

1968 Study Tour

County Donegal

COUNTY DONEGAL

Co. Dun na nGall ("Fort of the Stranger")

AREA: 1,193,000 acres.

ENCLOSED FARMLAND: 390,000 acres.

Mountain, Moorland, Rough Pasture: 800,000 acres (Highest proportion in Ireland).

AGRICULTURE

20,000 holdings owned by 15,000 farmers, 75% having less than 50 acres.

SIZES OF HOLDINGS (1965)

	1-15 acs.	15-30	30-50	50-100	100-200	200 and Over
	8,270	4,565	3,027	2,715	1,208	469
	41%	23%	15%	13%	6%	2%

TILLAGE: 66,400 acs. (17%)

Barley	Oats	Wheat	Potatoes
7,500 acs.	36,000	900	22,000

POPULATION

Total: 108,486 (1966 census) (36.5% of the total resident in the county in 1841).

Emigration rate 1961-66: 1.5% per annum (over twice Republic average).

Between 1951 and 1961 almost 40% of the 15—24 age group emigrated from the rural areas.

TOTAL WORK FORCE: 40,700 (1961)

Agricultural Occupations: (1961) 22,800 (53% from 1926).

Agricultural Occupations: (1926) 48,800.

FORESTRY:

Total Acreage: 50,000 acs. approx.

Productive Acreage: 40,000 acs. approx.

Planted to date: 35,000 acs. approx.

Potential of forest land in county: 250,000 acs.

Districts: 2

Forests: 19

Labour Staff: 360

GAELTACHT

Covers one-third area of county but only contains 15% of population.

First Day June 11th.

Mr. O'Donovan, District Inspector, welcomed the bus party to Donegal as we travelled to our first stop at Raphoe Forest. Professor Clear welcomed members on arrival at Mongorry Property, where the tour leader, Mr. Johnston, introduced the forester in charge, Mr. Seamus O Domhnaill, a *chuir chad mile failte romhainn go Dun na nGall agus da foraois fein go h-airithe.*

The sun shone and the extending shoots of the young *Pinus contorta* plantations all around us, with their bright brown clusters of male flowers, all and each proclaimed high summer.

The existence of a block of almost 1,400 acres of plantations, all aged under 15 years, pointed up the scale of planting in such areas where convenient acquisition offered. Only in later years had Clarke ploughing become available to break the iron pan over underlying quartzite.

These upland properties of Mongorry and Dooish overlooked the valley of the Swilly with Muckish mountain rising as a dramatic backdrop. In the valley is some extremely fertile farmland, affording contrast with the upland grazing areas and forest plantations.

Our second visit was to a 25 year old Sitka spruce stand in check at the small timber category stage. This was in Corravaddy Property of Letterkenny Forest, Compts. 1, 2, 3. An arithmetical rate of decrease in width of annual rings in recent years had caused investigation and various fertilizer rates and types were being employed experimentally.

The absence of precise soil data for such conditions was regretted, due to the likely inter-action between any added P and the existing iron pan. The stand's condition called forth many points of view, including Professor Clear's ready comment that such sites of 200 yield class would repay a better return on the nation's investment in fertilizer than would be possible from pasture. He alluded to current Finnish

practice, where he had recently visited, and the Finnish method of hand distribution of urea—rather than of phosphate. Costs for labour and material are not likely to exceed £1 per acre. Mr. Kilpatrick told of recent purchase by N.I. Ministry of blowers to give coverage of up to 2 chains wide.

In view of exposure in Donegal—which was to be impressed on us again and again, no doubt to prevent us from being deluded by the balmy weather we enjoyed—the point was made that a check at such an age might suggest that short rotations might be the basis of management in general, and that manuring would likely have a part to play in advancement of saw log sizes where the investment of fertilizer would be quickly realised in the more sheltered and productive areas.

J.F.D.

AFTERNOON JUNE 11th.

GLENVEIGH

*"This castle hath a pleasant seat, the air nimbly and sweetly
recommends itself unto our gentle senses".*

Macbeth Act 1, Scene 6.

Even those in the party who were accustomed to beauties and contrasts of our Irish countryside were moved by the strange grandeur of this remote corner of Co. Donegal. Here some 17 miles north west of Letterkenny, lies this haven of enchantment, Glenveigh Castle.

We were welcomed by Philadelphia born owner, Mr. Henry McElhenny and his agent, Mr. Julian Burkitt, who treated us to a brief outline of Glenveigh's history. The present estate, around 30,000 acres in extent, was first owned by a Mr. John Adaire from Ferbane, Co. Offaly.

The castle, an impressive building overlooking Glenveigh lake, was built between 1863 and 1873. It is now believed that the money for the building of the castle and "buying out" about 250 small holders was provided by John Adaire's wife, an American-born heiress. The local tradition is that some "persuasions" and an appropriate amount of cash was supplied to facilitate the emigration of the dispossessed smallholders to Australia and that most of them settled in Victoria.

The mountains of Derryveigh contained, at that time, the already dwindling remnants of some native red deer (*Cervus Elphus*). These deer were enclosed about 1880 by a 28 mile long deer fence and new blood was introduced from Scotland to strengthen and improve the stock.

Primarily run as a deer forest of 28,000 acres, the estate was then and still is, the only one of its kind in Ireland.

By 1890, when John Adaire died, the stock had increased to around 1,100 head. His widow continued to maintain the deer forest until her death in 1922 preserving the deer fence and winter-feeding the stock. After her death considerable local pressure was brought to bear on the authorities to divide the estate but without success. While the agitation was proceeding the deer forest was virtually derelict. The present day stock at Dunlewey and Meeniroy is thought to date from that time.

The estate remained in this condition until 1930 when an American, Prof Kingsley Porter, when on a visit to the area succumbed to its charm and offered to buy the entire estate if the deer fence was restored. The purchase price was eventually agreed on and this 30,000 acre state with its castle, deer forest—the deer fence restored—and a herd of deer was acquired for a sum which we were told, would not now purchase an average size suburban house. The professor introduced new stocks of deer from Scotland and for a few short years enjoyed deer stalking in the best Scottish tradition. In 1937 Professor Porter disappeared tragically off the coast of Innisboffin and the estate was again on the market.

In 1938, the present owner, whose great grandfather came from Milford, purchased the estate and at once started the mammoth task of making the now internationally famous gardens of Glenveigh. Plants and shrubs were brought from at least four continents.

The gardens are about 10 acres in extent and the formal layout usually associated with gardens of a former age is nowhere apparent. The mass of colour provided by the quite extraordinary variety of rhododendrons and azaleas was in striking contrast to the austere wilderness of the adjacent mountains and lake.

Under the expert guidance of both Mr. McElhinney and Mr. Burkitt the party had the fascinating experience of a journey through what might well be described as a botanist's paradise.

Quite apart from the botanical significance of the Glenveigh gardens, there are other interesting features in this unique estate. At the southern end of the lake, which is $2\frac{1}{2}$ miles long, lies some 200 acres of natural oak, holly, birch forest. *Rhododendron ponticum* is presently threatening the natural regeneration process of the oak and plans are afoot to clear the dense understore to encourage the natural regeneration. The importance of this work of conservation was, of course, of particular interest to foresters and encouraged a lively discussion on chemical methods of eradicating the rhododendrons. These methods, while successful, were subject to the limiting factor of cost, which even for a wealthy owner was an important consideration.

Another important aspect of conservation at Glenveigh was the red deer herd. Standing as it does at approximately 800 head, it represents about 75% of Ireland's red deer population. Three or four hinds obligingly showed themselves to us during our visit.

Poverty of natural feed and the expense of deer fence main-

tenance makes the conservation of this, the largest wild animal in Ireland a gargantuan task.

Mr. McElhenny is to be commended for the substantial contribution he is making in preserving a remarkable Irish heritage.

Our President, Prof. Clear closed the afternoon's visit to Glenveigh by expressing to Mr. McElhenny the thanks of all present for the pleasure of allowing the party to visit the estate and for the time both he and Mr. Burkitt gave to make this visit so memorable.

We returned to Lifford at dusk via the scenic route of Bunbeg, Bloody Foreland and Gortahork.

F.M.

Second Day

Our second day of the tour commenced with a visit to Killygordan State nursery, where we were introduced to the Forester-in-charge, Mr. J. Darcy, and his two assistants, Messrs. D. McBride and F. Tormey. The nursery, first opened in 1963, overlooks the Finn valley, elevations varying from 107 to 207 feet O.D. The soils, developed from glacial drift which is composed mainly of mica schist and gneiss with some granite, vary from acid Brown Earths at the lower levels to Brown Podzolics at the higher elevations. Their favourable textural, structural and physiographic features are conducive to good drainage conditions. Chemical analyses carried out in 1965 showed pH levels to be strongly acid while phosphorus and potassium levels were low and moderately low respectively. The nursery occupies a total area of 56 acres and is highly mechanised and intensively managed. Before proceeding on a tour of the area Mr. O.V. Mooney provided us with some interesting general information about nursery production in the State Forestry Service. The Forestry Division now own twenty nurseries amounting to 787 acres. All are located on mineral soils. A breakdown of these figures shows that twelve of the nurseries, amounting to 677 acres, are now largely mechanically operated, six of the smaller ones, amounting to 64 acres are hand operated, while the remaining two, accounting for 46 acres could be classified as being semi-mechanical. The production target is to supply adequate plants for the 25,000 acre annual planting programme. In the 1967-68 season thirty seven million plants were produced, while a total of 1,455 pounds of conifer seeds and 8,625 pounds of hardwood seeds were sown. These figures for pounds of seeds sown are a reduction on previous years due to improvements that have come about in the field of seed germination. For example, seedling production from 1lb of *Pinus contorta* seed has been increased from 25,000 to about 90,000 but may be much higher, production at Killygordan has reached 134,000 seedlings per pound of seed. The same trend holds for Sitka spruce where figures have risen from 30,000 to an average of about 80,000 and at Killygordan have reached 110,000. These figures coupled with great progress in chemical weed control and general mechanisation have reduced costs of production

considerably despite rising labour costs. It is being planned currently to put a pilot Nursery Center Building at Killygordon which will provide office accommodation for the forester together with canteen and toilet facilities for the staff. Space for a workshop and storage for machinery will also be provided.

After Mr. Mooney's talk, Mr. Darcy gave us a comprehensive outline of the nursery stocking and the fertilisation, mechanisation and weed control methods used at Killygordon. The stocking for the 1968 season was as follows :

1 year seed beds	5.0 acres
2 year seed beds	4.5 "
Seedlings lined out	16.5 "
Transplants	7.0 "
Green crop	9.0 "
Fallow	6.5 "
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Productive nursery area	48.5 "
Unproductive, Roads, etc.	4.68 "
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	53.18 "

Manurial Treatment :

Transplant lines : 4 cwt. per acre of 0.10.20 at lining out.

Seed beds 4 cwt. per acre 0.10.20 to all species except *Pinus contorta*. The latter receives 14 lbs. per 100 yards of effective bed of 0.10.20. This helps to produce a strong 1+1 plant.

Green crop : 3 cwts. 10.10.20 per acre to green crop sown in May.

Weed Control :

Transplant lines : 4 lbs. Simazine per acre in 120 gals. water applied with knapsack sprayer. The rate is reduced to 2lbs. per acre for *Pinus contorta* and Japanese larch.

Seed beds: Pre-emergence spraying: 1 pint Grammoxone W. per acre.

The various machines attached to the nursery were then demonstrated to us. The immediate impression to be obtained was the high degree to which all nursery work has been mechanised. The loading of the sander from a tipping trailer and the attachment of discs to the plant lifter for the purpose of isolating the lines of plants, were typical examples. While a demonstration of the rapidity with which seed beds can be sown, and covered with sand, was in progress, Mr. M. McNamara expressed the view that too much grit and too little humus was being added to cover seed beds and that soil exhaustion could come sooner than expected. Mr. Darcey argued that fallowing and green cropping would prevent this happening, while Mr. Ryan felt it might be better to use peat moss for this purpose. Mr. O'Driscoll claimed that the use of grit in recent years had been mainly responsible for the improvements in seed germination. On the other hand it was stated that very encouraging germination

figures had been obtained in a small experiment at the Agricultural Institute's Peatland Experimental Station, Lullymore, Co. Kildare on milled peat. Some peat soils would be highly suited to nursery work and Bord na Mona should be made aware of this potential.

As we walked through the nursery we were impressed by the long weed free rows of healthy plants. However, losses were observed in some lined out *Abies nobilis*. Mr. Cosgrave thought that exposure might be the causal factor while Mr. Donovan suggested damping off as a possibility. Mr. Mooney informed us that such high losses were widespread with *Abies nobilis* generally and that so far no explanation had been found.

The outstanding feature of Killygordon nursery is the high quality of plants produced. Bearing in mind that the nursery is only five years in existence, and that the staff are all young, great credit is due to all concerned for a job well done.

2nd Stop :

Our second stop for the day was at Monellan Property, part of Killygordon Forest. This property, containing 130 acres, was formerly the demense land of the Delap estate. The acid soil, derived from glacial drift of predominantly gneiss and schist composition, can be described as a Brown Podzolic. Texture varies from sandy loam to loam.

In 1928 it was purchased by Henry Myers and Sons, who cut, converted and sold its stock of timber. At that time the wood contained an assortment of hardwoods, a block of Norway Spruce on the western side, some Scots Pine and European larch. The block of Norway Spruce was completely uprooted by a storm in 1930, by which time it had attained a height of about 100 ft. The Beech was exported to England for furniture making and most of the Oak was sold to the Northern Ireland and Donegal Railway Companies for sleepers. The Larch was used for boatyard material at Killybegs and the Norway Spruce for roofing material. It took ten years to complete the cutting and removal of the timber.

In 1939 the area was acquired by the Forestry Division. Laurel and rhododendron which were then in abundance were cut and either sold for firewood or burned, to facilitate planting.

Main species used were Sitka and Norway Spruce, pit planted at 5 ft. apart. Beech was planted in rows along the existing roads and a small group of Oak and Ash in an alluvial area.

Frost retarded growth in part of the area in the earlier years.

Mr. S. McNamara supplied us with figures obtained from sample plots taken in the area and told us that we were seeing probably the best stands of spruce in Donegal.

SAMPLE PLOTS

PLOT	PLOT 1		Compt. 7		S.S.	
	Age	S.P.A.	Top Height	Mean B.H.Q.G.	Basal Volume	Standing Area
PLOT	28	480	64	7 $\frac{1}{4}$	179	5480
Y/C 260	30	249	70	7 $\frac{3}{4}$	106	3440

PLOT			Top		Mean		Basal		Standing	
	Age	S.P.A.	Height	B.H.Q.G.	Area	Volume	Area	Volume		
PLOT	28	680	48	5 $\frac{3}{4}$	153	3460				
Y/C 220	30	390	55 $\frac{1}{2}$	6	96	2285				

Comparison of these figures with the Management Tables show both stands to be very overstocked. The main feature of the figures, however, is the greater volume production from the Sitka spruce. The production figures for both species are also a reflection of the high suitability of the site for timber production.

Professor Clear made a case for extending Sitka spruce onto better land while Mr. Mulloy supported him and criticised the many marginal subsidy schemes being given to farmers in possession of what were inherently poor agricultural, but highly productive forest soils. Leitrim and Cavan were two counties where large areas of such land existed. It was pointed out that the Forestry profession have failed in their duty to produce sound and understandable production figures for such, or indeed any, sites. We must go further than Yield Class to convince economists of the untapped potential. Much remains to be done.

M.L.C.

WEDNESDAY AFTERNOON

Following lunch at Stranorlar the party continued to Ballybofey forest where Mr. J. P. Dowds, head forester and his assistants Mr. J. J. Galvin and Mr. J. Fogarty were introduced.

The area of Stranorlar Forest is 6722 acres of which 4832 acres are considered plantable. To date 4400 acres have been planted leaving a reserve of 432 acres. The planting programme for the coming season is 250 acres. This forest has a labour staff of 45 men.

Stop 1 :

The first stop was at compts 43-48 which had been planted in 1960 with contorta pine. The adjoining plantation across the border was of Sitka spruce.

Croghonagh property of Ballybofey forest was planted between 1951 and 1962 with contorta pine of the Lulu Island provenance on both double and single mouldboard ploughing and with $3\frac{1}{2}$ cwts per acre of G.M.P. spot applied after planting. Compts 32 and 37 which were planted in 1957 showed a yield class of 60 when they were assessed in 1966. Across the border in Co. Tyrone an area of similar type peat under the control of the Northern Ireland Forestry Division had been treated in a different way. Here the area was treated with $1\frac{1}{2}$ cwts of G.M.P. per acre broadcast by machine before ploughing. During ploughing racks were left at 1 chain intervals, for access by machines for transport of men and materials and for ease of extraction later. The area was planted with S.S. in 1967. A complete change in vegetation followed this treatment. The original vegetation was scirpus calluna but it is now lush molinia with the S.S. looking promising at this stage. The merits of this system were discussed at length and it was felt that the absence of main drains may produce problems in the future. The adventurous nature of the ideas adopted by the Northern Ireland service was applauded especially their extensive use of machines where possible.

Mr. Marin, the Northern Ireland forester demonstrated the use of the Snowtrack and Muskeg machines.

Stop 2 : Meencaragh property Compts. 1-12.

The original acquisition was 320 acres all of which have now been planted. Planting was carried out in 1941-2 and was among the earliest ventures in moorland planting in the Northwest. Mounding and drainage were carried out manually.

Figures for two sample plots taken were—

Plot 1—Jap Larch

Plot	age	s.p.a.	Top Ht.	Mean		
				13HDG.	13.A.	Volume
Yl. Cl 240	27	370	50	$6\frac{1}{4}$	103	2730
	25	283	48	$5\frac{1}{2}$	62	1410

Plot 2—Sitka Spruce

Plot	27	405	57	6	100	2635
Yl. Cl 120	25	400	54	$5\frac{3}{4}$	93	2200

The soil was Brown podsolics and acid Brown earths on mixed predominantly mica schist and gneiss materials.

Following an interesting discussion on the S.S. sample plot the party returned to Lifford.

B.O'R

*Morning of Thursday, 13th., June**Stop 1 :*

The first stop of the day was made at the Franciscan Capucin Friary at Ards House. Here members of the group were able to attend Mass. After admiring the splendid view of this part of the Sheep Haven, the tour proceeded to its next halt.

Stop 2

This was at the Irish National Veneer Industries factory at the edge of Ards forest. The party was welcomed by Mr. Valkenborgh, the Managing Director, and proceeded to see the method of veneer production.

Logs are first of all squared or quartered, depending on size. These sections are then steamed in special cellars for 65 to 70 hours, and then pass to the veneering machines. Here, veneers are sliced off the log portions in flat sheets, are stacked, and pass to a packaging bay, prior to export.

The group saw a band-saw being mounted and a three foot diameter log being quartered. A variety of imported and home grown timber was being used, and one particular Sapele log weighed about 12 tons. The interior of one of the steam chambers was open to view. There were two veneering machines, one of which, a newer type, was fully automated. The latter was shown operating at different speeds, with two men handling the veneers; these were then stacked, before being dried artificialy. This was followed by trimming to standard sizes, with a guillotine. before finally packing.

Stop 3 :

After driving a short distance through the forest towards the shore, the party left the bus and walked up a side road to a vantage point, affording a panoramic view of the immediate coastline and surrounding forest. Prior to this, Mr. Johnston had introduced Mr. Farrelly, the Forester-in-Charge, and Mr. Boyle, his assistant. He now opened a discussion on amenity and the possibility of a National Forest Park in the area. Mr. Durand mentioned that "Forest" should be emphasised in this title, as active forest development would still take place in such a region. If there were to be recreational development, local opinion, including County Council would have to be consulted. Sheltered sites for cars, caravans, etc., might have to be provided, as well as road improvements. Overnight accomodation could be arranged in surrounding towns, such as Dunfanaghy, and visitors could be drawn from further afield—from Strabane, Lifford, or Derry. It was too early to define the exact area of such a Forest Park.

Mr. Johnston described the location of the area concerned. It was near the end of a peninsula, with quite an amount of scrub, and an element of conservation might be introduced. A caravan park could be positioned near the sand-hills, less than a mile from good strands.

There was a great variety of flora in the forest, and nature study could be an important introduction.

It was also suggested that specific route-walks could be planned, and road-maps prepared of the area, which was already well roaded. Pony-trekking might be introduced, but apart from the main access road, cars should be discouraged. Two caravan sites might be prepared. Some felt that grants could be supplied to encourage private enterprise to provide overnight accomodation, but this might harm local interests.

A caravan park providing forty caravans and services, would cost a minimum of £40,000, and would have to be of the best. A Forest Park should be under Americity Section, and not controlled by a combination of interested bodies. One function of the forester could be to give short instructive talks, and with the introduction of people to the forest, a new aspect would be given to his life.

This completed the morning's programme, and the tour moved on to lunch in Dunfanaghy. C.K.

13/6/'68. Afternoon

From Dunfanaghy we entered the country of McSwiney and Mr. Johnston showed us Doe Castle their fortress. They were gallowglasses to O'Donnell. We proceeded to Carrigart, and thence by the Ocean Drive of Paul Henry fame past Tra na Rossan and Downings to Mulroy House.

The Countess of Leitrim introduced us to her propagation centre for rhododendrons, which is run by Mr. Bergstrom. Many are raised from seed and 80-100% germination is normal. In all, 147 species have been grown and different kinds of compost are used for many species. Labour content of grafting is too high to allow it as an economic method. Cuttings in September will be rooted in March under plain glass. The names of varieties often become mixed, but Mr. Bergstrom was not worried by this. Dwarf rhododendrons retail at 10/- to £1 each. Mr. Ryan said that Wicklow was more suitable as the Mulroy climate was too damp.

We were then shown into the Rose garden. All roses were imported from Germany and have the advantage over Irish roses that they flower from June to October. The Countess asked about shelter trees and Sitka spruce and Cupressus macrocarpa were recommended. Prof. T. Clear suggested she use 'Renadin' mixed with cowdung as a repellent for rabbits. Our afternoon drawing to a close, Prof. Clear expressed the thanks of the Society on behalf of all present.

On our departure, we drove beside Mulroy Bay towards Milford and some islands planted with Sitka spruce were pointed out to us. Mr. Johnston said that the Department hoped to gain possession of the rocky headlands along the shore of the bay. The spot where Lord Leitrim was assassinated by the Fanad men was shown to us on our journey to Lifford via Letterkenny. R. O. C.