TWELFTH ANNUAL STUDY TOUR

Report by M. McNAMARA

SINCE 1949 the Forestry Division of the Department of Lands has opened several new Forests in Connemara. Most of them are on areas of blanket bog with exposure moderate to severe for tree growth. The problem of establishing forests on such sites is a difficult and complex one. When the Council of the Society decided to make Galway the headquarters of the 1955 Annual Study Tour, with a number of the new forests on the itinerary, they felt that they were arranging a Tour of more than ordinary interest. In this they were fully justified by the large attendance and the keen interest and the vigour of the discussions.

The party travelled in two special buses, and as might be expected, our first stop was at Knockboy, the scene of the first attempt at State Forestry in Ireland. Mr. McEvoy welcomed the members and expressed the hope that the Tour would prove to be an interesting and educational one. He thanked Captain R. B. Donovan, the present owner of Knockboy, for granting us permission to visit the property.

Mr. H. M. Fitzpatrick outlined the history of Knockboy. It was started in the reign of Queen Victoria, as a result of pressure from Dr. Fisher, M.P. for forestry in the congested districts of Ireland. Arthur Balfour said that there was no land available for forestry. In reply, Father Flannery, P.P. Carna, wrote about the end of 1880, and said that 1,000 acres were available on the Knockboy Estate at a price of £1,000. It took about six years to get the scheme under way. In 1890, when the area had been fenced and drained, the Congested Districts Board took over. By 1899, an area of 820 acres had been planted, at a cost for the project of £9,000. The scheme was stopped that year, as the area planted was not doing well and funds had run out. In 1895, Sir William Schlich described the area as 914 acres of bog 10 feet deep over granite, and according to him, the trees (which were notch planted) were nearly all dead at that time.

The property occupies a low hill 50′ to 250′ elevation, in extreme exposure, on a peninsula jutting out from the west coast. The underlying rock is granite, with mineral soil occurring only in pockets, while peat development is general.

Mr. P. White said that from conversations he had with locals who worked on the scheme, he had formed the opinion that the trees had suffered from exposure to salt spray while being transported by boat from Galway, and while they lay on the shore awaiting planting.

Only a few scattered clumps of C.P., Maritime Pine, Birch, Alder and Beech now remain. Mr. J. J. Maher remarked on the dying back of the Norway Spruce, which he said was characteristic of the species when exposed to winds bearing salt spray. He suggested S.S., P.I. and C.P.

as the trees which we would now consider most suitable for western climatic conditions.

In recent years, fires from adjoining land have killed some of the remaining trees and endangered the residence. The surviving clumps of mixed species are now practically confined to shallow depressions, with some local shelter; where flush effects provided better than average soil conditions, heights of 30′ to 40′ have been attained. Individual specimens of P.I., which are believed to have been introduced by a subsequent private owner, have attained heights of 50′. About half the original area planted is now owned and used for grazing purposes by Captain Donovan. The other half, which consisted largely of deep peat, was eventually developed for turbary purposes.

Mr. McEvoy conveyed to Captain and Mrs. Donovan the Society's thanks for the privilege of visiting Knockboy, and for the hospitality extended to our members.

Our second stop was at Ballinahinch Forest, where Mr. N. Diver welcomed the party on behalf of the Minister for Lands, and introduced Mr. G. Coupar, Forester-in-Charge.

Ballinahinch Forest was acquired four years ago. It had been developed in the early part of the century by an Indian, Prince Rangit Sanghi, as a fishing and sporting property. The total area of the Forest is 1394 acres and it contains the remnants of some natural sessile Oak and a number of middle-aged plantations, mainly Austrian and Maritime Pine, J.L., and Spruces including some Picea Alba. The total woodland area was 225 acres, the remainder consisting of a number of peat types varying from Molinia, Rush to Shoenus, Scirpus and Rhyncospora types.

These middle-aged plantations (approximately 50 years old) were of poor rough quality when planted on good mineral soil, and were mostly failures on the peat types typical of the district. By contrast, a 50 year old S.S. plot in a sheltered valley gave very heavy yields, with heights of over 100′ and mean Q.G.B. H. $16\frac{3}{4}$″. Apparently the good growth of this Spruce encouraged further planting of this species in pure blocks some 35 years ago, and these plantations on good soil were very productive and of high quality, with a mean annual increment of up to 200 c.f. per acre. Unfortunately, thinning had been neglected (600 stems per acre at 70′ high) and the stems had become whippy and extensive wind blow has taken place since acquisition. Natural regeneration of Sitka is frequent on the blown areas, and is being encouraged.

After lunch and a brief inspection of the acquired plantations, the party proceeded to inspect the modern technique of establishing plantations on deep blanket bog. Particular attention was paid to an area of extremely poor blanket bog, which had been the subject of an experiment. Mr. White, who was in charge at the time, outlined the treatment. It was ploughed in 1952 and planted with P.C. and S.S. in ratio of

3 to 1 in February, 1954. The area was treated with 2 ozs. of basic slag per plant. The slagging was done in May at the beginning of the growing season. The cost of the slagging operation was 15/- per acre. Mr. T. Groonell said that surface application of the manure had no detrimental effect on the plant, even when it came in direct contact with the stem.

Mr. T. Barry stressed the importance of studying plant associations when assessing the fertility of bogs. Mr. McEvoy emphasised that there had been a considerable development in the plant association resulting from enclosure, drainage and manuring. All plants were vigorous, and several members felt that it might be desirable to increase the percentage of S.S., but it was admitted that nothing conclusive could be decided at this early stage.

Second Day.

On the second day we made our first stop at Ross Property. This property contained 360 acres when acquired twenty-six years ago. The total area of the Forest has now risen to 2,103 acres.

Mr. McGuire, Forester-in-Charge, met us at Roscahill Property and having given a brief history of the Forest provided us with details of Roscahill Property which was the original "take". He said that the property was situated on limestone, overlain by deep local drift, including granite from the nearby hills at its western end, which became progressively shallower until limestone pavement appeared along the lake shores at the eastern end of the area. The deeeper soils appear to be of the "brown earth" type with no evidence of free lime judging by the vegetation.

A good deal of discussion centred around an old Spruce stand which Mr. McGuire said contained 350 stems per acre with an average height of 45′ and volume per acre 4,700 c.f. The first thinning was carried out when the crop was 19 years old. Three thinnings took place in the following eight years. Thinnings were disposed of locally but the disposal of the heavier thinnings was slower. Messrs. Hanan and Clear were in favour of a heavier thinning policy but Mr. McGuire held that the removal of 50 stems per acre next year would leave the crop sufficient growing space. Mr. McEvoy said that according to British Yield Tables for Quality Class II, 300 stems per acre would be the correct stocking for the stand.

The deeper soils were very productive, giving high yields of J.L. and S.S. The party moved on through the Property and examined results on the shallower limestone soils, where selection of species was more restricted by soil conditions. Natural Ash was very much in evidence in this part of the Property and the discussions turned very largely on its treatment and utilisation. There seemed to be general agreement that shade bearers should accompany Ash, especially on the shallower drier sites. Species such as Beech, Tsuga, Thuya and various Silver Firs were

recommended. The current high values of sports Ash from butt lengths with wide annual rings was emphasised, and it was suggested that the crown should be given every encouragement to develop on stems of up to 20′ by thinning to 20′ spacing at an early age, giving maturity in a short rotation. Some particularly fine stands of almost pure Ash were seen in moister glens or valleys where good results could be obtained without any admixture.

Several patches were observed near the exposed western margin in which considerable defoliation had occurred and growth had stagnated. A discussion ensued as to whether this could be attributed to the die back fungus Rhizina inflata. The typical symptoms were not apparent on the roots and collar however, and the trouble was attributed to Armellaria mellea.

Messrs. McGuire and McMenamin were thanked for the comprehensive information which they had compiled on the history and crops of this Property.

On the afternoon of the second day we visited Cloosh Valley Forest. Almost the entire Forest, which comprises 8,684 acres, is on peat of varying depth and fertility. Approximately 4,000 acres are considered unplantable, and a substantial percentage of the remainder is regarded as experimental, as no previous knowledge of the behaviour of trees in this type of peat under modern methods of establishment is available, and no definite results can be forecast. The area was acquired from the Irish Land Commission in 1951. The range of elevation is from 300′ to 900′, with exposure moderate to severe for tree growth over most of the area.

Mr. Groonell, who has been the Forester-in-Charge of the area since its acquisition, outlined the work done to date, and the results achieved from different treatments. To date, he said, 1,200 acres had been planted, the main species being P.C. and S.S. The ground was ploughed and the trees were planted on the ribbon. Tests to ascertain the effects of different manurial treatments and time of application were carried out, and the results to date may be summarised as follows—P.C. seedlings planted without fertiliser resulted in 100% failures. Vigorous growth, by comparison with control plots, resulted when plants were treated with 2 ozs. of Basic Slag or 3 ozs. of G.M.P. The delaying of manuring until the growing season resulted in an increased number of failures. The best results achieved to date were from an application of 3 ozs. of G.M.P. per plant.

Messrs. P. Ryan (Johnstown Castle), Clear and Deasy contributed to a discussion on the effect of the application of the fertiliser on the peat. Mr. Ryan held that 2 ozs. of fertiliser could only keep the tree going for a year or two, giving a starter effect only.

Mr. McEvoy referred to the marked development of Molinia (which

existed as a weak-growing, diffused constituent on the original vegetation) throughout the entire manured area, but more particularly by vegetative development around the point of application of the fertiliser.

Messrs. McEvoy, Barry, Clear and Ryan contributed to a discussion, in which it was generally agreed that a puzzling feature of the western blanket bogs was the wide distribution and general frequency in the vegetation of molinia and Scheonus nigricans. Elsewhere in Ireland, as well as in other European countries, these plants are of more limited distribution, and have been associated in the minds of ecologists with sites of intermediate fertility, for instance they do not occur on the virgin high bog of the Irish midlands, except in local flushes or otherwise improved parts. In the middle east, Shoenus forms a typical community on alkaline salt marsh. Shoenus is also associated with a constantly high water table, which is typical of the western bogs. The association of these plants with some degree of fertility seems to be confirmed by some recent comparisons of surface samples from various Irish bog types, in regard to mineral content. This suggested that the western bog had a higher mineral content at the surface, than typical high bog of the midlands, which in turn, gave a higher figure than high level Wicklow mountain bog. It is impossible to indicate at present, to what extent such factors may influence the development of a tree crop, but obviously their investigation should yield results of fundamental importance.

Mr. T. Barry, Bórd na Móna, described with the aid of maps, stain charts and Hiller Borer, the methods adopted by Bórd na Móna in surveying and assessing bogland for its purposes. Maps of top and bottom contours of the bog are prepared, from which figures for average depth and total volume can be ascertained. From this an estimate of total production can be made, and drainage pattern laid down. In addition, sample profiles of peat types are taken on a grid system, from which fuel quality of peat, moisture content (usually 90-95%) and timber content can be calculated.

Third Day.

On the third day we visited Cong State Forest where our President introduced Mr. Leonard, the Head Forester.

Cong Forest was acquired in 1939 from the Hon. Arthur Guinness. A large proportion of its 3,164 acres was under timber, mainly hardwoods, at the time of acquisition. The hardwood stands provided excellent cover for game birds. Mr. Leonard informed us that the shoot, which was still regarded as the finest woodcock beat in the country, is let to Lord Oranmore and Browne. Our first stop was at a Scots Pine stand which was planted in 1943, on a shallow mineral soil over limestone rock, almost at lake level. A lively discussion took place in which Messrs. Mooney, Leonard, Diver, McEvoy and McGlynn argued the relative merits of Spruce and Pine on this type of site.

Further on, the site deteriorated until only a covering of moss overlay the limestone, but pockets of fertile soil occurred in crevices. Mr. McEvoy invited a discussion on the feasibility of planting Beech or Silver Fir in the crevices, and leaving any existing scrub cover over the shallow areas. A crop of 80 trees per acre, giving 40′ of clean timber, would justify planting. Mr. Maher argued that the quality of the scrub in this site would suggest that there was adequate soil for the production of an open conifer crop.

An 11 acre plot of S.S. 27 years old aroused a good deal of interest. The crop was first thinned in 1948 and it received a second thinning in 1953. The total volume of thinnings removed was 5,900 c.f. The present stocking was 500 trees per acre with a volume per acre of 5,250 c.f. The average height was 59′ and the average Q.G.B.H. was $8\frac{3}{4}$″. Mr. Leonard pointed out that the crop was originally laid down as a mixture of S.S. N.S. with some S.F. J.L. Mr. Shine favoured heavier thinning but Mr. Leonard argued that even growth with close rings gave high quality timber which made up for any loss in volume. Mr. Clear maintained that ring width from 20 years onwards did not materially affect the strength quality of the timber. A nearby J.L. crop on similar soil compared very unfavourably with the S.S., having less than half of its volume per acre. In Cong Forest generally, J.L. and E.L. crops were disappointing by comparison with Spruce. Mr. Leonard pointed out that game preservation and availability of species were factors which were taken into consideration when plantations were laid down by the previous owners.

After lunch at Ashford Castle Hotel, we visited Cong State Sawmill where Mr. Mooney introduced us to Mr. Flynn, Forester-in-Charge of the mill. Mr. Mooney said that this new sawmill had been operating for a year, and drew its requirements of round timber from Cong, Ballygar and Mountbellew Forests. The intake was 60 tons (1,800 c.f. per week), or in other words about $\frac{1}{3}$ of an acre of fully stocked woodland.

Mr. Flynn then arranged a demonstration of the various saws and machines. A vertical log band mill was set to work planking a Scots Pine log 18′ long and $14\frac{3}{4}$″ Q.G. While the work was in progress a discussion on different methods of sawing round timber took place. Mr. Clear favoured the canting of the log and cutting parallel to the bark rather than to the core, thereby utilising more of the closer ringed outer wood, and leaving a central core of knotty open grained timber. Higher quality boards with uniformity of shrinkage would be thus obtained.

This concluded our Study Tour and our President, Mr. McEvoy, supported by Mr. Mooney expressed the Society's appreciation and thanks to the Minister for Lands, the Department officers, private woodland owners and all who had contributed to the success of the tour.

Film Show

By arrangement with THE IRISH WALLBOARD CO. LTD. a special showing of films of forestry interest was given to members of the Society and their friends at *Mills' Hall, Merrion Row, Dublin,* on Wednesday, 5th October.

The films shown included :

1. *"Harvest of the Forest,"* telling the story of the international activities of the Bowwater Organisation from tree-felling in the forests of the North to the manufacture of the different kinds of paper and packaging materials.
2. *"Tennessee Venture,"* a film made in and around the Bowwater Organisation's new mills in the southern state of America.

After the film show we had a very interesting discussion on the "Utilization of Forest Produce" in which the speakers were Mr. C. O'Loughney, Mr. Cusack, Mr. R. Shackleton of Irish Wallboard, Mr. T. Clear, and our President, Mr. T. McEvoy.