

## Local Excursion to Avondale

SEPTEMBER 28th, 1946.

By J. J. MAHER.

The Council are to be congratulated on providing, for the benefit of members unable to travel to the annual excursion, an opportunity of gathering for one day at some place of forestry interest. Avondale, the home of Irish forestry, picturesquely situated near Rathdrum and surrounded by the old woodlands and young plantations of the Wicklow hills, was a happy first choice and the response exceeded predictions.

The following members were present:—Messrs. H. M. Fitz-Patrick (President), T. Clear, W. Chisholm, M. Connolly, T. Conlon, F. Clarke, R. Crerand, T. Donovan, J. P. Doyle, J. Dowds, A. C. Forbes, L. F. Flanagan, J. Galvin, G. Haas, D. Mangan, T. McEvoy, P. J. McCartan, T. McCarthy (Athy), P. McMenamin, M. Bogue, Capt. and Mrs. Trant and the Recorder. Dr. Anderson, Mr. Ryan, and Mr. Hanahoe, represented the Department of Lands.

The President welcomed the pleasant gathering and most heartily thanked the Minister for Lands for having so graciously allowed us to visit Avondale, the State school of forestry which had a very important influence on the growth and trend of Irish forestry. He gave a brief and lucid summary of its history from the time it was in the possession of Samuel Hayes (that keen tree planter and author of the first book on Irish forestry entitled *Planting*, published in 1794), to its acquisition by the Department of Agriculture and Technical Instruction from the successors of John Howard Parnell to whom the property had passed on the death of his brother, Charles Stewart Parnell.

It was unfortunate, he said, that the Superintendent of the school, Mr. O'Beirne, could not be with us. His courteous manner, guidance, and fund of information about the trees and woods here would be missed very much. His absence was, however, less serious than it might have been for we had the great good fortune of having with us Mr. Forbes, late Director of Forestry, who, exactly forty years ago this month had come to Avondale and laid out this impressive experimental station on the lines of a continental forest garden. Mr. Forbes, he continued has always kept in close touch with the place and no doubt would be kind enough to give us the benefit of his experience.

Dr. Anderson, Director of Forestry, welcomed the party on behalf of the Minister for Lands and hoped that they would spend an enjoyable and fruitful evening. Mr. Ryan, Inspector, Department of Lands, had, under very short notice, undertaken to lead the party round in the regretted absence of Mr. O'Beirne. Mr. Hanahoe, Forester in Charge, would also accompany the party.

Mr. Forbes thanked the President for his flattering remarks. He reminded the members when assessing results to-day, that, as he

was allowed but a limited time to lay out the plots, most of the exotics used had to be imported fit for planting out. Not only were those plants in poor condition when received, due to length of time in transit, but also in most cases, the origin of seed was unknown.

The party first visited the School and were received by the Matron, Miss Devane. They were shown over the Parnell museum, where the many personal effects, testimonials, flags, coins, and cartoons associated with the honoured memory of Parnell are preserved.

#### NURSERY.

The School Nursery presented a beautiful picture of multifarious greens. The healthy sheen, the perfect form and vigorous growth not only of the common conifers, but also of the exotics grown from seeds collected by students in the grounds, proved that a nursery can, even after forty years of continuous use, remain in good heart. Here as in the Arboretum and Pinetum coniferous species, geographically and climatically far separated, were grown side by side. Some rare ones were: *Pinus leucodermis* and *Armandi*; *Picea likiangensis* and *rubra*; *Abies bracyphylla*, *arizonica*, *veitchii*, *pinsapo* and *cephalonica*; and *Tsuga diversifolia*. The Eucalypt species seen were excellent, some being the first generation grown from home-collected seed from the first planting in 1910. The technique used in growing these delicate seedlings and the development of the eucalypt plots was given in full by Mr. O'Beirne in a short article in *Irish Forestry*, Volume II, Number 1.

Before recording the treatment and present conditions of the plots visited the following note may be of interest. It is condensed from *Avondale Forestry Station, 1906-1912* which was written by Mr. Forbes and published by the Department of Agriculture and Technical Instruction in 1913.

The station was established, for the purpose of testing the silvicultural possibilities of newly introduced species, to obtain data for determining their yield and commercial value and for the training of young men as working foresters.

The main portion of the property formed a long narrow strip adjoining the Avonmore river and extending from about one mile south of Rathdrum to the Meeting of the Waters. The elevation rises rapidly from 200 feet along the valley floor to 400 feet where the land levels to an undulating tract. The soil in general excepting two alluvial deposits was derived from the underlying silurian rock.

The undulating higher ground was roughly bisected by a broad glade or ride three chains wide. Right and left of this glade, plots approximately ten chains by one chain were laid off, having the narrow side of each plot adjoining the glade. Other sections were formed in a similar way on the slopes and low ground. In general each plot, especially of the rarer species, was planted with 75 % of nurse species. These were either closely related to the main crop species or capable of yielding a quick economic return. They were intended not merely to nurse the crop but to enable planting to be carried out at a cheaper rate than if the expensive species alone

formed the crop. At the time of planting the demesne land, except the scrub-covered slope adjoining the river and a few acres of tillage, was under grass with a few scattered trees. The grass land was ploughed and planted by digging pits which extended into the soil beneath the furrows. On parts which were not ploughed not only was the percentage of failures much higher but growth for the first few years was slower and the trees suffered more severely from spring frosts.

#### THE PLOTS.

Forty years has brought a big change. In some plots the main crops were successfully established, in others the nurses now form the main crop whilst other plots were dismal failures.

#### SILVER FIRS.

The most notable plot in Avondale was *Abies grandis* which had an average of 300 stems to the acre and an average height of 90 feet. It was straight, clean boled, free from disease and over-topped all other species. Of the other silvers, *Abies nobilis* was next in merit. *Abies pectinata* was used both as main crop and nurse to the other *Abies* species. It was the only absolute failure in the Silver fir section. Mr. Forbes recorded in 1912 that with the exception of *Abies grandis* all other *Abies* species suffered severely from late frost; common silver most severely of all, many of them being no higher than when planted.

#### SPRUCES.

Norway and Sitka spruce have been very successful. Norway spruce has produced a most uniform crop of first quality from a pure plot and also from those plots where it was used to nurse other spruce species, Colorado Douglas Fir and many hardwoods, but completely suppressed the intended main crops. The best plot is the flat alluvial deposit by the river where it completely suppressed at an early age the Colorado Douglas Fir which was intended as main crop. Sitka spruce on the other hand had a very chequered career. It was planted in 1905 with 50 % Japanese larch as a nurse. For years the spruce suffered badly from spring frosts with the result that the larch had suppressed it at an early age. From 1917 onwards the larch were heavily thinned each year, and the spruce—many of them resembling bushes rather than trees—recovered in a remarkable manner. In the first year dwarf leaders developed and by the end of the third annual thinning normal growth of from 2 to 3 feet was being made. It has now formed the main crop and many thinnings have been made in recent years.

The volume of Japanese larch removed by 1925 was 3,345 cubic feet. The Sitka spruce had reached a volume of some 3,500 cubic feet by 1938. For a more detailed account of this mixture, its advantages and disadvantages and other mixtures used at Avondale we refer readers to "The Role of Mixed Woods in Irish Silviculture," by T. Clear, B.Agr.Sc., in *Irish Forestry*, Volume I, Number 2. A plot of *P. morinda* at the back of Casino House and a plot of *P. Omorica* near the "big ride" were developing steadily, having an

average height growth of from one to two feet per annum. These plots were planted about 1916.

#### OREGON DOUGLAS FIR.

Just a fringe of Oregon along the river remains of the plot with European larch planted 25 : 75 at 3½ feet in 1906. Both grew rapidly from the beginning but were severely frosted, especially in June, 1911. The larch, suffering from canker and frost damage, either died out or was suppressed at an early age leaving a pure crop of Douglas fir. This crop was blown during the heavy snowstorm in February, 1933. The effect of the 1911 frost was very apparent, most of the stems being forked and crooked at the same height from the ground. A completely different picture was seen in a more recent plot on a somewhat similar site across the river. The Oregon Douglas was mixed with Norway spruce. It was of good form and on an average was 15' above the crowns of the Norway spruce. The relative heights were approximately 75 and 60 feet.

The *Cupressus* section was depressing. *Cupressus Lawsoniana* had a high percentage of multiple leaders. The original planting failed and the present crop is the result of planting rooted cuttings. The *Cupressus Macrocarpa* plot was extremely branchy and rough. *Juniperus virginiana* was a complete failure only a few straggling stems remaining.

#### LARCHES.

With the exception of European and Japanese species, the other larches—*sibirica* and *occidentalis*—were failures, being severely damaged by late spring frosts. The Japanese larch grew vigorously but were slightly sabred and inclined to branch in the crowns. There is little sign to-day of the canker prevalent in all the European larch plots during the early twenties. This disease has noticeably diminished due to the vigorous growth of the larch and constant heavy thinning.

The larches have been very valuable not only by giving an early yield of all valuable material but also by acting as effective nurses, once the canopy had formed, to the tolerant frost-tender species.

Amongst other plots seen was one of *Tsuga mertensiana* planted in 1906. Amongst the scrub on the slope adjoining the river prolific clumps of natural seedlings were seen growing where normal openings of the canopy had been made in thinning. Where openings were too severe briars and weeds were present in abundance—but no seedlings.

#### HARDWOODS.

These were on the whole the least promising. Pure crops of sessile and pedunculate oak planted in 1905 were fair, a plot of Spanish chestnut planted in 1916 behind Casino House was excellent as was also a small group near the School, of oriental beech. This plot had very straight stems and was fast growing; a great change from the pure crop of common beech which was of a very bad type, having never formed definite leaders.

The attempt to grow hardwoods as a main crop mixed with 75 % larch or spruce nurses or 50 % hardwood nurses when planted, did not work out well. This was due to a large extent to the absence of close supervision and attendance to silvicultural detail during the period 1914-1918, the most critical period in the life of the mixtures. Practically complete suppression of intended main crop species by the more vigorous nurse species resulted. This occurred in the European larch and Norway spruce mixtures with oak, beech, hornbeam, Spanish chestnut, Norway maple. *Acer dasycarpum*, *A. saccharinum* and *A. macrophyllum*. One member remarked when passing through the maples-larch mixture, that coppicing of the many straggling surviving maples might give good results.

In the case of the beech-oak mixture the former was more vigorous and the oak proved unable to survive under its dense shade. An attempt, some eight years ago, to save what was possible of the oak by heavy thinning of the beech has resulted in a small number of good oak stems surviving in the beech matrix. Spanish chestnut also proved too vigorous for oak in a similar mixture and the plot is now practically pure chestnut.

Before dispersing, a vote of thanks to the Minister and his representatives was passed with acclamation.

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