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Forestry in the Landscape

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FORESTRY COMMISSION

Booklet No. 18

Forestry in the Landscape

by SYLVIA CROWE

Past President of the Institute of Landscape Architects
Landscape Consultant to the Forestry Commission

LONDON: HER MAJESTY'S STATIONERY OFFICE

1966

Foreword

This booklet, written by Sylvia Crowe, draws largely on the impressions gained from her numerous and extensive visits to forests and woodlands in England, Scotland and Wales during the period when she has been the Forestry Commission's consultant. But the importance of the views expressed stems from Sylvia Crowe's lifetime of experience, her constructive thought on the meaning of landscape and her outstanding position amongst landscape architects both here and abroad. These views are her own, and can be said to summarise the advice she is giving to the Forestry Commission. I warmly welcome this advice, but I hope this booklet may be of value and interest far outside the Commission's own staff: to the public who may gain a fuller understanding of the landscaping objectives of the Forestry Commission: to other woodland owners whose aim of caring for the countryside is the same as our own: and to countries in Europe and further afield who may have landscape problems similar to our own.

For all these reasons I welcome the privilege of sponsoring this publication and hope it may have a wide circulation.

LESLIE A. W. JENKINS
Chairman
Forestry Commission

March, 1966

Contents

The landscape character of the areas to be afforested

The visual character of a landscape is influenced by (1) the configuration of the ground and the scale of its variations; (2) the existing type and pattern of vegetation and land use; (3) the prevailing colour of rock, soil and structures. This character determines the extent and pattern of the forestry which will look right in any given landscape, the desirable type of afforestation, and the appropriate siting, material and colour of buildings.

FIG. 1 Northumberland
The large-scale rolling hills of Kielder Forest

The scale of forestry development

The scale of each particular landscape is perhaps the most important factor in its relation to forestry. To maintain a good pattern of landscape, there must be both contrasts between areas of open ground and of planting and changes in the variety of tree species, of farm crops and of other vegetation. But the scale of this contrast and change varies enormously from one area to another. At one extreme are the large-scale, rolling hills of Kielder in Northumberland which can accept great areas of unbroken conifer forest, provided there is an occasional large-scale contrast of open fell or agricultural holding. At the other extreme

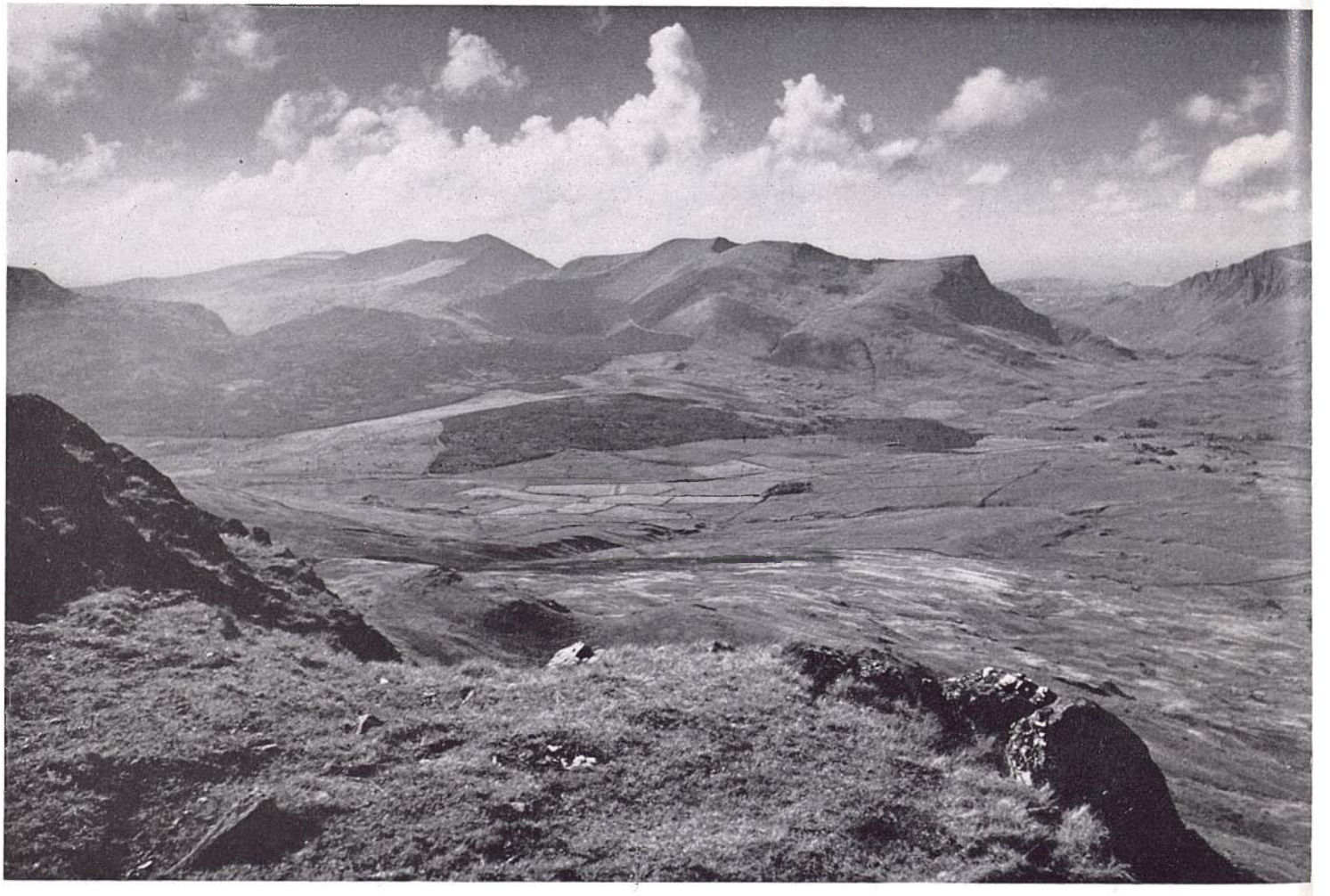


FIG. 2 Beddgelert and the Nantlle Range, North Wales
Small-scale and delicately modelled hills

are regions like the Lake District and parts of North Wales with their small-scale contrasts of land form and delicately modelled hills. Here every plantation must be treated individually and fitted into the intricate pattern; Figs. 1 & 2.

Intermediate scales and patterns of contrast are exemplified for instance in:

1. Peeblesshire, where the contrast is provided by some of the clearly defined hills being wholly planted and others wholly open; Fig. 3.
2. Parts of Kirkcudbrightshire, where planted hills contrast with open valleys; Fig. 4.

To a great extent these patterns have evolved naturally from geological and climatic factors, but it would help to arrive at decisions on amenity if the essential character of each region were analysed and understood.

Since a decisive factor in the successful introduction of forestry into any landscape

FIG. 3 Glentress Forest, Peeblesshire
Open and planted hills contrasting with each other

is the maintenance of an acceptable balance between planted and open areas, the integration of agriculture with forestry is a vital landscape consideration; Fig. 6.

Wherever this integration is successfully accomplished, the landscape gains. Many good examples of Forest Workers' Holdings are to be seen, as well as larger farms which have benefited by shelter provided by the forests. Good examples are those of Palgowan on the Water of Minnoch and Bents Farm, near Newton Stewart, both in Kirkcudbrightshire.

An interesting example of successful integration by the Commission is at Grizedale Forest in the Lake District where the original acquisition of 3,027 acres comprised 7 farms chiefly devoted to hill farming, with a limited amount of arable land. By a voluntary re-arrangement of the grazing land some 2,380 acres have now been planted leaving 647 acres in permanent agricultural occupation,

FIG. 4 Kirkcudbrightshire: Dalbeattie Forest
Planted hills contrasting with open valleys

made up of 4 farms and one smallholding. The emphasis is now on intensive, mainly dairy, farming. The area planted has been achieved without any permanent loss in agricultural production, although in effect 75% of the hill land has gone over to forestry.

At Myherin Forest, Cardigan, a joint scheme was laid down in 1956, whereby the 4,000 acres acquired was allocated between forestry and agriculture. Since that date some 1,900 acres have been planted, and the stocking of sheep and cattle on the remaining 2,100 acres has *increased* over that formerly grazed on the original 4,000 acres. Provision of suitably placed shelter belts, and the construction of forest roads, have also helped to use the land to the best advantage, and the overall labour required for agriculture and forestry has increased from 4 men

FIG. 5 Nant-yr-Arian, Rheidol Forest, Cardiganshire
Planted hillsides contrast with open tops and agricultural valleys

FIG. 6 Glasgwm Valley, Gwydyr Forest, Snowdonia
Integrated forestry and agriculture

before integration to around 18/20 men now employed in the forest and on the farm. At Glenlivet Forest, in Banffshire, there has been gradual progress towards integration of forestry, agriculture, and sporting interests. Hill farmers came to realise the advantages to their stock and grass crops of the ever-increasing shelter, and maintenance-free fencing, resulting from afforestation. Out of the 11,204 acres owned by the Forestry Commission, over 6,000 acres have been given up voluntarily by the tenant farmers since 1951.

Contrast, on a smaller scale than that provided by agriculture, can sometimes be obtained by using fire-breaks as a deliberate contribution to forest pattern and amenity.

The wide verges or strays often left along public roads through the forest would also contribute more to the landscape if their width were varied in sympathy with the land form instead of being always parallel; Figs. 7 & 7A. The same applies to areas left unplanted along river and stream sides, where the solid line of planting often crowds too close to the stream bank.

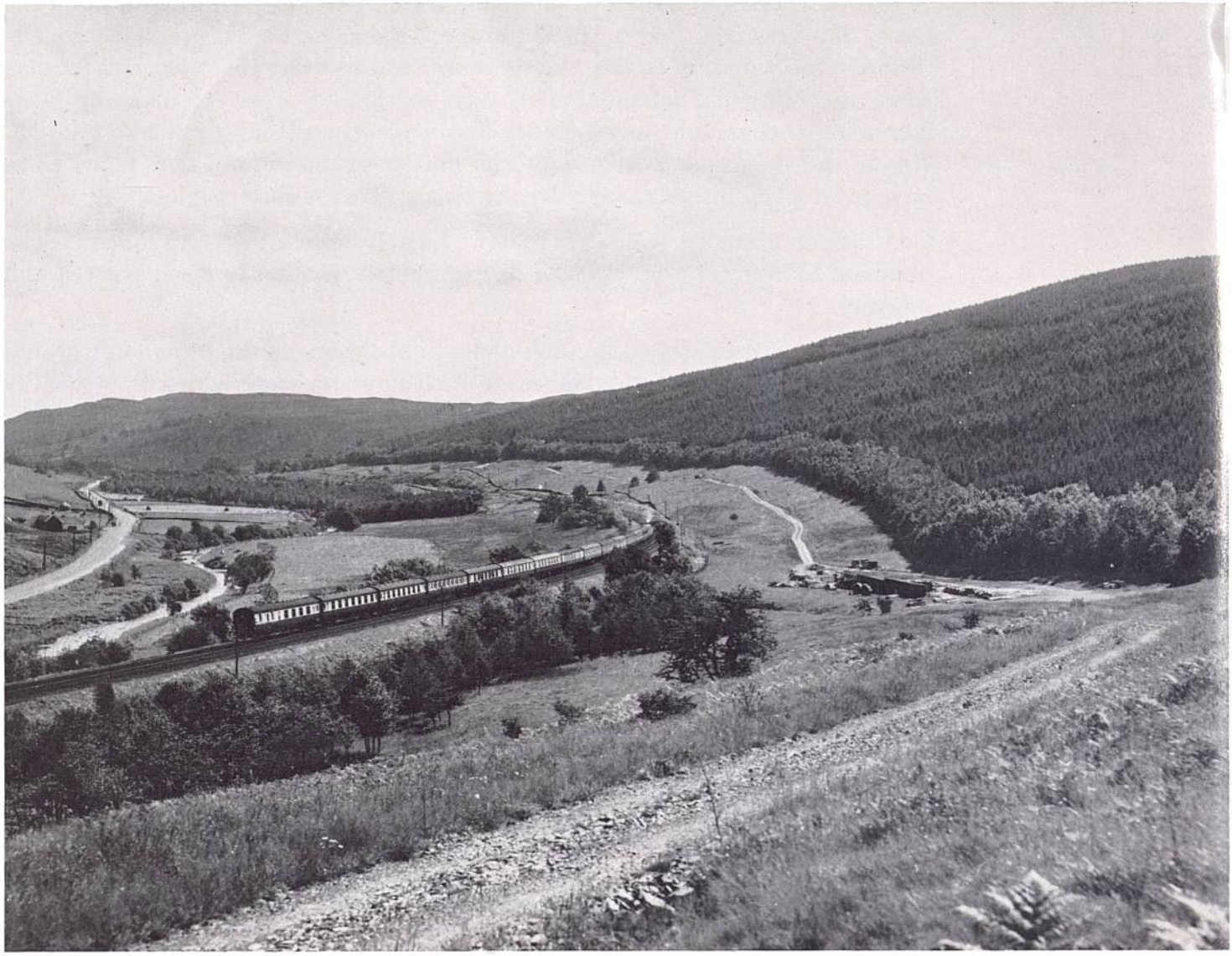


FIG. 7 The parallel lines of fire-break and deciduous forest edging at Greskine Forest in Dumfriesshire

FIG. 7A Trees and fire-break inflected to land form

Choice of tree species

The scale, pattern and colouring of landscapes influence the effect which different species will have on the scene.

All landscapes are improved by a proportion of deciduous and broadleaved trees. But the desirable proportion can vary, from Kielder and the other Border Forests where almost pure conifer forests look right, to the South Downs whose forests are rightly to be developed into pure beech.

In some of the forests between these two extremes, the retention and introduction of broadleaves may prove to be the only case where amenity and economic forestry are at variance.

Over the great majority of Forestry Commission land in Scotland and Northumberland, where conifers can be accepted as the only possible timber trees, the landscape requirements can be met by the occasional introduction of hardwoods related to access routes, stream-sides and camp sites, and the retention of existing hardwoods where they make an important contribution to the pattern of the landscape. Many of these existing woods, often of oak, are retained, but usually they are underplanted with conifers, so that eventually they will disappear to the great detriment of the landscape. This is done for economic reasons, but consideration should always be given to the perpetuation of some, at least, of the broadleaved woodlands, where they have most impact on the view. Their importance to the general health of the landscape, by their encouragement of wild life, should be given due weight.

A hillside planted solidly with conifers may often be linked very acceptably to an agricultural valley, with its broadleaved hedgerow trees, if broadleaves also feather up the gullies on the hillside and thereby unite it to the valley. This pattern also provides the ideal habitat for bird and animal population; Fig. 8.

In conserving the gully trees, it should be realised that the relieving broadleaves in the valley are usually off Forestry Commission land, and if they were felled the loss to the appearance of the forested hills would be considerable, while the importance of broadleaves within the forest boundary would be proportionately even greater.

The effect on the landscape of these tongues of broadleaves is very great in proportion to the small area occupied by them. The placing of relieving hardwoods should be considered for each individual landscape so that they may make their greatest impact. They are least effective singly or in thin lines.

The practice of leaving a belt of hardwoods beside roads improves the appearance from the roads and is therefore worth-while, particularly in flat country. But in

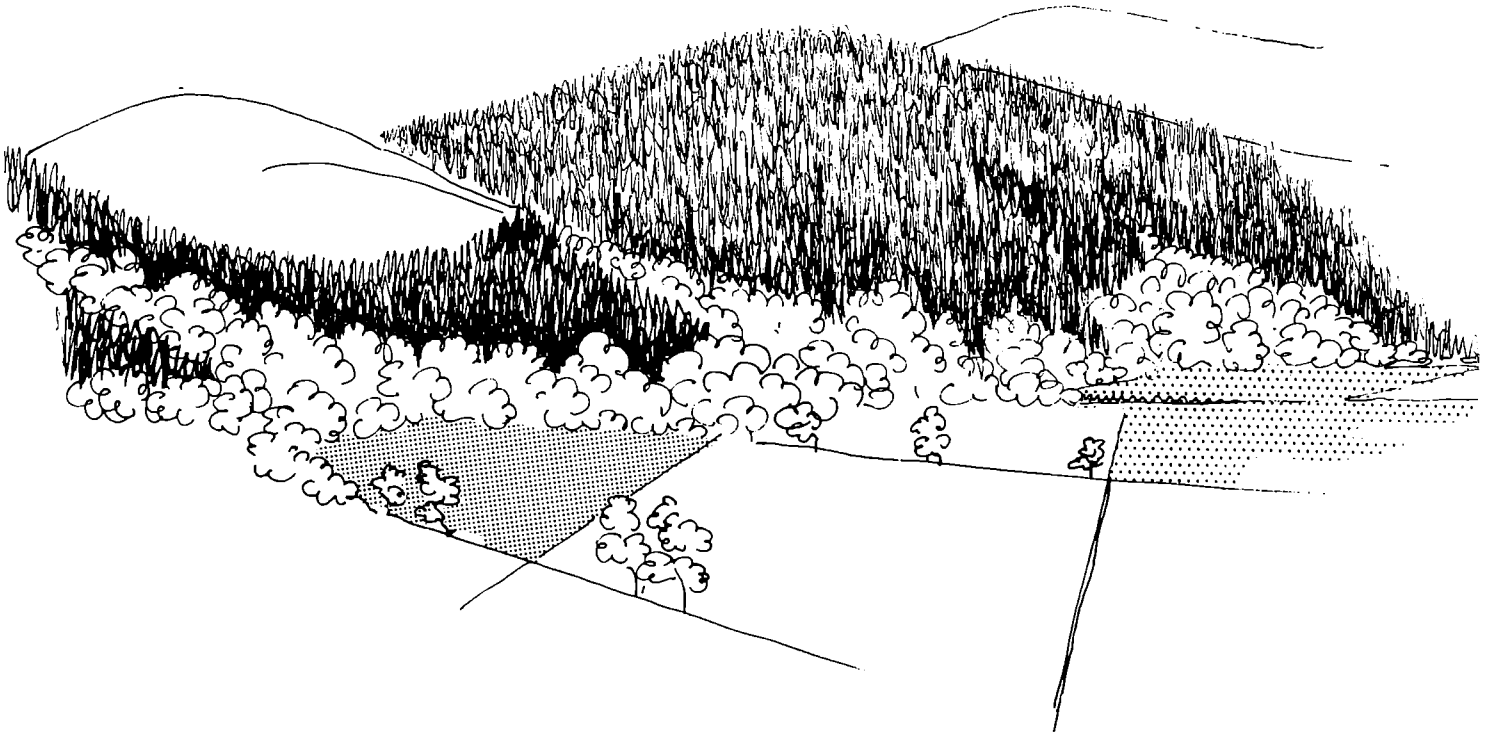


FIG. 8 Hardwoods linking forestry to the agricultural valley landscape

hilly country the distant views show it as a hard fringe to the forest, and a better result for both near and distant views would be achieved by breaking the parallel line in sympathy with the land-form and allowing the stands of broadleaves and conifers to tongue into each other.

In some places the broadleaves may be most valuable in mixture with the conifers, in others they will be more effective in a group or drift related to the topography. They may often emphasize a valley by following a stream bed, or, in the country of low elevations, such as the New Forest, hardwoods on the higher ground may emphasize the land-form; Figs. 9 & 9A.

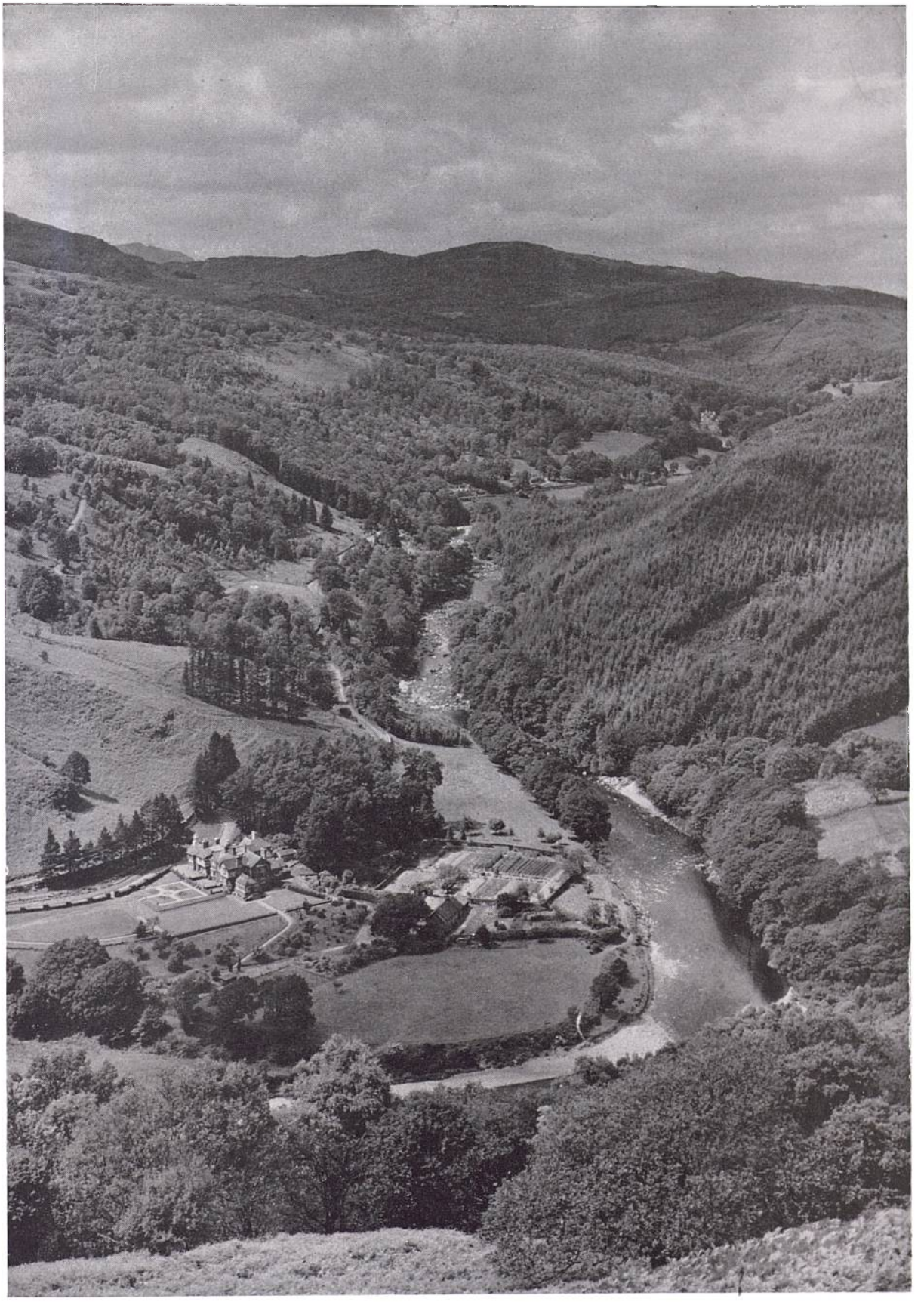


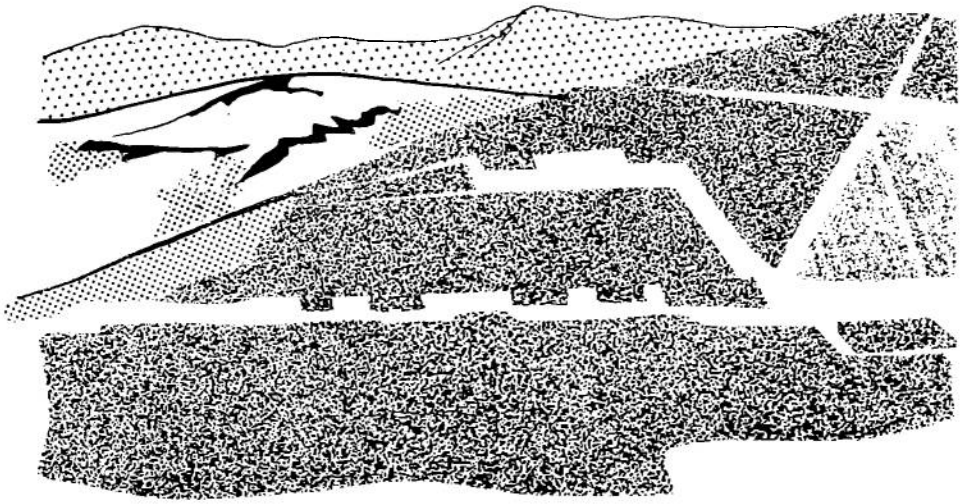
FIG. 9 Merioneth, Coed y Brenin Forest
Hardwoods emphasising the course of a valley

A good example of mingling light-foliaged larch and hardwoods with dark-foliaged evergreen conifers, is shown in Fig. 10. In Fig. 11 on the other hand the division into hard blocks contradicts the shape of the landscape.

FIG. 9A Hardwoods emphasising the hill formation in a country of low elevations

FIG. 10 Dunkeld: Craiguinean Forest and the Atholl Estate Woodlands
Hardwoods in effective mixture with conifers

FIG. 11 Planting in hard blocks contradicts the form of the landscape



Shapes of planted areas

Planting shapes refer both to the pattern of different species within the forest, and to the outline of the forest as a whole. A point to remember here is that while the forester's control over the external outline of the forest is partially limited by the acquisition boundary (see page 26) he has full control over the internal shapes.

Where there is variation of soil and topography, the best results come from good forestry practice in changing the species to suit the situation.

Good examples of this are to be seen in many forests, notably those of South Scotland, where the pattern of the tree species follows the original pattern of bracken, which was used in fact as an indicator plant at the time of tree planting; Fig. 12.

The success of so much of the planting in the Lake District is due to the shapes and sizes of the broadleaf and conifer plantations being in the right relation to the shape and scale of the terrain, the pattern of the planting being used to accentuate the modelling of the hills instead of blanketing it, as shown in Fig. 13.

On terrain without much geological variation a more deliberate design is needed, and on hill land this should be related to the contours, accentuating and giving rhythm to the land form. On level ground either an overall mixture of species, or a change of species on a very large scale is appropriate; Fig. 14.

Some of the worst patterning is caused by straight rides and roads cutting across contoured ground. Those now seen are mostly in old plantations, and the new

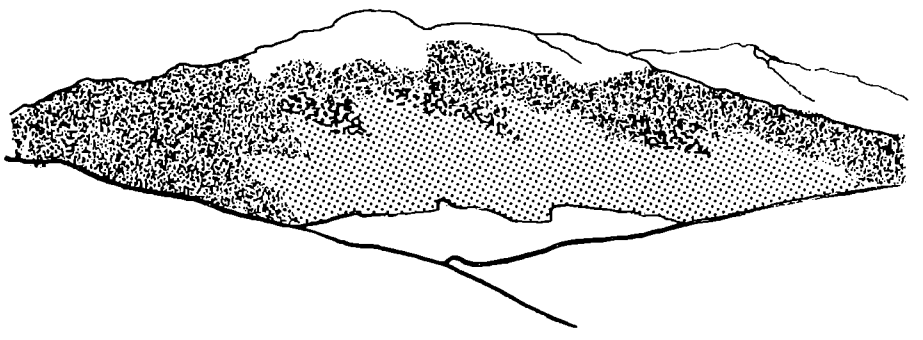


FIG. 12 Larch/spruce plantations following the pattern of bracken

practice of curving the rides and grading the roads diagonally to the contours is producing excellent results; Figs. 15 & 16.

From the outer view these rigid lines are most damaging when seen on a hillside, but when considering public access to forests the appearance from within must also be considered and a series of long, straight rides can be daunting to walkers; Fig. 17.

Planting in rows of different species also results in unpleasant stripes, particularly if the rows run up and down the hill. This should not be practiced under any circumstances. If such mixtures are planted to run with the contours, or diagonally, they become less obvious as the trees mature.

In making the outline of plantations conform to the configuration of the ground, long straight lines should be avoided, particularly if they run at right angles to the contours. Lines following the same contour along a hillside may also appear straight when seen from the same elevation on the far side of a valley. Straights

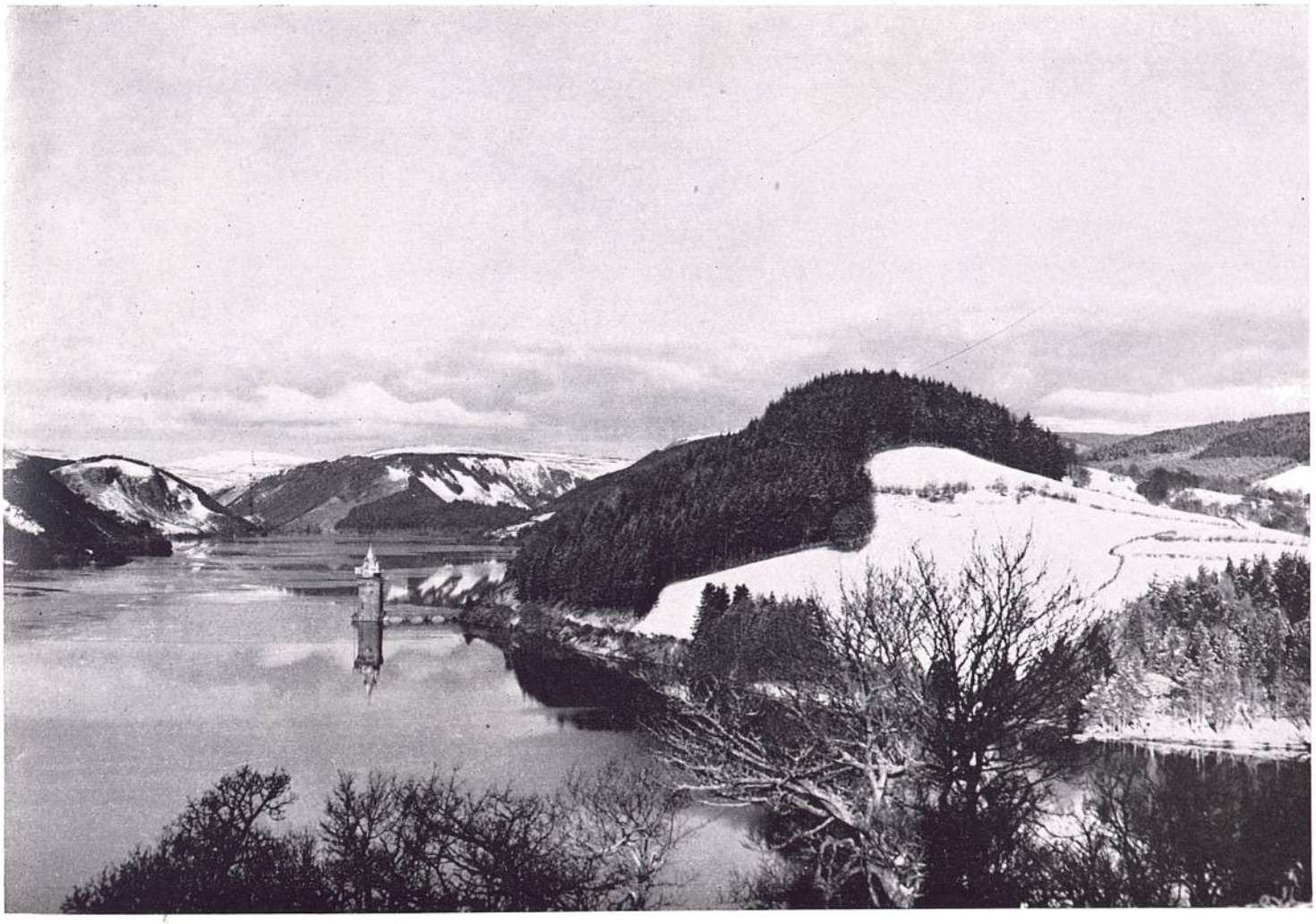


FIG. 13 Lake Vyrnwy, Montgomeryshire
Planting related to land form

when not too long may be acceptable on the flank of a hill when they run diagonally over the contours, and particularly at the lower margin, if they relate to the valley field pattern. On the upper margin the outline is most effective when it accentuates the form of the land, by either running up to the skyline on cols, and dropping at the high points (see Fig. 18) or, more rarely, and on lower elevations, covering the headlands and allowing open land to sweep up to the cols.

Often the tilt of the underlying strata shows in the pattern of a hillside and the angle of this tilt can be repeated in the forest outline; Fig. 19. Where planting runs out into rocky terrain, a few outliers between the outcrops will give the forest edge a natural appearance.

The long straight boundary to a forest is often determined by the acquisition

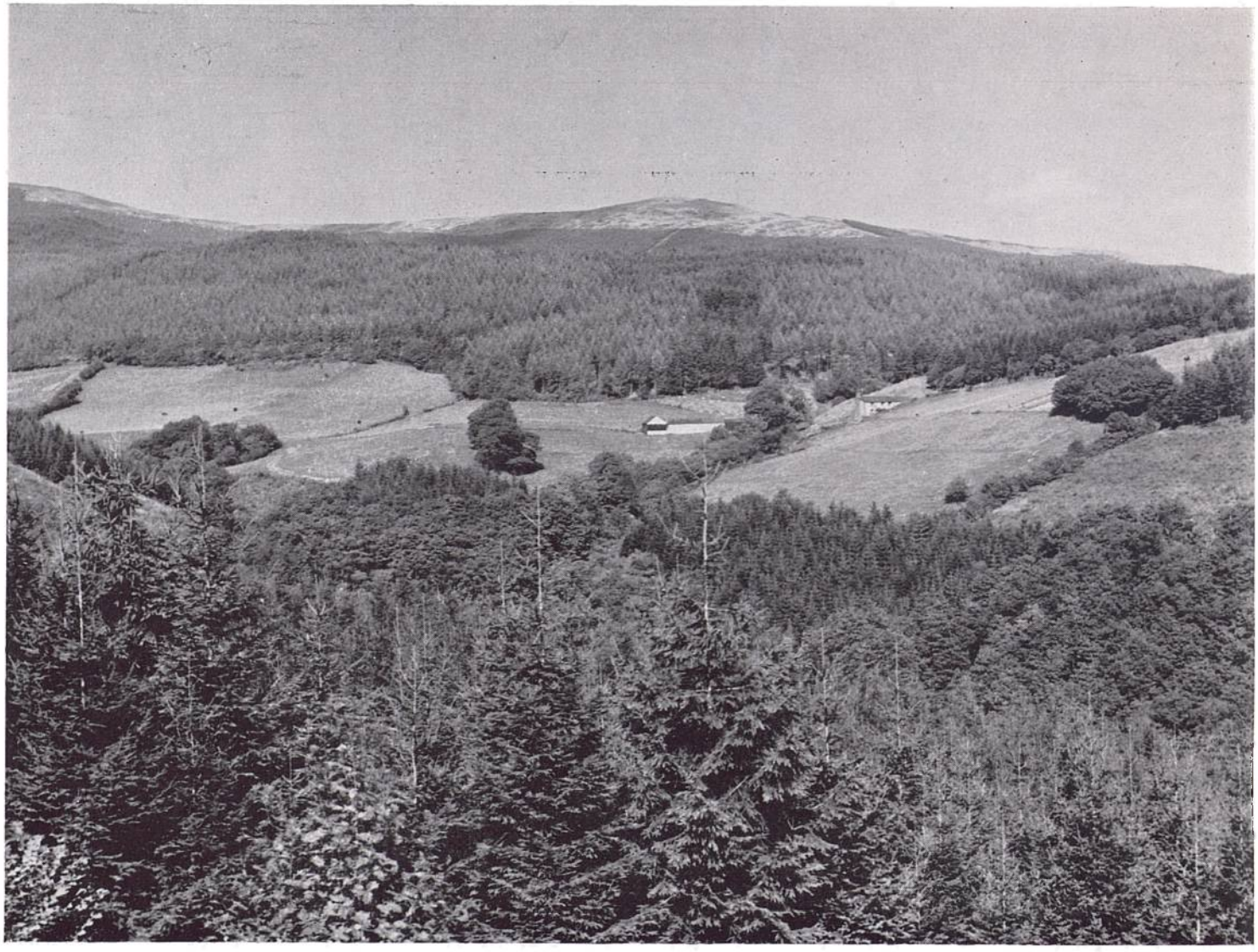


FIG. 14 Dovey Forest, Merioneth
Forestry in sympathy with a landscape of gentle contours

line. Control over the external boundaries can only be assured at the time of acquisition, and therefore the landscape aspect should be considered when the exact line of demarcation is being negotiated, even though the attitude of the party selling or leasing the land may not always allow an ideal solution. Often a very small adjustment can make the difference between planting shapes which accord with the landscape and those which damage it. For instance, where the acquisition line is a physical boundary such as a wall, it is difficult to depart from it, as any omission of planting within the boundary will be ungrazed and may cause a fire hazard as well as accentuating the straight line by a change in vegetation; in this case it would be easier to plant a small triangular intake beyond the wall, than to leave open ground within it. (See Figs. 20, 20A and 21).

Since the important views of a hillside plantation may be from far distant points,

FIG. 15 Moel Hafod Owen, Coed y Brenin Forest, Merioneth
The harsh lines of straight rides contradict the modelling of the terrain, which can be seen on the hill in the background

there are practical difficulties in demarcating the desired shape of the ground. To overcome this, a successful experiment was carried out in Allerston Forest, where the placing of markers on a vital hillside was controlled by walky-talky radio from the view-point over a mile away. This method could be used in cases where the forest shape is of particular importance.

FIG. 16 Hafren Forest, Montgomeryshire
Rides running diagonally up the contours accentuate the underlying land formation

FIG. 17 The Spruce Drive, Forest of Dean
Long straight rides through unbroken conifers can be daunting to walkers

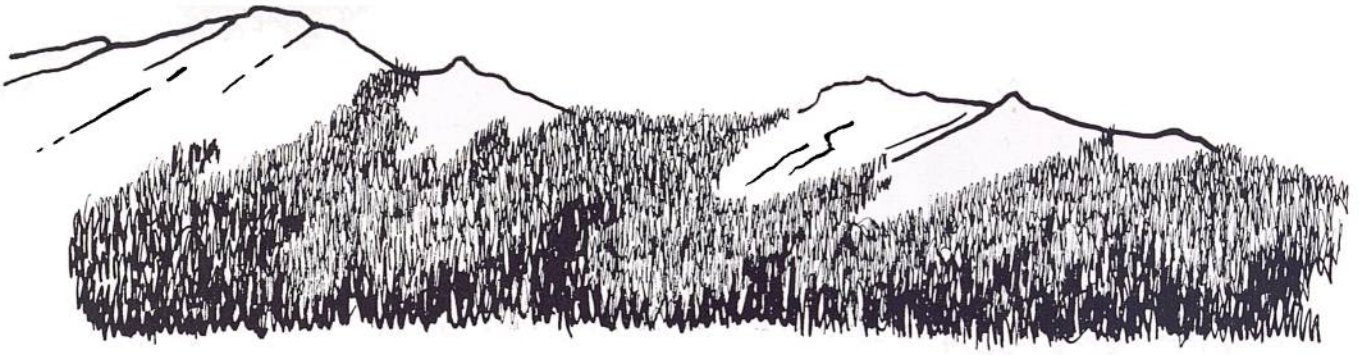


FIG. 18 Planting running over cols and accentuating the rocky tops

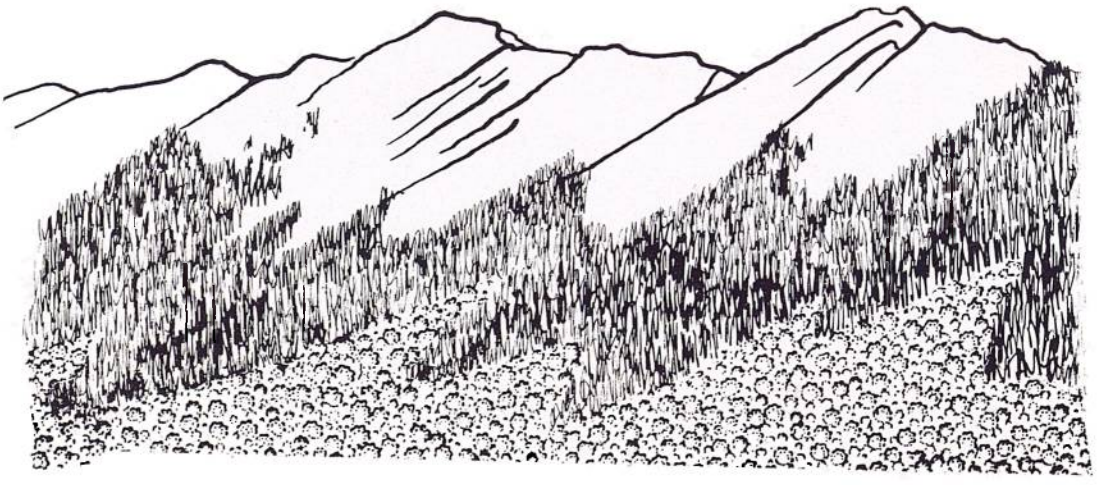


FIG. 19 Planting outlines following the tilt of strata

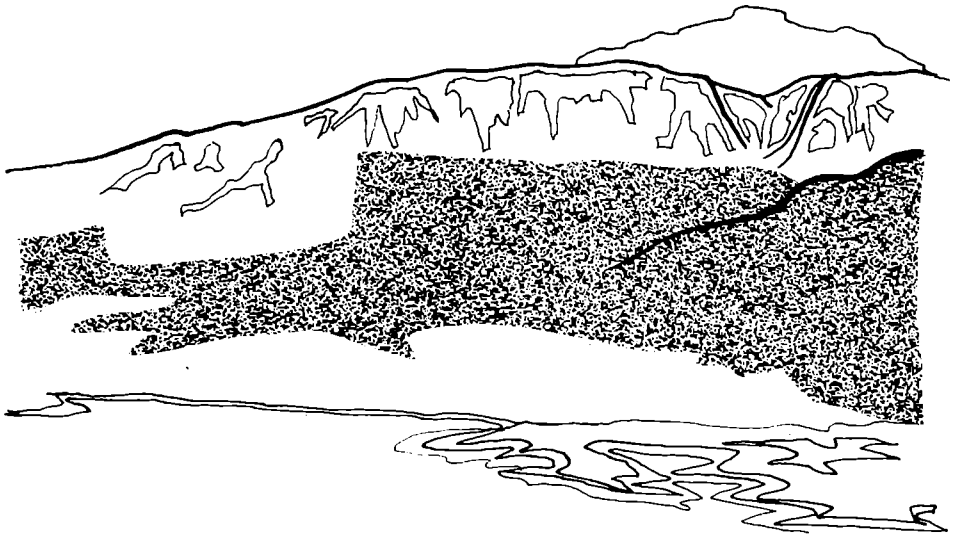


FIG. 20 A hillside plantation in the Lake District with harsh outlines

FIG. 20A Thinning leaves outliers in the upper planting line, and additional planting inclines the forest flank to the land formation

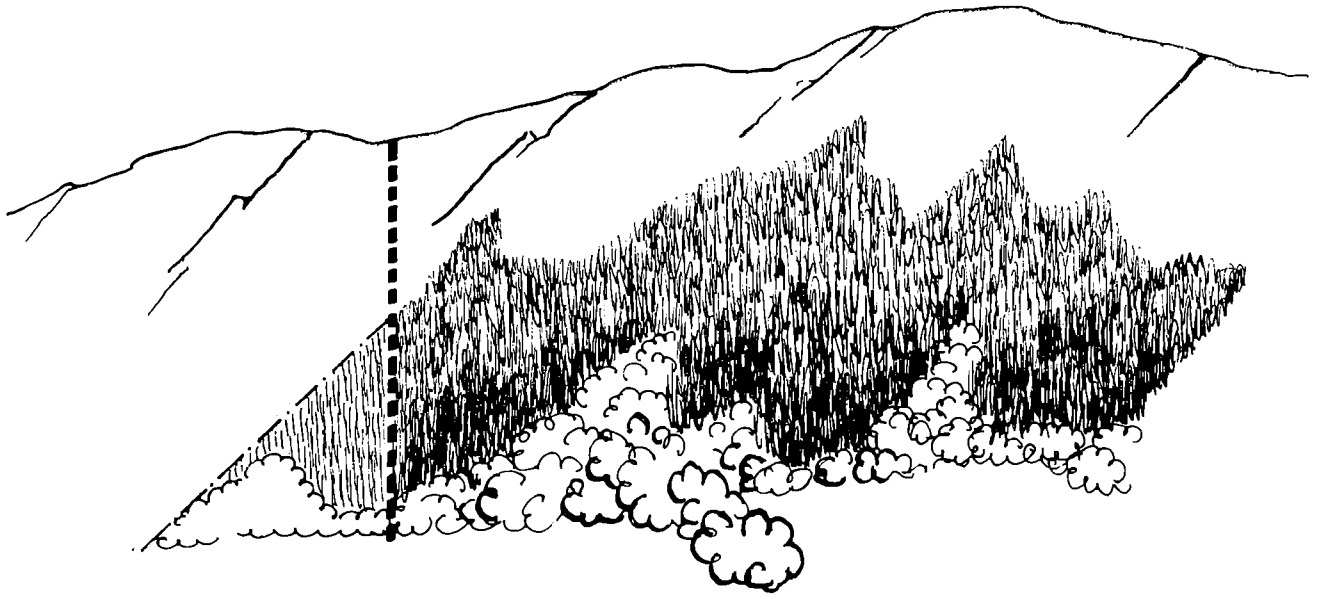


FIG. 21 A hard shape caused by the acquisition line can only be remedied by a small additional acquisition

The health of the landscape

A healthy landscape, in balance within itself and within its surroundings, is likely to look right, as well as, in the long term, favouring forests and farming through sustained fertility and a healthy ecological environment.

In saying this one is aware of the problems which may be associated with the pure coniferous forests which have been created by the Commission. In order to achieve a balanced environment in these conifer forests it may be necessary to introduce small enclosures of broadleaf trees at certain points, such as in rides and clearings or related to streams and viewpoints where the public have access. This would allow for a change of habitat for different species of birds, animals and insects.

Fire ponds should be deliberately designed to attract water fowl as well as to add to the visual attractions of the forest.

Considerable erosion to hillsides and scour in streams is caused by run-offs from some of the newly-planted forests. Careful attention to contour drains gradually falling to the lower ground, or into natural watercourses, should be the rule, to prevent sudden run-off from these newly planted areas, particularly where machinery has been used for ploughing or draining. Where excessive scouring has occurred, small check dams of brushwood are often effective in building up a barrier against erosion. In some cases it may be advisable to stabilise stream banks by planting.

After all earth-moving operations, the ground should be left in a condition in which it will become stable, and colonisation by plant life will readily take place. This applies to the banks of streams and to damage caused by removal of gravel or other road material. Over-steep or over-hung road cuttings, where vegetation cannot readily get a foothold, must be avoided.

Felling

Felling programmes present possibilities of either damaging the forest landscape, or of improving it. Improvement may be effected by using the opportunity to rectify ugly planting shapes or to open up new views. Damage may be caused by destroying the canopy where it forms an essential part of the landscape, as, for instance, on exposed skylines, and by creating cleared areas whose shapes and/or size will disrupt the landscape.

Where selective felling is practical, no landscape problem arises. But in the case of clear felling, landscape consideration should be given to the siting, size and shape of the coups.

Where the felling is on a hillside and visible from a distance, the same principles apply as in the case of new plantations, that is the coups should fit into the pattern of the landscape.

Where a large area is to be felled in a series of coups, taken over a period of years, the effect must be considered not only of the first coup but of subsequent ones made before the first replanting has matured sufficiently to register in the landscape. There is then a danger of a hillside assuming a moth-eaten appearance by being scattered with small areas of newly planted trees, and a better effect may be obtained by taking somewhat larger coups shaped carefully to the topography; Fig. 22.

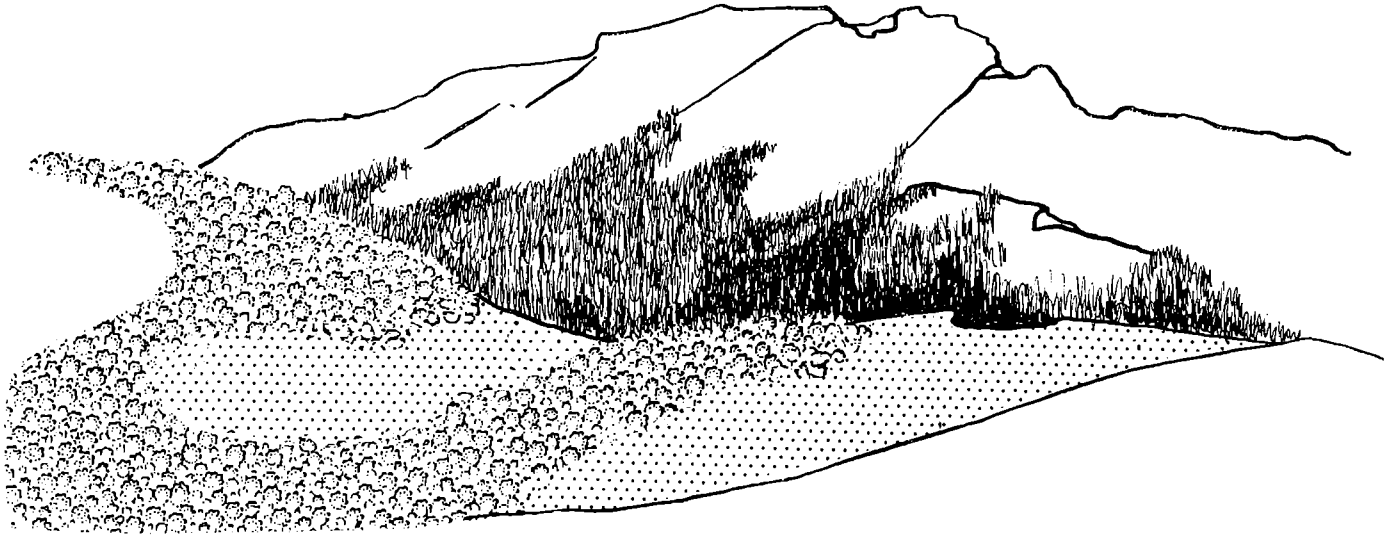


FIG. 22 Felling coups shaped to the landscape pattern

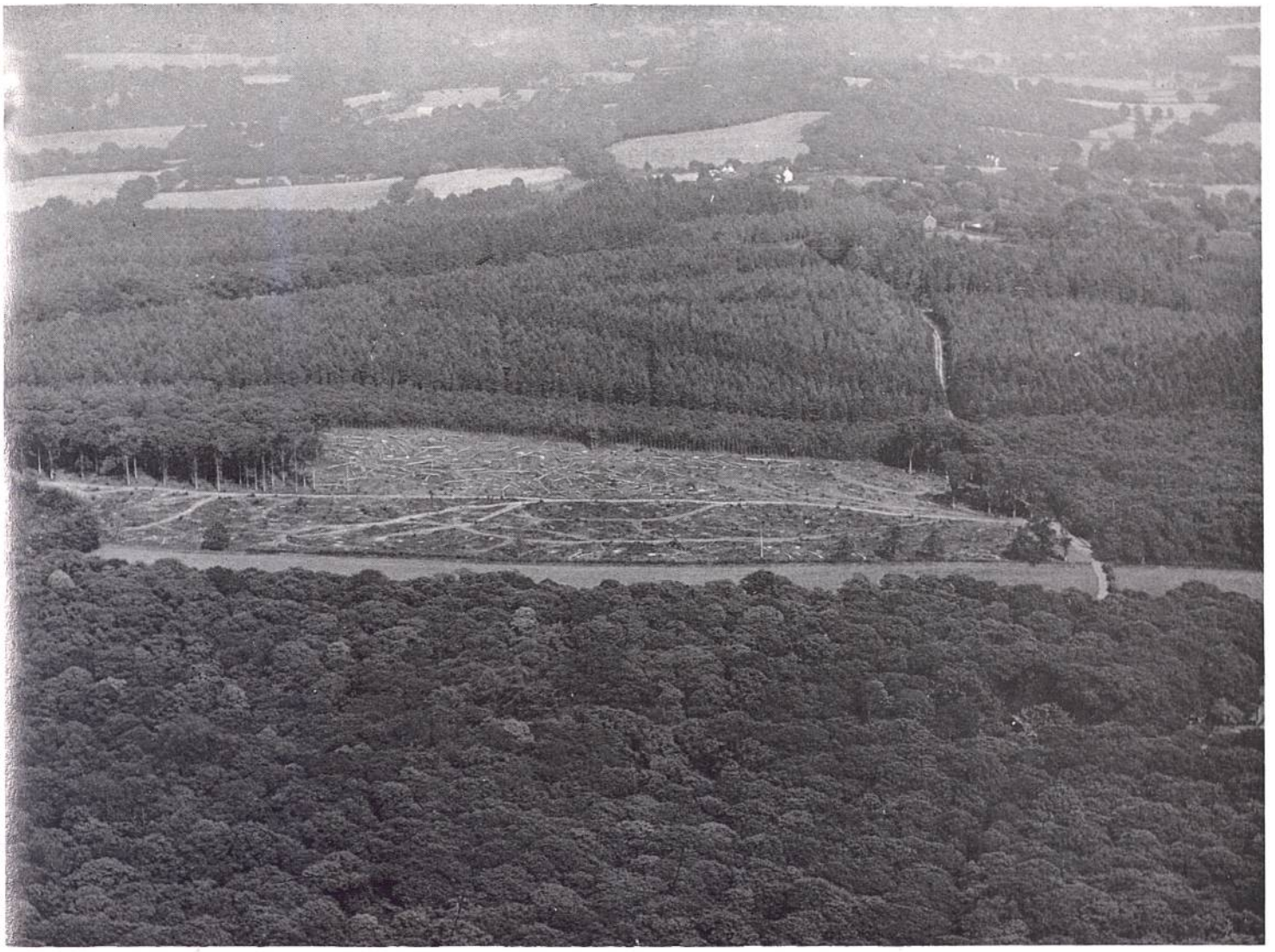


FIG. 23 A rectangular coup bounded by a hard wall of forest. Alice Holt Forest, Hampshire

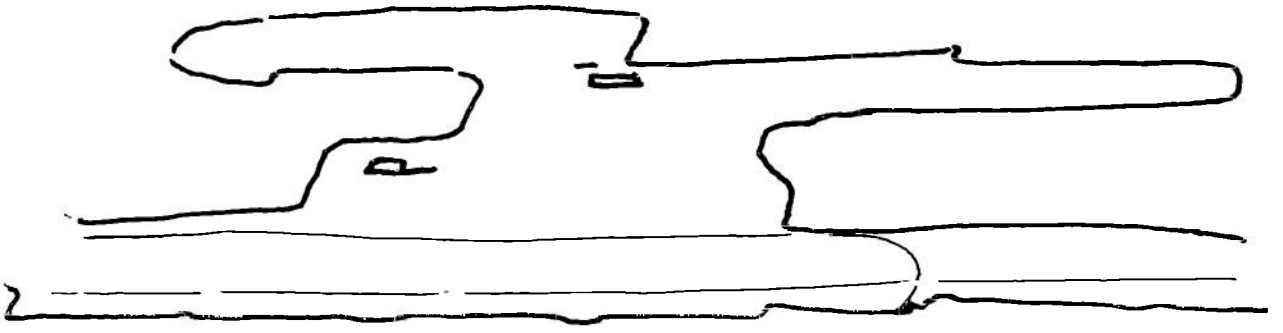


FIG. 23A The coup shaped to give penetration into the forest view

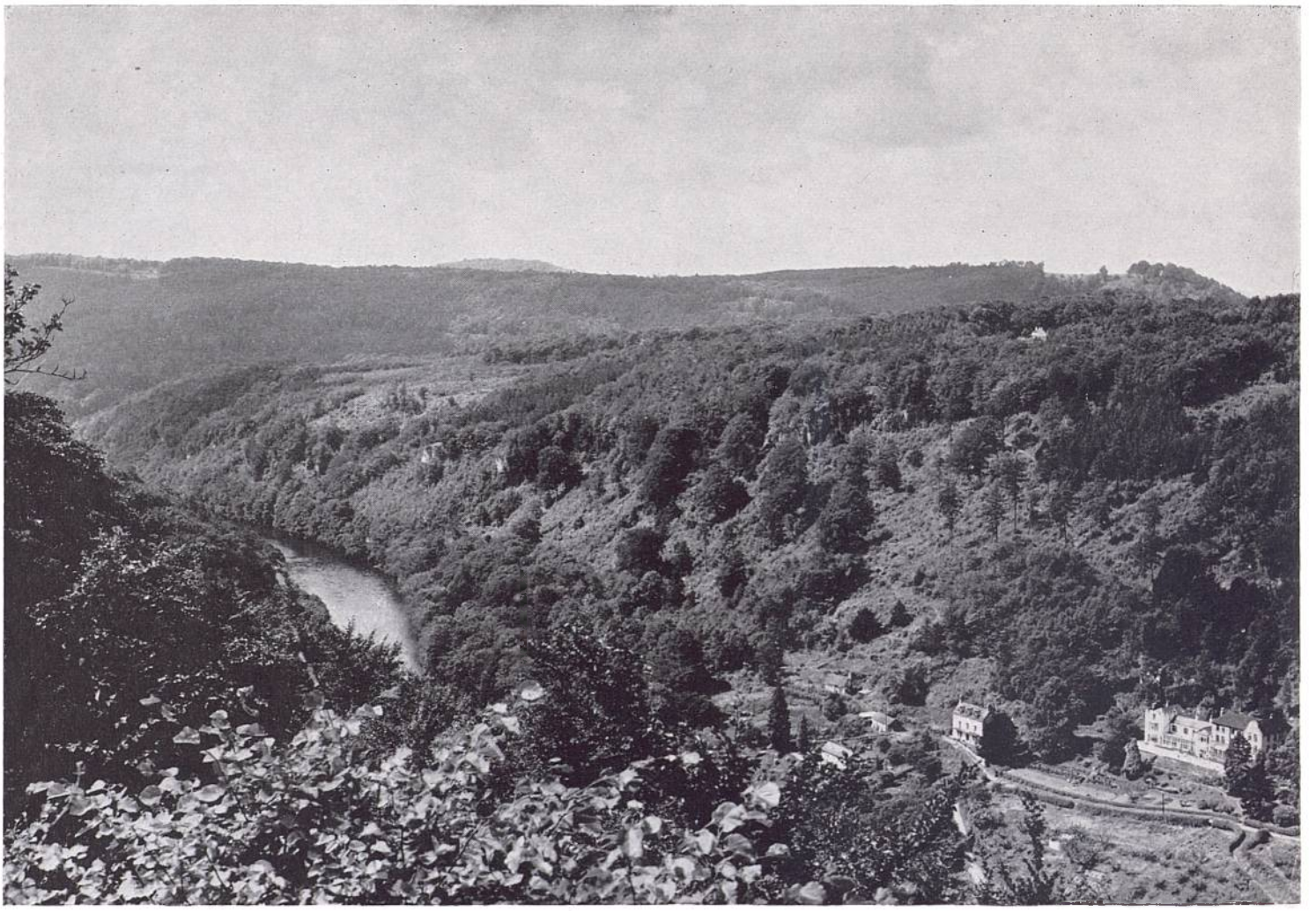


FIG. 24 Symonds Yat, Forest of Dean
A scattering of mature trees left in a felled area

Within the forest, coups of as little as 3 or 4 acres may look wrong if they are taken out as rigid rectangles, backed by a solid wall of standing forest, whereas coups of 2 or 3 times the size can add to the appearance of the forest if they are shaped to give a sense of penetrations into the forest, or towards a view; Figs. 23 & 23A.

Occasional trees breaking into the margin of clear-felled areas or the retention of a scattering or a few groups of more mature trees can be very helpful to the appearance, both from within and without the forest; Fig. 24.

The individuality of landscapes

While certain general principles can be given as guidance, the essential point is that each forest should be considered on its own merits. Every landscape has its own character and patterns, its own scale and its own range of tone and colour. This character is based on the facts of geology and climate and developed through the history of land-use. It is only when this individuality is appreciated, that forestry can be developed into a good landscape attuned to its locality.

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