

Annual Study Tour

IN THE CAVAN DISTRICT FROM JUNE 1st TO JUNE 3rd

First Day (Tuesday, June 1st).

The sun shone, in its now almost traditional benevolence, as our bus moved away from the Farnham Arms Hotel in Cavan to our first stop at Castlesanderson Property of Belturbert Forest. There the President welcomed the tour to Ulster and thanked the tour leader, Mr. Fergal Mulloy and the convenor, Miss Lily Furlong for their assiduous preparations. Mr. Haughey, the forester, was then introduced and his assistant, Mr. Hoban, and the pleasure of the Minister of Lands was expressed.

Mr. Mulloy then lead us to our first stop in Compartment 20, carrying Norway spruce, P/38. With a top height of 55 feet and a basal area of 142 H.ft.² it had a volume of 3,825 H.ft.³ Reference to the brochure given to us gave a ready comparison with Quality Class I B.F.C., and with a new concept, a B.F.C. Yield Class 240. As most of us were being hit with this new yardstick for the first time, it gave rise to much discussion and Mr. Gerhardt Gallagher was busied with questions from all sides. Yield Class 240, he explained, meant a production of 240 H. ft.³ per acre per year and such a figure became a management definition of production. The thinning regime was calculated to a finely adjusted level of basal area. This regime derived from the economics of marginality, whereby the lowest capital was employed to give the maximum return of interest. Such tables use top height for deriving production potential, but not

for purposes of definition. It was felt that greater refinement of the tables was to be expected as they were at present rather broad in their class descriptions. Discussion of them was most interesting, and it was refreshing to feel a vital interest developing in the definition of economic standards of production.

Mr. McNamara called attention to some clean-boled ash of 9" q.g. and Mr. Mulloy referred to their growing on soils of Silurian derivation. This was believed to give ash free from calcium tyloses and leave the ash more supple for its final use in sports goods. Reference was also made to the evidence of natural ash being more frost hardy than planted ash.

Our second stop was made on land granted under the Ulster Plantation Compt. 19 Castlesanderson. Oak groups which had been planted in 1938 in a Norway spruce matrix had been steadily eclipsed, so that to-day one wondered was there sufficient oak to carry it through a second rotation of spruce. It was thought that this was just possible but the question reopened the perennial topic of hardwood inclusion with conifers. Many embers of memory were stirred and various opinions set forth. All agreed on the utter need of early intervention, but the degree of attention was reduced if the groups were protected by their own size and close planting.

In moving from this stop, Mr. McEvoy remarked on the pronounced spiral grain evident in some of the spruce. The Breton foresters had been surprised to see that we in Ireland did nothing to reduce the incidence of it. Such timber would be inferior for sawing and the removal of any spiral grain stems in early thinnings was recommended.

Our third stop was on the property of Major Madden, Hilton Park, Clones, who cordially welcomed us. He told us of some background history of the estate and it was obvious that his family's association with the estate over many generations was a keen source of pride for him.

The lands were granted to a Sir William Forth in 1622 after the dispossession of the McMahan clan. Then in 1734 a Dr. Madden, who was a doctor of divinity and was later to be associated with the founding of the Royal Dublin Society, purchased the area. He marked the event of his marriage and of taking up residence there in 1751 by planting an oak tree. Several generations of the family had since cherished and enriched their heritage which includes 200 acres of woods and plantations of the total estate of 906 acres. Of this acreage, there are over 90 of conifers, mostly Sitka spruce. In latter years the production of Christmas trees by the close planting of Norway spruce with hardwood, has become important.

Chemical grass cleaning was employed and it allowed full feathering of the trees to ground level. The application of 'Gramoxone' from two sides by using an 'Arbogard' was proving both effective and economic. The results on a line planting of Norway spruce at 2½ ft.

spacing with beech and occasional oak in alternating single lines was encouraging. No formal protection against deer or hare had been necessary and the unfenced planting on a steep rise from the main drive served to enhance the parkland beauty.

An area of poplar, of *robusta* and *eugenii* species, and planted in 1957 to fill a blown area, was then visited. The *robusta*, approaching 25 feet tall and pruned when reaching $2\frac{1}{2}$ " g.g., was surely of the best in the country. It was situated in an area of lush nettle growth and a pH of 6.7 but the water table was almost at ground level. Some later planting was sheltered by other plantations and served to show by the straighter stems why Ireland can be regarded as the windiest country in Europe. Major Madden was interested in hearing views on pruning. He felt that pruning in June avoided epicormic growth while pruning in February allowed callouses to heal quickly. He intends to prune to 20 feet but match manufacturers wish trees to be pruned a further 10 feet which makes pruning disproportionately expensive.

The regeneration of an area carrying old beech and *Abies alba* was then visited. The sparse regeneration shown made the rehabilitation essential. The felling of all inferior hardwoods, leaving only amenity specimens and the planting of any blanks using *Abies grandis*



Mr. O. V. Mooney, comments: "I don't think there is any doubt about that."

was recommended. The use of agricultural land to produce Christmas trees was being practised at the following stop. At $3 \times 2\frac{1}{2}$ ft. on a 6 year rotation, cleaning by using 'Arbogard' and 4 fluid ozs. of 'Gramoxone' per gallon of water was employed. One man cleaned an acre in two days at a total cost of £12. The use of 'Preglone', 'Dowpon' and 'Gramoxone' in nursery, Christmas tree and general forestry were discussed and the comparative costs of using such as T.V.O. were considered. Specific areas were best considered individually, it was felt, and using sprays under precise conditions was of great importance.

The final pause at Major Madden's occasioned a pleasant rivalry when we each guessed the height of a fine Douglas-fir of 32 inches q.g. Mr. Mangan, with a sharp eye for such things no doubt, won the prize presented by Mrs. Madden with a guess of 140 ft., beating Mr. Hanan's guess only by a whisker!

After a gratifying lunch at the White Horse Hotel, Cootehill, the next stop was made in Cootehill Forest. Mr. Leonard, forester in charge, led us to Compt. 38, Dartry, on drumlin soil where Scots pine had been severely thinned, leaving only 100 cubic ft. per acre and the area had been replanted using Douglas-fir and Norway spruce. The Scots had been of suspect provenance and had been disappointing. Mr. Condon put a case for total clearance to allow ploughing which would have been worthwhile at even 1 acre per day output. Professor Clear felt that, given satisfactory growth, choice Scots of say 16" q.g. at 80 years would result from the present policy which he recommended despite a resultant risk of pine shoot beetle and moth infestation. The total clearance of lop and top at a cost of £20 per acre had reduced this risk and this was considered reasonable.

A pleasant journey of some miles through the sunlit drumlin country of Cavan then brought us to famed Dunaree in Kingscourt Forest. Under wonderful conditions Mr. P. Cassidy and his assistant Mr. John Duane showed us the results of Forestry Division's first decided essay into recreational promotion. Mr. Duane's enthusiasm showed in a tasteful layout of walks and vista points culminating in the renowned wishing well. And to round out the visit, as we rested in the green glade by the famed chestnut tree Mr. Duane treated us to a warm rendition of the delightful song.

J.D.

Second Day (Wednesday, June 2nd).

The sun again shone brilliantly on this second day of the tour as we studied the forests of south Cavan, taking in the northern tips of counties Longford, Westmeath and Meath.

At the first stop, in Camagh Property of Castlepollard Forest, Mr. Mulloy pointed out that the week was devoted to three main site types: 1. 'Leitrim Daubs', 2. better old woodland sites and 3. cut-over bogs. This first stop was on a cut-over bog now consisting of about 30 inches of good amorphous peat over a limestone sub-stratum. The nearby

River Inny drainage scheme appears to be improving the bog. The tree-crop was three year old Sitka spruce under which *Molinia* was taking over from *Calluna* to a large extent, but it was felt that the heather will come back and cause check in the Sitka spruce in about three years time. This check appears to be tied up with a toxic substance in the heather roots, rather than mere root competition, and Mr. N. O'Carroll cited an experiment on a Midland peat where response of Sitka spruce following chemical suppression of heather was evident, whereas application of phosphates without heather suppression had no appreciable effect. 'Gramoxone' spray before planting followed by the calculated risk of getting the Sitka spruce through the frost-danger period was Mr. Maher's recipe for success.

A short distance away, on the same bog, Mr. Mulloy showed us an area of seven year old *Pinus contorta* which is comprised of two strongly contrasting forms. One was the now famous (or infamous!) Lulu Island provenance, recognised by its profuse male flowering and distinctly 'Interior' fine-foliaged appearance, while the other was called 'Oak Ridge' provenance. This latter provenance is an 'Interior' type but with noticeably thick needles, comes from an area about 160 miles inland in the Cascade Mountains, and is also lacking in vigour. Mr. T. McEvoy was not convinced that there was not a place for Lulu Island



Messrs. G. J. Gallagher, D. McGlynn, S. Galvin and T. McEvoy in profound thought.

Pinus contorta in Irish forestry, such as in the Midland bogs, but Mr. O'Carroll had no faith in it, even here, working on evidence so far collected from a variety of other sites. Mr. O'Carroll did, however, suggest that it might have a place in horticulture as a handsome suburban decorative, especially in the spring when the orange-brown male flowers are so abundant ! At this point Professor Clear suggested not only chemical suppression of the heather and the use of Sitka spruce but, perhaps, a whole revolution in plant espacement such as 12×3 feet to allow for easier mechanical spraying, extraction, etc. In spite of fairly stiff opposition, he maintained that high quality timber would result and that there would be no difficulty in mutual suppression of branches.

In driving to the next stop at Mullaghmeen we were interested to see several of the new bungalow-type Land Commission houses in County Westmeath. These would appear to be a complete and welcome breakaway from the older cottage-type similar to the average County Council houses.

At Mullaghmeen we inspected a stand of 29 year old beech which had originally been planted with European larch, but most of the latter had since been removed. A lively discussion developed as to the merits of pruning but Professor Clear was of the opinion that there was no great price differential between grades of beech. He advocated leaving the dominant trees alone so that they would produce the bulk and at the same time would become self-pruned. He maintained further that beech is mainly for the furniture trade and therefore four foot bolts are all that are required. It was generally agreed that if one cannot shape hardwoods by secateur-pruning in the first five years no later pruning is of value and, furthermore, an acre should be the minimum block of hardwood. Major Madden was more optimistic about the economics of hardwood growing and even about firewood sales since the introduction of the chain saw to almost every farm.

In Compartments 6 and 7 one of the almost inexplicable mysteries of forestry was demonstrated in the form of small areas of a variety of P/57 conifers which were all in a state of check. The soil is shallow over limestone and it was suggested that the presence of *Aira caespitosa* indicated a high water table which was combining with local frost-hollows to create the almost stagnant condition of the tree-crop. However, perseverance with *Abies procera* looked the best course of action, in spite of the fair showing of Corsican pine. Scots pine and European larch are almost total failures on this site.

On the way back to the bus we passed over the shoulder of a small hill and from about 800 feet had a magnificent view across what is sometimes described as the "dull flat Midlands." From a vantage point of this sort the lakes, bogs and farm-land were anything but dull, seen under perfect weather conditions. Following lunch which was eaten in the very pleasant surroundings of the Park Hotel, Virginia a short

walk beside the golf course brought us to part of Headford Property of Baileboro Forest. Here the demonstration was on the effect of wind on a 27 year old Norway spruce crop following the removal of a belt of old hardwoods to windward. In this general context Mr. Gallagher thought it might be worthwhile to dig a series of survey soil-pits which would enable one to think ahead of anticipatory fellings. In this particular case it was felt that it might have been wiser to leave the hardwoods as a lakeside amenity belt but occasional small windblows create an uneven-aged forest which in itself is an amenity.

The last stop of the day, in Compartment 6, provoked one of the liveliest discussions of the tour. Here we saw beech and oak 27 years old which had been thinned early and was now inclined to spread. In a survey of the $5\frac{1}{2}$ acres involved about 80 trees per acre, of all species, were found and of these a lot might be considered doubtful and of course they were not evenly spaced. As beech and oak are not mutually compatible it should have been decided long ago to keep the oak. By topping the beech early, clean oak should have resulted and the small shrubby beech would keep the ground and the oak stems clean. Alternatively at this stage, it was suggested that it might be possible to ring-bark the beech at 8 feet either mechanically or chemically. One suggestion for ring-barking was simply to beat all around the stem with a hammer and peel off the strip. Professor Clear finished the discussion on the optimistic note that it should be possible to grow oak to a quality worth £3 per cu. ft.

A.M.S.H.

Third Day (Thursday, June 3rd).

On the third day of the tour, under blue skies and a blazing sun tempered by a westerly breeze, the members were privileged to study under such ideal conditions the two extremes of the productive capacity of forest soils in the Cavan area. On the one hand there were the deep free-draining brown-earths of Killeshandra where production lies close to the maximum. On the other hand, at the other end of the productive scale, were the gleys or 'channel' soils of Swanlinbar, where impeded drainage and low fertility are the most significant and critical characteristics. By way of contrast, but completely pertinent to the problems of afforestation in impeded drainage areas, a visit was made to the Agricultural Institute Research Station at Ballinamore to observe and discuss the activities in the agricultural field on this type.

The first call on this most instructive day was to Castlehamilton Property of Killeshandra Forest. At the outset the President introduced Mr. M. Ryan, a soils expert from the Agricultural Institute who had just joined the party that morning. He intimated that Mr. Ryan's presence on that day was propitious and felt that his contributions in the soils field would be significant and of tremendous value and benefit to the members. So indeed it proved to be as the day unfolded. Mr. Mulloy then introduced the Forester-in-charge, Mr. B. Collins, and his assistant, Mr. M. Friel. He then briefly recounted the history of Castle-

hamilton Property. The Property was established in the period 1934-38 with Sitka spruce and Norway spruce as the main species. Resultant crops are of Quality Class I and II standards (Yield-Class 240-280). This rather striking production level gave rise to a spirited discussion on a method of thinning to be adopted to ensure maximum output from these categories. Mr. Gallagher explained the significance of the new Y-Class concept of production control. Comparisons were drawn between Yield Table and Y-Class figures and their respective relevance to the actual crop figures presented. Various reasons were put forward by Messrs. McEvoy, Breslin, Maher and Condon for the disparity which was apparent in particular elements of the statistics. Messrs. McGlynn and Mooney felt that the heavy grade of thinning adopted was, however, appropriate to the site conditions. This view in fact represented the general consensus of opinion of the party. Professor Clear elaborated at this point on the concept of thinning to marginality. This concept envisages a thinning practice being adopted which is strictly related to the productive and incremental capacity of the crop. Appropriate cubic footage is removed at appropriate intervals having regard to management and marketing plans.

At the next halt, in Compartment 10, (Norway spruce with some oak) the perennial question of what procedure to adopt in regard to the oak came under discussion. Mr. Kilpatrick advocated that where the hardwood element did not have sufficient stems per acre to form a final crop that it should be written off and ignored in management plans for the area. Both Mr. McEvoy and Mr. Maher disagreed and suggested that even small amounts of hardwoods should be encouraged and even cherished in management plans. In the party generally there was more support for the latter point of view, but this would seem to be based on sentiment rather than hard facts of forest management practice.

At a subsequent halt Mr. Ryan commented on the excellent soil conditions prevailing in Castlehamilton generally. He described it as a deep free-draining brown-earth on the border of the Silurian and the Limestone, which was fairly typical of that region of Co. Cavan. This gave rise to a discussion on the relative merits of forestry as against agriculture on these soils. On the basis of his knowledge of the farming practice of the region Mr. Ryan estimated that gross agricultural production would amount to £50 per acre. A rapid calculation of forestry potential provided a figure of £25 per acre. This sobering statistic imparted a jolt to those of us who had been observing with a somewhat smug satisfaction the excellent results from forestry on these soils. It was noted that Mr. Mulloy forthwith became conscious of the time and set the party in motion toward the next site!

In Compartment 12, the very vexed question of the incidence of *Fomes annosus* on Sitka spruce was raised by Mr. Doyle. He wondered (in common perhaps with many others) at the efficacy of the stump treatment with creosote. Mr. McGlynn intimated that while the creosote treatment did not eradicate the disease from the soil, it certainly had an

inhibiting effect on its extension to other as yet unaffected stems, nevertheless he felt that a good deal more investigation was necessary on this particular problem. Mr. O'Carroll referred to the work of Danish investigators and Dr. Jack referred to that of the British Forestry Commission. Neither investigation was, however, as yet conclusive. Professor Clear, Mr. Mangan and Mr. Mulloy also contributed to the discussion.

The next property visited was at Gortinaul where Sitka and Norway spruce crops of P/34 vintage were studied. Here Mr. C. H. Kerr invited observation on the method of marking thinnings for standing sales, and Mr. Mulloy elaborated on the system employed. Mr. G. Gallagher commented on the comparison between Yield Table figures, Y-Class figures and the actual C/D grade of thinning adopted in this plot. In commenting on an observation regarding the apparent change in volume production on adjoining areas of this plot, Mr. Collins pointed to the close relationships between such changes and the invasion of briars into the ground vegetation. Mr. McEvoy intimated that this would seem to arise from variable soil depths due to the undulating nature of the particular compartment. At this point Mr. Condon drew attention to the fact that selected stems in this Sitka spruce stand were high-pruned. He questioned the economic justification of this practice in a fast-growing conifer which would inevitably, due to its rapid growth, lack some of the essential qualities of "quality" timber, the avowed objective of high-pruning. Mr. J. Durand expressed a measure of agreement because the end uses of Sitka spruce did not require the high standards of quality aimed at. Further support for the view expressed was not, however, forthcoming, and in fact the suggestion was "shot down" from all angles! Professor Clear intimated that high-increment stands always justify high-pruning. Rings per inch was not regarded as a critical requirement for quality. Uniformity of ring-growth and freedom from knots were far more critical requirements. Mr. Mulloy referred to the bad reputation of Irish timber in the past and suggested that all fast-growing timbers must be high-pruned. Mr. McNamara referred to the possibilities of high-quality, knot-free timber and Sitka spruce in particular in the peeling or veneer trade. (e.g. Sitka spruce for chip baskets.). -In the face of such weighty opposition Mr. Condon did not pursue the point further and the discussion was concluded by Mr. McGlynn who outlined the specifications adopted by the Forestry Division to ensure a uniform and guaranteed standard of high-pruning practice.

At this stage a pre-prandial lethargy had overtaken most of the party but this was very quickly and effectively dispelled by an excellent picnic-lunch partaken of in the beautiful surroundings of Killykeen Property. The President very appropriately drew attention to the wonderful possibilities of tourist development in this part of Cavan generally and in Killykeen in particular. The members of the party would unanimously agree with the sentiments expressed.

Following lunch the party proceeded to Swanlinbar Forest (Burren Property). Here our acquaintance was renewed with Mr. Haughey and Mr. Hoban, whom we had already met on our first day at Castlesanderson. The problems studied at Burren were in complete contrast to those encountered in the forenoon and indeed to those encountered generally up to then on our tour of the Cavan area. Here the situation was characterised by extreme conditions of impeded drainage coupled with inherently low fertility. Sitka spruce (P/62) and lodgepole pine, Norway spruce and noble fir (P/63) were studied *in situ*. Mr. Ryan described the properties and features of the soil type. Discussion ensued on what was deemed the best method of establishment to be adopted in such circumstances. It was generally agreed that treatment with Clarke plough would probably give the best results. Prompted by a query from Mr. S. Galvin on the subject, Dr. R. J. McConnen elaborated on the comparative economics of short rotation forest crops on low production sites against reclamation to agriculture for grass production. He pointed out however, that such comparisons were only valid in certain circumstances and in practice might never arise.

The next and final feature of this third day was a visit to the Agricultural Institute Research Station at Ballinamore. Mr. Mulqueen welcomed the party on behalf of the Director. He outlined the work being carried on at the Station the object of which was to investigate management problems associated with the traditional farming methods of the area. The aim was to evolve new techniques by which the stocking rates on farms could be increased and maintained. The party was then taken on a conducted tour of the farm where various trials designed to investigate drainage, physical condition of soil, nutrient status and stock management, were observed and discussed. A very interesting sidelight on this visit was provided by Mrs. McCracken in her observations on the local history of the Ballinamore/Swanlinbar area and the activities that characterised the area in the 17th and 18th centuries. The visit was very appropriately brought to a close by the party being entertained to tea by the Agricultural Institute. This was an excellent repast and was much appreciated by all. This concluded the technical activities of the 1965 Study Tour.