

SEVENTH ANNUAL EXCURSION

Report by M. SWAN, B.AGR.SC.

THE Society's 7th Annual Excursion was held on the 23rd, 24th and 25th May, 1950, to the Wicklow district and we had the pleasure of having as guests some of our Welsh hosts of the previous year. Those who made the trip from Wales were Mr. F. C. Best, conservator for North Wales, Mr. and Mrs. Harrison, Messrs. A. J. Davies, R. W. Waters, L. E. Hughes and J. Morris. This was probably the most successful excursion we have yet had, it certainly was the best attended, over 80 members and their friends attending each day, and many lively and interesting discussions arose. The party was based in Dublin and travelled each day by bus and car.

First Day, 23rd May.

The excursion opened with a visit to Ballintombay property of Rathdrum forest. On assembly at this property Mr. Meldrum, on behalf of the Minister for Lands, welcomed the party, while Mr. McEvoy, our President, extended a particular welcome to our Welsh friends. The Convener, Mr. O. V. Mooney, then gave a brief history of Forestry in Ireland.

Up to the beginning of the 18th century the history of Irish forests is almost entirely one of exploitation. About that time, however, the landlords began planting on their estates and their interest lasted for almost a century-and-a-half. With the decline of the large land-owner constructive forestry in general and planting in particular was abandoned, until at the beginning of the present century the State began to take an interest in forestry. Avondale was acquired as a forest school in 1903 and the first plantations were laid down in 1905-6, but little serious progress was made until after the first World War. From 1923 to 1932 progress was steady but slow approximately 3,000 acres being planted each year. In 1932 a fresh impetus was given to forestry and by 1939 almost 73,000 acres of State owned plantations had been laid down. The second World War then slowed down progress for a number of years but in 1950 with the planting of 8,000 acres the total of State owned plantations reached 131,971 acres with a reserve of plantable land of just over 28,000 acres. At the present time a policy has been initiated to step up afforestation considerably and a 25,000 acre annual planting programme has been fixed as the first target which it is hoped to reach in 1952. An ultimate target of one million acres of plantation is being aimed at, which would represent a forest area of about 6% instead of our present figure of 1.5%.

The Convener then dealt in detail with the Wicklow district. Wicklow contains one of the biggest mountain massifs in Ireland and elevations over 2,000 feet are common. The central core and ridge of

these mountains is granite while Lower Silurian rocks outcrop on either flank and on the east extend without interruption to the sea except for a small mass of Cambrian rock which occurs between Bray and Wicklow. The influence of glaciation is apparent in its deepened valleys and in its lakes. In the mountain mass the rainfall is about 60 inches per annum and the humidity is high, with mists and fogs frequent. Towards the sea, however, the climate is comparatively dry and the rainfall of 35 inches per annum is below average for the country.

Much of the high-lying ground in this district is very suitable for forestry, protection from the prevailing south-west wind—always a foremost consideration in forestry in this country—being afforded by the high-lying ridges of the massif. The total area of State owned plantations in this district is 24,600 acres with a reserve of plantable land of 5,600 acres. In addition an area of 210 acres is under nurseries which provide the greater part of the plant supply for the entire country.

The party, led by the Convener, then proceeded to inspect Ballintombay property. The main interest was centred in the comparative growth of *Pinus contorta*, *Pinus laricio* and *Pinus sylvestris* in juxtaposition at approximately 1,100 feet elevation on an easterly but generally exposed slope the predominant vegetation of which was strong *Calluna*. The plantations were laid down in 1926 and the *Pinus contorta* now stood at 20 to 25 feet and was still vigorous. The Corsican pine had only grown from 5 to 15 feet and was showing signs of deterioration, while the Scots pine had rarely bettered 4 feet and seemed to have gone into complete check. As the party continued its progress to 1,450 feet the *Pinus contorta* still continued vigorous and without showing any effects of the increased exposure which had then become severe. The almost complete failure of the Scots pine and to a lesser degree of the Corsican on the same ground and often in the lee of 15 ft. *Pinus contorta* stands was very striking. Mr. Best speaking in the discussion said he had never seen S.P. do so badly or P.C. do so well as here. P.C. was very little used in Wales but S.P. had been grown successfully at elevations up to 1,600 feet. Mr. Galvin suggested that the failure of the S.P. might have been due to the race of seed used and stressed the necessity for research in this direction.

Also seen during the morning's inspection was a stand of *Cupressus Macrocarpa* 22 years old at an elevation of 800 feet on a slightly exposed south-east slope. The soil was a light shaley loam and at the time of planting the site was a grass field in the early stages of reversion to *Calluna*. This stand the Convener said was probably the best of C.M. in the country in point of form and quality, while measurements showed a mean annual increment of 112 cubic feet per acre. Mr. Forbes remarked that C.M. will not clean itself and has to be pruned, but that its timber was the most durable we could grow.

In the afternoon the party visited Avondale Forester School and Forest. The Superintendent, Mr. T. O'Carroll, speaking first in Irish and Welsh and then in English welcomed the party to what may be termed the cradle of Irish State forestry and gave a brief outline of its history. From him we learned that Avondale House was built by one Samuel Hayes, who was an ardent lover of trees and the author of the first book published in Ireland on tree planting, a copy of which is kept in the School library. On his death the house and estate passed to Sir John Parnell, then Chancellor of the Irish Exchequer. Eventually it passed to Charles Stewart Parnell, leader of the Irish Parliamentary Party in Gladstone's Parliament. On his death the estate was sold to a Mr. Boylan of Dublin who in turn sold it in 1903 to the Dept. of Agriculture and Technical Instruction for Ireland for forestry purposes. It then became the State Forester School and most present day foresters in Ireland have received their training here. Here also in 1905-6 were laid down the first State-owned plantations, mainly in the form of one acre experimental plots of a wide range of conifers and hardwoods, pure and in mixture. Much that has been learned at this centre has been applied in practice throughout the country.

Very full descriptions of the plantations at Avondale will be found in Vol. III No. 2 and in Vol. VII Nos. 1 and 2 under the reports by Messrs. Maher and Deasy of previous visits to this centre. Only one or two of the outstanding plots therefore need mention here.

One of the most important factors influencing the early development of the experimental plots was spring frosts. Records show that much damage was caused in 1907, 1909, 1911 and 1914. The greatest damage however was in 1911 when the frost occurred as late as 15th June and it took the damaged plants several years to recover from its effects. In the case of *Abies pectinata* many plants were killed outright and the effect on the remainder was permanent resulting in the almost complete failure of this species. The effects on the subsequent development of D.F. and Ash were also very pronounced while other Silver Firs, Spanish Chestnut, Oak and S.S. suffered to a less extent.

Another important factor was the irregularity of thinning and attention generally. During and immediately after the First World War it was not found possible to devote the necessary attention to the plots and this neglect at a critical stage unfortunately upset the basic object of many of the experiments by allowing nurse species to dominate and suppress main crop species. Indeed when treatment did become possible it was often too late and the nurses had to be accepted as final crop trees. The history of the S.S./J.L. plot in this respect was of particular interest and showed the wonderful recuperative powers of S.S. The original mixture of this plot was S.S./J.L. 50/50 planted at four foot spacing. The spruce suffered severely from successive spring frosts and from *Aphis* attacks so that the J.L. outgrew and proceeded to suppress it. In 1927 it was concluded that the S.S. was past recovery many of them being mere bushes. However some tentative thinning

and pruning of the J.L. was carried out and quite surprisingly the S.S. responded at once and in two or three years the apparently doomed S.S. were developing leading shoots of 2 to 3 feet. This spruce is now 82 feet high with an average Q.G.B.H. of 10 inches and a mean annual increment of 109 cu. ft. U.B. per acre for the plot.

The most outstanding plot seen was of course that of *Abies grandis*. This one acre plot was planted with *Abies grandis*/*Abies pectinata* 25/75 mixture. The latter species originally intended as a nurse was severely damaged by frost and eventually suppressed by the A.G. Records to date show a total production of 16,268 cu. ft. U.B. from this plot, which gives a mean annual increment of 361 cu. ft. U.B. per acre. Mr. Best remarked that in Wales they find *Abies Nobilis* superior to A.G. in the hills but that A.G. is the better in the lowlands. Nowhere, he said, had he seen anything at all comparable with the Avondale plot. Mr. Mooney pointed out that the yield, exceptional as it was, would probably have been much greater if proper attention could have been paid to thinning during the first 30 years or so. Mr. Clear, in a discussion on the present treatment of the stand, suggested further thinning as the trees were still vigorous and he hoped for natural regeneration.

Second Day, 24th May.

On the morning of the second day the party assembled at Glendalough for an inspection of part of that forest. Glendalough is famous both for its natural grandeur and for its monastery founded by St. Kevin in the 6th century. Despite plundering and pillaging by Danes and Anglo-Normans this monastery continued until 1398 when it was finally destroyed and deserted. It was a monastic settlement complete with churches, stone bee-hive cells, round tower, workshops, mill, dairy etc and was only at the beginning of its fame when St. Kevin died in 618 A.D. Practically the only ruins now remaining are those of the Churches which has caused Glendalough to be sometimes called the Valley of the Seven Churches. In 1876 however the foundations of an 8th Church were discovered and it is now generally believed that there was also a ninth Church the site of which has yet to be discovered.

The area chosen for inspection was Lugduff property which lies on the south side of the lakes, the elevation being from 440 ft. at the lake side to 2,179 ft. at Mullacor one-and-a-half miles to the south. The underlying rocks throughout are of Upper Silurian origin mica-schist being the usual derivative. Below the 1,100 ft. contour light shaly loams are met with and are very suitable for tree-growth. Above this contour however the rainfall averages over 60 ins., atmospheric conditions are very humid and peat is general. The influence of glacial action is very striking at Glendalough, the valley bottom was gouged out and both lakes owe their origin to the ice, the moraine being very evident across the valley near the round tower.

The party began the ascent of Lugduff property on the new road constructed during the war years to give access to the upper areas for the extraction of thinnings, etc. Mr. Maher pointed out some of the difficulties met with in the construction of this road, the very steep gradients, the difficult bends and the embankments and bridges necessary, and how by careful planning they had been surmounted. He referred in detail to the question of capillary water and how best to deal with it.

A stop was made in a D.F. plantation 28 years old and situated on a sheltered S/E slope at 800 ft. elevation. The soil was a deep fertile shaley loam with a high degree of moisture and was, before planting, a grass field near the houses of a mountain farm and in good heart. The crop now had an average height of 46 ft. and a Q.G.B.H. of $5\frac{1}{2}$ ins. while the yield was just 2,000 cu. ft. U.B. per acre. The general comment of the party expressed by Mr. Harrison was that the stand had been left too long before thinning. Mr. Best suggested fairly heavy and frequent thinning for D.F. as the canopy closes quickly and stressed the necessity for starting early. Mr. Clear said that from stem analysis he had noticed that suppression in D.F. began at about 13 years for 6 ft. \times 6 ft. planting and consequently early thinning was essential. He suggested a thinning cycle of 3 years. He also referred to the very fine natural regeneration of D.F. at Lough Gill forest seen during our excursion to the Sligo district.

The party then passed through a stand of E.L./J.L. planted in 1922 and showing very clearly the lack of success that is experienced with E.L. at high elevations in this region. The ground was of very good quality with grass and bramble predominant in the vegetation and while the J.L. had done well the E.L., 28 years old was very poor indeed.

In contrast to what we had seen on the first day at Ballintombay we found here at Lugduff a promising stand of S.P. at 1,100 ft. elevation. This crop was on a steep southern slope and in an exposed situation, soil and drainage conditions however were excellent.

From a natural grandstand, overlooking the lakes we had a wonderful view of this historic beauty spot and Mr. McEvoy described the vegetation of the district in general and gave an account of the old system of farming, "boleying", practised in these regions by which the farmer drove his flocks to the high hills and set up house there during the summer returning to the lowland enclosures for the winter.

On returning to the natural oak-wood on the lake shore Mr. McEvoy gave a short lecture on Our Natural Sessile Oak-woods, after which the party adjourned for a picnic lunch on the lake-shore.

After lunch the party travelled to Glenmalure forest which with an area of 6,478 acres has the distinction of being the largest forest centre in the country. It also has the distinction of having our highest-lying plantation as in it we find a stand of fairly good S.S. at approximately 1,750 ft. elevation. Road construction is at present the biggest operation at this centre and thinning (which is the most important work)

has been dependent to a great extent on its progress. As the labour supply is not sufficient to cope with both operations together the question of whether in the interests of economics thinning and road construction should proceed together or in the interests of silviculture thinning should take precedence was debated with the honours about even.

Glenmalure is a narrow steep-sided valley of glacial origin. Elevation ranges from 400 ft. to over 3,000 ft. On the south and west the rock formation is mainly granite while mica-schists with quartzite intrusions occupy most of the north and east.

The party first inspected the new road being constructed at Ballyboy property and Mr. Maher pointed out how the lesson learned at Glendalough had been applied here. Of particular interest was a recently constructed river ford. The stones, Mr. Maher told us, should for the best and most lasting results be placed vertically and not horizontally as might at first be expected. He stressed the necessity for beginning construction in the centre of the stream and working towards either side to ensure that every stone is locked in position.

The species mainly used in Glenmalure were S.S. D.F. and larches with S.P. and P.C. The S.S. has been greatly retarded by continued severe frosting during its early life but it has now come through and a first quality crop has in many cases been established. A short stop was made in an S.S. stand in Compartment 35 which carried over 4,000 cu. ft. U.B. per acre at 26 years of age.

Next came a stand of D.F./J.L. originally planted in 50/50 mixture at 6 ft. \times 6 ft. Unfortunately the J.L. had been allowed to dominate and suppress the D.F. and will now have to be accepted as the main crop species. Mr. Clear doubted the advisability of a D.F./J.L. mixture. He considered it a particularly doubtful mixture in areas like Glenmalure where the necessary labour was not available for cleaning and thinning at the critical time and unlike S.S. D.F. will not recover from suppression. That D.F. when planted pure was capable of quite good yields in this area however was seen during the afternoon ramble.

Continuing the ascent the party again noticed the failure of S.P. on the 1,000 ft. contour. The area was originally planted with E.L./S.P. 50/50 mixture in 1923 but was cleared in 1949 only a few of the best S.P. being retained and the area replanted with S.S. The situation is exposed with south-west aspect but soil conditions are good and moist. The S.S. is now doing quite well and the main problem now is deer and weevil damage.

Before beginning the descent to the cars the party scrambled over on to the noted Michael Dwyer Rock overlooking the historic glen and Mr. Maher gave us an account of Glenmalure, its history, and its association with the O'Byrnes and the O'Tooles, and in more recent times of its part in the Rising of 1798 and of Michael Dwyer.

In the descent the party passed through some stands of D.F. planted pure at 6 ft. \times 6 ft. in 1926. They were on a steep south-east slope in an exposed situation but with a deep well-drained soil and were quite promising. The average volume per acre under bark was 1,350 cu. ft. while the average tree had a total height of 37 ft. with a timber height of 24 ft. and a mid quarter girth of $3\frac{1}{2}$ inches.

Before dispersal the party inspected a timber-chute for extraction of material from the difficult and inaccessible upper slopes of the glen.

On Wednesday night the Society entertained our Welsh guests and all those associated with the excursion to dinner in the Dept. of Lands Luncheon Club, Upper Merrion Street. The Minister for Lands was unfortunately unable to attend but was represented by Mr. Nally, Secretary of the Dept.

Third Day, Tuesday, 25th May.

The third and last day of the excursion was spent at Aughrim Forest. This forest comprises some 2,835 acres and the early plantings date from 1922. It is made up of a number of scattered properties around Aughrim village together with some larger and more compact mountain areas which stretch for some seven miles along the eastern side of the Ow River valley. Ballinglen Forest, some 2,900 acres in extent, lies on the western side of the Ow valley and was once part of Aughrim Forest.

As at Glenmalure and Glendalough glacial action has greatly influenced the topography of the Ow valley. Silurian rock again is met with mostly but outcrops of granite and Cambrian rock are not infrequent. A wide variety of site-qualities is met with in this forest ranging from rich sheltered old woodland sites at 150 ft. elevation to difficult calluna-molinia peat types at 1,500 ft.

An annual planting programme of over 100 acres has been maintained at this centre over recent years but at present the most important operation is thinning. Road construction has as far as possible kept pace with thinning and a small portable mill has been operated for the conversion of the thinnings into boxwood, pitwood, fencing materials, etc.

A nursery of some 19 acres is maintained at this forest and was among the first areas visited for the day. Mr. Ryan said that this nursery has been in continuous use for the past 30 years and that it had now been decided to rest it. Consequently it now had only a small area under seed beds, the remainder being under green crop. The soil was light and friable and easily worked and produced good S.S. transplants. Until recently, he said, most of our nursery areas had been concentrated in Wicklow but now we were going further afield and nursery ground was being acquired in all areas where there existed large tracts of potential forest lands, as shown by the recently completed Survey of Plantable Land. He also pointed out that as a direct result of our visit

to Wales the previous year a heath-land nursery was now being established.

The first plantation visited was a mixed D.F./J.L. 50/50 mixture planted in 1923. The site was an old oak woodland with a deep well-drained soil of Silurian origin and the area was sheltered. Unfortunately the first thinning was not until 1945 with the result that the J.L. had suppressed the D.F. and was now the main crop. Mr. Harrison agreed with the thinning as it had been carried out, while Mr. Morehead suggested that a much heavier thinning over a small area might be carried out as an experiment.

Among other plots seen was one of *Abies Grandis*/J.L. planted in 1923 at 6 ft. \times 6 ft. This was also on an old oak woodland area with a deep well-drained soil of Silurian origin. The elevation was about 400 ft. and the aspect southern but the area was not exposed. The stand was not thinned until 1947 and at the time of our visit was marked for a further thinning. The *Abies Grandis* was deliberately favoured in thinning and now completely predominates and is very vigorous with a current shoot-growth of over two feet. The average tree had a total height of 65 feet with a timber height to 3 inches of 47 ft. while the Q.G. at B.H. was 7 inches. The stems were well formed with little taper and the Q.G. at half timber height was 6 inches. The larch on the other hand had a timber height of only 34 ft. and a B.H.Q.G. of 5½ inches. The A.G. had a volume of 4,440 cu. ft. per acre while the J.L. had only 200 cu. ft. per acre giving a total of 4,640 cu. ft. per acre for the plot.

The party then visited a series of D.F. plots at Roddenagh and Killaduff. A comprehensive survey and assessment of these areas had been carried out by Mr. Clear and detailed figures were available to the party for the stands visited. An account of this survey in relation to D.F. and the lessons to be learned from it has been contributed by the assessor, Mr. Clear, and appears in this issue.

At the conclusion of the excursion Mr. McEvoy thanked the Minister for Lands and his staff for the facilities accorded the Society and for the careful and painstaking arrangements they had made.