

Annual Study Tour

Tour of Brittany

FOR its tour of 1964 the Society decided to go to Brittany. This decision was prompted largely by the visit of Breton foresters to this country the previous year when many firm friendships were established.

A party whose members finally settled at thirty-one, left Dublin Airport on Sunday, the 30th of August, on the first leg of the journey to London. After a short wait in the sweltering London heat we boarded a B.E.A. flight for Dinard and arrived there on schedule; a welcome breeze cooled our heated brows as we alighted.

After we had passed through the customs we were met by the Conservateur des Eaux et Forêts-Bretagne, M. de la Croix Vaubois, who welcomed us to Brittany and after introducing his staff and our interpreter, Melle. Eno, gave us an outline of our tour. As well, we were given a booklet containing details of our trip and also, a general description of Brittany and detailed descriptions of the places we were to visit. We spent our first night in Dinard and before night-fall we had a chance to see the town.

A brief description of the geology and ecology of Brittany is in place here and as well a general outline of the forestry scene.

The soils of Brittany are composed almost exclusively of primary soils derived from silicious rocks of Precambrian, Cambrian and Permian age. An upheaval of acid and base igneous magma towards the end of the carboniferous period caused folding in the sedimentary strata. The granite core is now exposed in large masses.

The non-calcareous nature of the soils has left its mark on the flora of the country in that it is nearly all calcifuge; in this fact it contrasts with the rest of France.

The beech and oak grow naturally in Brittany. The silver fir it is thought was introduced during the middle ages. The forest floor vegetation is typified by *Vaccinium myrtillus* often associated with *Pteridium aquilinum*. On best soils, *Ilex aquifolium* and *Taxus baccata* are found with *Juniperus communis* on dry stony or sandy areas. In badly drained areas *Molinia coerulea* and *Juncus* species are dominant.

Coniferous species *Pinus sylvestris*, *Pinus pinaster*, *Abies alba*, *Abies grandis*, *Picea excelsa* and *Picea sitchensis* have been introduced.

Heaths cover a large area of Brittany. (In Finistere and Morbihan alone they constitute 1/5 of the total land area). The typical plant species to be found here are *Ulex gallii*, *nanus* and *europaeus*, *Calluna vulgaris*, *Erica cinerea*, *ciliaris* and *tetralix* and also *Molinia coerulea*. Efforts are being made in many places to afforest these heaths and we were to see some of these during our tour. The job of securing land to plant was in many cases proving a difficulty.

The State forest administrative region of Brittany is divided into four departments: Cotes-du-Nord, Finistere, Ille et Vilaine, and Morbihan. At the head of the region is a Conservateur and over each department is an Ingenieur en chef des Eaux et Forêts.

The professional organisation of the private forest owners has in the region a union of the syndicates of "Sylviculteurs" owners and one technical association for forest instruction: the A.T.V.F. In the department there is one syndicate of "Sylviculteurs" owners and one centre of Forest technical study: the C.E.T.E.F. which is headed by a forest officer and forest adviser.

Brittany is the least afforested province of France. The percentage under timber is under 6%. In three departments the situation is as follows:

	<i>Private forests</i>	<i>State forests</i>	<i>heaths</i>
COTES-du-NORD	75,000 acres about	6,250 acres	150,000 acres
FINISTERE ...	75,000 acres about	10,750 acres	300,000 acres
MORBIHAN	137,500 acres about	6,750 acres	310,000 acres

In Cotes-du-Nord and Finistere, private forests consist of 4/5th coppice and coppices with standards and in Morbihan softwood coppice amounts to 87,500 acres.

We are told that in recent years efforts were being made to step up afforestation both on state and private property. One of the recent remedies adopted for private lands has been the introduction of the "Pisani Law", the aims of which are to encourage co-operation, to popularise methods of intensive silviculture and to compel the owners of big and medium forests to have planned management.

The State we learnt gave many inducements to private owners. These are (1) the landowners can by contract entrust the management of their lands to the State. (2) Measures to encourage the association of forest properties: loans and fiscal privileges for reafforestation and forest conservation to associated landowners in "groupments forestiers" (forester associations). (3) Reductions in taxation are provided for transfers: the new landowner can have exoneration of three-quarters of his taxes for 30 years on condition that the State controls his management. (4) Above all comes the "Fonds Forestier National" (National Forester Fund). It provides state grants, loans and labour contracts and gets its own life blood from a tax on the proceeds of forest exploitation. The eventual aim of the F.F.N. is to afforest 2,500,000 acres.

First Day (August 31st).

ON our first day we visited the domanial Forest of Villecartier under the leadership of M. de la Fouchardiere, Ingenieur en Chef-Cotes-du-Nord. This forest covers an area of 979 hectares, (2,447 acres). The forest consists primarily of beech and oak which is managed on a 180 year rotation. This rotation is divided into six periods of 30 years. The forest is regenerated by the gradual opening of the canopy at the

end of the rotation. The old trees are all removed 20 years after the first opening is made; by this stage the young beech are well established and the gradual process of thinning out the poor quality stems begins. We were told that a good mast year occurs once every 4 or 5 years. The last good year they had here was in 1961.

The rock is composed of granite with gneiss and micaschist. The soil is a white clay strongly mixed with sand. The top few inches have a thick humus layer.

The forest has a temperate, humid, climate owing to its proximity to the sea, and was particularly suitable for the growing of beech. In the less fertile areas of the forest the exotic conifers were being introduced. The species used were Douglas fir, Sitka spruce, *Abies grandis* and *Tsuga heterophylla*. The European species of Scots pine, Norway spruce and Black fir have been growing on the poorer areas for eighty years.

We were told that the beech of Villecartier was formerly used exclusively for the wooden shoe industry. To-day the good quality beech is in demand for veneer and furniture but poor quality timber was difficult to sell even for firewood. We learnt that only the State went in for growing beech and oak on these long rotations as obviously it would be uneconomic for a private individual to do this.

We were also shown two small nurseries, one of two acres and one of five. In these nurseries we saw very vigorous growth of all species. A feature here was second growth in late summer on a good many species; this in particular was evident on Japanese larch, which was (1 + 2) years and 5 ft. high. Other species grown were Norway spruce, Douglas fir, *Cedrus atlantica*, Corsican pine, Scots pine, Lawson cypress, Sitka spruce and beech.

We learnt that in this nursery nearly all weeding was done by women; no chemicals were used.

Another interesting fact that came to light during our discussions was that there were two types of forest workers. The first, were those paid by the month who earned about £10 per week, these were usually local farmers, and then, there were those who earned their money on a piece rate basis, these started work at any time and they usually had a second job as well.

As time was short we had only a very brief stop at a poplar nursery. Of principal interest was the very fast growth of the young trees.

After an excellent lunch in Dol at the Hotel de Bretagne we drove on to St. Malo and most of the party went for a walk along the ramparts of the old town in preference to a visit to the Quic-en-Groigne museum.

In the afternoon we visited the mammoth hydro-electric works called the Rance Barrage. We saw here that engineers had succeeded in the first step of putting a dam across a narrow section of a long inlet of

the sea and thereby harnessing the fast tides that course in and out. At the time we saw the works, they had at last succeeded in connecting the temporary dam across the inlet after much arduous work on everybody's part. The turbines were now in the process of construction and the dam proper would then be built around them. Giant locks permitted ships to pass up and down the Rance or inlet.

M.J.S.

Second Day (1st September).

Under the guidance of M. de la Fouchardiere the day began with a journey along the Cote d'Emerande in brilliant sunshine and a fresh north wind.

We moved west via St. Lunaire, Cape du Décollé, St. Cast. to Cape Frehel, and Erquy in sight of wide sandy beaches, granite cliffs and buildings, brightly coloured boats, and fishing villages all the way.

On Cape Frehel there was a wonderful display of gorse, heather, and other flowering plants in bloom on the heath, which contrasted with vertical columnar cliffs of red granite, with racing currents below, and numerous sea birds overhead.

After an excellent lunch in Chatelaudren came a visit to the Forest of Malaunay.

This was a rather flat area of 1,400 acres of poor coppice and scrub on an impermeable soil.

Past usage and wartime fellings had left an irregular mixture of scrub oak, sweet chestnut, and alder with much broom.

The property was purchased for the production of commercial conifer plantations, by the "Compagnie des Polders de L'Ouest" about seven years ago, and our party was welcomed on the land by M. Fortin, President of the Compagnie, who was introduced by M. de Kerouartz, President of the Syndicate of Forest Proprietors of Cotes-du-Nord.

The reforestation was carried out under a very interesting contractual arrangement, by which the owners agreed to accept a working plan prepared by the National Forest Service, and controlled and supervised by the Local District Forest Officers, who made estimates and awarded the work to private contractors.

The cost was met from the "Fonds Forestier National," a special fund, managed by the Ministry of Agriculture, and derived from a tax on sales of forest produce, which is an important sector of the French economy.

The money spent is regarded as a loan, secured against the forest crop, and subject to the very low charge of $\frac{1}{4}$ th% interest.

There are tax concessions up to the stage where saleable produce becomes available. Thereafter, the State takes half of all receipts until the outgoings have been reimbursed.

All operations are to be subject to the Forest Service approval up to the time when the crop becomes free of debt. Full control will then pass to the owner.

There are generous conditions in favour of the owner of the land in the event of fire or other disaster.

As 60% of the able bodied men in the region work in the fishing fleet during the summer, and labour is available only in winter, forest work has to be mechanised, and tending of plantations must be arranged to suit.

In Malaunay, a heavy tractor, fitted with a toothed dozer blade, which tore up and pushed aside the scrub, without removing much soil, was used to clear lanes, which averaged about ten feet wide.

These were planted with three lines of Japanese larch, Sitka spruce or Douglas fir according to soil moisture and condition of fertility. Silver fir was interplanted.

This arrangement was not rigid, and if the scrub was tall the lanes were wider and might accommodate up to five lines of plants, and in patches of short scrub they were narrower and might only take two lines.

The principal troubles were with stagnant water, and a strong regrowth of broom. Drainage solved the first, and, in order to avail of the nitrifying action of the broom, weeding was limited to cutting half of each strip in alternative years.

The young conifers were 1.8 metres tall ($5\frac{3}{4}$ ft.) approximately when planted and spacing was $6\frac{1}{2} \times 6\frac{1}{2}$ ft. 55% to 60% of the area was cleared, and it was intended to allow the strips of scrub to remain to provide shade from sun scorch, and to help clean the conifers.

It was predicted that a yield of 3,300 cu. ft. per acre would be obtained at 40 years: at present prices this could be felled to yield 21,000 Frs., per acre, or £1,500 approximately.

Silver fir was intended to form a long term crop when the other species were felled.

The total cost of bringing the young crop to a stage where the conifers were safe from weed competition was stated to be 2,000 Frs. per hectare, or £58½ per acre.

The plantations of four to six years old were vigorous and of good form.

The next stop was at l'Antic, where M. de la Fouchardiere and his family had their own forestry project.

The land was flat, with a heavy structureless clay soil, difficult to drain, but reasonably fertile.

Thirty hectares had been purchased from fourteen tenants, and the fragmented condition of the agricultural holdings was indicated by the fact that there were fifty small plots of land involved.

When the tenants took to sea fishing for their livelihood, oak and birch scrub, with prunus and *Rhamnus* (buckthorn) species, spread over the land. Purchases were made from time to time, and the more open parts were rotavated, while lanes were cut through the taller scrub, and planted with shade bearing species.

Tsuga and Sitka spruce were the main species with smaller amounts of Japanese larch, Corsican pine, *Abies grandis*, *Pinus contorta*, *Sequoia*, and *Cryptomeria japonica*.

Spacing was 2 metres ($6\frac{1}{2} \times 6\frac{1}{2}$ ft.), and the young plants were 20" tall ($\frac{1}{2}$ metre).

Careful drainage was necessary as water tended to lie on the surface in wet weather.

Although the land was fertile, M. de la Fouchardiere favoured the use of manures in order to overcome weed competition quickly.

Due to local climatic factors the date of flushing of buds might vary between mid March and mid May. Spring frosts could be troublesome, especially for strains originating in more continental climates.

All the plantations promised to be highly productive, and in the oldest, at nine years, a few Sitka spruce had leaders up to 1.7 metres ($5\frac{1}{2}$ ft.).

The earlier purchases were made for 80 to 100 Frs. per hectare (£2½ to £3 per acre) but more recently up to 600 Frs. hectare (£18 acre) had been asked; which was regarded as proof that the land was unfit for agricultural use.

The owners' great pride and satisfaction in the plantations was obvious and an enthusiastic discussion took place. The effect in stimulating owners of similar lands to plant was stressed.

The day ended at our overnight stop in the delightful holiday resort of St. Quay Portrieux.

E.J.

Third Day (2nd September).

The members boarded the bus at 8.30 a.m. and in brilliant sunshine we left St. Quay Portrieux behind and drove to the Bois de la Salle Castel. Here we were welcomed by the owner, the Marquis de Saint Pierre, and after a short walk through old woodland with species ranging from oak and beech to silver fir and Scots pine we arrived at a small plot of Sitka spruce.

Chief Engineer, M. de la Fouchardiere explained to us that this stand which was planted 55 years ago was the oldest block of Sitka spruce in Brittany. The original site was considered poor supporting mainly species of *Juncus* but the fact that 100 ft. in height had been reached by the Sitka spruce augured well for the future of this tree on similar sites in Brittany. It was mentioned by one of the party that this particular stand would, according to B.F.C. yield tables, be classified as

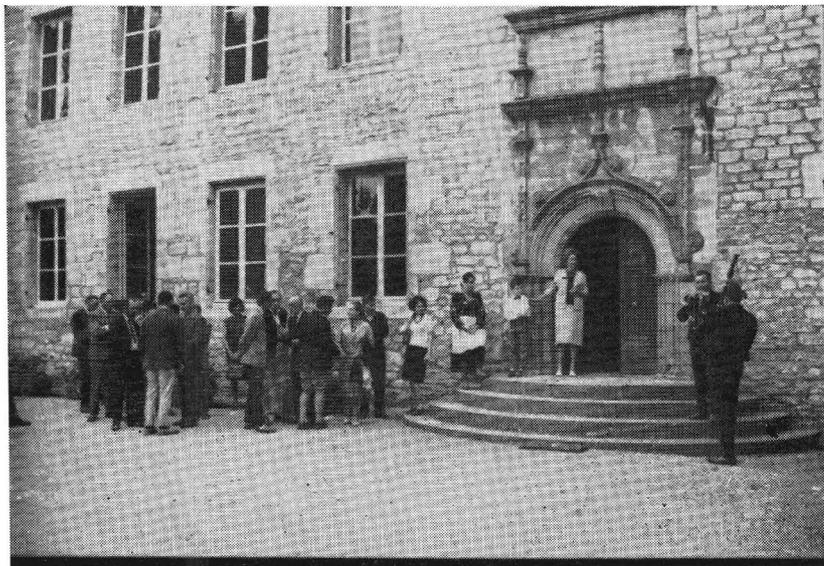
quality class II and on hearing this M. de la Fouchardiere remarked that so far no yield tables had been published for Brittany.

Moving on we next came to a stand of 51 years old tuga, a tree which grows quickly under suitable site conditions. There was much evidence here also of natural regeneration of silver fir which had been propagated by the old silver fir growing close by.

After seeing a sample of a board cut from a Sitka spruce tree growing on the estate our visit to the Bois de la Salle Castel terminated. Mr. Swan then thanked the Marquis de Saint Pierre for allowing us the privilege of visiting and inspecting his woodlands.

Back once more in the bus we headed for the town of Treguier, passing en route the River Trieux. During our short stay here we sampled the atmosphere of a Breton market with its bewildering assortment of clothes, foodstuffs and miscellaneous objects of all shapes and sizes. The XIV century Cathedral with its cloister we also found impressive. However, time did not permit us to tarry too long in this quaint town and so on we travelled to Guingamp.

Our arrival at the home of the Marquis de Kerourtz was heralded by two musicians in native Breton dress, playing traditional airs on the bagpipes and a bugle-like instrument called a bombard. The magnificent banquet to which we were then entertained by the Marquis and the Breton forest owners was certainly one of the highlights of the tour



and everyone of us will long remember the delightful singing of traditional Breton songs by the pretty brown-eyed girl. At the end of the meal Mr. Swan thanked the Marquis de Kerourtz, his gracious wife and the forest owners for their wonderful hospitality and generosity and it was with much regret that we bade farewell and continued on our journey.

T.McG.

Third Day (afternoon).

(Visit recorded by Mr. McNamara, as owing to upset in plans the remainder of the party were not at this scheduled stop).

Visit to wood of "Le Restmeur" belonging to Comte de Kerouartz, President of the Syndicate of the Forest Owners of Cotes-du-Nord.



"Le Restmeur" covers an area of 100 acres and is situated at an altitude of 300 ft. The soil is a deep white moist clay derived from decomposed granite. The wood carries a covering of coppice oak, birch and hazel with a sprinkling of 120 years old oak, beech and sweet chestnut trees. Near the avenues and rides fine specimens of Corsican pine and silver fir of the same age are to be seen.

Since 1937 the Count has directed his efforts towards the changing

over from coppice to exotic conifers, mainly Sitka spruce, *Tsuga heterophylla* and *Abies pectinata*, the latter by means of natural regeneration. The first plantation of Sitka spruce was laid down in 1937 after the coppice had been removed from the site. The spacing used was 2 m. \times 2 m. Some of the trees have now attained a diameter of 14" and a total height of 72 ft. The plot was thinned in 1962 and a check showed that the annual growth over the previous 4 years averaged 4 ft. per year. This first effort at introducing Sitka was on a small scale (only 500 trees being used) but as demand for firewood increased in subsequent years, leaving more cleared ground available for planting, a further 15,000 spruce were planted. On account of the difficulties caused by the war these latter trees did not get all the attention they required and coppice re-established itself, but on the whole the vigorous trees survived and are now well clear of the coppice.

The first plantings of *Tsuga heterophylla* were carried out in 1946-47. The species was introduced mainly as an under-storey through coppice and standards. Hand in hand with this artificial planting went the natural regeneration of silver fir, so that to-day, the conversion of the wood from coppice to fast growing conifers has progressed a long way. Further cutting back of the coppice under-storey will be necessary—particularly with the tsuga and silver fir.

In the course of discussion Count Kerouartz emphasised that a tree has a definite life cycle and if kept in check for a part of its life would



never attain the volume it would have attained under full light conditions. For example the Count pointed out a plot of *Abies pectinata* 60 years old which had an average B.H. diameter of 9" and a total height of 80 feet. The crop was grown under an over-storey of sweet chestnut and was not released until its 40th year. As a contrast the owner was able to point out a silver fir 60 years old with a mid-diameter of 15" and timber height of 60 ft. Another example was 70 years old with a mid diameter of 19" and a height of 72 ft. He said that a silver fir felled during the last war measured 570 cubic feet.

Field trials carried out by the Count with *Eucalyptus gunnii* showed the blue variety to be more resistant to winter frost than the green variety. The blue strain of the species was undamaged by 20° of frost while the green suffered severe damage under similar conditions. Plots of *Larix occidentalis* planted in 1958 would suggest that the species grows more vigorously under the conditions prevailing in Brittany than in Ireland. As appears to be the case in Brittany generally, poplars on the estate are not doing as well as in other parts of France. This is probably due to the lack of calcium which is prevalent over most of the area—pH is 4 to 4.5.

Fourth Day (3rd September).

At 8.50 a.m. the party left on foot from Hotel d'Angleterre in Huelgoat. The forest being visited was the Domaniel Forest of Huelgoat made up of three series with a total area of 590 hectares.

1st Series—101 hectares—of relatively young Conifers.

2nd Series—380 hectares—of Regular Forest of Oak and Beech.

3rd Series—109 hectares—of Coniferous Amenity Forest.

The area being visited was part of the 3rd Series which was beside the town. The leader was M. Morize, Ingenieur en Chef, who had spent fifteen years in this district. He had left the area only two months previously and had returned to lead the tour as his successor had only arrived on the previous day.

The valley is strewn with colossal granite boulders of every shape and size. Paths and natural arches around and between the stones are favourite tourist walks. Many people visit the area to see the stones and for the peace and quiet of the old woods. There are many connections also between the boulders and ancient legends and folk tales. As many of these huge rocks are scattered through the forest the aim here is to supplant the old Scots pine by natural regeneration and planting. The old Scots pine crop were originally planted on heath. They are being gradually removed and replaced by silver fir and Norway spruce. These will give a cleaner forest floor than at present and so make the woods more traversable for tourists. Many of the large granite blocks are in a ravine and a torrent of water usually cascades through the rocks. However, during our visit there was only a trickle of water as the area had had three months of drought.

In the wood we visited La Hutte de Sastotier—the shoemaker's hut. Here an old man made beech clogs and wooden souvenirs. Clogmaking was part of the old woodland craft, and it was kept alive by the sale of wooden souvenirs to tourists. The party arrived back at the Hotel at 9.50 and proceeded west by bus to see the forest groups of Coat Compez and Quillivian.

Forest Group at Coat Compez.

As we proceeded westwards the land got poorer and large areas of waste heather were to be seen. Finisterre is the least wooded part of France with only 4.4% of ground under forests but it has as high a proportion of heathland as 16%. The heaths are generally found on light shallow soils over granite. One of the aims of State forest policy is the afforestation of these heaths, but it is difficult to make progress as the heaths are nearly all privately owned in small portions by farmers who are often wary of the idea of afforestation of their lands. Indeed the very smallness of the individual holdings presents problems and very often while a majority in a certain area, might be willing to have their lands planted there is always the one or two who object; the objectors lands very often being surrounded by those willing.

To overcome this difficulty a new system was started called the "Groupement Forestier". One such group was the Forest Group of Coat-Compez. This is an area of 65 hectares owned by nine people and planted in 1959. Prior to planting the area was covered with furze two feet high. The preparation of the ground consisted in clearing lanes 2.5 metres wide, leaving bands of 1 metre wide uncleared. The clearing was followed by subsoiling at a depth of 50 cms. In the subsoiled land slag was spread at a rate of 580 k.g. per hectare. The clearing was carried out by using a caterpillar tractor with a shovel in front. The cost of mechanical work was as follows:—

- (1). *Clearing and Subsoiling*—27.600 F. (£2,001) i.e. 424 F. per hectare (£30 per h.).
- (2). *Providing and Spreading Manure*—5.670 F. (£411) i.e. 97 F. per hectare (£7 per h.).

In addition to the above, in the unwooded part, draining was necessary at a cost of 811 F. (£58).

(3). *Plants Used.*

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|------------------------|--------------|-----------|-----------|
| 83,900 Sitka spruce | at a cost of | 28.700 F. | (£2,080). |
| 7,800 Spanish chestnut | at a cost of | 2.200 F. | (£159). |
| 700 Lawson cypress | at a cost of | 220 F. | (£16). |

The Sitka spruce came from Belgium. The young trees were mattock planted in the subsoiled lands at intervals of 2 m. for the Sitka spruce, and 2½m. for the Spanish chestnut; there was 11 ft. between the lines. In every tenth line Spanish chestnut was planted; the broadleaved trees were to provide humus.

Total cost of the work excluding the digging of drains came to

64,000 F. (£4,639) or approximately 930 F. per hectare (£67 per hectare).

Groupement Forestier de Quillivian.

Over the hill from the Coat Compez plantations we visited the Quillivian Block. A group of twenty-two owners was formed in December 1958. The lands totalled 94 hectares. The preparation of the ground in this block was somewhat different. Ploughing, somewhat similar to our own, was followed by subsoiling. Half metre wide bands were ploughed at $2\frac{1}{2}$ metre intervals. The subsoiling went to a depth of 40 to 50 cms. No subsoiling was done in the direct seeded area. The subsoiled bands were spread with slag at a rate of 500 k.g. per hectare or 200 grams per plant for pines and 250 grams per plant for the rest.

<i>Cost: Ploughing and Subsoiling</i>	—39,500 F. (£2,863).
<i>Provision and Spreading Manure</i>	— 4,400 F. (£317).
140 K.gram of maritime pine seed were sown on 18 hectares—	
3,300 F. (£239).	
51,600 Scots pine planted in 27 hectares	8,500 F. (£616).
5,700 Red oak	911 F. (£66).
18,500 Japanese larch ,, in 9 hectares	3,170 F. (£229).
82,000 Sitka spruce ,, in 51 hectares	15,800 F. (£1,145).
7,000 Douglas fir ,, in 3 hectares	1,720 F. (£124).
4,000 <i>Abies grandis</i> ,, in 3 hectares	931 F. (£86).
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	93 hectares

The plants were put down by mattock planting at distances of $1\frac{1}{2}$ metres apart for pinus and oaks.

3 metres apart for Japanese larch, Sitka spruce and Douglas fir.

5 metres apart for *Abies grandis*.

Total cost 78,000 F. (£5,655) or 882 F. per hectare (£64 per hectare).

Elevation: of both plots approximately 280 metres.

Fencing: No fencing used as there were no sheep or cattle to trespass on planted ground.

Roads: Road sites are left now—roads will be constructed later.

Markets: No markets yet—later it is hoped to have markets for poles and pulp.

Rotation: No rotation laid out—the policy is wait and see.

About a mile from Le Faou the party stopped to see Cranou Forest. This is an oak forest approximately 130 years old, treated as regular high forest; it covers an area of 603 hectares. The forest lies approximately 25 miles from Brest and is much frequented by tourists at all times but especially when the daffodils are in bloom. After a brief stop

at Cranou the party left for the peninsula of Crozon—a beautifully barren cape extending westwards into the Atlantic. Having spent some time touring this rugged area the party travelled to Quimper for the overnight stop.

Before our dinner at the hotel the party had the honour of being welcomed to Quimper by the Prefect of Morbihan. After a short address to the party which was replied to by Mr. Swan, his Excellency chatted with the members and then departed as he had to preside at another function.

A welcome guest at the dinner was Mr. Mac Piarais, Assistant Secretary of the Department of Lands. At the end of the meal Mr. Mac Piarais was presented with a beautiful set of dinner ware by the Breton forest owners. This was a gift presented in gratitude for the hospitality of the Forestry Division when they (the Bretons) visited Ireland the previous year.

The party were entertained afterwards by open air singing and dancing of Breton folk-tunes. On request a few stalwart members sang Irish songs and were enthusiastically clapped by the large crowd. At the end of the evening our President was presented with a large china soup cauldron. He gave a short speech in Irish in thanks.

To close the evening our entire group sang the Irish National Anthem.

FF.

Fifth Day (September 4th).

On Friday morning, M. Morize, Engineer-in-Chief for Rennes, bade us farewell and introduced us to M. Hermite, Engineer-in-Chief for Morbihan.

M. Hermite welcomed us to his district and expressed regret that we were not favoured with a fine day. He led the party on a tour of the Arboretum of Camors.

The arboretum is situated 30 kms. north-east of Lorient and 25 kms. from the coast. It lies at an altitude of 100 m. The climate is mild but late frosts sometimes cause damage to early flushing species. The soil is a rather shallow brown podsol which overlies a granite subsoil.

The arboretum was laid down in 1934 with 80 plots of conifers, each plot measuring 10 m. square. Approximately 50 plants were used per plot. Failures were replaced in 1938 and some additional plots were laid down in 1941 and 1955.

The most successful plots noted were of *Larix leptolepis*, *Picea obovata*, *Picea omorica*, *Pinus contorta*, *Pinus insignis* and *Pinus muricata*.

Of interest to our party was the satisfactory rate of growth. This was attributed to the climatic conditions prevailing in Brittany which

appear to favour greater autumn growth than we are accustomed to in Ireland.

In the afternoon we were treated to a delightful tour in the Gulf of Morbihan. Here we saw the little island of Berders where Count Dillon of the Irish Brigade lies buried. Along the shore we saw fringes of *P. insignis*, *C. macrocarpa* and maritime pine which showed no apparent signs of exposure.

Our one regret for the day was that circumstances prevented us from meeting Madame de Saint-Georges as originally planned.

M.McN.

Sixth Day (5th September).

On the last day of our official tour we left the town of Vannes and soon ran into the rain that we had encountered the previous morning. This rather spoiled our visit to the ancient forest of Paimpont and we had to be content with a view through the rain washed windows of the bus.

Our booklet told us that the forest of Paimpont, of coppice origin, had been subjected to the ravages of centuries of misuse. It had in turn supplied timber for the needs of the smith shops, glass-trade, potteries, brickyards and also during various wars its reserve had literally been mined. A few efforts had been made to replant portions of it at various times in the past but these had not been very successful. The booklet went on to explain that the cause of these failures could be attributed to poor soil, fires and rights of grazing that still exist. In conclusion it was hoped that Weymouth pine, Japanese larch, Douglas fir and the spruces could be introduced provided they were fenced off from the game. Scots and maritime pine would constitute the basic coniferous crop.

We had what can only be described as a magnificent farewell lunch at an old chateau in Paimpont. Speeches followed by M. de las Croix Vaubois, Conservateur des Eaux et Forêt, and our President, Mr. Swan. Mr. Swan thanked everybody concerned for what had been a most memorable and varied tour. He said that it would be difficult for him to mention by name everybody he should thank, however, he felt he should mention two persons in particular, one was Melle. Eno, our interpreter, who had been not only his interpreter but also companion, philosopher and guide during the tour, and the other was Miss Furlong, our convener, who had so ably looked after us all during the tour. He went on to say that we would all return to Ireland with happy memories of our visit and there would be many he felt sure who would return again now they had this wonderful chance to see the country and its people. Thus our tour of Brittany closed and the party dispersed some returning home and others staying on for another few days or weeks.

M.J.S.