

## Annual Study Tour

### *First Day.*

THE calm cloudless skies of the morning of Monday, 27th May, augured well for the 21st Annual Study Tour of the Society of Irish Foresters, and, as our bus hurried from the hustle and bustle of a busy Dublin and headed for the peaceful tree covered slopes of Wicklow, the wish common to all present was that this historic tour would not be marred by any inclement weather. As it turned out our wish was fully granted and we enjoyed five days of glorious sunshine.

Arriving at the home of Mr. J. Murphy, Forester-in-Charge, Glen Imaal Forest, we discovered that a Telefís Éireann camera crew were there ready to attempt to capture a brief glimpse of the atmosphere and enthusiasm of an Irish Forestry Study Tour. Alongside the forester's picturesque dwelling, the members grouped as Mr. Michael McNamara, President of the Society, extended a welcome to all present. In particular he welcomed us to Co. Wicklow, which had a forest coverage of 10%, the highest in the country. He then introduced Mr. D. McGlynn, Divisional Inspector for the area, who, in turn, also extended a céad míle fáilte to those gathered there, and he hoped that both the staff in charge of the forest and the members would benefit from the visit.

Mr. Niall Morris, Convenor, then mentioned that the main block of the forest was a few miles further on and the formalities having been completed we drove to see the first of the many sample plots chosen for inspection during the tour. The figures listed in the handout for this plot are as follows:—

Property: <i>Glen Imaal</i>				Compartment: 21	
Species: <i>Sitka Spruce</i>				Age: 34 (P/29).	
				<i>Plot</i>	<i>B.F.C.</i>
No. of Stems per Acre	...	...	...	260	255
Mean Qr. Girth	...	...	...	9"	9"
Mean Tree Height	...	...	...	74'	74'
Mean Tree Volume	...	...	...	19.4 H. ft.	18.8 H. ft.
Volume per Acre	...	...	...	5,044 H. ft.	4,800 H. ft.
Top Height	...	...	...	76.5'	78'
Quality Class	...	...	...	II	II
Total Basal Area/Acre	...	...	...	146 sq. ft.	136 sq. ft.

### *Increment Estimate*

Schneider Increment % (S) ... 4.8.

C.A.I. per acre/annum (modified in accordance with formula

C.A.I. =  $0.9S + 1.8$ ) ... 308                      300 B.F.C.

<i>Soil Analysis</i>				<i>Pb</i>	<i>Ca</i>	<i>P</i>	<i>K</i>
0 — 1" in depth	...	...	...	4.7	1	4	1
1 — 4"    "    "	...	...	...	4.3	1	4	2
4 — 9"    "    "	...	...	...	4.1	1	4	2

Before discussion was opened, it was stated by Mr. Mooney that this 34 year old stand of Sitka spruce was one of the oldest and best stands of Sitka spruce that would be seen on our five day tour.

The question was asked as to the length of rotation or ultimate size of log envisaged for this crop. In answer it was stated that while no well defined plan had as yet been drawn up, the possibility of clear felling, when the 10" to 11" B.H.Q.G. stage had been reached, was under consideration. It was recognised that the stand was still putting on valuable increment and that it would continue to do so for another 10 years or so. An alternative to clear felling, if a steady supply of marketable saw log had to be maintained, was the suggestion that approximately 50 of the larger stems (1,500 cu. ft.) be removed. This treatment of the stand was received with mixed reactions as some thought that the removal of a number of the larger poles would affect the wind stability of the crop. While the timber merchant would welcome the appearance on the market of logs of such dimensions it was pointed out that 11 $\frac{3}{4}$ " B.H.Q.G. was recognised as being the ideal size of tree.

Before leaving this stand of Sitka spruce Mr. Morris focused the attention of the members on a tree tightly girdled with a small aluminium band. By means of a vernier scale incorporated in the band it was possible over a period of time to measure the increase in circumference of a particular tree. A number of these instruments were in use throughout the country with readings taken every week by the local forester. Thus, with the data gathered over a period of about 10 years at hand, it should be possible to determine when growth commences and ends, and also when growth is at a maximum. The 1961 readings indicated that growth was slow in May, that it reached a peak in July, dropped somewhat in August and dropped further in October. Growth it appears generally ceases about the 3rd week of October. As might be expected, temperature and rainfall influence growth considerably, and the sharp frost experienced in June 1962 was recorded on the bands by a fall off in growth.

Leaving the Sitka spruce, we walked a short distance to a stand of Douglas fir which had a scattering of Japanese larch and the data for this crop reads as follows:—

Property :	<i>Glen Imaal</i>	Compartment :	20
Species :	<i>Douglas Fir</i>	Age :	34 (P/29).
		Plot	B.F.C.
No. of Stems per Acre	...	350	365
Mean Qr. Girth	...	6 $\frac{3}{4}$ "	6 $\frac{1}{2}$ "
Mean Tree Height	...	53'	56.5'
Mean Tree Volume	...	7.0 H. ft.	7.6 H. ft.
Volume per Acre	...	2,457 H. ft.	2,790 H. ft.
Top Height	...	62'	60'
Quality Class	...	IV	IV
Total Basal Area/Acre	...	112 sq. ft.	109 sq. ft.

*Increment Estimate*

Schneider Increment % (S) 7.0.

C.A.I. per acre/annum (modified in accordance with formula

C.A.I. =  $0.9S + 1.8$ ) ... 197 214 B.F.C.

<i>Soil Analysis</i>				<i>Pb</i>	<i>Ca</i>	<i>P</i>	<i>K</i>
0 — 1" in depth	...	...		5.0	1	2	1
1 — 4" " "	...	...		4.7	1	2	2
4 — 9" " "	...	...		4.6	1	3	3

*Japanese Larch*: Dominants which occur, have an average height of 67 ft., and correspond with quality class II crops of B.F.C.

These figures do not speak very highly for this plantation and in seeking possible reasons for its general backwardness and unsatisfactory growth the members came up with some interesting observations. In 1932, following the damage to a large group of Douglas fir, Japanese larch was introduced and it was thought that this latter species had interfered considerably with the normal well being of the original species. It was also pointed out that the low phosphate content of the soil was a factor which could not be overlooked in seeking an answer to the question. With an elevation of just slightly under the 700' contour line the site was considered too exposed for Douglas fir and this theory was borne out by the fact that there was evidence of wind blast.

Before boarding the bus for Carlow our President thanked those of the Bray Division who had contributed to get the Study Tour of 1963 off to such a fine start.

Following an excellent lunch at Carlow we travelled in brilliant sunshine south-westwards through the historic city of Kilkenny and on towards our next rendezvous at Boherboy Property of Anner Forest. Here Mr. McNamara again performed the necessary introductions as we met Mr. McCarthy, Divisional Inspector of the area, and Mr. Larkin, Forester-in-Charge. Mr. McCarthy extended a hearty welcome to the members of the Society and then Mr. Morris led the whole party to visit a plot marked out in a Douglas fir stand. The data given for this plot is summarised as follows:—

Property: <i>Boherboy</i>				Compartment: 12	
Species: <i>Douglas Fir</i>				Age: 33 (P/30).	
				<i>Plot</i>	<i>B.F.C.</i>
No. of Stems per Acre	...	...	...	300	310
Mean Qr. Girth	...	...	...	7¼"	7¼"
Mean Tree Height	...	...	...	63'	62.5'
Mean Tree Volume	...	...	...	9.94 H. ft.	10.5 H. ft.
Volume per Acre	...	...	...	2,982 H. ft.	3,256 H. ft.
Top Height	...	...	...	70'	66'
Quality Class	...	...	...	III	III
Total Basal Area/Acre	...	...	...	112 sq. ft.	115 sq. ft.

*Increment Estimate*

Schneider Increment % (S) ... 5.0.

C.A.I. per acre/annum (modified in accordance with formula

C.A.I. =  $0.9S + 1.8$ ) ... 188                      250 B.F.C.

<i>Soil Analysis</i>				<i>Pb</i>	<i>Ca</i>	<i>P</i>	<i>K</i>
0 — 1" in depth	...	...		4.8	1	2	4
1 — 4" „ „	...	...		4.8	3	2	6
4 — 9" „ „	...	...		4.9	1	1	2

The difference in size between the various trees was noticed and it was the general consensus of opinion, that a selective thinning should be carried out. It was also learned that 10 to 15 years ago the crop had passed through a check phase, an occurrence apparently common to Douglas fir. However, it now appeared to be thriving and the site was recognised as being more suited to Douglas fir than the previous ground visited at the Glen Imaal Forest. Still, the presence of lichens growing on the bark caused one member to voice his doubt that all was not well with a crop which displayed this phenomenon.

The wisdom of growing Douglas fir when Sitka spruce generally gave a higher yield was questioned, and in answer it was mentioned that it might prove more economic to plant Douglas fir if 5/- to 15/- per cu. ft. could be obtained from the transmission pole trade. Another factor in favour of Douglas fir was that, as a crop, it culminated much later than Sitka spruce which tended to fall off after approximately 50 years. Again Douglas fir was a tree which could be geared to meet the demand of the veneering trade. In view, therefore, of the apparent versatility of Douglas fir the question was then raised as to the reasons, or lack of reasons, for its doubtful popularity among the timber people. One of these causes was attributed to the fact that in the earlier timber trials carried out on Douglas fir the material used had been of a coarse and brittle nature and the memory of the poor results still lingered on in the minds of many. The unfair practice of comparing say 50 year old European with 200 year old U.S. Douglas fir also tends to detract from the true worth of the former. Another relevant point in the Douglas fir versus Sitka spruce controversy is, that Sitka, because it is a spruce, is more closely associated with white deal, a timber which in Europe enjoys unrivalled popularity.

The last stop of the day was at Ballynockan Property of Slieve-na-mon Forest and close to the place which inspired the composition of the poem Cill Cais. Here we visited a sample plot in the midst of a Sitka spruce plantation. The statistics for this plot were:

Property: *Ballynockane*

Compartment: 30

Species: *Sitka Spruce*

Age: 28 (P/35).

			Plot		B.F.C.
No. of Stems per Acre	...	...	490		550
Mean Qr. Girth	...	...	5 $\frac{3}{4}$ "		5 $\frac{3}{4}$ "
Mean Tree Height	...	...	55'		49'
Mean Tree Volume	...	...	6.28 H. ft.		5.1 H. ft.
Volume per Acre	...	...	3,077 H. ft.		2,800 H. ft.
Top Height	...	...	56'		53'
Quality Class	...	...	III		III
Total Basal Area/Acre	...	...	113 sq. ft.		124 sq. ft.

### Increment Estimate

Schneider Increment % (S) ... 5.9.

C.A.I. per acre/annum (modified in accordance with formula

C.A.I. =  $0.9S + 1.8$ ) ... 217 305 B.F.C.

Soil Analysis			Ph	Ca	P	K
0 — 1" in depth	...	...	4.6	1	1	1
1 — 4" " "	...	...	4.5	1	2	3
4 — 9" " "	...	...	4.5	4	4	5

The fact that some of the original oak stems had been retained when the Sitka spruce was introduced and that an attack of honey fungus (*Armillaria Mellea*) had killed off some of the younger stems did not help the well being of this stand. Still, although the soil showed a tendency towards gleying, it was generally considered that quality class III was low for the site. It was pointed out, however, that the crop need not necessarily remain in this particular class. Reference to quality class immediately gave rise to the perennial argument of how much reliance may be placed on a criterion which uses height as its basis and some thought that the Scandinavian method based on vegetation was a better method of determining quality class.

The suggestion was put forward that a 25 year rotation be employed here, and that all the produce should be channelled in to the pulpwood industry. However, it was considered that the site was capable of meeting both pulpwood and saw log demands, and that a heavier thinning would help to set the crop along such a path. Displeasure was voiced at the thought of utilising relatively good land solely for pulpwood production when there was an abundance of inferior land on hands.

That the pulp mills in this country showed a marked preference for spruce was then mentioned, and in the discussion that followed it was learned that while the mills were inclined to favour spruce, it was really the available quantity of a particular species which was the overriding factor in this question. In the U.S. 30% of the timber used for pulpwood was *Pinus contorta* while in New Zealand *Pinus radiata* formed the bulk of the pulpwood material.

It was on this note that the first day of the tour terminated and after

extending our thanks through our President to Mr. McCarthy and his staff we boarded the bus which carried us on to Cahir, to a first class meal, and to a night's relaxation.

T.McG.

*The Second Day.*

On entering Cahir Forest we were welcomed by Mr. C. A. McCormack, the Divisional Inspector. Cahir district has long been noted for its Scots pine and larch plantations, and our particular interest to-day was with a stand of European larch on the recent  $4\frac{1}{2}$  thousand area acquisition from the Charteris Estate. The party heard with regret that the District Inspector, Mr. Munnelly, was ill and unable to attend. His assistant, Mr. O'Connell, and the Forester, Mr. Collins, were both present.



Our Convenor, Mr. Morris, supplied data of the plot under discussion. It was mainly European larch but with an occasional Scots pine. The crop had received no systematic treatment at least, no records or evidence had been found and neither was there any record of its early life. As it now stood there were 400 stems per acre with a mean height of 68 ft. and a mean B.H.Q.G. of  $7\frac{1}{4}$ ". Volume per acre was 4,790 Hoppus ft. The increment % was estimated at 3.3 but it was admitted that the method of estimation—an adaption of the Schneider formula—was open to doubt.

A surprising feature of this crop was that while the number of stems per acre, the volume and the basal area were all double the figures of the B.F.C. yield table the mean B.H.Q.G. was only slightly less than the yield table figure. In value it was in the pole stage and while silviculturally it might be said to have been mistreated, its value now was very much higher than if it had received the orthodox treatment. The pole market was at a peak and there was a grave danger that if we based our treatment on the economics of this peak price we could run into trouble later. Farmers no longer had an appreciation of the value of good larch for carts, gates, and other farm uses, at least not enough to pay an enhanced price for it. First quality class larch was not common and indeed we seemed to have given up the struggle to grow larch or Scots pine; Sitka spruce and *Pinus contorta* bid fair to replace all species, larch included.



From Cahir the party travelled to the beautiful Glen-of-Aherlow and to the chargeship of Mr. Boyce. The crop to be discussed here was Scots pine planted on the south face of the Slievenamuck mountains. The age was 34 years, number of stems per acre 640, mean height 37 ft., B.H.Q.G.  $5\frac{1}{2}$ ". Volume 2,065 Hoppus ft. The current increment per cent. was estimated at 5.5 and the crop was quality class II by B.F.C. yield tables.

There was originally a European larch/Scots pine mixture, the larch giving the volume in the early years and being removed in thinnings with Scots pine carrying on the rotation.

The feeling was that for its age this crop did seem poor, but the question was asked could this be due to a phase through which Scots pine passed up to middle age and out of which it would later grow. The stumps showed slow growth in the early years and an increase in later years, and it was generally accepted that Scots pine is a slow starter. Possibly this slow start was an inherent characteristic of the particular provenance we used, as this was one species in which we paid very little, indeed no attention at all, to provenance in the early years of planting.

The soil analysis figures tended to indicate a rich soil, but the soil pit showed the converse. The importance of correct interpretation of soil analysis was illustrated and stressed.

After lunch in the Lake Hotel, Killaloe, the party visited the Chipboard factory at Scarriff, and were shown the manufacture of this popular product from the raw timber to the finished article.

An interesting feature of chipboard is that it consists of an upper and lower layer of spruce chippings with a centre of pine. Chips used in the manufacture are dried to 2% moisture content before being mixed with the glue and it was stated that three tons of wet timber were used in producing one ton of chipboard.

From Scarriff the party went to Maghera Property, Tulla forest, and were met by Mr. Haas, Divisional Inspector, Mr. Gibbons the District Inspector and Mr. Conway the Forester-in-charge.

The Society had visited this area in 1957 following the large blow of February of that year. The visit of "Debbie" in 1961 completed the damage. It was pointed out that this area was planted in the pre-plough era and drainage was probably not sufficient for the type of ground. A soil pit showed a high water table despite a reasonable slope, and the crop Sitka spruce, would have rated above country average for the species.

It was pointed out that "Debbie" was no ordinary visitor and if the crop had not blown down it would have been damaged by cracking and breaking as we saw had happened in Mount Bellew last year and this might prove an even greater loss. The Convenor suggested that form factor could have an influence on stability and suggested that in danger areas silviculture might be directed to giving a tree of low form factor, deep crown, and plenty of rooting space. There was some criticism of the slowness in clearing up after windblow which resulted in the second blow coming on top of the first. It was also suggested that planting of large areas in the one year and with a single species was conducive to windblow. It would be better to distribute one planting in smaller areas over the forest and never attempt a large area of even age monoculture. Blocks of 25 acres are economic to the timber

merchant and there is no need for the large 100 acre blocks we now take as common.

After our discussion in the woods we continued up the new road to the television station on Maghera. Here we were received by Mr. O'Connor, Mr. Dempsey and staff and spent a very pleasant time being instructed in the mysteries of how our television works. Our best thanks are due to Mr. O'Connor and his staff for their patient understanding in replying to our many questions.

M.S.

### *Third Day.*

On Wednesday the 29th May in glorious sunshine the Society visited Cong Forest where we were met by Divisional Inspector, Mr. O'Carroll, District Inspector, Mr. Mac Meanman, Forester-in-Charge, Mr. Leonard and his assistants, Mr. Lonergan and Mr. Kelly. We were welcomed on behalf of the Minister of Lands by Mr. O'Carroll and Mr. Mac Meanman.

Our first stop was in a stand of 45 year old Norway spruce for which the convenor gave us the following details:—

			<i>Plot</i>	<i>B.F.C.</i>
No. of Stems per Acre	...	...	260	285
Mean Qr. Girth	...	...	10 $\frac{3}{4}$ "	9"
Mean Tree Height	...	...	72'	70.5'
Mean Tree Volume	...	...	25.4 H. ft.	19.1 H. ft.
Volume per Acre	...	...	6,600 H. ft.	5,454 H. ft.
Top Height	...	...	73.5'	74.5'
Quality Class	...	...	I	I
Total Basal Area/Acre	...	...	210 sq. ft.	161 sq. ft.

### *Increment Estimate*

Schneider Increment % (S) ... 3.8.

C.A.I. per acre/annum (modified in accordance with formula

C.A.I. = 0.9S + 1.8) ... 343                      280 B.F.C.

<i>Soil Analysis</i>		<i>Pb</i>	<i>Ca</i>	<i>P</i>	<i>K</i>
0 — 1" in depth	...	5.3	4	2	1

The Convenor explained that this increment was exceptionally high and the sample plot taken might not be truly representative of the crop. Professor Clear commented on the peculiarity of the fact that the most commonly occurring quality class for Norway spruce in Ireland was quality class II, while in the case of Sitka spruce quality class IV was the average. This might be due to the fact that Norway spruce was usually planted on old estate woodland where land was good.

Norway spruce had its limitations, we were told, but on suitable ground it should be chosen in preference to Sitka spruce because (i) it was more frost hardy (ii) it was usually a more stable crop (iii) it was less susceptible to *Fomes annosus* (iv) it could be run to a longer

rotation. Mr. Morris mentioned that the amount of good ground being acquired by the Forestry Division was diminishing and so it was essential to plant Norway spruce where ground was suitable. Professor Clear informed us that in Denmark Norway spruce was planted on poor podsols and he felt that its range might be extended in this country. Mr. Mooney explained that the research section of the Forestry Division were fully aware of the importance of this species and have included Norway spruce in species trials on a wide variety of soils. Commenting on the annual growth pattern of our major species, Mr. Morris mentioned that, as a result of trials carried out, it has been demonstrated that curve of growth for Norway spruce was more uniform than either Sitka spruce or *Pinus contorta*.

The party then proceeded to Cong sawmills where we were introduced to Mr. Fahy, Forester-in-Charge. This mill was designed by forestry personnel and built by direct labour. Timber for the building and furniture trades was the main line of production. Fifteen men were initially employed and this number increased to the present level of twenty-two men. The present annual output is 62,000 cu. ft. of sawn timber which was comprised as follows: oak 1%, ash 3%, other hardwoods 3%, larch 20% and other conifers 73%. The round timber used in conversion was obtained entirely from the home forest. The quality of this timber was generally rough as the woods in the Cong Estate were mainly planted and maintained as game coverts. The party saw the following machinery in use: two break-down benches (vertical log handmill and friction-feed rack bench), two re-saw self-feed benches, a cross-cut saw, a planer and thicknessing machine, a tenoning machine, a morticing machine, a five-cutter and a spindle moulder. A double kiln with a capacity of 1,000 cu. ft. was also in use. Mainly softwood for flooring with a small percentage of hardwoods for the furniture trade was dried in the kilns. Demand for softwood, particularly building timbers, was very high we learnt and there was a preference for the spruces owing to the existence of decayed knots in the pine here and the roughness and wide grain of the silver fir. A very attractive display of our most common conifer timbers was also on view. Before proceeding to the next stop the president proposed a vote of thanks to Mr. Fahy and his staff for a very interesting visit.

The next stop was in the grounds of Ashford Castle, Cong beside one of the large trees believed to be *Pinus contorta* ssp. *bolanderi*. This group of trees is the subject of an article written by Mr. Hanan in *Irish Forestry*, Vol. XIX. No. 3. Mr. Mooney stated that these trees were believed to have been planted in 1884 and were of obvious interest as they were the largest known specimens of *Pinus contorta* in Ireland. From measurements taken in March 1961, the largest surviving tree was 97', while eight of the specimens were over 80'. Seeds collected from these trees have been sown. Some of the trees were sawn in Cong sawmills and the timber turned out quite satisfactory. At this stage the Convenor presented each member of the party with a souvenir sample

of this famous contorta pine timber. This souvenir was in the form of a very pretty tray which contained in the centre the badge of the Society of Irish Foresters. The President on behalf of the Society thanked the Convenor for this very attractive gift and explained to the members that Mr. Morris had put a lot of thought and effort into the production of the souvenir.

The next point of interest was Foxford Forest where we were met by District Inspector, Mr. Allman, Forester-in-Charge, Mr. Crowley and Assistant Forester, Mr. Hanly. Mr. Crowley stated that Drummin wood was originally owned by Lord Arran. He sold this property to the Sisters of Charity in 1910, who, in turn, sold it to the Forestry Division in 1928. It was mainly old oak woodland with Scots pine, silver fir and some spruce. From 1933-36 the area was cleared and planted at the rate of 60 acres per year. In the period 1936-43 no work was carried out here and the property was in the hands of a caretaker. Then from 1944-50 weeding and pruning operations took place. The first thinning was in 1951, while subsequent thinnings took place in 1957 and 1960.

The first stop in Drummin wood was in a 30 year old Japanese larch stand for which the Convenor gave the following data:—

			Plot	B.F.C.
No. of Stems per Acre	...	...	290	195
Mean Qr. Girth	...	...	8½"	7½"
Mean Tree Height	...	...	65'	64'
Mean Tree Volume	...	...	14.6 H. ft.	12 H. ft.
Volume per Acre	...	...	4,234 H. ft.	2,340 H. ft.
Top Height	...	...	66'	66'
Quality Class	...	...	I	I
Total Basal Area/Acre	...	...	136.0 sq. ft.	74 sq. ft.

#### Increment Estimate

Schneider Increment % (S) ... 3.5.

C.A.I. per acre/annum (modified in accordance with formula

C.A.I. =  $0.9S + 1.8$ ) ... 207                      180 B.F.C.

#### Soil Analysis

			Ph	Ca	P	K
0 — 1" in depth	...	...	5.4	4	2	1
1 — 4"    "    "	...	...	5.3	4	2	2
4 — 9"    "    "	...	...	5.3	3	1	2

Mr. Morris was of the opinion that this crop was overstocked. A discussion arose here on the advisability of growing Japanese larch on a site like this. Mr. Allman stated that if a price of 3/- per cubic ft. was obtained it would be economic to grow Japanese larch, but it was doubtful if 2/- per cube would be procured. Mr. Mangan informed us that the E.S.B. will purchase larch for poles provided it is straight and of good quality. Professor Clear suggested underplanting here with *Tsuga heterophylla*. The tsuga by suppressing vegetation would give

easy access for thinning and pruning operations and a pulpwood crop could be obtained from the tsuga poles.

From here the party moved a short distance to the next point of interest which was a 30 year old *Sitka spruce* stand. The convenor gave us the following information :—

		Plot	B.F.C.
No. of Stems per Acre	...	280	310
Mean Qr. Girth	...	8"	8"
Mean Tree Height	...	66'	66.5'
Mean Tree Volume	...	14.0 H. ft.	13.5 H. ft.
Volume per Acre	...	3,920 H. ft.	4,180 H. ft.
Top Height	...	69'	70.5'
Quality Class	...	II	II
Total Basal Area/Acre	...	122.0 sq. ft.	134 sq. ft.

#### Increment Estimate

Schneider Increment % (S) ... 5.3.

C.A.I. per Acre/Annum (modified in accordance with formula

C.A.I. =  $0.9 + 1.8$ ) ... 255                      332 B.F.C.

*Soil Analysis:* As for last plot visited.

Time did not permit a discussion to take place here and so the day's proceedings concluded with the President thanking Mr. Allman, Mr. Crowley and their associates for a very enjoyable and instructive afternoon.

P.H.

#### Fourth Day.

The sun still shone as we departed from the beautiful Yeats country and headed northwards for Co. Tyrone, where on arrival at Castle-caldwell Forest, we were warmly greeted by members of the Northern Ireland Forest Service.

Mr. Parkin, Chief Forest Officer, welcomed us on behalf of the Minister for Agriculture and went on to say, they in Northern Ireland felt honoured that the Society of Irish Foresters had decided to include some northern forests in this year's "Coming of Age" Study Tour. He expressed the hope that the visit would prove interesting and enjoyable and having mentioned that as a member of our Society, he himself was looking forward to an exchange of views, introduced Mr. Kilpatrick, Deputy Chief, Mr. Phillips, Divisional Officer, Dr. Jack, Convener and Research Officer, Mr. Woolfenden, District Officer, Mr. Montgomery, Head Forester and Mr. Cunningham, Forester.

Dr. Jack outlined progress to date at Legges Wood property of Castle-caldwell Forest, where *Sitka spruce* was planted on a 1st class site in 1919. Thinnings to date have yielded 6,125 H. ft. per acre and standing volume at present amounts to 6,247 H. ft. making a total crop yield of 12,372 H. ft. per acre. Periodic annual increment, October 1958/December 1962 was 400 H. ft. per annum.

A sawmill 20 miles away facilitated disposal of heavier thinnings and no difficulty had been experienced in disposing of pulpwood at remunerative prices. Mr. Morris, stating that less than 5% of our Sitka spruce stands in the south were of quality class I standard, expressed pleasure at seeing a fine stand above Q.C. I to which Dr. Jack replied that 3% to 4% only of Northern Ireland Sitka spruce fell into Q.C. I. In reply to a query from Mr. Mooney, who commented on the vigour of the plantation and enquired if it was to be retained, Dr. Jack replied that the stand was being retained and went on to refer to the very considerable damage caused by the 1961 gales. He favoured crown thinning from an early age as a counter measure to storm damage e.g. from 25' upwards. Mr. Parkin favoured more attention to drainage and mentioned that more intensive drainage was being undertaken since 'Debbie's' visit in September 1961.

The second stop at the same forest proved to be a P.08 Sitka spruce and other conifer stand at Stone Park which had been acquired in 1960 and never thinned. Sitka spruce volume was now 12,500 H. ft. per acre and M.A.I. 230 H. ft. per annum indicating no loss of production as a result of no thinning. Mr. Morris was of the opinion that had thinning been carried out, there would have been even a greater volume than 12,500 H. ft. per acre and Professor Clear assessed the possible gain at 200 to 300 H. ft. per acre, which he pointed out would not have been marketable due to location. Mr. Busby pointed to the slow dying of the repressed trees as a safeguard against windthrow and Mr. Morris drew attention to the compound interest problem in unthinned stands.

As time marched on, our President, Mr. McNamara, thanked Mr. Cunningham and we boarded our coach for Ballintempo Forest where, on arrival, a sumptuous *al fresco* meal, prepared by Mrs. Stinson and Mrs. Thompson, awaited us on an elevated site which commanded a magnificent view of the entire countryside. The President really spoke for the entire party when he thanked the talented ladies and their helpers who provided such an appetising meal.

Well sustained, we entered Ballintempo Forest where we were introduced to Mr. Stinson, Forester. This forest extended to 4,000 acres, 1,600 acres of which had been planted and was a deep peat area of low productivity. The forest workers' houses (for key workers) at the entrance to the forest, rent of which with water laid on, was 4/- per week, aroused comment as we travelled to our first stop where some very interesting experiments in drainage and manurial treatment were outlined by the District Inspector, Mr. Woolfenden.

A plot was drained with a single furrow Cuthbertson at 30' apart in July 1955, but in 1957, it was noted that there had been little or no change in the vegetation as a result of the pre-drainage work.

Plots ploughed in late 1955 and planted in March, 1956 with Sitka spruce and *Pinus contorta* showed *Pinus contorta* growth to be

considerably better than Sitka spruce to date; but in the case of both species, application of basic slag has proved more beneficial at time of planting than 1 year later with difference more marked in Sitka spruce. Ploughing methods, utilising Beggs and Cuthbertson's single and double mould board, do not appear to have had any marked effect but it was noticeable six years later, in 1962, that Sitka spruce growth tended to fall off on the areas that were least intensively ploughed.

Mr. Parkin referred to the importance of attention to deepening of main drains, the beneficial effect of the tree crop in changing the peat structure and lowering water table and mentioned that the action of the trees was more pronounced than the deepening of the drains in lowering of the water table. He considered that a good pulpwood crop was a reasonable expectation.

Preparation for 1964 planting at the forest introduced a Type P. Cuthbertson with a system of racks left every 14 planting rows at right angles to road system in order to facilitate extraction later.

Mr. Stinson explained a modification which he himself designed for the single Cuthbertson plough for the stepping down of the ribbon, the advantages of which he stated were suppression of vegetation, early access to emulsion, more shelter for young plants and reduction in costs. Mr. Woolfenden informed us that the previous manuring at 2 ozs. per plant at time of planting, mostly basic slag, was now being superseded by 3-4 cwt. of ground rock phosphate per acre broadcast, prior to ploughing, using a Muskeg Tractor mounted on rubber and aluminium tracks which are capable of traversing swamps.

Time continued to march on and reluctantly we left this very interesting forest, our President thanked all the officers concerned for the painstaking reviews of their work.

Final stop for the day was Pubbles Nursery near Enniskillen where our party were welcomed by Mr. Coates, Nursery Officer, who introduced Mr. Parker, District Inspector, Mr. McSorley, Head Forester and Mr. Bell, Forester.

The advantages of the nursery, we were informed by Mr. Coates, were soil texture, natural drainage and proximity to planted areas of 320 acres but the disadvantages were many e.g. aspect, frost, exposure, slope, stones, scattered blocks and waste ground.

In 1953, the Ph. was 5.1 but by the end of 1955 it was down to 4.7. Ground limestone was applied in 1956 and 1957 and the Ph. is now fairly steady at 5.2 to 5.4. Consideration is being given to the use of peat instead of farmyard manure as the soil is generally lacking in humus.

Nursery costs in the first years were very high and the need for mechanisation became an urgent concern. Mr. Bell outlined the forms of mechanisation introduced which included a seedbed-ridger in 1955/56, an imported stone-picker and a tractor-drawn imported sand and

grit spreader in 1959 and a home designed tractor-drawn seedbed roller in 1960.

Reduction in cost per acre of seedbed sown was quite spectacular when 1955 costs of £103 per acre with a basic wage of 120/- per week were compared with 1962 figures of £65 per acre when basic wage had risen to 168/- per week. Apart from this drastic reduction in costs, these changes between them resulted in a marked increase in the quality and quantity of seedlings produced.

Introduction of a small plough in 1959, followed by replacement of the Northern Ireland type lining out board by the Ben Reid type in 1961, increased the number of plants lined out, per man day, from 2,600 in 1958 to 5,000 in 1963.

Simazine, introduced for the first time on a small scale in 1960, was used on all transplant lines in 1961, resulting in a saving in that year of over £400 in weeding costs. In 1961, Paraquat was tested as a pre-emergence weed killer and proved so much more effective than T.V.O. that nothing else is being used now.

As time was pressing, owing to our Annual Dinner engagement in Omagh, we bade farewell to Pubbles much earlier than we would have wished. Mr. McNamara thanked Mr. Coates and his staff and, in particular, the ingenious Mr. Bell for a most informative sojourn at the Nursery and we then boarded our coach for Omagh.

On arrival back in Omagh, the party were the guests of the Minister of Agriculture, Mr. H. W. West, at a cocktail reception in the Royal Arms Hotel, Omagh. The Minister was unfortunately unable to attend having been called on urgent Cabinet business and was represented by Mr. H. Elliot, M.B.E., who is responsible for the Forestry Division of the Ministry. He was accompanied by senior technical officers of the Division, and also present was the Duke of Abercorn, representing the Royal Forestry Society of England, Wales and Northern Ireland, accompanied by the Duchess.

Following the cocktail reception, the Society held its Annual Dinner. The guests included the Duke and Duchess of Abercorn, Mr. and Mrs. Elliot and Mr. Parker, Chief Forest Officer for Northern Ireland, and Mrs. Parker.

A pleasant surprise was the presentation by the local officers of a cake in the form of a log ringed with twenty-one candles. "The log" was duly cut by our President who was assisted by the Duchess.

J.R.

### *Fifth Day.*

The party arrived at Cootehill Forest on the final stage of the tour with most of them suffering from the effects of the night before.

Mr. Breslin, the District Inspector, extended a welcome on behalf of the Minister for Lands and introduced Mr. Mulloy, Assistant District Inspector and Mr. Dalton, the Forester-in-charge.

Mr. Morris pointed out a stand of Sitka spruce and Norway spruce mixed. Figures, as per data supplied, were read out and a lively discussion was centred on the performance of Sitka spruce and Norway spruce growing on the same site. Sitka spruce, in this stand, showed quality class III while Norway spruce was quality class I. Mr. Mooney pointed out that Norway spruce should be favoured on sites suited to it, while Sitka spruce would show more production on the poorer types. It was noted that variation of stem sizes was due to group planting of hardwoods throughout the area. Mr. Mooney also pointed out that frost was a major factor to be considered on such sites and this was a pointer to plant Norway spruce, the more frost resistant of the two. The most striking point about the stand was the selection felling of commercial trees, approximately 20 to the acre and 15-20 H. ft. each. The wind blow danger resulting from this treatment was discussed. Professor Clear pointed out that dominants were usually blown by the wind and always caused further damage. Past experience with Douglas fir proved this point. Mr. Morris said that the relationship of form factor and rooting system had an important bearing on this matter. Trees of low form factor have better rooting systems making them more wind firm. Professor Clear indicated that the reduction of over all top height reduces the danger of wind blow and favoured the removal of dominants from the economic and silvicultural point of view—sub-dominants usually pick up after removal of dominants. Mr. Loughrey pointed out that as vigorous dominants appeared to be favoured in early thinnings, felling should be carried out by forest labour as private companies tended to do damage while dealing with these. It was indicated that Norway spruce on such sites was of good quality class but produced poor quality timber. Mr. Morris pointed out that Sitka spruce might not be as vigorous if planted pure. Professor Clear favoured the adoption of Sitka spruce and Norway spruce mixture in order to cash in on the vigorous dominant Sitka spruce that would be taken out in the first selection thinning.

The party then proceeded to the second stop where a comparison of pure blocks of Scots pine and Norway spruce, side by side, growing on the same soil type was made.

The Scots pine showed less stems per acre and a lower annual increment when compared with B.F.C. tables. The Norway spruce adjoining was much superior. Mr. Galvin pointed out that the Scots pine was probably in its slow stage as was noted at Cahir forest and would possibly catch up on the Norway spruce. Professor Clear said that the poor quality of Scots pine stems and the low yield was an example of the loss that can be experienced on those sites. Quality class III or IV Scots pine on such sites could be clear cut.

The aspect of breaking up large blocks by planting such strips of Scots pine through them as a precaution against wind-blow was discussed. It was generally agreed that it would be a good security scheme. Mr. Morris indicated that the tendency to open up Scots pine too

quickly resulted in the invasion of briar and undergrowth, causing a loss in annual increment up to as much as 50%. Mr. McNamara thought that *Ulex* invasion would result in loss of annual increment but briar etc. would suppress undesirable grass and in itself would not retard growth. The Norway spruce stand soil profile showed gleying tendencies. C.A.I. of 247 H. ft. at 28 years compared favourably with B.F.C. yield tables.

The party proceeded to the third stop where the finest oak to be seen in the country was viewed. It was 130 years old and had a 20½" mean quarter girth and 34 ft. to the nearest branch. This quality II stand produced an estimated 57 cu. ft. per acre per annum.

It was mentioned that the price for poor quality oak was 3/- per cu. ft., but quality oak for veneer fetched up to 15/-. It was pointed out however that the demand for oak was declining, fetching only 4/- and 5/- per cu. ft. for furniture.

A selection felling was recommended for this stand removing the poorer quality stems and retaining the better ones pending a good market. The understorey of rhododendron should be retained to keep the stems clean of epicormic branches—potential veneer oak might revert to inferior oak by development of epicormic branches. Professor Clear agreed that the undergrowth should be retained and suggested that spraying of epicormic branches to keep stems clean might be considered. It was also indicated that the retention of the whole stand as a national monument might be a good idea.

Mr. McNamara at the closing stages thanked the local officers who co-operated so willingly in making the stay at Cootehill such a success. The officers in the north were highly complimented on their co-operation, kindness and efficiency. Members were thanked for co-operating with the convenor, Mr. Morris.

Mr. Morris received hearty applause from the members in appreciation of his efficiency and his unsparing efforts in making the tour a success. He expressed pleasure in the co-operation he received from everyone.

The bus driver was not forgotten, receiving a round of applause for his effort in carrying out all requests effectively.

Mr. Mooney stated that the tour was the most successful and enjoyable in his experience and attributed this to Mr. Morris's co-ordinated effort and willingness to bear the weight of responsibility in the organisation of the tour.

B.O'R.