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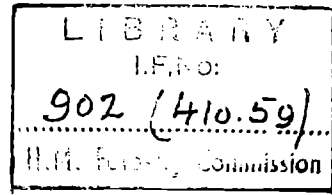
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HISTORY
OF
MATHRAFAL

FOREST
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FORESTRY COMMISSION

HISTORY

of

MATHRAFAL FOREST

1928 - 1951

NORTH (WALES) CONSERVANCY

HISTORY OF MATHRAFAL FOREST

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HISTORY OF MATHRAFAL FOREST

GENERAL DESCRIPTION OF THE FOREST

Situation

Mathrafal forest lies in the eastern part of Montgomeryshire, a county of small, fairly steep-sided hills and fertile valleys.

The forest consists of several scattered blocks, varying in size from ten to two hundred acres, in the vicinity of Pont Robert, Meifod, Guildsfield, Llanfyllin and Llanfaircaereinion.

The forest takes its name from the nearby site of the ancient castle of Mathrafal which has long been destroyed.

Area and Utilization

With the exception of part of Allt-y-Gader, the majority of the remaining land has at some time or other carried a timber crop.

Former Utilization

a) Ffridd, Ffigyn, Maesmawr (Big Wood) Tan-y-ffridd, Stonehouse.

All carried crops of hardwood until they were felled during the first world war. They were then left as derelict woodlands carrying a few hardwoods, stems, coppice and scrub.

b) Coed-y-Gwernydd carried a good hardwood crop which was felled during and just after the first war and then bore a heavy growth of birch with some ash and oak coppice.

c) Allt-y-Gader was partly planted with European larch which was felled during the last war and since then, let for grazing.

d) Coed Newydd and Coed Cwm Llwynog carried a hardwood crop until it was felled during the first war. Some of the area had been planted with European larch. In recent years it was used for grazing but owing to the encroachment of birch, alder and bracken its grazing value was gradually decreasing.

e) Coed Tyn-y-pant bore a hardwood crop at some time but has been derelict for many years and now bears a heavy growth of coppice, excepting a small area of mixed hardwoods at the westerly end.

f) Trefedrid consisted of felled devastated scrub, and standing timber reserved to the lessors mainly 80 - 120 year old oak of high quality, with an average height of 60 ft. and a volume of 2,500 cu.ft. to the acre in many of the woods.

Acquisition and land utilization details are given in the following tables (Tables I and II).

MAATHRAFAL - TABLE I

Acquisition Report Classification

| Acquired from | By | Date | Plantations Acquired acres | Plantable ex Col.4. | Nurseries acres | Agricultural acres | F. W. H. acres | Unplantable ex Col.4. acres | Other Land Description | Area | Total acres |
|--------------------------------|------------|-----------|----------------------------|---------------------|-----------------|--------------------|----------------|-----------------------------|------------------------|------|-------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| J. P. Corbett | Conveyance | 5. 1.28 | | 257 | | | | | | | 257 |
| W. I. Davies and another | Conveyance | 7. 12.27 | | 177 | | | | | | | 177 |
| Mrs. R. J. Trant | Conveyance | 18. 3.48 | 5 | 153 | | | | 6 | | | 164 |
| David Griffiths | Lease | 19. 10.49 | | 33 | | | | | | | 33 |
| J. R. Watkins | Conveyance | 18. 11.50 | | 51 | | | | | | | 51 |
| Miss E. R. James | Lease | 21. 3.50 | 14 | 44 | | | | | | | 58 |
| J. E. M. Dugdale | Lease | 7. 2.50 | | 62 | | | | 11 | | | 73 |
| Mr. H. Lloyd Jones | Lease | 12. 3.51 | | 22 | | | | | | | 22 |
| T. R. Forester | Conveyance | 15. 5.51 | 1 | 12 | | | | | | | 13 |
| Addle and another | | | | | | | | | | | |
| G. R. I. Barker and others | Lease | 1. 9.51 | | 168 | | | | 2 | | | 170 |
| Total Acquired | | | 20 | 979 | | | | 19 | | | 1,018 |
| Disposed of to Dr. R. F. Jones | Sale | 27. 5.40 | | 3 | | | | | | | 3 |
| Net Total | | | 20 | 976 | | | | 19 | | | 1,015 |

TABLE II

Present Utilisation

| | | |
|----------------------------|-------------------------------|--------------|
| a) Woods and Plantations | Acquired | - 8 |
| | Formed by F.C. | - 509 |
| b) Awaiting Planting | Felled | - 453 |
| | Bare | - 21 |
| c) Nursery | | |
| d) Agriculture. | Farmed by Forestry Commission | |
| | Tenanted | 4 |
| e) Forest Workers' Holding | | - 17 |
| f) Unplantable | | - 3 |
| g) Other | | |
| | Total (acres) = | <u>1,015</u> |

Physiography

The forest area varies in elevation from 300 ft. to 1030 ft. above sea level and most of the forest land lies on the moderate to steep slopes of hillsides adjoining fertile agricultural valleys. All aspects are met with in the various blocks and exposure is not generally a limiting factor, excepting at Allt-y-Gader where exposure on the crest of the hill is to be expected.

Geology and Soils

The underlying rock formations are the Bala beds of Ordovician shales and Silurian grit.

The soil is usually a heavy clayey loam of fair depth at the foot of the slopes but somewhat lighter, stony, and shallower on the steep slopes. The rock is usually broken and fissured and when near the surface is easily penetrated by tree roots. At Allt-y-Gader there are several rock outcrops and a scree slope.

Vegetation

Most of the blocks are old woodland areas and bear some indication of past crops by coppice growth, mainly oak and ash, and after clearing there has been vigorous advance growth of alder, hazel and birch. The ground flora is fairly similar throughout the area with the following associations occurring and following species predominating. Grass-bramble; Grass-bracken-fern; Rush in wet flushes; Allt-y-Gader high ground Vaccinium - Calluna - bracken association.

Predominating species:

Oak, ash, hazel, birch, alder regrowth.
Vaccinium)
Calluna) Allt-y-Gader
Pteridium abundant
Fine grasses
Bramble
Wild strawberry
Bluebell
Rose bay willow herb
Dogs mercury
Wood sorrel
Ground ivy
Honeysuckle
Juncus species
Foxglove

Meteorology

Compared to the western part of Montgomeryshire the rainfall is comparatively low and averages between 35 in. and 40 in. of rain annually.

With the elevation not exceeding 1050 ft. prolonged snow is not usual and exposure to the prevailing south westerly winds is not a limiting factor.

Risks

- a) Fire: The forest consists of several scattered blocks and no very large area is contained in any one block.

Agricultural land both cultivated and pasture surrounds the forest area. The greatest danger is in the spring and autumn when the weather is dry and the bracken is highly inflammable. Most blocks are fairly accessible and the co-operation of neighbours can be relied upon to report any outbreak. The two danger areas are:

Allt-y-Gader - a favourite spot for trippers from Llanfyllin and with the heather - bilberry vegetation, the danger may become severe during summer week ends.

Figyn - the southern boundary of the wood adjoins a rough bracken-gorse area and seasonal swaling is likely to prove dangerous. The water supply is fair, with streams running through or near most of the forest blocks. The large percentage of hardwoods grown on the area is also likely to reduce the fire danger.

- b) Livestock: All areas are fenced against stock.

- c) Rabbits: The rabbit danger is ever present and always serious as rabbits abound throughout the area and prove a serious menace to both hardwoods and conifers, and as there is a large percentage of hardwoods being planted they will be in danger of attack for many years. The surrounding agricultural land swarms with them and little effort has been made to keep them down, and constant watch has to be kept along all fence lines. There seems to be an apathy as regards rabbit destruction in the area, and to keep them under control action should be taken outside the forest area as well as inside the fences.

- d) Game: For many years a red deer stag (originally an escape from Powls Castle) inhabited the area.

Pheasants and partridge are found in the woods and the sporting rights are let.

- e) Insects: No particular risks of damage by insects are expected although Aphis occurs on both spruce and Douglas fir.
- f) Squirrels: Although few grey squirrels have been seen in the plantations they appear to be spreading into Montgomeryshire and are, therefore, likely to become a pest. (Two have recently been caught at Coed Newydd).
- g) Fungi: The extensive European larch plantations have suffered from canker, along with dieback.
Honey fungus has attacked Tsuga at the Figyn Wood (old woodland area) and the Tsuga was beaten up with Norway spruce and Sitka spruce and these have also been attacked by the honey fungus.
- h) Honeysuckle: In the old hardwood areas, honeysuckle has caused some damage in the past.
- i) Ivy: Both in the Ffridd and Figyn blocks ivy has grown on stems of European larch and presumably will cause a certain amount of damage.
- j) Trespass: is not expected to be serious with the exception of Allt-y-Gader which is frequented by people from Llanfyllin.
- k) Flooding: Several of the small streams flood following heavy rain and flood gates have been damaged.

(Badgers are present in the area and have been troublesome in breaking down fences allowing rabbits to enter).

Roads

The forest is fairly well served by existing parish and council roads and can be regarded as fairly accessible. In addition there are several tracks running through the larger blocks.

With the exception of the Figyn block, the area can be regarded as workable without further road making for the present, except for the

widening and grading of existing roads and rides and upkeep of existing roads. However, when the plantations attain a larger size in both area and height, further roads or tracks will have to be constructed to facilitate extraction of produce.

Labour

Labour in the district is not abundant and until recently had been very scarce. Because the older plantations are now reaching the thinning stage and because there is still a fairly large annual planting programme the present staff has been increased to fifteen men, the largest number to be permanently employed at the forest. With several old woodland areas being acquired the labour force will have to be increased to approximately 20-24 men. Up to date most of the thinnings have been sold standing to merchants and this has helped the labour position. In the future, transport will have to be used to move the gangs to the scattered woodland blocks, especially to deal with the heavy seasonal work of planting and weeding.

During the earlier plantings gangs of men were employed temporarily for the seasonal work, with about four men on the permanent staff. During the war only two men were permanently employed along with 5 or 6 women of the Women's Land Army doing the maintenance operations.

SILVICULTURE

Preparation of the ground

With a few exceptions, all the forest blocks at Mathrafal were in a similar condition prior to planting. They consisted of old woodland areas felled during or shortly after the first World War and consisting of a few remaining standards and a great deal of heavy coppice and regrowth with an accompanying dense ground vegetation of briar and bracken. There have been two periods of planting. The first from P.28 until P.38, when planting was carried out at the Ffridd and Figyn blocks and secondly from P.49 onwards when planting was resumed at the Maesmawr (Big Wood) Coed Newydd, Coed Cwm Llwynog, Allt y Gader, Coed y Gwernydd and Tan y Ffridd.

In most areas where regrowth and coppice covered the ground sales have been made, the trees either being felled by Forestry Commission staff or by timber merchants. Elsewhere, it was thought uneconomic to fell and

clear the area and the crop had been left to grow on with the intention of felling at a later date or thinning for underplanting.

The following preparation of ground has been carried out:

1. Figyn: On the old woodland area clearing and burning had been carried out. Some of the area consisted of bracken slopes and wet rush flushes.
2. Ffridd: Similar treatment was carried out here with the exception of P.36, 37 and 38. A few small areas of hardwoods were allowed to grow on and in P.33 some ringing of hardwoods was carried out. In P.36, 37, 38, a different method was tried and the following details are taken from a memo from the Conservator N (W) to Director (W) on 11.11.48:

"Coppice: Conversion to Douglas fir Crop, Compartment 1, P.36, P.37.

- "1. Extract from Assistant Commissioner's Tour March 15th and 16th, 1934.

Unplanted area Compartment 1. This is covered with dense mixed coppice with an undergrowth in many parts of bramble. Clearing it was thought might run up to as high as £5 per acre in parts of this as it is the worst part of the forest and costs on other areas have been up to £3 per acre. As the land is not worth the extra cost of £5 an alternative method of afforestation is necessary; this might be achieved by ringing clearing in groups and planting up with shade bearing conifers at the rate of 1000 to 1200 per acre. The alternative would be to leave the area till the coppice grew to such a size that it could be marketed for a price sufficient to cover the cost of ground preparation. Nothing definite was decided."

- "2. Extract from Form R.7, P.36.

12 ft. strips cleared through coppice and brash stacked on intervening strips. All large coppice ringed. Douglas fir planted 8 ft. x 4½ ft. in rows. Groups of natural ash etc. preserved (N.B. the uncut strips were 12 ft. wide too)."

- "3. Extract from Assistant Commissioner's visit of 7.10.36.

The P.36 method of treating coppice was inspected. It was agreed that more light should be let in next year, otherwise the method was satisfactory."

The R.7 entry shows that in 1937 insufficient light was coming through. All standing stems had to be ringed. In 1938 many ringed trees blew down on to the plants and had to be removed. The same methods were adopted in P.37 except that the strips were orientated north and south to give more light and more coppice was cut in the first instance than in P.36. Very heavy weeding was required in 1938.

4. Extract from Assistant Commissioner's visit of 30.8.40.

"Near the quarry on the eastern side of the main block, the Douglas fir planted in strips in the coppice is coming away satisfactorily, but there are a few cases where the overhead shade now needs reducing and the whole block will need watching from now on, so that the Douglas fir (and Norway spruce in wet spots) get sufficient light to enable them to grow robustly."

5. Extract from Assistant Commissioner's visit of 3.2.44

"Compartment 1. Generally speaking, the way the ash and other hardwoods at the top of the compartment had been dealt with in P.37 was not considered fundamentally sound. Where the ash are now growing in definite groups, it should be left standing. Too much coppice had been left elsewhere with the result that the Douglas fir which had been put in rows, two at a time, divided by an equivalent quantity of coppice would be very coarse; the whole area will need very careful handling."

"Compartment 1 is further proof that cheaper methods at the outset are not always economic in the long run and do not by any means always produce the best crop. It will be interesting to see how this eventually develops."

6. Extract from Director (Wales) visit of October, 1948.

"The later Douglas fir planted in partly cleared coppice near the eastern entrance to the forest is surprisingly good, and in spite of being widely planted is a very good type free from coarse branching."

7. Costs (submitted by Forester Reese from past records)

a) Preparation of ground:

| | | | |
|----------------------|------------|-----|------|
| Clearing strips etc. | 40/5 | per | acre |
| <u>Ringling</u> | <u>6/7</u> | " | " |
| Total charge ... | 47/- | per | acre |

b) Weeding

| <u>Forest Year</u> | <u>P.36. 21.7 acres</u> | <u>P.37. 16.9 acres</u> |
|--------------------|---|---|
| F.Y. 36 | {whipping 41 ac. at 2/7 p. a. {weeding 21 " " 6/5 " | |
| F.Y. 37 | {whipping 21 $\frac{3}{4}$ " " 2/8 " {weeding " " " 7/10 " | {whipping 24 ac. @ 2/5 p. a. {weeding 17 " " 9/3 " |
| F.Y. 38 | {whipping " " " 3/- " {weeding " " " 7/3 " | {whipping 21 " " 3/2 " {weeding 17 " " 9/6 " |
| F.Y. 39 | {whipping 10 " " 2/6 $\frac{1}{2}$ " {weeding 21 $\frac{3}{4}$ " " 7/3 " | {whipping 6 " " 2/1 $\frac{1}{2}$ " {weeding 17 " " 7/10 " |
| F.Y. 40 | {weeding and {cutting coppice 48 acs. at 5/6 " | {weeding and {clearing windfalls 39 acs. @ 4/8 " |

These weeding costs adjusted to a plantation acreage basis are:

| <u>P.36 21.7 acres</u> | <u>P.37. 16.9 acres</u> |
|-------------------------------------|--|
| F.Y. 36 11/2 per acre per 21.7 acs. | - |
| F.Y. 37 10/6 " " " " | 12/10 $\frac{1}{2}$ per acre per 16.9 acs. |
| F.Y. 38 10/3 " " " " | 11/6 $\frac{1}{2}$ " " " " |
| F.Y. 39 8/5 $\frac{1}{2}$ " " " " | 8/8 " " " " |
| F.Y. 40 12/2 " " " " | 10/10 " " " " |

Average 10/6 per acre per annum
for 5 years over 21.7 acres.

Average 10/11 $\frac{3}{4}$ per acre per
annum for 4 years over 16.9
acres.

11.11.48"

P.38 - 12.6 acres similarly treated with minor alterations in width
of strips.

The areas have been cleared (coppice growth, whipping Douglas fir tops
and shading smaller trees) several times.

P.49 - Planting

On the old woodland areas, preparation of ground again consisted
of clearing and burning coppice and advance growth. Where a group of
seedling hardwoods existed, the poorer stems were felled and the
remainder (ash, oak, birch) underplanted with shade bearing species.
Big Wood P.49, 50. In Compartment 21, a former agricultural field was
fully ploughed in preparation for acorn sowing. A small area of old
woodland was completely cleared and small trenches 2 $\frac{1}{2}$ in. to 3 in. deep
dug at 4 ft. spacing, and later sown with acorns, as was the ploughed
ground.

In Big Wood, Compartments 18, 19 and 20, a few groups of hardwoods
were left the remainder being felled by the Forestry Commission and
sold at stump to a merchant.

At Coed y Gwernydd, dense hazel and birch (approximately 6 acres)
were cleared and burnt, the remainder being left in abeyance possibly

until the birch reached a marketable state.

An experiment was carried out at Coed Newydd Compartment 26, in 1951. The area is a woodland site and had a dense regrowth of birch, hazel, alder and bramble etc.

Extract from Inspection report of 19.6.51

Coed Newydd Compartment 26 (P.52 area)

About $\frac{3}{4}$ acre had been completely cleared of all vegetation in $1\frac{1}{2}$ hours work. It was seen that within a few days the turf, cut up to chunks of 4 in. to 6 in. in length, had dried out completely. The site was in a good condition for planting with hardwoods or deep rooting species, but the results of planting spruces on a site prepared in this way, might be disappointing. For fire protection either further rotovating would be necessary or else turf and debris would have to be raked off the fire line.

In the most dense coppice of about 6 ft. to 9 ft. high one cut had reduced the overhead growth to a condition in which it might be possible to plant successfully shade bearers, requiring some shelter, but further weeding would be necessary.

There is obviously scope for a great deal of experiment and I suggest that when the whole wood is dealt with the following treatments be laid down as Conservancy Experiments.

A. Treatment for introduction of shade bearers (Beech and Tsuga)

1. One cut to thin out overhead coppice. Plant through at normal spacing.
2. Leave 3 ft. strips of standing coppice between rotovated cuts. Rotovate to complete destruction of all coppice between the 3 ft. strips.

B. Treatment for "complete preparation of ground"

Two degrees of rotovating are suggested:-

1. To eliminate all coppice.
2. To produce a tilth after doing (1).

Species to be tested oak, Douglas fir, Japanese larch, Norway spruce.

The area later had to be completed by cutting and burning by hand.

Allt-y-Gader. Some coppice and regrowth were cleared and burnt. Some timber was sold to a merchant, and thorn scrub cut, cleared and burnt for P.52 area.

Throughout the forest, all necessary draining was carried out, and some turfs laid for planting (in wet flushes).

There were numerous rabbits and these had to be cleared before an area was planted. Each planting area was fenced against rabbits and stock.

Choice of Species

From P.28 to P.38

The species planted during this period were:-

European larch, Douglas fir, Sitka spruce, Norway spruce, Tsuga, Japanese larch, beech, ash, and a few poplar.

European larch. This species had been planted fairly extensively during this period on soils of varying depth on all aspects and generally on the sides of moderate slopes, the soils varying from a clay to a loam and generally fairly dry. The ground vegetation varied from a grass/bracken association to bracken/briar.

Douglas fir was planted on moderate to steep slopes on old woodland sites, though generally on a loamy soil of fair depth at the foot of the steeper slopes, in fairly well drained areas.

Sitka spruce and Norway spruce. These were planted at all elevations, usually on the moister flushes and wet "flats", the soil being generally a clay/loam and the vegetation, a rush/grass association.

Japanese larch. This species was confined to three or four small areas, either adjacent to the Sitka spruce or by itself on the deeper better sites, either on the flatter ground or on the slope.

Tsuga has been confined to one small area at Figyn on a fairly moist old woodland site, with a fair depth of clay/loamy soil.

Ash is planted in small dingles and hollows throughout both the Figyn and Ffridd blocks.

Beech. Beech has been planted as a boundary belt at the southern side of Figyn at a fairly high elevation and on a moist site. At the Ffridd it has been planted under and among coppice and other hardwoods in small belts.

Poplar. A few were introduced to a wet dingle at the Figyn and alongside the River Vyrnwy at the Ffridd.

P.49 - P.52

During this period the following species were planted:-

Oak, beech, red oak, ash, sycamore, Norway spruce, Japanese larch, Douglas fir, Scots pine, Corsican pine, Tsuga, Abies grandis, Thuja.

Oak. Oak has been planted on old hardwood sites and, in two instances, on bare fields, and in P.52 on a clear felled European larch area. The soils are generally deep and well drained, with a vegetation of grass, briar and bracken, and a flora characteristic of old woodland.

Beech. Beech has been planted on old hardwood sites with a fairly deep soil on moderate slopes. In one instance it was used for planting an area carrying oak coppice standards.

Red Oak. This has been planted as roadside fire belts in a deep, fairly moist soil, with a grass/bracken vegetation.

Ash and sycamore. A few of these were planted along streams and a dingle in a moist clay-loam with the sycamore on the bank.

Norway spruce. Norway spruce was planted on wet flushes, alongside streams and in a strip mixture with oak on both a gentle and moderate slope of deep soil on two sites, at Coed Cwm llwynog on a moist site and at Tany-y-ffridd on a fairly dry bank with a southerly aspect. The vegetation varied from the damp rush association to a drier grass/bracken association on the slopes.

Scots pine and Corsican pine. The pines were confined to the drier shallower soils and rocky outcrops and knolls, the Corsican pine being at the lower elevations, the vegetation varying from a grass/bracken to the gorse and Calluna/Vaccinium at Allt-y-Gader.

Douglas fir. Douglas fir has been planted on the lower slopes at Tan-y-Ffridd, Allt-y-Gader, Big Wood and on the gentle sloping Coed Newydd, on fairly deep well drained soils with all aspects.

Japanese larch. Japanese larch has been planted higher up (above the Douglas fir) on gentle to steep slopes on generally a shallower soil carrying a bracken vegetation. It was also planted as fire belts, on the less fertile areas. Three small groups of Polish larch were planted in P.52

at varying aspects on the Tan y Ffridd area, on a fairly deep but dry soil with a bracken vegetation.

Tsuga. This species has been planted on an old woodland area adjoining beech, on fairly deep moist soil.

Thuja. A few were underplanted and interplanted among hardwood belts at Maesmawr Big Wood in P.52.

Abies grandis. About $1\frac{1}{2}$ acres of European larch at the Ffridd were heavily thinned and underplanted with this species. The soil is fairly deep with a bracken vegetation.

Planting

a) Spacing. The spacing has been normal for conifers and hardwoods, with the following exceptions:-

Oak. Seedlings - 4 ft. between the rows and 2 ft. apart along the rows.

Acorns - Drills 4 ft. apart, and the acorns sown at about $1\frac{1}{2}$ in. spacing.

Beech. Transplants - $4\frac{1}{2}$ ft. x $4\frac{1}{2}$ ft.

Douglas fir. Where it has been planted in strips alternating with coppice.
P.36, P.37 and P.38, 8 ft. between the rows and $4\frac{1}{2}$ ft. along the rows.

Norway spruce/oak mixture, 6 rows of oak, 4 ft. x 2 ft. (i.e. rows 4 ft. apart) alternating with 4 rows of Norway spruce at $4\frac{1}{2}$ ft. x $4\frac{1}{2}$ ft.
Norway spruce (Christmas trees) $4\frac{1}{2}$ ft. x 2 ft.

Normal spacing for the remainder:-

| | |
|---|---|
| Scots pine | $4\frac{1}{2}$ ft. x $4\frac{1}{2}$ ft. |
| Corsican pine | $4\frac{1}{2}$ ft. x $4\frac{1}{2}$ ft. |
| European larch | 5-6 ft. x 5-6 ft. |
| Japanese larch | " " |
| Douglas fir | " " |
| Norway spruce | $4\frac{1}{2}$ ft. x $4\frac{1}{2}$ ft. |
| Sitka spruce | 5 ft. x 5 ft. |
| Thuja | 5 ft. x 5 ft. |
| Tsuga | 5 ft. x 5 ft. |
| Abies grandis only planted under European larch at approximately 6 ft. spacing in gaps. | |
| Ash | $4\frac{1}{2}$ ft. x $4\frac{1}{2}$ ft. |
| Sycamore | $4\frac{1}{2}$ ft. x $4\frac{1}{2}$ ft. |
| Red oak | $4\frac{1}{2}$ ft. x $4\frac{1}{2}$ ft. |

b) Type of plant - see adjoining table (Appendix III).

c) Methods of planting. Nearly all the planting has been "notch planting" with the mattock. A small amount of turf and mound planting of spruces has been done on the wetter areas.

Acorn sowing in "trenches" on old woodland sites was carried out

by screefing or digging these trenches in lines 4 ft. apart, a spade and mattock being used. The acorns after being covered with red lead were inserted in the "trench" about 1 in. apart. They were then covered with the spoil to a depth of about 1 in. When sown on ploughing the method used varied in that the acorn was laid in the small ridge between two furrows, the furrows chosen being 4 ft. apart and the edge of the furrows broken up so that the acorn was covered to a depth of about 1 in.

e) Manuring - Nil.

f) Success of planting

The establishment of plantations has at most been successful, although the beating-up has been heavy, especially in the European larch plantations. Ash in one dingle has failed.

Ploughing

The only ploughing that has been done is at Maesmawr, Compartment 21 in the P.49 plantation. A small area of agricultural land was full ploughed with a three-furrowed plough, and the area sown with acorns, in lines 4 ft. apart. Germination was poor and would probably have been better if drought had not been experienced for about six weeks after sowing. The area was beaten-up in the following year with 1 + 0 seedlings. The whole area now looks well and the stocking is almost complete.

Beating-up

The figures for beating-up are given in the accompanying table, including the numbers used, source and size. (See Appendix III)

Beating-up was carried out from P.30 to P.42 and resumed for the later planting in P.49. The European larch areas required heavy and prolonged beating-up, in some cases 6 - 8 years after the original planting. Apart from using the same species for beating-up Douglas fir has been used and is growing quite successfully among the European larch. Its form is good and it has now reached the same crown level. A few Scots pine were put in on the dry knolls among the P.32 European larch in P.37. Some of the ash dingles have been beaten-up with European larch and Norway spruce. Although the Norway spruce is fairly good the ash/European larch mixture is poor and scrubby.

The establishment of Norway spruce, Sitka spruce and Douglas fir was fairly successful and the beating up which was necessary was not excessive. The Tsuga area at the Figyn was attacked by Honey Fungus and it was beaten up with Douglas fir and Sitka spruce and it is now a fairly full plantation and if somewhat uneven, shows extremely good growth. P.33 Sitka in Compartments 13 and 14 suffered from Honey Fungus and was beaten up with Norway spruce and later with Douglas fir. It now carries a satisfactory crop. In the later plantations, oak required heavy beating up (P.49, 50%) and the beech was beaten up in P.50 and P.52. During the P.51 and P.52 planting, the largest percentage of deaths have occurred in the pines both at Allt-y-Gader and at the Big Wood. No manuring was done.

Weeding

Most of the areas planted have been old woodland sites and as is to be expected on such areas, the weed growth has been very heavy and in many cases weeding has been continued for as much as five years after planting. In some cases the weeding continued into the cleaning stage. There was a heavy regrowth of coppice and scrub and also a strong growth of bracken briars, grasses, rose bay willow herb and honeysuckle. The faster growing species of Sitka spruce, Douglas fir, and Japanese larch did not require weeding for more than three or four years, but the European larch required more weeding and has apparently suffered from lack of weeding during the early years, when the money available was not sufficient to give the care the crop warranted. In the P.49 - P.52 plantations, weed growth has been very heavy including briar, bracken, grasses, rose bay willow herb in particular and coppice growth from old stools. Wherever possible the bracken has been whipped two or three times before the actual weeding. The trouble is that growth over the whole area is equally vigorous and the plants weeded last are apt to suffer. An attempt is made to weed all light demanding species as soon as possible. Where oak has been planted, the closer spacing makes weeding a longer task and it has been necessary to weed twice and sometimes three times in the season.

Mixture of species

Early Planting P.28 - 38. No mixtures were planted originally but several do now occur as the result of beating up with a different species.

European larch has been beaten up with Douglas fir although the Douglas fir are only a small proportion of the crop. The introduction of the Douglas fir has been quite successful.

Ash beaten up with European larch resulting in an ash/European larch mixture is very poor.

Later planting P.49 - 52. Oak, ash and birch coppice standards have been underplanted with beech, in P.50, but it is too early to say with what success. In P.51 and P.52, oak and Norway spruce have been planted as a mixture, 6 rows of oak at 4 ft. x 2 ft. alternating with 4 rows of Norway spruce at 4½ ft. x 4½ ft. In P.52, 1½ acres of European larch were underplanted with Abies grandis, but unfortunately the plants used were very small.

Rates of growth

See Appendix IV.

Past treatment of Established Plantations

Cleaning. This has been the most extensive operation following planting and in many cases recurring year after year, even up to 15 years after planting in some of the European larch plantations. Cleaning also had to be carried out among other species, Douglas fir being the heaviest followed by the spruces. Where the Douglas fir had been planted in strips the coppice and regrowth has to be continually cut back owing to the whipping of Douglas fir crowns by the slender hardwoods.

In Compartment 3 there is still a great deal of coppice among the European larch but the larch is now well above the coppice. The European larch in particular has been badly attacked by honeysuckle and this had to be cleaned periodically. A lot of ivy has covered many of the European larch stems and this has to be cut off at the foot of the tree, but can only be done on trees that are likely to survive the next few thinnings.

Staking. Several of the Douglas fir at the Figyn had to be staked and at one time the plantation appeared very rough, but at the present time, following cleaning and thinning, there is little evidence of sabre growth or crooked stems. Staking has also been done at the Ffridd P.36 - 38.

Brashing. The faster growing Japanese larch and Douglas fir were brashed 12 and 13 years after planting, and the European larch brashing commenced 14 and 15 years after planting while the spruces were left for

18 years. The Douglas fir and spruces were all saw brashed, while in some of the European larch a hook or stick was used to knock off the lower dead branches. Although some full brashing has been carried out in the first instance it has been the policy to brash every other row, that is, leaving alternate rows clean and brashing one side of the tree.

Pruning. Some pruning of Douglas fir has been carried out and to excellent effect especially in the larger trees.

Thinning. The first thinning in the forest took place in F.Y.42, when a "pre-thinning" was carried out in the Japanese larch Compartment 11 P.29. This was followed in F.Y.43 by a very light thinning of P.28 and 29, Douglas fir - details of thinnings are given in Appendix V.

The grade of thinning has varied from the removal of pitwood timber in the Douglas fir, Sitka spruce and Japanese larch stands and some of the better European larch to the removal of rails etc. in the majority of European larch plantations.

The timber has been sold to merchants, some doing the felling and extraction and small quantities have been sold locally to farmers.

At a recent sale all material up to 4 in. butt diameter in European larch has been sold as rustic wood.

Several areas await thinning and a large programme is expected during the next few years.

At Tan-y-ffridd and at Maesmawr, there are hardwood areas where thinning is required among both coppice and seedling trees.

Conclusions

On the whole, it can be claimed that the plantations have been very successfully established throughout most of the earlier planting areas. Although the volume production of the European larch is not high and there are poor patches of European larch damaged by canker and honeysuckle, and in some cases as the result of dieback, the plantations are now twenty years old and appear to be losing signs of canker. During the past 2 years they have been growing fairly well.

It can be assumed that where the European larch is very poor, as on the knolls, other species would also be poor on such sites. With light and frequent thinning the larch should provide sufficient trees for a good

final crop and they could eventually be underplanted with a shade bearing conifer.

Growth in some of the other conifers is exceptionally good, in the Douglas fir and Sitka spruce especially, while the Norway spruce in recent years has been putting on between 2 ft.- 3 ft. height growth annually.

Height growth in Sitka spruce, Japanese larch and Douglas fir is good, some trees having a breast height quarter girth of 10 in. Some of the Sitka spruce at the Ffridd have excellent form and following another thinning should improve in girth.

Owing to the shortage of labour a large proportion of the thinnings will have to be sold standing. Great care will have to be taken in the extraction and strict supervision must be exercised to prevent damage to standing trees.

Several of the plantations grow on moist ground and all precautions must be taken to prevent windblow which has occurred at the north-west corner of the Figyn following thinning of Sitka spruce. The area is capable of producing a high volume of timber and the plantations look promising once the weed and coppice growth are overcome.

Rabbits are everywhere numerous and all possible measures must be taken to destroy them in any plantation. In the Tan-y-ffridd block, Compartments 29 and 30, although there are few signs of oak regeneration ash seedlings are abundant and if the rabbits could be destroyed there is always the possibility and hope of obtaining natural regeneration, even if on only part of the area.

Conservator's Comments

The forest lies in the good oak growing district of East Montgomeryshire and there is no doubt that on the lower slopes of these old woodlands, where there is plenty of depth of soil, good oak could again be grown but conifers have usually been planted owing to the very high cost of establishing hardwoods on areas where there is a dense growth of coppice oak and underwood.

It was believed that the soil and climate would prove favourable to the growth of European larch so this species was extensively used in the early plantations, but, as at so many other forests, it has proved disappointing and although dieback has only started since the War on some areas subject to frost, few of the plantations are really thriving. When hardwood regrowth has been effectively killed out, it may prove desirable to convert to oak or beech before long or to underplant with shade bearing conifers.

European larch except of specially good races, is not now being planted and more attention is being given to raising hardwoods by utilising regrowth, natural regeneration and planting but since Douglas fir has proved a very good tree for this area, much reliance can be placed on this species to give a high yield of timber of good form at a reasonable cost of establishment.

Rabbit control is one of the ever present problems at this forest as there are abundant facilities for breeding in the adjoining land of small fields, innumerable spinneys, rough ground and dense hedgerows. It is seldom possible to maintain rabbit fencing for long after thinning starts and hardwoods, particularly beech up to a considerable age, are liable to severe damage during hard winters.

It is clear that although more hardwood planting is desirable in this locality, care will be needed to avoid excessive costs.

History of Mathrafal Forest

APPENDIX I

Notes from Inspection Reports

The following are extracts from Inspection Reports and deal in the main with policy, silvicultural operations and planning.

Assistant Commissioner's Tour, March 15th and 16th, 1934.

Officers present:- Mr. W.L. Taylor, Mr. A.P. Long, Mr. F.C. Best.

"P.28, European larch, Douglas fir and Sitka spruce - all were growing satisfactorily. Some gaps in the European larch would fill with natural hardwoods. Some deaths continue to occur in the Sitka spruce from Forres. Honeysuckle is starting to do damage by strangling the trees and where it runs right up the leaders should be cut away.

P.29. The seedling ash strips were seen to be a failure owing to prolonged check and consequent appalling weeding cost. The European larch looked patchy owing to a good many trees, largely beat-up plants, not yet having got away properly.

P.30. Norway spruce, were slow in getting away but looked well. Ash are not suitable to such high ground.

P.32. The larch looked exceptionally well in spite of having been planted late in the season, which may not really be a disadvantage. The ash were getting away here and there very well.

P.33. Looked alright.

P.34. The European larch first planted from Mortimer looked very decent plants.

Figyn. P.29. The ash was definitely better than at Forge Mill but is still far from out of weeding as many of the plants are still checked. The Douglas fir are mostly growing vigorously but there are many patches where they are weak and much subject to windrock. The European larch are very patchy because many trees are still struggling with the dense weed growth and although they are still weeded annually, weeding is evidently not heavy enough to enable them to recover their vigour and get away. Weeding is needed earlier in the summer and only those trees actually in need of opening out should be weeded. In practice, this entails a certain amount of other

cutting to get along the rows in summer and it is possible that a second weeding will be needed later in the summer. This plantation has been insufficiently weeded in its early years, and many of the weak trees can now never take their place in the canopy.

The Sitka spruce, Japanese larch, Norway spruce mixture on the flat looked extremely ragged but nothing could be done to improve it.

P.30. The locality is unsuited to poplar except possibly at the edge of the stream. It was suggested that occasional Norway spruce which were getting away exceptionally quickly, might be worth marking to watch their future development with a view to keeping them as seed trees. The European larch seedlings were now looking quite well.

Weeding. The policy in the past has been to switch bracken where it grows unmixed with coppice and brambles and to follow it by cutting once or twice as necessary, and to cut coppice etc., from mid-June until the end of September. Owing to the constant urge for reducing the necessarily high weeding cost and the poor quality of plants that have so often had to be used, the result in the older plantations has been that many of the trees, though they have survived, have suffered to such an extent that establishment has been delayed and ragged crops resulted in certain cases. The remedy lies in putting on a larger staff at the critical time of year, so as to get weeding done before the vegetation has had time to do damage. This will mean that the majority of weeding will be finished earlier and staff can be reduced accordingly. Certain areas normally weeded once will be sure to need a second weeding and this cannot be done on the present money allowance especially as the majority of weeding should, at this rate, be finished before the end of September, and £20 of this year's money has already been spent since last October."

F. C. Best - 16.3.34

Divisional Officer's Visit to Mathrafal, 3rd August, 1935.

Compartment 1 was inspected and the following method of planting decided on:

The ground is not considered good enough for planting up with pure hardwoods but the principles suggested for hardwood planting by the Chairman in his Circular of 14.8.33 can be applied to this area using conifer (mainly Douglas fir) instead and maintaining such groups of useful hardwood

regeneration as now occurs. Detailed treatment as follows:

Groups of young ash or sycamore to be maintained, removing badly shaped stems, coppice shoots, wolf trees and any thinnings required. The rest of the area to be divided into strips 12 ft. wide leaving alternate strips untouched and the intermediate ones cleared as follows:- remove all low growth of brambles, small coppice etc., and thin out dense clusters of coppice shoots leaving only the largest. Wherever possible the cut undergrowth can be stacked in the intervening uncleared strips but some of it will have to be burnt. The edges of the untreated strips will need trimming up to prevent overhanging. The cleared strips to be planted up with large Douglas fir, 2 rows at 8 ft. and the plants $4\frac{1}{2}$ ft. in the rows (would 3 rows at 4 ft. apart and 8 ft. in the rows be better). (There would probably be too much lateral shading if 3 rows were used but the spacing in the rows can be varied to some extent to avoid planting too near coppice shoots). In the spring all standard coppice shoots in the planted strips and all inferior species to be ringed as also all overhanging standards in the untreated strips. All seedling stems, large or small, of useful hardwoods (oak, ash, sycamore, etc.) to be left. Wet ground can be planted with Norway spruce. If rabbits cannot be exterminated from the whole area a light temporary fence to be run through the middle.

F. C. Best - 6.8.35

Assistant Commissioner, Divisional Officer, 7.10.36

The P.32, 34 and 35 areas were walked over and good growth of European larch throughout noted. Rather late weeding (due to labour shortage) was noted. The P.36 method of treating coppice was inspected. It was agreed that more light should be let in next year; otherwise the method was satisfactory.

P.28 Douglas fir and Sitka spruce were inspected and thought to be doing well on the whole. Much cleaning and honeysuckle cutting will be needed.

W. A. Cadman - 10.10.36

Divisional Officer's Visit 23.7.37

Compartment 6, P.38. In the south-west part it was noted that there was a good deal of natural ash, cherry and some oak. It was decided

first to fence in the area and clear the rabbits and then to cut out all rubbish interfering with the existing natural regeneration of the above species; following this gaps should be cleared in the remaining rubbish for planting by a group system. Species to be chosen later. On the north bank there was not enough natural regeneration to be worth keeping. The hazel, however, is of a good type and should be saleable for garden stakes in Shrewsbury. Whether the treatment was to be a strip or group system or clear felling would depend on whether a sale could be found for the materials. Cleaning - where Douglas fir is concerned (Compartments 2 and 3) birch should be kept right down or windblow may result when it is cut.

W. A. Cadman 25.7.37

Assistant Commissioner's Visit of 1.2.39.

Figyn Wood Compartments 10 - 15, P.29b, 30b, 31, 33a. It was agreed that on the whole the plantations showed considerable improvement and that a satisfactory crop should result. The following points were noted: Compartment 11. Draining upkeep required here. The ash dingles are disappointing. Wherever the larch mixture will not suffer these areas should be left unweeded. Honeysuckle will require constant watching throughout.

W. A. Cadman 4.2.39.

Divisional Officer's Visit of 27.8.41.

Compartments 1, 2, 3, 4, 5, 7, 8 and 9. Much of the area is planted with European larch in which the cleaning of coppice has only been lightly done in the past. Instruction was given to increase labour. The coppice is to be cut back to prevent damage being done to the European larch. The bracken to be cleared from the better portions of the ash belts.

R. Butter - 8.9.41

Divisional Officer's Visit of 29.1.42

Compartments 10 - 15, Figyn. Noted that certain blocks of Japanese larch will soon need attention, also that the Douglas fir will need racking for inspection purposes. Honey fungus damage to be beaten up with large Norway spruce. Land Army girls are to cut honeysuckle and do coppice cleaning.

R. Butter - 18.2.42

Conservator's Visit of 12th May, 1947.

Ash: Development has been disappointing on the whole. It may be worth pruning a very few stems but only those that are really good should be touched.

Beech: has grown well but form is poor. I do not think it was intended to ring all the top storey of hardwoods.

Oak: The natural oaks that have come up in the rides show that oak can grow quite well.

European larch: is generally well stocked but growth is variable. There is a good deal of canker but I do not see any really unhealthy areas.

When brashing the poorer areas the suppressed trees should be cut out instead of brashing them. The quality of the plant used was not always good so the plantations are reasonably satisfactory.

Japanese larch: has done well on the frosty flats but there seems to have been considerable initial failure and beating up with Norway spruce has been a waste of money.

Douglas fir: has been planted on softer ground than we would now think desirable and there has been a lot of wind rock in the early years and some recent windfall. It is not quite clear what the recent thinning has achieved. As a late beat-up for European larch and other species Douglas fir has been successful in getting into the canopy but it is very doubtful whether it was worth while beating up the European larch as the gaps were not large.

Norway spruce: has done well and might have been used to a larger extent.

Sitka spruce: has done surprisingly well on the frosty flat. Thinning in the south-east corner is urgently needed.

Tsuga: has sustained heavy failure but beating up has for the most part been too late to be satisfactory.

General: the plantation bears evidence of having been well cared for throughout.

F. C. Best.

Conservator's Visit of 29.7.47.

The larch have started to dieback this year in Compartment 9. The trouble is worst on the low lying ground suggesting frost as the main cause. On the whole the European larch look healthy and the Douglas fir look healthy and clean-growing. Any promising ash whether planted or natural among the conifers should be retained in the crop.

F. C. Best - 30.7.47

State Forest Officer's Visit of 31st May, 1947.

Windblow north-west corner - I think it is doubtful whether the bottom part of the wood nearest the boundary can be saved but I have asked the Acquisition Officer to explore the possibility of acquiring the adjoining land so that we can prevent the alder being felled on the boundary.

W. A. Cadman - 3.6.47

Conservator's Visit of 21.5.48.

The old agricultural land at the south west (Big Wood) has been sown with grass and together with the intervening pieces of woodland is being grazed by Cefn-du farm. The section would make a good P.49 planting block and oak might be planted on the old fields.

The three small Norway spruce plantations need some attention: the old oaks in the largest one ought to be cut out if they can be removed without damage. Coppice cleaning needs doing but very lightly. The eastern tongue of the wood will never pay to fence and must be treated as high forest. There is much mixed coppice and here and there maiden stems of oak, ash, beech and sycamore. Thinning is needed to favour these. In thinning hardwoods it should be remembered that nothing below the canopy should normally be removed and crown thinning should be done very gently.

Most of the main block is carrying a mixed crop of the remnants of the pre-1914 crop plus what has grown since the 1914-18 fellings. I think we should dispose of all the old standards and grow on the young stuff wherever there is a reasonably full crop of anything straight enough to grow to pitwood. There is probably little if anything good enough to grow on to timber.

F. C. Best - 25.5.48

State Forest Officer's Visit of 10.7.48

Groups of oak and ash in Compartments 17, 18, 19, 20 should be retained and treated and groups of Abies grandis and Tsuga to be planted where felling had been carried out.

P.49 area, Compartment 21. More oak could be planted on this area than previously proposed. All this area should be put under oak except for a small corner in Compartment 22, which should be planted with beech and also the upper half of the steep bank on the north-east of this area should be planted with beech. Ash to be retained as a shelter belt for beech.

G. L. Owen - 12.7.48

Conservator's Visit of 21.7.48

Compartment 21, Big Forest. Beech planted on upper half of slopes and oak on the lower half.

The alder area would grow good poplar when the area is felled and drained.

Tanhouse Block, Compartment 9, P.34, 35 European larch. This area is dying back badly and dead and dying trees should be cut out and the area underplanted with conifer, Tsuga, Abies grandis, Douglas fir, Thuja; where the dieback was severe in patches, it would amount to group and strip planting. Oak could be introduced to these groups and strips if other conditions were suitable.

Compartments 7 and 8, P.32 and P.33, European larch: much better as regards dieback, although there was much evidence of canker, Compartment 7, larch ready for thinning, Norway spruce satisfactory. The ash dingles as a whole were not very satisfactory, there being much coppice growth and conifer beating up.

G. L. Owen - 22.7.48

Conservator's notes: In many parts I hope the European larch has got beyond the risks of serious dieback and that there are now sufficient vigorous trees which will not be affected, but even so, underplanting may be desirable. Coppice growth has been so effectively killed out in places that on the best sites I hope we shall find a way of introducing oak. When we have labour available, we ought to try oak as well as shade-bearing conifers and beech, but it is no good neglecting thinning which is more urgent. The

various little ash, beech, and mixed hardwood areas all want careful treatment to enable any worthwhile tree, whether planted or natural, to take their place in the canopy. It will be very easy to overdo this.

F. C. Best

Conservator's Visit of 15.10.48.

Compartment 12, P. 30, Norway spruce. Several distinct types of Norway spruce were noted.

Compartment 15, P. 31. A few poplar in the north corner were not a success though on a typical poplar site; it could be assumed that the wrong variety were planted.

Thinning was in progress in this stand (European larch, Compartment 15, P. 31) the practice now adopted being to leave the very small unsaleable trees standing unless they were liable to do damage.

Beech belts, P. 30, 33: Compartments 12, 13, 14. Growth satisfactory but the form on the whole bad.

There were a few scattered Douglas fir in the Norway spruce - presumably planted during late beating up. They had done exceptionally well and were of fine growth and form apparently benefiting from the side shelter provided by the Norway spruce.

G.L. Owen.

Conservator's Comments: - Rabbit fences should not have been allowed to get into disrepair and they should be put into good repair and maintained.

F. C. Best.

State Forest Officer's Visit of 23.12.48. Allt y Gader

Species: Japanese larch over the coppice and regrowth areas. Some Douglas fir on the better and lower ground. Corsican pine on the rocky areas. Some beech could be planted (I estimate that 50% of the rock areas are plantable with Corsican pine).

W. A. Cadman

Conservator's Visit of 15.3.49.

(See also Planting methods and Ploughing section).

Compartment 20 was inspected. Groups of ash and oak were considered worth retaining. Trees were marked for retention and felling. Young ash along the north-west boundary to be retained. The rest of the crop was not considered good enough for retention and would be up for sale, with the

exception of some oak adjoining Compartment 21, which will be converted by Forestry Commission labour into stakes.

Hardwoods on the west boundary Compartments 19, 18, to be retained - a chain wide belt.

P.50 area, General summary: It was decided to put up this area for sale "standing" with the exception of the following areas:-

1. Young birch area in Compartment 21.
2. Oak area in Compartments 20, 21, 19 to be felled by Forestry Commission.
3. Ash/birch area Compartment 10.
4. Ash area adjoining west boundary of Norway spruce, Compartment 18, also in area in Compartment 20 adjoining Forestry Commission boundary.
5. 1 Chain belt adjoining west boundary of Norway spruce, Compartment 19.
6. Norway spruce areas.
7. Belt along Forestry Commission boundary in Compartment 18.
8. Belt along Forestry Commission boundary from Norway spruce, Compartment 19 along P.49 fence as far as the gate.

The areas to be marked with paint. Utilisation Officer to visit the areas. All extraction to be done eastwards and not through P.49 area. If this area is sold standing it will probably not be ready for planting P.50 as the merchant will probably want 18 - 24 months to clear.

Compartment 17, Fox Coppice. This area to be retained and thinned, a few areas to be cut out where the crop is unsuitable for retention. Cherry in this compartment to be retained for seed collection.

Compartment 1 - Poplar along roadside to be pruned.

G. L. Owen.

Conservator's Visit of 6.12.49.

Big Forest P.49. Small Japanese larch belt had failed completely owing to the plants arriving in poor condition.

The oak sowing on the ploughed ground is on the whole quite successful although there are certainly some parts with very few seedlings, but sowings are always a gamble and on the whole I think it was well worth while. On the unploughed area, for some reason, results are very much poorer.

P.50. The poplar area probably cannot be planted this year due to the shortage of poplar plants.

Fox Coppice P.50. 2 + 0 Tsuga have been allocated for most of the

plantation as no grandis was available. As we have a fairly good 1 + 0 beech, I am arranging for a little more beech to be allocated in lieu of Tsuga.

P.51 area: It was noted that many of the old spruce were coming down unsound in the butt which was to be expected in view of the wet site, and their age, but one, probably the largest, growing in a very wet area was noted to be sound and the following are details of its dimensions:-

Age 116
Total height 104 ft.
Timber length 88 ft.
B.H.Q.G. $20\frac{1}{4}$ in.
Mid length Q.G. $18\frac{3}{4}$ in.
Timber volume 214 cu.ft.

This is a good indication of what the ground is capable of growing, but obviously the trees are over-mature.

F.C. Best - 19.12.49

Director's Visit of 29.6.50

Present: Director - Mr. A.P. Long: Conservator - Mr. F.C. Best:

S.F.O. - Mr. W.A. Cadman: Forester - Mr. W.H. Reese.

1. Big Forest

- a) P.50. The area had been planted rather late in the season. Rabbit damage was seen. Most of the beech (seedlings) were alive though there were some drought deaths in the Tsuga (seedlings) which otherwise looked well.
- b) P.31, Norway spruce (acquired plantation) - this area was seen to have been planted at very wide spacing, circa: 9 ft. Growth is very good.
- c) P.49, Oak - sown on fully ploughed ground. Quite a dense crop which now needs weeding has been achieved.
- d) It was agreed that replanting Compartments 19, 20 (west end) should be held over until P.52, as there would be insufficient time to make a good job of it in P.51. It was agreed that all hazel and scrub should be completely cleared in the preparation of ground. (The Director recalled an old Departmental instruction that all new fencing and the extermination of all rabbits on a new planting area should be completed before the end of October).

2. Figyn Wood

- a) P.29b. The ash dingle Compartment 11 had been beaten up with European larch. The crop is now in the pole stage. Both species are poor. No immediate treatment is required. The Douglas fir is growing well and requires thinning. The Japanese larch is rather rough and the Sitka spruce, beaten up with Norway spruce, is now a good crop. Two corner trees damaged by extracting timber were seen. Such damage should be avoided. Norway spruce should be thinned at Christmas for Christmas trees. The Japanese larch and Sitka spruce, Compartment 10, is in very urgent need of thinning. This area should not have been overlooked, particularly since the 1947 windblow gave an obvious indication that thinnings were needed. Japanese larch and European larch cones should be collected in the hope of getting Hybrid larch. The European larch was seen to have improved. The Sitka spruce at the west end of Compartment 12 has also been neglected and required thinning.
- b) P.30b. Norway spruce and Sitka spruce require thinnings, the Sitka spruce urgently.
- c) P.33a. The Douglas fir and Sitka spruce planted under ringed ash is now growing fast. The beech at the top end was severely damaged by rabbits in 1947.
- d) P.31. Some quite good European larch is present here and in spite of some weak patches there is a fair crop. The Tsuga in the bottom is very good and not very rough in spite of the open stocking. It needs brashing and the volume figures of thinnings should be recorded. Norway spruce adjoining is good. Both species have suffered from Honey fungus.

3. General.

- a) Seed Collection: Seed was seen on Tsuga, Sitka spruce, Norway spruce, Douglas fir, European larch and Japanese larch.

- b) Fencing policy: The Director pointed out that we must face our responsibility as a large landowner; rabbits must be kept down although they may be doing no harm to our trees and complaints from agricultural neighbours must be avoided. This must be achieved with the utmost economy. The forester suggested replacing the lower part of the existing fences with narrow width netting. This was approved.
- c) Thinnings: The thinnings at Figyn Wood have been allowed to get into arrears. This should not have occurred especially since a merchant could easily have been found to purchase standing. The Sitka spruce have been so neglected that it will be prudent to leave it until immediately before next growing season, otherwise there is a serious danger of windblow in the winter gales. The Director pointed out that he was in favour of heavy thinning as a general principle for two main reasons:-
1. In order to produce saw timber as quickly as possible.
 2. In order to get through the work by not having to return to any one stand too soon.

W. A. Cadman - 4.7.50

Conservator's Visit of 3.2.51

1. Ffridd block. P.32 thinnings. It was noted that Messrs.Preston were taking a very satisfactory proportion of small European larch poles and rails. Some areas of Norway spruce which require thinning were seen. The beech belts should have some attention to assist the better stems.
P.35 European larch Dieback: The strip of dieback on the north of P.35 was inspected. It was decided that all except a few vigorous trees should be clear felled. The P.52 fence line will be put back above (south of) the ride in P.35 so as to include this cleared area with the P.52 block. The cleared area will be replanted with oak, the soil being very suitable.
2. Tanyffridd P.52. The sample markings carried out by the S.F.O. and District Officer (vide Inspection 1.12.50) were seen and approved. The treatment laid down in this report was approved with the following amendment to the choice of species.

Steep dry banks - e.g. the south slope of Compartment 31 and similar ground elsewhere to be planted with Douglas fir as conditions were doubtful for hardwoods. The western tip of Compartment 31 should not be fenced. Existing hardwoods should be cleared and the small area replanted with poplar in sleeves.

3. Main Block, Compartments 1-5. The European larch areas are very disappointing. In places an understorey of sycamore is appearing and this should be encouraged.

The Sitka spruce Compartment 4 - towards the upper part of the slope - appears not to have been thinned and needs early attention.

P.37 Douglas fir, was seen to be growing well.

4. Protection. The rabbit position is bad throughout the area, especially in the Ffridd where there has been recent damage to beech, ash and some Douglas fir. A proper effort must be made to reduce the rabbits and gas should be used if necessary.

W. A. Cadman - 7.2.51

Conservator's Comments

When the area of die back is cleared for replanting with oak it should be classed as clear felling followed by replanting - not underplanting.

The fencing of the P.52 area will have to be 100% rabbit proof and maintained so for 30 years as we are planting hardwoods.

Instructions as to lop and top fires have recently been issued and must be obeyed. It can never be safe to leave a lop and top fire burning on bracken ground near plantations at mid-day on a Saturday in February, no matter what the weather conditions may be at the time of leaving the fire.

F. C. Best - 7.2.51.

Conservator's Visit of 20.2.51

Coed y Gwernydd:

1. P.50. The beech looked promising but the Scots pine poor.
2. Birch area. It was agreed that it should be left until the birch reached a marketable size. It was thought unnecessary to put up stock-proof fences (except where we are committed to do so under

the terms of the lease). The area is infested with rabbits and the position will have to be watched particularly if there are complaints.

W. A. Cadman - 22.2.51.

Conservator's Comments

The P.50 area appeared free of rabbits but owing to the high rabbit population outside it will want closely watching.

A final decision on the treatment of the birch area will depend on:-

1. The size at which the birch can be marketed.
2. The need, or otherwise, to fence and eliminate rabbits.
3. The shortage, or otherwise, of other land for planting.

If it becomes necessary to fence against rabbits the thin areas might be cleared and planted. For the time being the most economic thing is to leave it all alone.

F. C. Best - 22.2.51

General

All fencing of planting areas should be done as soon as possible. Large hardwoods mostly oak in hedgerow along south-west corner Compartment 20 and along P.49/52 boundary should be felled as soon as possible and offered to merchant.

Roadways and tracks had been bulldozed through the P.52 areas by the merchant now engaged on clearing the area. These were numerous and satisfactory - they are usually used by six-wheeled heavy lorries. Care must be taken that the terms in the agreement regarding the retention of a chain belt of existing hardwood along the south boundary of Compartment 18 is adhered to. This should be marked out on the ground before the merchant enters the area.

G. L. Owen - 15.9.51

History of Mathrafal Forest

APPENDIX II

Supervision

Divisional Officers and Conservators

1. Mr. O. J. Sangar - 1928 - 1930
2. Mr. A. P. Long - 1930 - 1937
3. Mr. A. H. Popert - 1937 - 1939
4. Mr. C. Fairchild - 1939 - 1941
5. Mr. R. H. Smith - 1941 - 1947
6. Mr. F. C. Best with Mr. W. A. Cadman S.F.O. 1947 - 1951
Mr. J. R. Hampson S.F.O. 1951.

District Officers

1. Mr. C. Fairchild - 1928 - 1929
2. Mr. F. C. Best - 1929 - 1936
3. Mr. W. A. Cadman - 1936 - 1940
4. Mr. R. Butter - 1940 - 1947
5. Mr. G. L. Owen - 1947 - 1951
6. Mr. P. W. Morgan - 1951 -

Foresters

1. Mr. W. H. Reese - 1928 - present day
except during early war years 1939-1941.
2. Mr. A. I. Davies - 1939 - 1941

History of Mathrafal Forest

APPENDIX III

Details by P.years of types of Plants used

| P.Year | Area | Species | P Cpt.No. | Type | Source | Ident. No. | No. used in Planting(m) | No. used in B.U. (m) | |
|---------------|------|----------------|-----------------|---------------------------------|-----------------------------------|--|----------------------------|--|--------------------|
| 28 | 49 | European larch | 2,3,4 | 2 + 1 + 1 2 + 1 + 1 | Weeting Dovey | 10/18 | 33.7 7.0 | | |
| | | Sitka spruce | 2,3,4 | 2 + 2 3 + 2 | Corris (ex Mortimer) | 23/37 | 11.425 2.5 | | |
| | | Douglas fir | 2,3,4 | 2 + 2 | Mortimer | | 9.1 | | |
| | | Poplar | 2 | 0 + 1:0+2 | Delamere | | 0.2 | | |
| | | Ash | 2 | 1 + 1 | Rockingham | | 2.05 | | |
| | | | | | | | | | |
| 29 | 91 | European larch | 4,10,11,12 | 2 + 1 + 1 + 1 2 + 1 2 + 2 | Mathrafal Dovey C. Delamere | | 1. 59 | | |
| | | Sitka spruce | " | 2 + 2 + 1 2 + 2 + 1 | Mathrafal | | 4 | | |
| | | Douglas fir | " | 2 + 2 + 2 | Walcot | | 14 | | |
| | | Ash | " | 3 + 2 1 + 0 | Walcot Delamere | | 33 21 | | |
| | | | | | | | | | |
| 30 | 66 | European larch | 5,12,13 2, 3 | 2 + 0 1 + 1 2 + 1 | Delamere Vaughan Gwydyr | | 10 20.7 18.0 2.0 | 1.3 P.29 (5 P.29 (1 P.28 2.3 P.29 0.5 P.29 | |
| | | Japanese larch | | 1+1+1+1 | Temp.Home | | 1.5 | | |
| | | Hybrid larch | | 2 + 1 + 1 | Gwydyr | | 0.55 | | |
| | | Sitka spruce | | 2 + 1+1+1 | Temp.Home | | 1.925 | | |
| | | Norway spruce | | 2 + 1 + 1 | Temp.Home | | 26.0 | | |
| | | Douglas fir | | 2 + 2 + 2 3 + 2 + 1 | Kerry Temp.Home | | 0.1 | 3.4 P.28 29 | |
| | | | | 2 + 2 | Corris | | | 1.6 P.29 | |
| | | | | 2 + 4 | Delamere | | 1.6 | 4.4 P.28,29 | |
| | | Ash | | 1 + 1 | Temp.Home | | 4.1 | 0.05 P.29 | |
| | | Poplar | | 0 + 2 | Delamere | | 0.4 | | |
| | | Beech | | | Dovey | | 3.0 | | |
| | | | | | 1 + 1 + 2 | Kerry | | 1.25 | |
| | | 31 | 56 | European larch | 13,14,15 | 2 + 1 + 1 2 + 1 + 2 1 + 1 2 + 1 | }Temp. Cannock " | | 40.0 6.6 6.5 |
| Douglas fir | | | | 2 + 2 + 1 | Temp. | | 11.2 | | |
| Norway spruce | | | | 2 + 2 + 2 + 1 2 + 3 2 + 3 | Temp. Mortimer Walcot | | 8.4 1.65 | 0.9 P.29 | |
| | | | | AA AB | " | | 6.6 | | |
| Tsuga | | | | 2 + 2 | Kerry | | 6.6 | | |
| Beech | | | | 1 + 0 | Bryncynfil | | 1.05 | | |
| Ash | | | | 2 + 1 | Mortimer | | 3.2 | | |
| Poplar | | | | 0 + 1 | Delamere | | 0.05 | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 32 | 52 | European larch | 7, 8 | 1 + 1 1 + 1 | Mortimer Wyre | 30/28 30/28 | 39 17 | 2.0 P.30 | |
| | | Norway spruce | | 2 + 2 2 + 2 + 1 | Mortimer Home | 28/29 Ex | 7 5 | | |
| | | | | 2 + 3 | Kerry | Walcot | 7 | | |
| | | Ash | | 1 + 2 2 + 1 + 1 | Mortimer Home | 27/50 ex Hough ex | 4 | | |
| | | | | 1 + 1 | Wyre | Mortimer ex | 1 | | |
| | | | | | | Cannock | 2 | | |
| | | | | | | | | | |
| | | | | | | | | | |

| P. Year | Area | Species | P Opt. No. | Type | Source | Ident. No. | No. used in Planting (m) | No. used in B.U. (m) |
|---------------|-----------|----------------|------------|-----------|---------------|------------|--------------------------|----------------------|
| 33 | 15 | European larch | 13, 14, 8 | 1 + 1 + 1 | Home | 30/28 | 9 | 1 P. 30 |
| | | | | 2 + 1 | Delamere | 30/28 | | (3 P. 30) |
| | | | | 2 + 1 | Dovey C. | 30/28 | | (4 P. 29) |
| | | | | 1 + 3 | Walcot | | | ((25 P. 32)) |
| | | Douglas fir | | Walcot | 30/5 | - | | 1 P. 29 |
| | | Norway spruce | | Dovey | 30/16 | 1 | | (1 P. 30) |
| | | | | | | | | (1 P. 29) |
| Sitka spruce | 2 + 2 | Walcot | 29/31 | 2 | 11 | (3 P. 31) | | |
| | 2 + 3 + 1 | Home | 27/51 | | | | | |
| | 2 + 2 | Delamere | 28/43 | | | | | |
| Beech | 1 + 0 | Delamere | Ex Germany | 4 | | (2 30) | | |
| | | | | | | (3 29) | | |
| 34 | 14 | European larch | 9 | 2 + 1 | Mortimer | 31/66 | 21 | 1 P. 33) |
| | | Douglas fir | | 2 + 2 | Dyfnant | 30/5 | | 6 32) |
| | | Norway spruce | | 2 + 2 | Radnor | 30/16 | | 1 29) |
| | | Ash | | 1 + 3 | Mortimer | Ex Haugh | | 1 P. 30 |
| 35 | 16.1 | European larch | 9 | 2 + 2 | Wyre | 31/66 | 22 | 3 P. 29 |
| | | | | 2 + 2 + 1 | Delamere | 30/28 | | (2 P. 34) |
| | | Japanese larch | | 2 + 1 + 1 | Corris | 31/86 | | (2 32) |
| | | Douglas fir | | 2 + 2 | Corris | 31/29 | | 1 P. 28 |
| | | | | | | | | (1 P. 31) |
| Norway spruce | 2 + 4 | Walcot | 29/31 | (2 29) | | | | |
| Ash | ? | Home | | 1 P. 33 | | | | |
| Beech | ? | Home | | (1 P. 29) | | | | |
| | | | | 1 P. 29 | | | | |
| | | | | 1 P. 33 | | | | |
| 36 | 21.7 | European larch | 1 | 2 + 1 | Mortimer | 32/12 | | (5 P. 35) |
| | | Douglas fir | | 2 + 2 | Mortimer | 31/29 | | (1 P. 32) |
| | | Norway spruce | | 3 + 2 | " | 31/29 | | (2 30) |
| | | | | 3 + 2 | Tintern North | 31/48 | 3 | (3 29) |
| | | | | | | | 1 | 1 P. 30 |
| | | | | | | | 2 | (1 P. 31) |
| | | | | | | | | (1 29) |
| 37 | 16.9 | Scots pine | 1 | 2 + 1 | D. Corris | 31/91 | 4 | 1 P. 32 |
| | | European larch | | 2 + 1 + 1 | Home | 32/12 | | 1 P. 31 |
| | | Douglas fir | | 2 + 1 | D. Corris | 31/29 | | 1 P. 35) |
| | | | | 2 + 2 + 1 | D. Corris | 31/29 | | 1 P. 31) |
| | | | | 2 + 2 + 2 | Home | 31/29 | | (2 P. 33) |
| Norway spruce | 3 + 2 + 1 | Home | 31/48 | 2 | (1 P. 31) | | | |
| 38 | 12.6 | European larch | 6 | 2 + 1 + 2 | Home | 32/12 | | 1 P. 32 |
| | | Douglas fir | | 2 + 1 | D. Corris | 31/29 | | 2 |
| | | | | 2 + 1 + 1 | D. Corris | 31/29 | | 2 |
| | | | | 2 + 1 + 1 | Home | 31/29 | | 1 P. 29 |
| | | | | 2 + 2 | D. Corris | 31/29 | | 1 P. 32 |
| Norway spruce | 3 + 2 + 2 | Home | 31/48 | 8 | | | | |
| | | | | | | 1 | | |
| 39 | - | Douglas fir | - | 1 + 2 | Corris WS. | 31/29 | | 1 P. 38 |
| | | | | 1 + 2 | Corris WS. | 31/29 | | 1 P. 31 |
| | | | | 2 + 1 + 2 | Home | 31/29 | | 3 P. 38 |
| 40 | - | Douglas fir | | 1 + 1 + 2 | Dovey Corris | 31/29 | | 1 P. 38 |
| | | | | | | | | 1 P. 31 |

| P. Year | Area | Species | P Cpt. No. | Type | Source | Ident. No. | No. used in Planting (m) | No. used in B. U. (m) |
|---------|------|---|------------------|--|---|---|---|-----------------------|
| 42 | - | Douglas fir | | 2 + 2 | Corris | 37/35 | | 0.3 P. 38 |
| 49 | 16 | Japanese larch Ash Beech Oak | 21 | 1 + 0 1 + 1 + 1 1 + 2 1 + 2 + 1 Acorns 1 + 1 + 1 | Kerry Tair Onen Millbuie Inchnacardoch Myherin Coed y Goror | 48/37 Ex Brechfa Ex Eng. " Ex Siln(W) | 1 0.4 1. 14.6 (3000 lbs.) 0.9 | |
| 50 | 24.2 | Scots pine Tsuga Beech Red Oak Oak | 17, 21, 23 24 | 1 + 0 2 + 0 1 + 0 1 + 0 1 + 0 1 + 0 | Dyfnant Kerry Myherin Dyfnant Dyfnant Myherin | 48/11 48/33 - Ex Swaffham 48/1 - | 1 7 12 12 1 4 | 1 P. 49 4 P. 49 |
| 51 | 62 | Scots pine Corsican pine Japanese larch Douglas fir Norway spruce Tsuga Ash Oak Red Oak Sycamore | 25, 28 | 1 + 1 1 + 1 1 + 1 1 + 1 2 + 0 1 + 1 + 1 2 + 1 2 + 1 1 + 1 1 + 0 1 + 0 1 + 1 | Kings, Bury St. Edmunds Myherin Dyfnant Radnor Myherin Strathyre Myherin Myherin Radnor Myherin Coed y Bre. Myherin | - 48/12K1 49/56 48/47 49/47 49/80 47/57 47/54 48/33 - 50/39 50/5 | 22 4 8 11 8 2 4 18 2 1 56 5 1 | 4 P. 50 |

History of Mathrafal Forest

APPENDIX IV

Rates of Growth

| Comp. | Species | P. Year | Geology and Soil | a. Altitude b. Aspect c. Slope d. Exposure | Mean Height of dominants (ft.) | Mean Annual Ht. Increment (in.) | Quarter Girth B.H. (5 sample) in. | Remarks |
|-------|---------|---------|--|---|--------------------------------|---------------------------------|--|--|
| 1 | D.F. | 36 | Ordovician Shale and Silurian grit. Soil generally clay-loam. Fairly deep at foot of slopes. | a. 330 - 700' | 35 | 12 - 18 | 3 $\frac{3}{4}$, 4 $\frac{1}{2}$, 4 $\frac{3}{4}$, 5 $\frac{1}{2}$ | F.Y. 52. Blast by N.E. wind in March, 1952 - reddened needles on Douglas fir. |
| | N.S. | 36 | | b. E - N.E. | 25 | 18 - 24 | 3 - 4. | |
| | D.F. | 37 | | c. Moderate. Shelter at crest of hill d. To E. winds. | 40 | 18 - 24 | 4 $\frac{1}{2}$, 4 $\frac{3}{4}$, 4 $\frac{3}{4}$, 4 $\frac{1}{2}$, 5 $\frac{1}{2}$, 5 $\frac{3}{4}$ | |
| 2 | D.F. | 28 | Moist on flat ground at foot of slope. | a. 300 - 700' | 50 + | 12 - 24 | 5 $\frac{3}{4}$, 5 $\frac{1}{2}$, 6, 6 $\frac{1}{2}$, 7 $\frac{3}{4}$ | S.S. and D.F., require thinning. Must be light and frequent to prevent windblow on moist flats V. good height growth in both S.S. and D.F., with good girth on D.F. |
| | E.L. | 28 | | b. N. | 35 + | 12 | 4 $\frac{3}{4}$, 4 $\frac{1}{2}$, 5 $\frac{1}{2}$, 5 $\frac{3}{4}$, 6. | |
| | D.F. | 28 | | c. Moderate to F. steep | 55 + | 18 - 24 | 7 $\frac{1}{2}$, 6 $\frac{3}{4}$, 6 $\frac{1}{2}$, 7 $\frac{1}{2}$, 8 $\frac{1}{2}$. | |
| | S.S. | 28 | | d. Not severe | 45 | 18 - 36 | 5 $\frac{1}{2}$, 5 $\frac{1}{2}$, 7, 6 $\frac{1}{4}$, 6 $\frac{1}{2}$. | |
| 3 | E.L. | 28 | " | " | 30 | 6 - 9 | 3 $\frac{1}{2}$, 3 $\frac{3}{4}$, 4 $\frac{1}{4}$, 3 $\frac{3}{4}$, 4 $\frac{1}{2}$. | " |
| | S.S. | 28 | " | " | 50 | 18 - 24 | 6, 5 $\frac{3}{4}$, 6 $\frac{1}{2}$, 7, 6 $\frac{3}{4}$ | |
| 4 | S.S. | 29 | " | a. 300 - 700 | 50 + | 18 - 24 | 6 $\frac{1}{4}$, 6, 7 $\frac{1}{2}$, 7 $\frac{3}{4}$, 8 $\frac{1}{2}$ | Ditto. S.S. and D.F. V. good trees. Darker foliage. |
| | J.L. | 29 | | b. N.W. | 45 - 50 | 18 | 4 $\frac{3}{4}$, 4 $\frac{1}{4}$, 5 $\frac{1}{2}$, 5 $\frac{3}{4}$, 8 $\frac{3}{4}$. | |
| | E.L. | 29 | | c. Moderate - Fairly steep. Dingles. | 35 | 9 - 15 | 6 $\frac{1}{4}$, 8 $\frac{1}{4}$, 5 $\frac{1}{2}$, 5 $\frac{1}{4}$, 6 $\frac{3}{4}$. | |
| | D.F. | 29 | | d. Fair. | 65 - 70 | 18 - 24 | 10 $\frac{1}{4}$) 2 trees 10) | |
| | S.S. | 29 | | " | 40 - 45 | 24 | 6, 6, 6 $\frac{3}{4}$, 7 $\frac{1}{2}$, 7 $\frac{3}{4}$, 7. | |
| 5 | N.S. | 30 | " | a. 500 - 700 | 25 - 30 | 18 - 24 | 4 $\frac{1}{2}$, 4 $\frac{1}{4}$, 3 $\frac{3}{4}$, 5 $\frac{1}{4}$, 4 $\frac{3}{4}$. | |
| | E.L. | 30 | | b. N.W. - S.W. c. Moderate d. Exposure to prevailing winds. | 20 - 25 | 6 - 9 | 4 $\frac{1}{4}$, 3 $\frac{3}{4}$, 3, 4 $\frac{1}{2}$, 4 $\frac{1}{2}$. | |
| 6 | D.F. | 38 | " | a. 300 - 500 | 25 | 15 - 18 | 2 $\frac{1}{2}$, 3 $\frac{3}{4}$, 3 $\frac{1}{2}$, 4. | |
| | N.S. | 38 | | b. N. - E. c. Steep d. To N.E. otherwise sheltered. | 14 - 20 | 24 | 2 $\frac{1}{2}$, 3 $\frac{1}{4}$, 2 $\frac{1}{2}$ | |
| 7 | N.S. | 32 | (Moist at foot of slopes, but several areas with thinner soil). | a. 350 - 550 | 40 | 24 - 30 | 3 $\frac{1}{2}$, 3 $\frac{3}{4}$, 4 $\frac{1}{2}$, 5 $\frac{1}{2}$, 6, 5 $\frac{1}{2}$. | Several outcrops where soil is thinner - planted with E.L. Be. shelter belt. N.S. on moist flats and along dingles. |
| | E.L. | 32 | | b. W.S.E. | 25 - 30 | 9 - 12 | 4 $\frac{3}{4}$, 4 $\frac{3}{4}$, 5, 4, 4 | |
| | Ash | 32 | | c. Moderate to faulty, steep on knolls | 30 | - | 3 $\frac{1}{2}$, 2 $\frac{3}{4}$, 2 $\frac{1}{2}$ | |
| | Be | 32 | | d. Fair. | 20 | - | 3 - 4 | |
| 8 | E.L. | 33 | " | a. 350 - 500 | 30 | 12 - 15 | 3 $\frac{3}{4}$, 3 $\frac{1}{2}$, 4 $\frac{1}{4}$, 4 $\frac{1}{4}$, 5 $\frac{1}{4}$, 4 $\frac{3}{4}$. | |
| | N.S. | 32 | | b. W. - S.E. | 35 - 40 | 18 - 24 | 3 $\frac{3}{4}$, 4 $\frac{1}{4}$, 4 $\frac{3}{4}$, 5 $\frac{3}{4}$, 5 $\frac{3}{4}$. | |
| | E.L. | 32 | | c. Moderate | 30 | 9 - 12 | 4 $\frac{3}{4}$, 4 $\frac{1}{4}$, 4 $\frac{1}{4}$, 4 $\frac{3}{4}$, 4 | |
| | E.L. | 32 | | d. Sheltered | 20 - 25 | 9 - 12 | 3 $\frac{1}{2}$, 3 $\frac{1}{2}$, 4 $\frac{1}{4}$, 4 $\frac{1}{4}$, 4, 5 $\frac{1}{4}$. | |
| | E.L. | 33 | | - | 20 - 25 | 6 - 12 | 2 $\frac{3}{4}$, 3, 3 $\frac{3}{4}$, 4, 3 $\frac{1}{2}$. | |

| Comp. | Species | P. Year | Geology and Soil | a. Altitude b. Aspect c. Slope d. Exposure | Mean Height of dominants (ft.) | Mean Annual Ht. Increment (in.) | Quarter Girth B.H. (5 sample) in. | Remarks |
|--------|---------|---------|---|--|--------------------------------------|---|--|--|
| 9 | E.L. | 35 | Soil thinner in patches. | a. 350 - 400 | 20 - 25 | 9 - 12 | 4 $\frac{1}{4}$, 4 $\frac{3}{4}$, 4 | One area 2.0 clear felled P.51 and replanted with Oak P.52. (Dieback area) |
| | E.L. | 35 | | b. N.E. - S. | 20 | 6 - 9 | 2 $\frac{1}{2}$, 3 $\frac{1}{4}$, 3 $\frac{1}{2}$, 2 $\frac{2}{4}$, 2 $\frac{2}{4}$. | |
| | E.L. | 34 | | c. Gentle - moderate d. To E. winds | 20 | 6 - 9 | 2 $\frac{2}{4}$, 3 $\frac{1}{4}$, 2 $\frac{3}{4}$, 3 3 $\frac{1}{4}$ | |
| 10 | S.S. | 29 | As above - slopes vary from gentle to fairly steep with several dingles and moist flats with deep soil at places - damp clay at foot of slopes. | As below | 38 - 45 | 18 - 27 | 7 $\frac{1}{4}$, 7 $\frac{3}{4}$, 9 $\frac{1}{2}$, 6 $\frac{3}{4}$, 7 $\frac{3}{4}$, 5. | S.S. and J.L. N.W. corner C.10 E. wind caused windblow. Compt. 10. W.-windblow among larch - due to westerly exposure. |
| | J.L. | 29 | | | 45 | 9 - 18 | 6, 6 $\frac{3}{4}$, 10, 7, 7 $\frac{1}{4}$ | |
| | J.L. | 29 | | | 40 - 45 | 9 - 15 | 8, 6 $\frac{1}{4}$, 6 $\frac{1}{2}$, 7, 7, 8 $\frac{1}{4}$ | |
| | D.F. | 29 | | | 45 | 15 - 24 | 5 $\frac{1}{4}$, 4 $\frac{3}{4}$, 5 $\frac{1}{2}$, 8 $\frac{1}{2}$, 7 $\frac{1}{4}$, 6 $\frac{3}{4}$ | |
| | S.S. | 29 | | | 50 | 30 - 36 | 5 $\frac{1}{2}$, 6 $\frac{1}{2}$, 7 $\frac{1}{4}$, 6, 8 | |
| E.L. | 29 | 20 - 25 | 6 - 9 | 3 $\frac{1}{4}$, 3 $\frac{1}{4}$, 3, 4 $\frac{3}{4}$, 3 $\frac{1}{2}$ | | | | |
| 11 | D.F. | 29 | Soil thinner in patches Slopes vary from gentle to fairly steep with several dingles and moist flats with deep soil at places - damp clay at foot of slopes. | a. 700 - 1000 | 45 - 50 | 18 - 24 | 7 $\frac{1}{2}$, 6 $\frac{3}{4}$, 6, 8 $\frac{1}{2}$, 8 $\frac{3}{4}$ 4 $\frac{3}{4}$ | |
| | S.S. | 29 | | b. W. N.W. N. - N.E. Generally sloping with northerly aspect. | 40 - 50 | 24 - 36 | 9 $\frac{1}{4}$, 7 $\frac{1}{4}$, 7, 7 $\frac{3}{4}$, 4 $\frac{3}{4}$, 7 | |
| | N.S. | 29 | | c. Flat - fairly steep - generally moderate and gentle. | 40 | 18 - 24 | 5 $\frac{1}{4}$, 5 $\frac{3}{4}$, 4 $\frac{3}{4}$, 5 | |
| | E.L. | 29 | | d. On west side (prevailing winds) - and S.W. | 35 | 12 | 4 $\frac{1}{2}$, 5 $\frac{1}{4}$, 6, 5 $\frac{1}{2}$, 7. | |
| | J.L. | 29 | | 45 | 9 - 12 | 6 $\frac{1}{2}$, 8 $\frac{1}{4}$, 5 $\frac{1}{2}$, 4 $\frac{3}{4}$, 7 $\frac{1}{2}$ | | |
| | S.S. | 29 | | 30 | 12 - 18 | 4 $\frac{1}{2}$, 4 $\frac{1}{4}$, 5 $\frac{1}{4}$, 5 $\frac{3}{4}$, 6 $\frac{1}{4}$. | | |
| 12 | S.S. | 30 | " | " | 35 - 40 | 18 | 4 $\frac{1}{2}$, 6 $\frac{1}{4}$, 5 $\frac{1}{2}$, 3 $\frac{3}{4}$ 4 $\frac{1}{4}$, 5 $\frac{1}{2}$ | |
| | E.L. | 30 | | | 25 - 28 | 9 | 1 $\frac{3}{4}$, 3 $\frac{1}{4}$, 4, 3 $\frac{1}{4}$, 5 $\frac{1}{4}$ | |
| | N.S. | 30 | | | 30 - 35 | 18 - 24 | 6 $\frac{1}{4}$, 3 $\frac{1}{2}$, 4, 4 $\frac{3}{4}$, 4 $\frac{1}{2}$ | |
| | E.L. | 30 | | | 35 | 12 | 5 $\frac{3}{4}$, 5, 4 $\frac{3}{4}$, 3 $\frac{1}{4}$, 4 $\frac{1}{2}$, 6 | |
| 13 | N.S. | 30 | " | " | 35 - 40 | 18 - 24 | 4 $\frac{1}{2}$, 3 $\frac{1}{2}$, 4 $\frac{1}{2}$, 5 $\frac{1}{4}$, 5 $\frac{1}{4}$ | |
| 13, 14 | S.S. | 33 | " | " | 35 | 18 - 24 | 5 $\frac{1}{4}$, 4 $\frac{1}{4}$, 3 $\frac{3}{4}$, 4 $\frac{1}{2}$, 5 $\frac{1}{4}$ | |
| 14, 15 | E.L. | 31 | " | " | 30 | 9 - 12 | 5 $\frac{1}{4}$, 4 $\frac{3}{4}$, 5, 4 $\frac{1}{4}$, 2 $\frac{3}{4}$, 3 $\frac{1}{2}$ | Large number of Ts. died following attack by Honey Fungus. Trees remaining of good growth. |
| 14, 15 | N.S. | 31 | | | 40 | 18 - 24 | 4 $\frac{1}{4}$, 3 $\frac{3}{4}$, 5, 5 $\frac{1}{4}$, 4 $\frac{3}{4}$ | |
| 14 | Ts. | 31 | | | 40 - 45 | 15 - 24 | 8 $\frac{1}{2}$, 6 $\frac{3}{4}$, 6, 5 $\frac{3}{4}$, 8, 7 $\frac{1}{2}$ | |

History of Mathrafal Forest

APPENDIX V

Details of thinning, felling, etc.

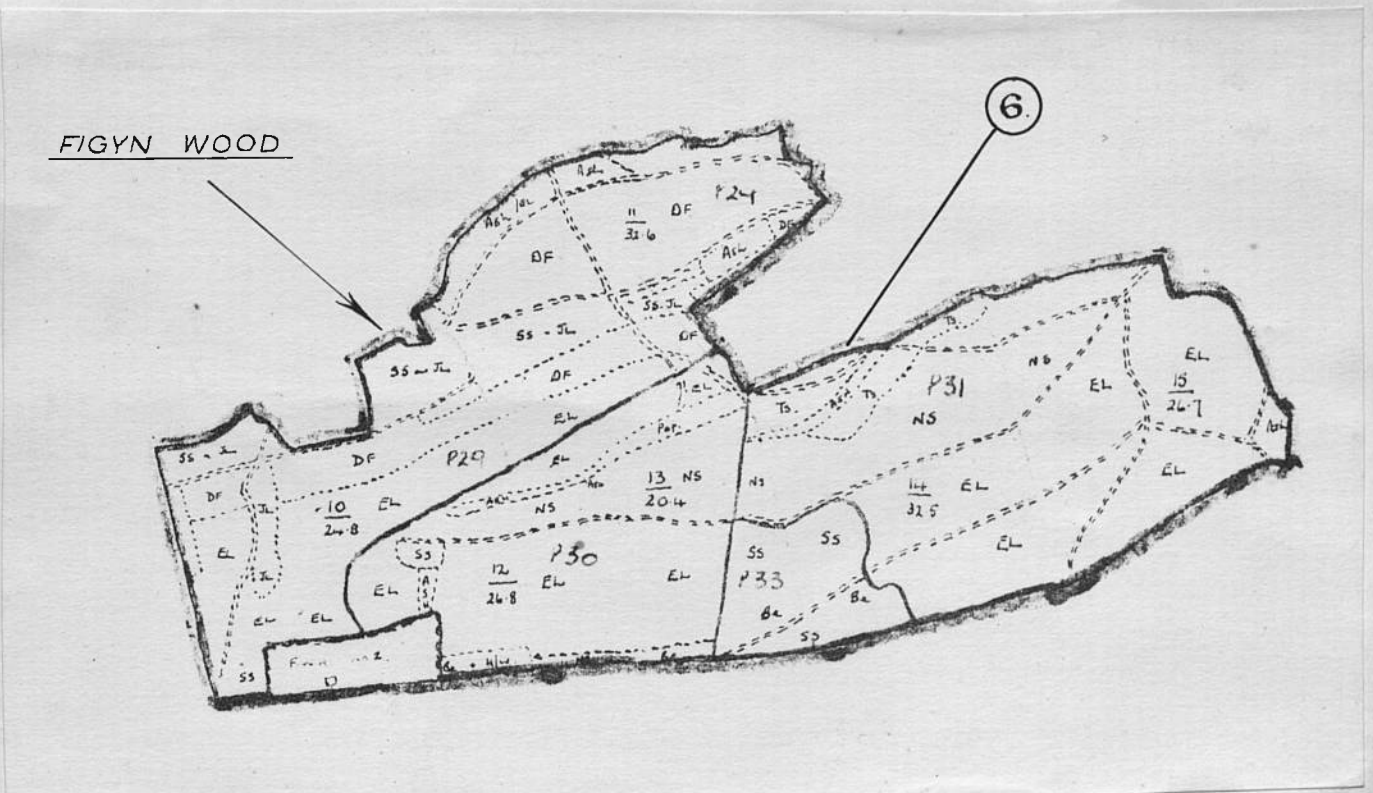
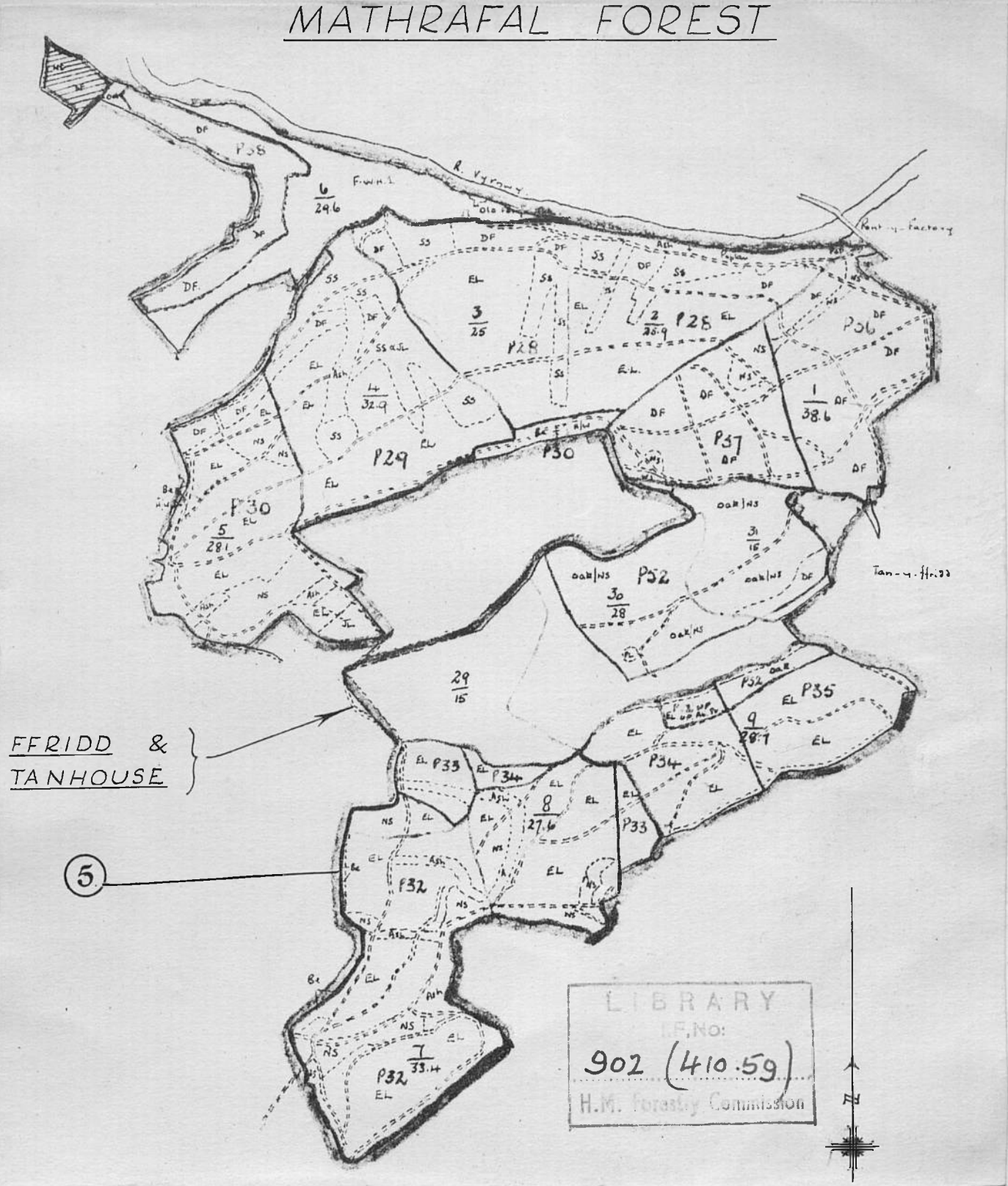
F. Y. 1942-52

| P. Year | Thinned | | | | | Felled | | | | |
|---------|------------|--------|---------|--------------|---------|------------|-------|-----------------------|-------------------|--|
| | Compt. No. | P. No. | Acres | | Species | Compt. No. | Acres | Species and Age class | | |
| | | | 1st Th. | 2nd etc. Th. | | | | | | |
| 42 | 11 | 29 | 1 | | J. L. | | | | Pre thinning | |
| 43 | 2 | 28 | 3½ | | D. F. | | | | Very light thinn. | |
| | 3 | 28 | 3 | | D. F. | | | | | |
| | 4 | 29 | 2½ | | D. F. | | | | | |
| | Total | | 9 | | | | | | | |
| 44 | 11 | 29 | 17.5 | | D. F. | | | | | |
| | 11 | 29 | 1.25 | | J. L. | | | | | |
| | 10 | 29 | 3.75 | | D. F. | | | | | |
| | 4 | 29 | 3.0 | | J. L. | | | | | |
| | Total | | 25.50 | | | | | | | |
| 45 | 3 | 28 | 1.0 | | D. F. | | | | | |
| | 10 | 29 | 2.0 | | J. L. | | | | | |
| | Total | | 3.0 | | | | | | | |
| 46 | 2 | 28 | 2.5 | | | | | | | |
| | 3 | 28 | 2.5 | | | | | | | |
| | 10.11 | 29 | 3.5 | | | | | | | |
| | 12 | 30 | 9.0 | | | | | | | |
| | Total | | 17.5 | | | | | | | |
| 47 | 2 | 28 | 1.5 | | D. F. | | | | | |
| | 3 | 28 | 2.0 | | S. S. | | | | | |
| | 4 | 29 | 3.0 | | D. F. | | | | | |
| | 11 | 29 | 14.0 | | D. F. | | | | | |
| | 11 | 29 | 3.0 | | E. L. | | | | | |
| | 13 | 30 | 5.0 | | E. L. | | | | | |
| | Total | | 28.5 | | | | | | | |
| 48 | 2 | 28 | 3.0 | | S. S. | | | | | |
| | 3 | 28 | 3.0 | | S. S. | | | | | |
| | 4 | 29 | 1.75 | | E. L. | | | | | |
| | 5 | 30 | 11.5 | | E. L. | | | | | |
| | 5 | 30 | 1.0 | | J. L. | | | | | |
| | 5 | 30 | 1.5 | | D. F. | | | | | |
| | 10 | 29 | 4.0 | | D. F. | | | | | |
| | 10 | 29 | 11.0 | | E. L. | | | | | |
| | 10 | 29 | 2.0 | | S. S. | | | | | |
| | 11 | 29 | 3.0 | | D. F. | | | | | |
| | 12 | 30 | 0.5 | | S. S. | | | | | |
| | | 30 | 4.5 | | E. L. | | | | | |
| | Total | | 46.75 | | | | | | | |
| | 49 | 2 | 28 | | 4.0 | D. F. | | | | |
| 3 | | 28 | | 3.0 | D. F. | | | | | |
| 4 | | 29 | 3.75 | | S. S. | | | | | |
| 4 | | 29 | 14.0 | | E. L. | | | | | |
| 4 | | 29 | | 2.5 | J. L. | | | | | |
| 5 | | 30 | 3.0 | | E. L. | | | | | |
| 8 | | 33 | 1.75 | | E. L. | | | | | |
| 14 | | 31 | 10.0 | | E. L. | | | | | |
| 15 | | 31 | 21.0 | | E. L. | | | | | |
| Total | | 53.50 | 9.5 | | | | | | | |
| 50 | (7 | 32 | 18.5 | | E. L. | | | | | |
| | (8 | | | | E. L. | | | | | |
| | 8 | 34 | 2.0 | | E. L. | | | | | |
| Total | | 20.5 | | | | | | | | |

| P. Year | Thinned | | | | | Felled | | | |
|-----------------|------------|--------|---------|--------------|-----------|------------|-------|-----------------------|---------------------------------------|
| | Compt. No. | P. No. | Acres | | | Compt. No. | Acres | Species and Age class | |
| | | | 1st Th. | 2nd etc. Th. | Species | | | | |
| 51 | 7,8 | 32 | 9.0 | | E.L. | 18,19) | 25 | Uneven M/Hw. | Felled by F.C. sold standing. |
| | 8 | 33 | 2.0 | | E.L. | 20 | | | |
| | 9 | 34 | 13.0 | | E.L. | 29 | 3 | Uneven M/Hw. | Felled by F.C. |
| | 9 | 35 | 14.5 | | E.L. | | | | |
| | 10 | 29 | | 6.0 | SS/JL/DF. | 9 | 1.5 | E.L. P.35 | Dieback E.L. |
| | 11 | 29 | | 19.0 | D.F. | | | | |
| | 11 | 29 | | 4.0 | SS/JL | | | | |
| | 12 | 29 | 0.5 | | SS | | | | |
| | 12 | 30 | 0.5 | | S.S. | | | | |
| | Total | | | 39.5 | 29.0 | | | 29.5 | All above felled by merchant. |
| 52 (to date) | 2,3 | 28 | 26.0 | | E.L. | | | | E.L. rails sold standing to merchant. |
| | 4 | 29 | 3.5 | | S.S. | | | | |
| | 5 | 30 | 6.0 | | N.S. | | | | |
| | 9 | 34 | | 0.75 | E.L. | | | | |
| | 10 | 29 | | 6.0 | SS/JL | | | | |
| | Total | | | 35.5 | | | | | |

Mathrafal

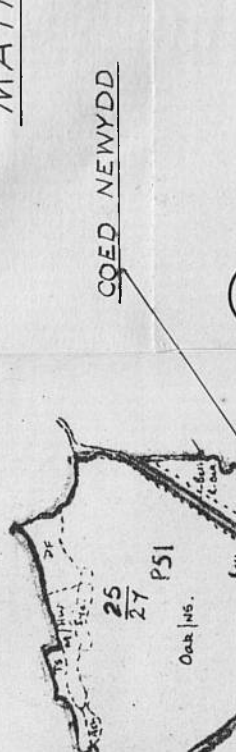
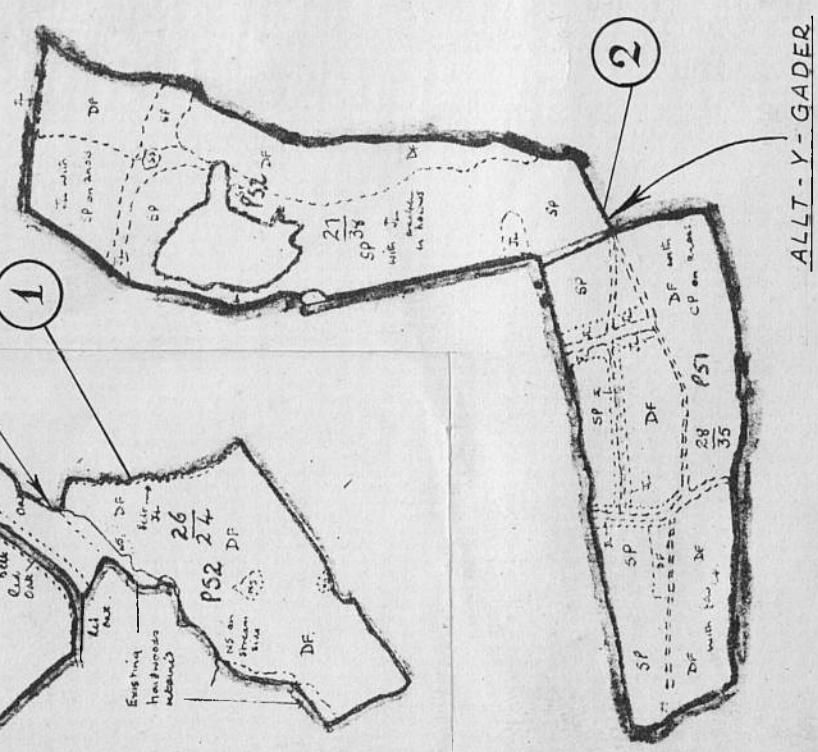
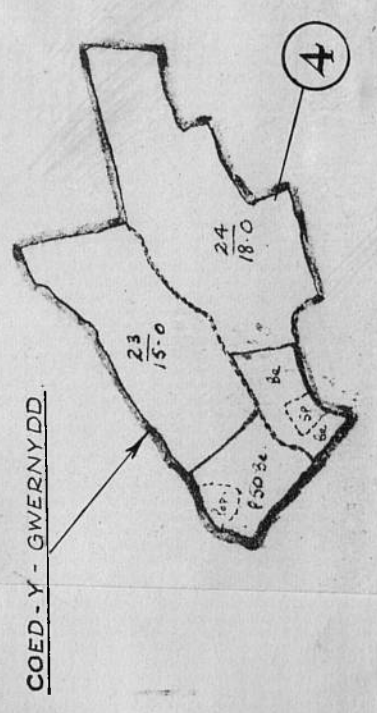
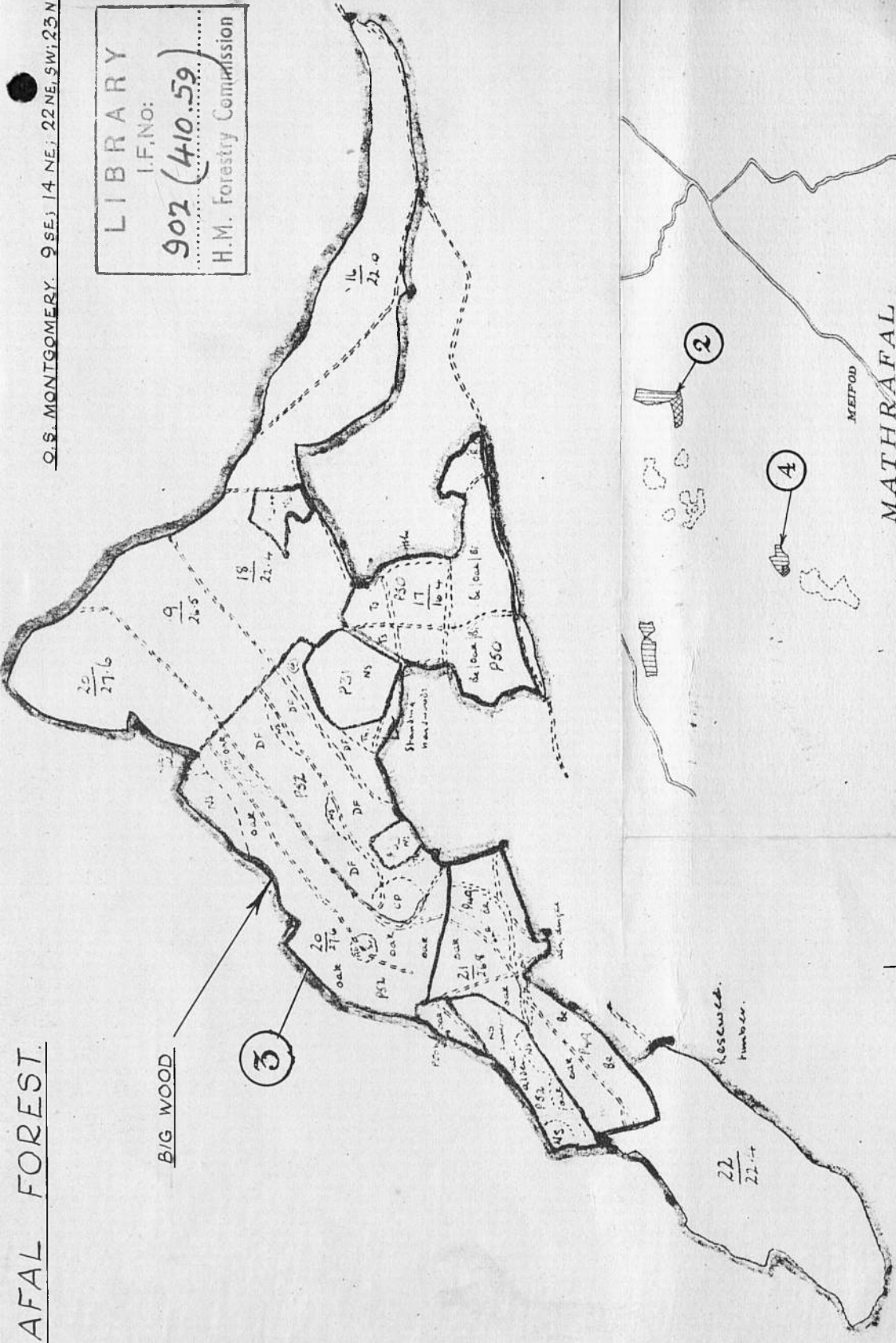
MATHRAFAL FOREST



MATHRAFAL FOREST.

O.S. MONTGOMERY. 9 SE. 14 NE. 22 NE. SW. 23 NW.

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Scale :- 1/2" to 1 Mile.