

Silviculture and Forest Management in France

P. M. JOYCE¹

This article aspires to convey an impression of the silviculture and management of some of the broad-leaved and coniferous forest types which constitute the forests of France. For this purpose a number of forests, characteristic of the part of the country in which they grow, are described and their management discussed. In addition, the role of forestry in the consolidation of marginal agricultural holdings — *remembrement* — is outlined.

The itinerary commences in the State forest of Darney in the department of Vosges, and moves clockwise through the departments of Jura, Côte d'Or, Saône et Loire, Puy-de-Dôme, Cantal, finishing in the department of Corrèze in the *Massif Central*. (see Fig. 1).

INTRODUCTION

One-fifth of France is covered by forests which are divided fairly equally into three major forest types; high forest, coppice or coppice with standards and low productivity areas not amenable to regular management. Two-thirds of the forest area is under broad-leaved species, mainly oak, beech and hornbeam; the remaining one-third consists largely of maritime pine, Scots pine, silver fir and Norway spruce in that order.

The area under forest is approximately 12 million hectares. This does not include roadside trees, lines of poplar, parkland trees, etc., which together are estimated to be the equivalent of another 2 million hectares. Forest ownership is divided into State (1.6 million ha), Communal (2.4 million ha), and Private (8 million ha).

There are about 2000 State forests (*forêts domaniales*), 14,000 Communal forests (*forêts communales*) and 8000 communal sections (*forêts sectionales*).

In the total 10 million ha (including roadside trees, etc.) of private forest, 3.5 million ha consists of woods less than 25 ha in area. These are owned by approximately 40,000 people. The remaining 6.5 million has 1600 separate ownerships. Many of the woods in private ownership are not managed or are mismanaged.

1. Department of Forestry, University College, Dublin.

The allowable cut is reckoned at 80% of the increment, but only 50% is cut. An increase of 50% in the cut could significantly influence the supply position; France is a large importer of softwood.

ORGANISATION

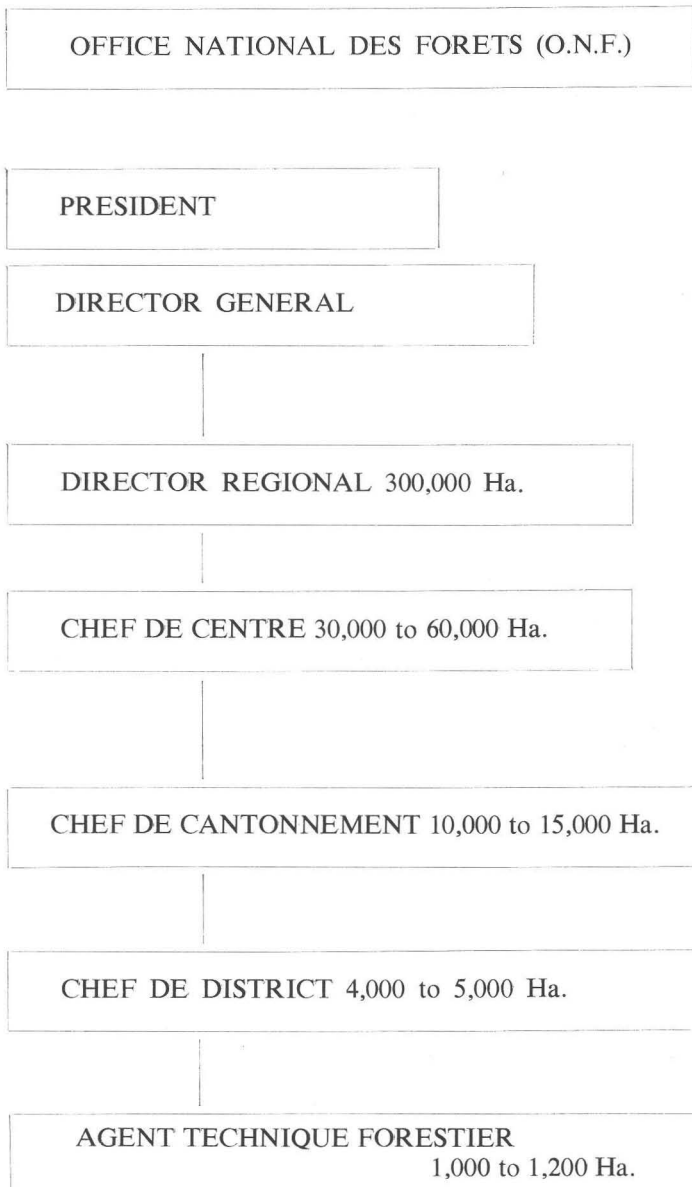
Forestry is administered by the Ministry of Agriculture. There are three levels: national, regional and departmental. The most outstanding feature is that private forestry is administered separately from State and Communal forests both at regional and departmental level — a situation decried by many forest officers.

The *Office National des Forêts* is a semi-autonomous body responsible for State and Communal forests. State forests are divided



Fig 1. Map of France showing the areas visited. 1. Vosges; 2. Jura; 3. Côte d'Or; 4. Saône-et Loire; 5. Puy-de-Dôme; 6. Cantal; 7. Corrèze.

TABLE 1, shows the hierarchy and territorial responsibilities within the *Office National des Forêts*:



into economic units, not necessarily contiguous, which operate as going concerns without financial help from the Exchequer. Communal forests can draw from the National Forestry Fund—F.F.N.—a fund created by putting a tax on articles made of wood.

Private forestry is the responsibility of the *Direction Departementale d'Agriculture*, but personnel within the Ministry of Agriculture can move laterally at departmental, regional and even national level; a professional forester is currently head of Administration and Finance. Similarly, there are many transfers from the *Service Forestier* (Private Forestry) to *Centre de gestion* (State and Communal forestry) and vice versa.

VOSGES

The forest of Darney is typical of the forests of the premontane Vosges where the broadleaved species of the lowlands begin to blend with the conifers of the mountains. The soil is mostly of limestone origin producing good oak and beech, but in places and particularly on eastern slopes, the limestone soil has been eroded to expose the sandstone underneath. On this "*buntsandstein*" soil broadleaves grow poorly and the objective is to replace the beech with Douglas fir.

The State forest of Bois le Comte is, for administrative purposes, part of the forest of Darney. Here a soil survey has been done by forest staff and a management map prepared showing the objectives. On areas coloured green the objective is oak high forest on what was formerly oak coppice with standards. The rotation will be 240 years to produce oak veneer which is currently fetching 2000 Frs (£160) per m³. Mean annual increment is 3 m³ per ha. On areas coloured blue the objective is beech of veneer quality. The eroded slopes are shown in red on the map and here the objective is Douglas fir on a 60 to 80 year rotation. The beech is being cleared on a modified Group System and Douglas fir introduced at 3 x 2.5m espacement (1500 per ha). The wide spacing allows for a certain amount of regeneration by beech and *Abies*. Cleaning will be done manually for about four years after planting.

In the neighbouring communal forest of Bleurville a systematic conversion from broadleaved forest to Douglas, spruce and pine forest is in progress. This is being effected by clear cutting about 4 ha areas and planting with conifers. The objective is a dbh of 45 cm at 80 years.

The State forest of Darney Martinville occupies 5300 ha, mainly oak and beech. Here, a 150 years old beech stand is being regenerated by the Uniform System. Particulars for the crop are as follows:

Vol. per ha in 1939, according to Schaeffer's tariff: 494 m³;
Vol. per ha in 1958, according to Schaeffer's tariff: 553 m³;
C.A.I. from 1939 to 1958: 4.40 m³ per ha;
Increment %: 0.56%
Thinning cycle: 16 years;
Seeding felling in 1970 removed 104 m³ per ha.

The regeneration period is reckoned at 20 years, so there should be three or four secondary fellings and then the final felling. Natural regeneration is abundant so the regeneration period may be shortened as happened in an adjoining area. Here the seeding felling was in 1948, the secondary felling of 200 m³ per ha in 1952, and the final felling of 150 m³ per ha in 1956; a regeneration period of 8 years.

Natural regeneration of beech by the Uniform System in this region gives an extremely dense crop of young growth which formerly had to be weeded and thinned gradually over the years to prevent overcrowding. This was a very expensive operation. The present approach is to select the final crop trees — 100 per ha — when they are 25 years old and give them adequate growing space by removing competition. This approach is almost identical with the "Scottish Eclectic" thinning system except that pockets in between the selected trees are ignored. Since the management objective is a 65 cm dbh average tree, it is hoped to shorten the current rotation from 160 to 140 years by providing more growing space for the selected trees. The succeeding rotation will be shortened to 120 years. Shortening the rotation in steps of 20 years is due to a management constraint associated with the regeneration period.

In an adjoining area a comparison can be made between plantation oak and naturally regenerated oak, both established in 1950. Apart from espacement, the cost of regeneration seems to provide the greatest difference between the two crops. Natural regeneration costs 375 Frs per ha; artificial regeneration costs 1700 Frs per ha; but it was admitted that some hidden costs may have been omitted in the natural regeneration figure. Method of selection of final crop trees — 80 per ha — is similar to that already described for beech. The aim is to get a radial increment of 2 mm per annum on the selected oak.

JURA

The Jura range is an extension of the Vosges mountains south of the Belfort Gap which separates the two mountain chains. Like the Vosges, the region is heavily wooded with broadleaved species of

the pre-montane plateau giving way to coniferous species on the higher plateau.

One of the important forests of the Jura is the State forest of la Joux. It is 2660 ha in area divided into 5 series and managed by the *quartier bleu* (regeneration area) method. Species are silver fir and Norway spruce with a M.A.I. of 11 m³ per ha. The annual cut is 30,400 m³ indicating that the increment is being cut as might be expected in a normal forest. Unfortunately yield regulation is often confounded by the occurrence of windthrow (*chablis*) such as that of the 25th April, 1972, when more than 100,000 m³ was blown in the district. The forest is of high recreation value and a well designed drive of 50 kilometres takes in la Joux as well as the forests of de Levier, la Fresse and Chapeis. A feature of la Joux is the President — a massive silver exceeding 20 m³ in volume.

Hunting is permitted during the season September-December. On one tract of 600 ha the rental for a nine year period is 1 million Frs. The annual shoot is 12 roe deer and as a means of control, bracelets are issued to the hunters. If the kill has not got a bracelet on its leg it is assumed to be taken illegally.

At a lower elevation on the pre-montane plateau is the forest of les Moidons where the indigenous oak, hornbeam and beech is giving way to conifers. Here in the past wood was used for firewood to evaporate water from the salt solution obtained from mines in the Jura. When other sources of salt became available the oak and hornbeam was not needed in the same quantities and conversion from coppice with standards to coniferous high forest commenced in 1922.

Conversion was effected by a shelter-wood system. 60% of cover is removed leaving 600 standards per ha and silver fir — 2500 plants per ha — is introduced. Eight years later the standards are removed and after another five years all coppice is removed leaving nothing but silver fir. The plantation is inspected after another three years to ensure that it is satisfactory. The use of the shelter-wood as a protection against frost is now being questioned and there is a tendency to clear-cut and plant silver fir in the open. Where beech exists it is being retained to grow to high forest because it is of good quality. Oak, on the other hand, is of poor quality and is not retained.

Further west near the town of Saint-Laurent is the Mont-Noir Forest which includes the communal forest of Saint-Laurent en Grandvaux — a forest of about 800 ha divided into 3 series — located on the edge of the second plateau. This forest came under management in 1856 and the Selection System (*jardinage*) was practised for three years. From 1859 to 1894 a system of cutting

on a 144 year rotation and natural regeneration was practised and in 1894 the forest was divided into two series and returned to the Selection System. This system is still being practised but for economic reasons it is somewhat different from the traditional Selection System. Instead of working tree by tree, the tendency is to work in groups (*bouquet*).

Although the proportions by stem numbers and volume approaches closely to the ideal, there is a departure from the accepted normal growing stock of 272 m³ per ha in the case of both series. One has a volume of 368 m³ per ha indicating too many large trees and the other a volume of 264 m³ per ha showing slightly too few large trees. As a measure of control, stem numbers per unit area are plotted against their diameters giving a reversed J curve and this curve is compared with a theoretical curve for a normal selection forest.

Calculation of the allowable cut for each series is by an adaptation of Melard's formula. A separate calculation is made for each species. The annual return to the community from the 800 ha forest is 5000 Frs.

The Jura department possesses a modern seed extraction plant which is used to less than full capacity because of lack of demand for seed. Cones of silver fir, Scots pine and Norway spruce are collected during a three-week period — end September/beginning October. The seed collectors are paid by the hecto-litre and the average payment per person is £20 per day.

^ CÔTE D'OR

This department is situated in Burgundy — the famous wine district — in the plain of the river Saône. The climate is continental; precipitation 750 mm and mean temperature 11°C.

The State forest of Citeaux, 3585 ha in area is situated on a plateau of a mean altitude of 210 m midway between Beaune and Dôle. The forest, consisting of 80% oak, 15% beech and hornbeam and 5% other broadleaved species, has been worked on a coppice with standards system since 1833. The rotation for coppice is 30 years and that for standards is 180 years. Coppice keeps the stems free from heavy branches, but since oak coppice needs sufficient light to grow properly, epicormic branches tend to develop on the oak standards. Hornbeam in the understory will prevent this process which degrades the quality of the oak. Standards ages are in multiples of the coppice rotation age, since seedlings will only develop when the cutting of the coppice gives sufficient light. The standards

are classified on this basis, e.g. a *moderne* is two coppice rotations an *ancien* is three coppice rotations, etc.

The forest is now in the process of being converted to high forest by the traditional *quartier bleu* (regeneration area) method. For the purposes of management each series is divided into three sections:—

1. Areas which are approaching the rotation age for standards or have already reached it. This is the regeneration area — *quartier bleu* — and is coloured blue on the map.
2. Areas composed of compartments which will be allotted to the regeneration area during the next revision of the working plan. This is the preparation area — *quartier jaune* — and is coloured yellow on the map.
3. Areas composed of compartments containing young and semi-mature stands that need weeding and thinning. This is the improvement or amelioration area — *quartier blanc* — and is coloured white on the map.

At Citeaux the “blue” area is being regenerated over a 30 year period (1960-1990). Advantage is taken of a mast year and regeneration is usually well established within 10 years. When the regeneration is shoulder high, paths 1 m wide are cleared at 10 m spacing to break up the block and make it easier to direct and measure the work output. Cleaning must be done at regular intervals to ensure survival of the oak. This is particularly so when hornbeam is present. The hornbeam grows much quicker than the oak in spring and has to be cut back to half its height. Yet hornbeam is essential to the success of oak regeneration in that it keeps the ground cool and moist. The cost of cutting back the hornbeam every second year is 360 Frs (£30) per ha.

In younger oak stands — 70 to 90 years old — the conversion from coppice with standards is effected along lines similar to those practised at Darney in the Vosges. Final crop trees are banded — 80 stems per ha about 10 to 12 m apart — and competitors are removed. Beech and hornbeam are encouraged in the lower story to ensure that there are no epicormic branches.

Expected production from oak in the forest at Citeaux is 4 m³ per ha per year. Of this 2 m³ will be suitable for furniture and 2 m³ for inferior uses such as railway sleepers. The primary objective is oak 65-70 cm diameter at 180 years. Oak is the only species worth considering on this sandy clay and compacted clay of low nutrient status and it is felt that the objective will be best achieved under high forest. To allow the speedy conversion to high forest the area has been divided into five series. Secondary objectives are an increase in tourism and hunting. Income from the 3585 ha is one

million Frs per year while expenses are a half-million Frs per year. 5% of the income is from hunting.

The improvement of hunting facilities is being pursued and to this end an area of 450 ha in the neighbouring forest of Beaune was fenced and stocked with wild boar. The hunting is rented on a 9 year basis by a syndicate and 75 boar are killed each year. This high rate of kill is possible because the female has three litters, of seven to eight young per litter, every two years. Roe deer in this region number less than 1 per 100 ha at present. In an attempt to improve their numbers a 30 ha block has been fenced in the forest of Citeaux and it now houses two male and two female roe deer. Five more females will be added to this number and in three years time they expect to have 25 animals. They will then release 10 of these and hope to build up numbers in this fashion. The fallow deer is not considered by the forest officers to be a game animal. It is something you see in a park on Sundays!

^

SAONE-ET-LOIRE

Douglas fir is a relatively recent introduction to this region. The oldest trees are on the estate of the Comte de Rambuteau where they are regenerating naturally.

The soil is of granitic origin. Altitude is 400 m; precipitation is 900 mm and mean temperature 10°C.

The Douglas fir stand in the communal forest of St. Bonnet de Joux is from seed collected on the Rambuteau estate. Top height is from 30 to 35m at 36 years of age and the dbh range is from 20 to 45 cm. It is proposed to select 400 stems per ha and high-prune them. Douglas fir lumber commands a premium price in this region for the construction of chalets. Douglas is an automatic selection for new plantations and the current espacement is 3 x 2 m.

Clermont-Ferrand is the capital of the Auvergne region which includes the departments of Puy-de-Dôme, Cantal and Corrèze. They are partly situated in the Massif Central, a high plateau which rises abruptly south of Clermont. Although the climate is oceanic, winters are very severe and the growing season is short. This has led to a depressed state of agriculture. Geological formations are frequently of volcanic origin and extinct volcanoes are numerous, particularly in Puy-de-Rôme.

From a land-use viewpoint these are problem areas for agriculture. In the Col de Moneidiers, department of Corrèze, for example, recent demographic studies show that people are at half the average income level for the country and are leaving rapidly. In an attempt

to come to grips with the situation the Government has introduced a policy of land consolidation (*remembrement*) which involves zoning those areas listed for improvement. To qualify for zoning, a farmer must have at least 10 ha of land. If he wishes to zone and put sheep or cattle on part of his holding the Government will contribute 75% of the cost of the land improvement on the grazing zone *provided* the remainder of the area is planted. The options open to anyone who wishes to plant are as follows:—

1. The State provides the plants and the owner does the planting.
2. The State supplies vouchers which the owner can use to purchase plants.
3. The State pays 40% of what it estimates the cost will be.
4. The State provides 80% of the total cost at an interest rate of 0.25% over a period of 30 years.
5. The State provides the total cost and recoups the money by taking half the profits when they occur, until the total amount has been recouped. There is no interest charge.

While the schemes listed have contributed to an increased area under forest, there are some criticisms from the national point of view. Many owners of small holdings emigrate to the cities after planting the land and never bring it under management. "The holding becomes merely a possession like a ring on one's finger" to quote one forest officer.

Access to the planting schemes is also available for communal forests and sectional forests as well as to the private owner. Within the Auvergne forest region 20% of the forest is State owned and the remaining 80% is almost entirely sectional forest. This means that they belong to a division or a section of the commune, i.e. to villages which make up a part (or section) of a commune. Legally, the inhabitants of those villages possess the sole rights to common properties which are distinct from those of the commune. The "section" is therefore a kind of legal entity administered jointly by the Municipal Council and a Prefect (a Government representative). Under the terms of the Municipal Code, it is compulsory to take the advice of a commission made up of three members representing the "section" in all matters concerning the forests: i.e. (a) whenever land already under forest or land to be afforested is to be put under the control of the *Office National des Forêts* or (b) for reforestation by agreement of *Fonds Forestier National* (National Forestry Fund).

PUY-DE-DÔME^A

26% of the area is forest, amounting to 207,800 ha. The *Office National des Forêts* has responsibility for 32,187 ha of this area mainly in the form of communal forests and sectional forests (28,720 ha). Composition by forest types is: conifers 18,425 ha; coppice and coppice with standards 3,100 ha; other types 2,587 ha. The annual production is 120,000 m³.

The conifers are not indigenous to the region. Before the French Revolution the natural vegetation was beech which was cut down during the Revolution. Attempts were made to reforest without much success, since the communes to whom the land belonged were not enthusiastic. The floods of 1860 were attributed to the cutting of the forests and a law was passed making it compulsory to reforest. The communes disagreed but eventually conceded 20% of the area to forest. Some who still did not agree set fire to the forests, so the State introduced a subvention for planting and compelled the dissenters to pay the subvention. Forest workers were well paid and within ten years everything was settled.

A typical forest dating from this period was established by direct seeding with 10 kg of Norway spruce, Scots pine, oak and beech per ha. The oak and beech were introduced because the people who did the work came from the plains. The forest will be regenerated over the next 40 years using the Group System. This involves taking advantage of gaps caused by windblow, enlarging them and introducing some silver fir. It is hoped to get regeneration of Norway spruce in the enlarged group and that shade will still be sufficient to inhibit growth of Scots pine regeneration, which it is considered desirable to eliminate. Another factor to be taken into consideration is the necessity to allow room for tractor extraction when making the openings. Production is 8 m³ per ha while the current cut amounts to 12 m³ per ha.

The commune of St. Julien-Puy-Lavèze has recently been engaged in a land consolidating scheme. This involved selling land to villagers in order to increase their holdings from 15 ha to 25 ha. The remainder of the land is being retained and planted with the agreement of the villagers. Planting is done in Spring on 80 cm strips which have been rotovated the previous Autumn.

The State forest of L'Eclache was established in 1850 by cutting out the beech coppice and sowing Norway spruce seed. The spruce is of excellent quality and is now used as a source of seed. Price is 200 Frs (£17) per m³ on root and the material is in good demand for furniture, roofing, etc. The average income is 1000 Frs (£80)

per ha per year. Altitude is 1000 m; precipitation is 1100 mm per year and the soil is deep and of mica schist origin. Douglas fir is absent; it does not grow well above 800 m altitude. The Group System is being practised and provides an excellent example of the problems associated with too profuse natural regeneration. The labour costs involved in thinning out at intervals are becoming prohibitive and there is a proposal to move towards the Swedish method of working with larger cuts at fewer intervals — a question of simple economics.

CANTAL

The main climatic features of the region are: a rainfall of 1000 mm; thirty-five days of snow and a covering of snow from November to March; an average annual temperature of 7.4°C; frosts in June; wind speeds of 60 to 80 miles per hour causing windthrow and a short growing season from May to September.

In the vicinity of Allanche the soil is a brown earth of basalt origin with a pH of 6. Forests are mostly sectional forests established around 1863. The principal species is Scots pine (53% by number, 41% by volume) of Haguenuau origin which is ill-suited to this climate and regenerates very poorly. Its main silvicultural value is that it allows the introduction of Norway spruce and silver fir under shelterwood conditions.

Norway spruce representing 38% by number and 48% by volume regenerates well as soon as the stand is opened. It is, however, prone to attack by *Trametes pini*. Silver fir, which accounts for less than 10% by number and volume grows well and produces high quality wood. Its spread will be encouraged to give a better proportion than at present.

In the sectional forest of Allanche a working plan spanning the period 1967-1986 has been prepared by the O.N.F. and agreed by the Municipal Authority. The Uniform System (*futaie reguliere*) is being adopted and the objective is an average dbh of 55 cm. Depending on the development of the stands, their age and regeneration the forest is divided into three areas according to the *quartier bleu* (regeneration area) method:

Blue Section. (37% of the area). Areas where trees are to be felled for regeneration during the period of the plan.

Yellow Section....Regeneration is planned during the next working plan period — after 1986.

White Section. Improvement cuttings for better growth.

From increment borings the current periodic increment is estimated to be 1220 m³ per year (for the 151 ha forest). Standing

volume is 230 m³ per ha — indicating a degree of understocking. For this reason the annual cut is fixed below the increment level — at 1000 m³ per year. This is the allowable cut. Cuttings will be made in the yellow and white sections every 10 years. This will contribute an average of 400 m³ per year over the period so the annual cut for the blue section is 600 m³.

Control is strict within the working plan area although in areas outside the working plan (but still under O.N.F.) the villages may cut up to four or five times the allowable cut in anticipation. Even within the working plan area yield regulation on an annual or periodic basis can be difficult due to windthrow. For example, twice the allowable cut will be harvested this year because of windthrow. This windthrow usually occurs in small patches which tend to regenerate naturally and form the nuclei for groups in the Group System. In the Uniform System they can be more of a liability than an asset and due to the scattered nature of the windblown trees their value depreciates by 30%.

Villagers are paid for working in the forest and sometimes the proceeds from the sale of forest produce is in part given to individuals and the remainder given to the community. More usually, however, the proceeds go towards the provision of amenities for the community such as swimming pools, road repairs, etc.

Gross income from the sectional forest of Allanche is 200 Frs per ha per year. The community has currently undertaken to plant 200 ha as part of a land consolidation scheme. Planting is in the furrow created by a double-mould board plough and sub-soiler. Spacing is 2 x 2 m.

The State forest of Murat (1010 ha) originally belonged to the Viscomte de Murat but as a result of confiscation of property in the 16th century it became a State forest. It is divided into three areas each of which entail separate planning but only the first two areas (878 ha) were visited. The third area of 132 ha is of relatively recent acquisition and was planted 15 to 25 years ago.

Altitude range is 1100 to 1500 m; precipitation exceeds 1500 mm and average annual temperature is less than 8°C. Two-thirds of the forest is under silver fir and beech; the remaining third, mostly on the upper slopes which were regenerated between 1840 and 1870, is mainly spruce with some larch.

The silver fir stands have been subject to regulation by volume employing the Selection System (*Methodes du Controle*). Unfortunately the annual cut was set too low to allow sufficient regeneration. The stands now consist of very old trees without adequate distribution of size classes and are incapable of being regenerated along traditional lines.

In the Norway spruce stands there has been normal growth but unfortunately the sporadic clear fellings have been much too infrequent and the forest is now composed mainly of trees 100 to 130 years old — too old for yield regulation.

To remedy the situation it is now proposed as a last resort to clear fell the first area and replant with Norway spruce. In the second area the Selection System will operate on an *area* rather than a volume basis. Small clearings will be made in spruce and silver fir stands. If this does not promote natural regeneration the areas will be artificially regenerated.

These proposals should result in the regeneration of the greater part of the silver fir stands over the next 20 years. During that period the gross annual revenue for the whole forest will be 560 Frs per ha per year.

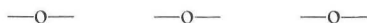
CORREZE

The Plateau de Millevaches has a maximum altitude of 900 m; maximum temperature is 27°C; minimum is -20°C with a mean temperature of 7°C. 200 raindays per year give a precipitation of 1500 – 2000 mm. The soil is granitic and deep. The Plateau was devoted to sheep production but numbers have declined over the past 50 years. Forest area is 240,000 ha, 10,000 ha of which is State owned. The remaining 230,000 ha is in 35,000 private ownerships and administered through the *Direction Departementale d'Agriculture*. Species composition is 150,000 ha broadleaves, mostly oak, beech and hornbeam of rather poor quality, 60,000 ha of Scots pine and Austrian pine, and 30,000 ha of spruce and Douglas fire.

Scots pine was formerly used for pitwood but now there is very little demand for such produce. The region has a high level of emigration and the derelict farms are being planted with Douglas fir and Norway spruce through one of the schemes outlined already. Espacement in existing plantations is 2.80 m x 1.40 m, but currently and in future espacement will be 2.75 m x 2.75 m. Expected production is 12 m³ per ha per year for Douglas and 10 m³ per ha per year for Norway spruce. Cost of establishment (direct costs such as plants and planting, cleaning, fire control and roads, etc.) is 2000 Frs (£160) per ha.

Soil pH is usually low, 4.5 or thereabouts, so it is common practice to apply lime to Norway spruce. Douglas fir suffers from copper deficiency resulting in a very twisted growth of the leaders and consequently the stem. The problem is accentuated by nitrogen application.

Hunting arrangements can be made with the landowners provided one has a hunting licence which costs 100 Frs. The quarry is doe deer and wild boar. A three-day shoot in the area last year accounted for 280 roe.



Forest management in France is a blend of traditional and modern methods. Rotations of 250 years for oak are still being planned where the site conditions are favourable to the growing of high quality material. On other sites, coppice with standards is giving way to high forest, either broadleaved or coniferous, in a rehabilitation exercise at which the French are now past masters. On sub-marginal agricultural land sheep-farming is being supplanted by tree farming under the direction of the forester. In all aspects of management, economics play a major role demanding the most economical methods of treatment. For an enterprise which must depend upon its own resources, this augers well for the future of forestry in France.