction. At this juncture, the party turned back to Baunreagh House for lunch, as the rain became exceptionally heavy.

In the afternoon conditions improved slightly and a course was set for Baunreagh Nursery. On the way some very fine 16-year-old plantations of Abies grandis were seen. Of interest too was an unusual treatment of a 50 % Douglas fir /Sitka spruce mixture. At 10-12 years the Douglas fir had been outstripping the Sitka spruce but was of " corkscrew " habit. Cutting out the Douglas fir was thought to be too severe an opening of the crop, so they were severely headed back. Side branches then developed into leaders but did not interfere with the Sitka spruce leaders which have since maintained their lead, the Douglas fir playing a useful role as " fillers " to help clean the Sitka stems.

The nursery is reported to be the best Spruce nursery at present in operation in the country. Large stocks of Sitka spruce transplants were seen and weeding of the transplant lines was in progress. A number of the members were impressed by the difficult conditions under which the men were carrying out this tedious work.

During the afternoon walk, the party paused at one point to survey the impressive panorama of forest and moor. This general view brought members' minds to bear on the larger aspects of afforestation—such problems as acquisition of land, extraction methods, the establishment of wood-using industries and fire protection being discussed. On the latter topic, Mr. Clear referred to the great advances precipitated by the war in fire protection methods and equipment in English forestry. As our plantations increase in acreage and in value, these problems will require to be faced here too, he said.

Tsuga heterophylla (Western Hemlock) is not widely used in

Irish forestry but a small plot of this species seen in the afternoon evoked much admiration. It was a dense unthinned pole crop of about 40 feet in height with extremely dense canopy, so that we stood in a dim twilight. The stems were of excellent form and the impression given was that the species was entirely at home in the habitat of this sheltered valley in a high rainfall area.

We may sum up our impressions of forestry in the Slieveblooms somewhat as follows: The retentive soils and high rainfall combine to make Spruce—especially Sitka spruce—the natural selection over large tracts. Yields and quality promise to be exceptionally good, making afforestation a very profitable proposition from the national point of view. The gradual building up of a large population dependent on forestry and its allied industries was foreseen and it was suggested that active measures were already due to establish and encourage forest communities—witness the current shortage of labour in the district, even for normal forest maintenance.

It was interesting, too, to notice that those species which predominated in the plantations existing at date of acquisition have now been largely discarded in favour of the comparatively recently introduced Sitka spruce. Scots pine is in general disappointing; European larch suffers severely from canker and is seldom vigorous, while Norway spruce has proved no match for Sitka in point of height growth or volume production. Thus, as in the Society's previous excursions, we were again made to realise the enormous revolution which Irish forestry is undergoing in our time and the vast scope for experiment, trial and observation which the new conditions afford.

We left Baunreagh with the impression of great things accomplished, great promise for the future, and great lessons still to be learned in an art which in this island is still in its formative stage.

Third Day—5th June. De Vesci Demesne and Durrow Forest.

The weather prospect for the final day of the excursion was very threatening when the party assembled in the morning at the sawmills of Count de Vesci's magnificently wooded demesne at Abbeyleix, and in the earlier parts of the day some very heavy showers were experienced. However, after mid-day, periods of sunshine predominated and became continuous as the afternoon went on, and the excursion was concluded in delightful weather conditions. At the sawmills the members were welcomed by Captain Fitzherbert, agent for Lord de Vesci, and by Mr. Brown, Head Forester of the estate. A short time was spent in viewing the highly efficient mechanism and layout of the estate sawmill, with its 70 h.p. oil engine, after which the party proceeded through the demesne under the leadership of Mr. Brown.

The woodlands on this estate run to some 2,000 acres and stand mainly on limestone drift and cut-away peat bogs. A good deal of

planting has been done on the latter type with varying degrees of success but some magnificent Norway spruce and Scots pine were seen on peat in the roadside belts during the drive to the sawmill. There are also extensive areas of old hardwoods, some of them very old and probably linked with the primeval forest of the country. Mr. Brown first brought the members through the Park Hill wood, which is said to be a part of the ancient Nore valley oak woods. Pedunculate Oak predominated and the trees were of magnificent stature, with fine spreading crowns and, where the stocking was close, some lovely tall clean stems were to be seen. The age of this wood was estimated at not less than 300 years, and estate records show that tempting offers of up to £74,000 were refused for these Oak woods during the Napoleonic wars. The party were attracted by one colossal old veteran growing in a more open part of the wood and measurements show it to have a diameter of 22′ 4″ (i.e., Q.G. of 67″), with a crown spread of 75 yards. With the bluebells in flower, the walk through this wood was an experience of great beauty.

Subsequently the party passed through some mixed closely-stocked Oak /Ash /Birch woodland and saw some thriving coniferous plantations on old hardwood ground, in which Scots pine, Japanese larch and Norway spruce were principally represented. A 1938 plantation of Scots pine at about 16′ high and a 1937 Norway spruce stand at 12′-15′ were particularly promising. Emerging from the plantation areas, some very fine Beech parkland panoramas met the eye and some excellent specimens of open grown Poplars were seen. One Black Italian Poplar, said to be recorded by Professor Henry, was estimated at 120′ high. The party then passed through the gardens of the estate and admired the old mansion. Little time, however, could be spent in the arboretum which contained a varied range of good specimen trees and was a veritable paradise for any tree botanist. A reluctant departure was taken from the beauty and interests of this demesne and the members were greatly indebted to Lord de Vesci, Captain Fitzherbert and Mr. Brown for the pleasant and all-too-short hours they spent there.

Durrow Forest.

At Durrow Forest the visit was initiated propitiously by the taking of lunch at Dunmore House, under the efficient organisation of Mr. McMenamin, the Forester at Durrow.

Dunmore.

This property was taken over by the Department in 1936, from the Irish Land Commission. The area purchased was 324 acres and the ground was mainly stocked with old woods and young plantations but a large proportion of the best timber had been removed beforehand. There is no very decided aspect over the area and the

elevation is between 270′ to 300′. Exposure is generally moderate. Calcareous drift soils were again predominant. Since taking over, the Department have cleared and replanted some 156 acres of old woodland and 156 acres of woods have been retained in their original state.

At Dunmore, the party's activities were confined to one area, Compartment 34, but it is doubtful that, if a hundred compartments were traversed, one of greater interest than that selected would have been met with.

Before entering the wood, Mr. McMenamin gave a very useful sketch of the history of the wood within recent times. He said that the stand was now about 120 years old and that, despite its present well-stocked appearance, a large number of good trees—some £500 worth—had been removed in the past. In treating the wood, the Department had to deal with a heavy ground cover of laurel and hazel which had to be cleared out, together with a number of ill-shaped hardwoods and rough Scots pine and European larch. A number of Norway spruce (which Mr. McMenamin said did not develop well on this ground) were also removed. The objective of this work was natural regeneration, which did not come too readily at first. The ground surface of selected areas was scratched and the humus generally loosened up to encourage natural regeneration, but it was found that results did not differ substantially from those on undisturbed areas. However, a measure of success had now been attained, and there was a good carpet of regeneration through the wood.

The party then entered this fine old mixed stand, in which Beech was predominant with occasional Scots pine, European larch, Silver fir and Norway spruce, there being a fairly dense canopy and moderate ground light. The average height throughout lay between 80-90 feet and the Beech were of uniform excellence, but occasional European larch and Scots pine that were seen could seldom be equalled in stature. A Scots pine was measured roughly and gave a timber height of 60′ (Total about 95′) with Q.G. B.H. of 19″. This tree was calculated to contain 90 cubic feet of first-class timber. For the second time on the excursion, the silviculturist entered a paradise and the ground surface became the cynosure of all eyes. A fairly even distribution of young Beech seedlings was first in evidence, with oak and ash, but soon more remarkable finds were made and as occasional Scots pine, European larch and Norway spruce were discovered interest became hectic. A soil pit was then examined which revealed about 4″ of dark humous soil over about 2½′ of calcareous sandy brown earth which again rested on a straight boulder clay.

A discussion then took place which Mr. McEvoy opened by offering the opinion that the overhead canopy and present stocking was far too close and that one third of the older Beech crop in its

denser portions could be removed to give proper light and encouragement to the young seedlings. He emphasised the fact that if the ground were carefully inspected it would be found that there were sufficient seedlings there to form a close crop if allowed to develop. His view was that in such cases as we saw here the inclination was to delay the opening of the canopy too long.

Mr. Beresford-Barrett, contributing, said that he did not agree with Mr. McEvoy's views in this matter and that in his opinion the removal of the overhead Beech should be carried out slowly with the utmost caution and only from ground where the floor was bare and grass-weed growth absent. It was important to make sure that the regeneration crop was well established before taking any risks by giving light for weed growth. Until this stage was reached, a heavy canopy should be retained.

Mr. O'Beirne said that he would favour a bolder approach in the opening up of the canopy but that in this particular case the advent of too strong weed growth could be subdued by scarifying the ground. Looking at it from a general point of view, he did not agree that so much effort and time should be given over to the regeneration of Beech, as it was not an economic tree for timber production and should be kept out and some of the quicker growing and more valuable timbers of the present and the future should be brought in.

Mr. Clear thought that scarifying would not do much good and that canopy shade alone kept down grass for Beech regeneration, and that therefore the best course was a firm but gradual opening of the canopy.

In dealing with problems of Beech regeneration such as was presented to the party at Dunmore, a view is held, not unreasonably, that a great deal of harm can be caused to Beech regeneration in the young seedling stages by retaining too heavy overhead shade for too long. There seems to be abundant evidence that when subjected to such conditions the young Beech go into a state of suppression and live but do not grow and eventually develop into hard, thick, misshapen things of some age but no size. Attempts to obtain normal vigorous growth by eventually admitting an abundance of light does not usually prove successful, and they seem very reluctant to be drawn from their state of stagnation at that stage.

Castledurrow.

From Dunmore the party drove to Castledurrow area where the Convener, Mr. FitzPatrick, gave the members an introductory talk. He said that we now stood in Capponellan Wood, part of an estate once owned by Lord Ashbrook. This area, together with other properties amounting to 752 acres, which later came into the possession of Maher Bros., Ltd., was sold to the Department in 1931. Previously the woods had been mainly stocked with Oak, Ash and

Beech but it was not a high quality stand and it was practically all removed and later replaced by the Department with conifers, for which the ground was thought better suited. The part of Cappon-ellan Wood which the party would see was more or less flat and lay between 330′ and 550′ elevation on carboniferous limestone with limestone gravel soils to brown sandy loams. The ground conditions were generally dry and the area had been planted in 1934.

The afternoon was now advancing and the party pressed for time, but a very tidy nursery was first seen, with some excellent Beech seedlings and transplants. In the seed beds Sycamore had germinated but a bed of Cupressus Lawsoniana seed was still dormant. Good transplants of Oak, Sitka spruce and Alder were also seen.

The party then proceeded along the main ride and viewed the plantations.

Mr. McMenamin told the members that Scots pine and Norway spruce had been planted mainly in the first place, with some areas of Sitka spruce and other species. Ash, Hazel and Birch, which had been on the ground at the taking over, had been suitably retained as nurses to the young conifer crop but despite this, the area had suffered from frost and in May, 1945, the exceptional late spring frost caused really severe damage and they were now faced with some really difficult problems in the handling of the plantation. Sitka spruce had been practically killed out by the 1945 frost. In such areas Ash, where available on the ground, was being treated as the ultimate final crop and Birch used as a " filler " with a view to future underplanting. Rabbits had now come into the area in numbers and added to the difficulties. A soil pit was examined and revealed the presence of solid " craggy " limestone at about a foot down overlain by gravelly loam.

Certainly the evidence before the members was one of exceptional frost damage, and it was noted that even the Birch had been severely cut back while young trees under more or less complete cover had also been severely burned. Norway spruce had been affected and to a lesser degree, Scots pine, but neither to such an extent as to prevent their development as satisfactory crops. Many suggestions were made. Mr. Clear thought that opening out of Ash and underplanting with Abies grandis might only lead to further and similar complications.

Mr. O'Beirne said that a policy of early replacement by Beech and Larch mixture should be adopted.

The day and the excursion had then to be concluded as members had to make train and 'bus connections to many parts of the country.

Mr. FitzPatrick thanked all the members for coming and for their keenness and enthusiasm throughout the excursion and in particular he wished to register an appreciation of the work done

by Mr. O'Leary and Mr. Crerand in their organisation and laying out of such excellent routes which presented items of such varied interest to the party. They had also obviously gone to great trouble to ensure the members' comfort throughout. Thanks were also due in great measure to Messrs. Dalton, Cronin and McMenamin for their hospitality and shepherding of the party within their charges.

Mr. O'Beirne (Vice-President) thanked all for coming and for their staunch support, and praised the skill of Mr. FitzPatrick's convening and the continual and valuable contribution that he had given in the running and support of the Society. He hoped that he would see a bigger gathering next year.

Mr. Clear appealed to the members for any suggestions for improvements in the organisation of the excursions and said that it might be a good idea if the Society were to hire a 'bus for these occasions.

After some further conversation among the individual members and leave-taking, the party regretfully broke up.

Cinematograph Show

On the Wednesday night of the excursion the Society, for the first time in its history, presented a cinema show for the entertainment of its members. Judging alone on the comments of the members after the show the venture was an unqualified success and it is to be hoped that it was the forerunner of many of its kind. The films chosen were very well shown and had high entertainment value and were of general and technical interest. Variety of subject was a high note and any feelings of monotony were far away.

Of particular forest interest were items showing timber felling and extraction operations by up-to-date methods and the full and speedy use of the tractor and timber truck together with overhead wires in timber extraction. Labour saving nursery methods with the Forestry Commission were shown and the much heard of tractor plough for preparing ground was seen in action on some rough bracken-heather ground. From the context of the latter item it was interesting to note that the planting of the young trees was carried out in the ploughed out furrow and not on the inverted sod. A very vivid picture was also given of the great forest destroyer, fire, in Canadian timber country. Methods of combating these great fires were well brought out and apparently in Canada they value their forests sufficiently to bring every applicable modern invention to bear on fire protection. Watch towers, telephones, wireless and aircraft are all employed to pin point an outbreak at the very earliest moment and then up-to-date fire engines and fast trucks are used to get the defence to the spot in the shortest possible time.

All these pictures were an inspiring lesson to Irish Foresters and many of them sitting in the audience could scarcely have avoided some feeling of envy.

The Department's forestry film, " From Seed to Sawdust " was also very well shown and gave in successive stages the important operations in forestry including seed sowing and lining out transplants in the nursery, planting out on the mountain side, cleaning of the plants afterwards, thinnings and ultimately felling and sawmilling operations. A remarkable performance was put on by Mr. FitzPatrick who gave a running commentary on this film which did not in effect fall short of his better known namesake of the " travelogues." This, it might be noted, is a new inclusion amongst the duties of Convener.

Films of general interest gave us excellent technicolour records of wild bird life in Canada and Canadian methods of identifying and controlling farm weeds. In lighter vein were two films entitled " Let's All Sing Together " and " Broncho Busters " and these gave good value too, though in the former case this was not altogether projected from the screen. At the conclusion of the show Mr. O'Beirne (Vice-President) thanked the Portlaoighise Film Society for their co-operation in showing the films. For this most enjoyable and instructive show the Society are indebted to a number of people. To Mrs. Henry greatest thanks are due for the instigation of the project and without whose generous gift to the Society the show could not have taken place. To Mr. Clear we are indebted for his energetic organisation and to Mr. Delaney and Mr. Odlum of the Portlaoighise Film Society who put on the show with such skill. and technical perfection. Finally thanks are due to the Canadian High Commissioner, the British Forestry Commission, and the Department of Lands (Forestry Division) for supplying the films.

Local Excursion to the Botanic Gardens, Dublin

By D. MANGAN, B.Agr.Sc.

The mild, dry weather of Autumn, 1947, lasted long enough to provide a very enjoyable afternoon for members in the Botanic Gardens, Glasnevin, on Saturday, the 18th of October. More than thirty members and their friends attended, as follows:—Messrs. Meldrum, O'Beirne, Clear (Secretary), McEvoy, Maher, Mrs. A. Henry, Miss Brunner, Miss Cahill, Miss Long, Miss Ryan, Messrs. Almack, Bogue, Chisholm, Clarke, Connolly, Donlon, J. P., Doyle, FitzPatrick, Haas, Hanahoe, Jeffers, McCarthy (Athy), McMahon

(sen.), McMahon (jun.), Mangan, Mooney, O'Sullivan, Ryan, Shiels, Spillane and " Tatler " (of the *Irish Independent*).

On arrival at the entrance the members were welcomed by the Curator, Mr. Walsh, who gave a brief account of the general history and growth of the gardens since the time of the first Director, Mr. Underwood. The greenhouses date back to 1850 and the original area of 17 acres has been added to from time to time, the Arboretum being formed in the time of Mr. David Moore's directorship, about 1880.

Setting forth on their round of the Gardens, the party passed such attractions as Arbutus and Thuia plicata at a brisk canter and came to their first halt at some Silver firs. Abies pinsapo was discussed in detail and sympathy was expressed for an unfortunate Abies forestii which had fallen foul of chermes.

When we reached a very vigorous Populus generosa, Mrs. Henry described the breeding of this tree from P. trichocarpa and P. angulata. While the two parents had a yearly growth in height of 3 feet each, the progeny added 9 feet per annum. The specimen seen looked to be about 75′ high and at approximately 30 years of age, had a quarter girth of 15¾″.

A near relation of P. generosa, namely P. vernerubens, had a very beautiful leaf resembling somewhat in colour the Copper beech.

A backward specimen of Abies pectinata drew varied comments as to the cause of its failure. Mr. FitzPatrick suggested that possibly the high lime content in the soil had brought about a potash deficiency.

The Picea Omorica represented drew speculation from members as to the possibilities of this species in Ireland, Mr. Clear mentioning its rapid growth-rate and superiority to Sitka and Norway spruces in frost-hollows. This tree has proved very satisfactory in experimental plantings in Scotland but it only survives as a native species to-day in parts of Yugo-Slavia.

When the Ginkgo biloba was reached, it was difficult to realise that it is a conifer, so closely does this " Maiden Hair " tree resemble a hardwood.

Having admired the old yew trees of Addison's Walk, we next pondered on the considerable variety to be met with in different specimens of our old friend, Pinus sylvestris (Scots pine), for here, growing within a few paces of each other, were a bushy or spreading type, a fastigiate type and what we might call the normal type. Members could draw their own conclusions as to the importance of collecting seed from a desirable type of Scots pine.

Other trees in this section of the Gardens which called for attention were the Zelkova, the fern-leafed Beech, a Pinus hartwegi (a variety of P. Montezumi) which had leaves in clusters of 3, 4 and 5,

almost indiscriminately, Cupressus Leylandi (a crossing of macrocarpa and nootkatensis) which Mr. Wlash explained was very difficult to raise from cuttings, and that rugged pioneer of Jutland Heath fame, the Mountain pine.

Coming to the arboretum formed in 1880, we were able to appreciate the effect of the grouping in close proximity of trees of related species. Referring to the Ashes, Mr. Walsh said that he was on the look-out for a specimen of what he called the " Stag's Horn " Ash, some trees of which he had seen in Co. Tipperary (so Tipp. members, please bear in mind !)

A very wide range of Beech types drew our attention, including the Dawyck beech (F. sylvatica var. fastigiata) while in the Maple section the sugar variety (Acer saccharum) with its leaves displaying to the full their autumn colours, was much admired. It was suggested that this latter might be a suitable tree for street-planting.

Having circumnavigated the Gardens, we now came to what was undoubtedly one of the highlights of the afternoon, namely, the Augustine Henry Herbarium. In an upper room of the office and Laboratory attached to the Gardens, we found this priceless collection of over 9,000 specimens of broad-leaved and coniferous trees which forms the basis of the seven volumes of *Trees of Great Britain and Ireland* by Henry and Elwes.

Mrs. Augustine Henry addressed the members and told of her decision to perpetuate her late husband's memory in this enduring manner. The collection represents the fruits of 18 years of travelling and collecting in China and on the European continent. The classification and arrangement of the specimens took 8 years. Thanks to Mrs. Henry's idea of running a strong cord horizontally around the middle of each of the cardboard containers, the collection is in excellent condition, each specimen in a separate folder neatly numbered for catalogue reference. The information on the labels allows one to go through the entire collection with the least possible amount of disturbance or damage. Copious notes accompanying the boxes of specimens will provide great assistance to students wishing to carry out research work in tree species.

Before breaking up the President, Mr. Meldrum, expressed the thanks of the Society to Mr. Walsh for the thorough and capable manner in which he showed us over the Gardens, while a special round of applause was given to Mrs. Henry for her charming and whole-hearted contribution to the afternoon's enjoyment. Mr. O'Beirne (Vice-President) associated himself with the votes of thanks and the members then parted for their far-flung destinations.