

NOTE ON THE PERFORMANCE OF SITKA SPRUCE ON A DEEP PEAT.

By P. J. WHITE

IRISH foresters are aware of the comparatively large areas of peat soils that are being acquired by the Forestry Division for planting purposes and they are conscious of the lack of experience in the afforestation of such soil types.

They are also aware of the fact that sitka spruce is now the most widely planted tree in the Division's programmes and that much of the planting of this species is being carried out on peat sites.

It is presumed, therefore, that observations on the results of the planting of sitka spruce on peat in the early part of this century would be of value.

The subject of this note is a small stand of sitka spruce growing on a sheltered and reasonably fertile peat in compartment 9, Raheen property, Tuamgraney State forest, Co. Clare.

Located on the west side of Lough Derg, the most southerly of the river Shannon lakes, the area has a south-easterly aspect and is well sheltered from westerly winds. The elevation ranges from 110 to 120 feet above sea level.

Rainfall in the locality in 1912 was 44.98 inches; 1952, 36.96 inches and 1954, 54.33 inches. On three occasions in the past 40 years the rainfall has exceeded 60 inches.

Before acquisition the tenants on the Raheen estate cut turf for domestic use on the area; remains of turf banks are still to be seen. The depth of peat varies from $1\frac{1}{2}$ to 2 feet on the west side of the block to an ascertained 12 feet on the eastern edge; in some cases the depth of peat is as much as 20 feet.

In 1912 when the particular block was planted the ground was covered by a growth of natural birch with some bramble (*Rubus fruticosus*) and bracken (*Pteris aquilina*). At that time the area was protected by a deer fence as deer were then plentiful in the district; there is not one to be seen to-day, however.

Prior to the erection of the hydro-electric station further down the river at Ardnacrusha in 1930 it was usual to have rather high winter floods. At present, however, there is little variation between winter and summer levels. On May 1st, 1956 the water table was 15 inches below the surface of the forest floor.

The original selection of species comprised sitka spruce and *Thuja plicata* in a 50/50 mixture at an espacement of 4 feet by 4. It may be of interest to note that from this selection it was hoped to produce a final crop of *Thuja*. Things did not work out as planned, however, and, to-day, there is a reasonably uniform stand of sitka spruce with some 65 small *Thuja* coming at a much lower level.

From the information available it appears that the plantation escaped frost and insect damage in the early years.

At the beginning the rate of growth was rapid—annual rings one to one-and-a-half per inch as can be seen in felled butts. This rapid diameter growth was arrested after the 25th year or so when competition became more keen and the number of rings increased gradually to 8 to 10 per inch. Growth rate was soon stepped up however by the opening of the stand in the course of thinning.

Full records of thinning are not available. The stand was thinned in the early and late 1930's, again about 1942, in 1949 and 1956. Figures for the 1956 thinning are given below together with other data concerning the yield.

The crop is at present growing vigorously and much can still be done for it through attention to thinning. Main leader growth in 1954 averaged 23 inches and in 1955, 20 inches.

The writer is indebted to Dr. E. McLysaght, Raheen Manor for much of the information made available in this note.

SOME DATA ON STAND					
Area Acres	Age Years	Number of Stems	B.H.Q.G. of average stem. inches	Height to tip of average stem. feet	Height to 3 inches diameter of average stem. feet
$1\frac{1}{2}$	45	268	$11\frac{3}{4}$	87	72
Q.G. of average stem at 36 feet. inches		Volume of average stem. Hoppus feet		Volume of stand. Hoppus feet	B.H.Q.G. of largest stem. inches
9		40.51		10,856	21
PER ACRE			THINNINGS, 1956		
Number of stems	Volume. Hoppus feet		Number of stems	Volume. Hoppus feet	
198	7,237		85	1,700	