

# FORESTRY AND LAND USE SURVEY

By T. W. FREEMAN

IRELAND'S 2% of forest land is a smaller proportion of total area than in any European country except Iceland: the once abundant woods were removed by slow attrition for burning and industrial use. In the middle of the nineteenth century various writers expected to see a vast extension of the farmed area of Ireland and tree planting was regarded as desirable but entirely subsidiary to the extension of agricultural land. There had been some demesne planting and it was there that most of the woods were to be found, though some native woods survived, chiefly in upland areas and on valley sides. Already, however, many of the demesnes were beginning to decay and few of the holders were inclined or able to plant large areas with trees. Agricultural land was reclaimed to some extent, but never to the extent forecast by the optimistic: it was in 1871<sup>1</sup> (and not, as is commonly said, immediately after the Famine) that the area recorded as 'under crops and pasture' was greatest. Since then, comparatively little land has been added to the farmed area, and there has been a marked decrease in certain countries for example (see table on page 29), Donegal 36%, Kerry 31%, Wicklow 29%, Galway 24%, Mayo 20%, Clare 13% and Cork 10%. All these are counties with a considerable area of uplands: the area of each county now under crops and pasture is indicated in the table. It will be seen on examination that the more purely lowland counties show little change in the proportion of 'improved land.'

Here it is possible to see some selection in land use: the poorer and more remote areas have been abandoned, and the better placed and more intrinsically fertile retained as agricultural land. The forester has an obvious interest in the areas not used as farms; his main sources of land are heaths, derelict farmsteads and also old demesnes. In the east, he may expect to spread forest through parts of the 'hill-pasture belt', for example in the Wicklow mountains from c. 600-1,200 ft. (or even higher in certain places); in the southern ranges there is a similar belt, but in the west the tree limit becomes progressively lower towards the coast. Three questions are crucial: first, whether the forester has a claim to more of the unused demesne lands; second, how far the grazing rights of a few farmers should weigh against the chances of acquiring large areas of hillside, especially in such semi-derelict valleys as Glencree; third, whether in the scientific interests of posterity some natural and semi-natural woodlands should be preserved from incorporation in any plantation scheme. Even if such woods are immediately beside a plantation, there will probably be an infiltration of subspontaneous conifers among the native deciduous trees.

Two essential questions for the forester are first, how much land is available and second, where is it? In Great Britain and Northern Ireland, these questions have been answered by the work

of the Land Utilisation Survey, which has mapped field by field, acre by acre, the entire land area.<sup>2</sup> This has been done on the scale of 6" to 1 mile by voluntary workers, and the information so acquired has been published for each county in Britain, and finally collated in a survey of British Agriculture by the Director, Dr. L. Dudley Stamp. In addition, the first of a series of reports on Northern Ireland has recently appeared. At first the survey was an entirely voluntary effort, unsubsidised except from private sources, but after many years the Ministry of Town and Country Planning was established and seized eagerly on the work of the Survey. The voluntary lamb has acquired certain attributes of a government lion. From the beginning, the Survey divided land into six categories: arable (actually cropped), A; permanent grass, M; rough pasture, H; gardens, G; buildings, W; forests and woods, F. There are many subsidiary classifications of each of the six main groups, which form the basic minimum of classification and a minimum for mapping that any qualified map reader can accomplish: those unable to read a 6" map may stay at home.

For the forester, the merit of the Land Utilisation Survey treatment lies in the demonstration of the actual use of the land: on its maps, it is possible to see exactly where the rough pasture and the existing woodland is located. A recent statement by a cabinet minister to the effect that the Forestry Division should look for an enclave of some 50 square miles for its planting, is exactly the type of statement that can be conveniently tested by such a survey. With such mapped information, demonstration to the townsmen of possible area for forestry is easy: for example, everyone knew that large areas of the Highlands of Scotland are entirely without inhabitants, and used only for deer parks. It is much more difficult to explain to the townsman that many of the uninhabited areas are not suitable for forestry, for a variety of reasons. Of these, the most crucial are unsuitability of soil and climatic exposure; and another is the use of land as rough grazing by people who could not, or who claim that they could not, live without it. This implies that the right of a comparatively small number of farmers, in some remote valley, must be considered to be of importance, even though their removal might release several hundreds, even thousands of acres. On the other hand, every new reservoir has submerged farms, houses, roads, churches, in the provision of an essential public service, and therefore it could be argued that the re-settlement of a few farmers was reasonable and even desirable in the general social interest.

Factors of climate and soil are clearly among the first to be considered, and so obvious that every forester knows their relevance. The general public, however, does not, and thinks merely of large areas lying waste. Along the Atlantic fringe of Europe, in Ireland, Scotland and Norway, the natural growth of trees is hampered by the constant blowing of westerly winds: in exposed coastal situations of Clare, no trees will grow

but, as Tansley shows,<sup>3</sup> even a moderate degree of shelter will enable shrubs to develop within a short distance from the coast; and in the valleys farther inland woods are well developed. A similar transition is observed on the coasts of Kerry; the western coasts of Valentia island are treeless, but on the sheltered eastern shores the demesne has excellent woods. In short, the tree limit ascends from sea level to some hundreds of feet within a few miles of the Atlantic, given conditions of shelter; but adequate drainage is necessary also as over much of the western seaboard the natural vegetation is bog. The map of the uninhabited areas of Ireland shows the restriction of settlement to patches in certain valleys and along the coast: to a great extent the limit of settlement is the limit of human endurance. Having rain on an average of two out of every three days, occupying an environment that consists largely of bog growth on soilless rock, having natural drainage so bad as to be beyond the range of redemption, possessing large mountainous heathlands which in many cases are bare rock and in many more very poor, the western uninhabited areas do not offer a favourable environment for forest development. Even the far-famed woods of Killarney, under conditions of remarkably mild winters and heavy rain, show a prodigality of growth that includes mosses, ferns, ivy and herbaceous plants, all of which combine to attack the trees: in this case the difficulty of the forester lies partly in the lack of any marked seasonal check to growth, such as that experienced even in the east of Ireland, and still more in the coniferous forests of Europe.

The centre and east of Ireland, however, offers a far more favourable environment for the growth of trees than the west. It is not easy to estimate the upper limit of tree growth in the uplands as most of the cultivable land has been used at some time during the past hundred years, and even the areas or rough grazing are used by sheep in an all-too-enthusiastic search for sustenance. Some of the periodic heather burnings have been disastrous, as they have exposed soil on steep slopes which is washed away by rain: this is a phenomenon of soil erosion, which is by no means unknown in Ireland. It is perhaps a reasonable assumption that the tree limit lies between 1,000 ft. and 1,500 ft. in the sheltered valleys of the Wicklow mountains: in 1904, Pethybridge and Praeger,<sup>4</sup> in a survey of the northern part of the mountains, drew particular attention to the 'hill-pasture zone' as a kind of intermediate or transitional belt between the continuous farmlands of the lowlands or valleys, and the upland moors. In the Wicklow mountains, there is the largest continuous upland area of Ireland for the 1,000 ft. contour encloses an area of 205 square miles. To this day, there are several farms at 1,100 ft. in these mountains, and a few at considerably higher altitudes, but the limit of occupation, so curiously varied, is perhaps best interpreted as the expression of individual choice; some farmers have remained on their holdings but others have not. Work similar to that of Pethybridge and

Praeger has not been done elsewhere in Ireland, but there is every reason to believe that conditions in other upland areas are similar. The long line of hills extending from the Slieve Bloom to the Slievefelim, the Comeraghs, Slievenaman, the Knockmealdowns, the Galtees, all appear to possess a similar hill pasture belt, with a varied limit of cultivation: on the east side of the Comeraghs, near the famous Coomshingaun corrie, the highest farms are at 500-600 ft. but even on the dreary Castlecomer plateau there are farms at an altitude of more than 1,000 ft. The general, but not universal tendency has been for the limit of cultivation to recede downhill.

A further point emerges here. In many valleys, the extent of agricultural settlement varies markedly from one side to the other; normally the limit is higher on the south-facing side or the side that has the drier and warmer soils due to a greater incidence of sunshine. This feature of mountain valleys is well-known, especially in the Swiss valleys which exhibit the contrast between sunny and shaded slopes remarkably clearly, but similar phenomena exist, even if in a lesser degree, in all mountain valleys. The woods of Swiss valleys are mainly on the less favoured slopes, the farmland in areas of sunnier aspect. Not far from Dublin, in the Glencree valley, a similar contrast may be observed: it is on the less favoured and northward-facing slopes that the plantations exist. A similar contrast may be seen in the Glendalough area and also in the valley near Drumgoff (Glenmalure), where the plantations are also on the north-facing slopes. Not always is such a contrast found; in the main Glenmalure valley, there are plantations on the south-facing side, but on land that can never have been profitable for agriculture.

Consideration of factors of soil and climate leads to the conclusion that many areas have definitely restricted possibilities for the forester; already it is clear that the central and eastern uplands of Ireland are more suitable for development than the more remote but less inhabited mountain areas of the western seaboard. But, after viewing such decayed valleys as Glencree, and knowing from enquiries that many farmsteads are occupied by 'wornout' families, should one wish to replace it by something approximating to the trim forests of Bavaria? Land degeneration is a process of attrition: slowly, but none the less surely, bracken, gorse and heather invade pastures which become rough grazing within a few years. The advance of such enemies is so easy to allow, their defeat so difficult to attain. Any scheme of evacuation will raise the difficulty of finding suitable land for the evacuees; already many thousands of farmers in Ireland have too little land, and all the demesnes in the country are insufficient for the resettlement of those for whom they are intended, the needy farmers from 'uneconomic holdings', especially those of the west. To some, a few farmers will appear as stupid people standing in the way of a national advance, to others as men who, however inadequately they farm,

are yet possessed of land by an inalienable right that must be respected.

Demesne lands are in a different category, and it was to them that the Congested Districts Board looked from 1891 onwards as the 'untenanted' acres on which the poorest farmers of the land could be settled.<sup>5</sup> Within a short time, however, it was discovered that these lands were not as extensive as was at first supposed. Some of them are, in part at least, well-cultivated farms and not a few have remarkable plantations that have been carefully preserved. There are, nevertheless, still some semi-derelict demesnes in Ireland farmed far below their capacity, and possessing sadly-neglected woods; with certain significant and even laudable exceptions, the demesnes have been decaying from the early nineteenth century to the present day. It is to some of these that the forester may look for extra land though even here he has the competition of the agricultural occupier. In one case, recently studied, at Mitchelstown, Co. Cork,<sup>6</sup> two-thirds of the demesne of 1,300 acres is now divided between fourteen farmers, the creamery and one other holder: nothing remains for forest.

The essential point of this paper is that only a detailed study of land use can provide the data essential to the forester. Those who wish to speak of the possibilities of afforestation should be men who have spent days and weeks trudging through the saturated and unpromising areas that look so attractive as 'uninhabited areas' on the map, for forestry is a field science, a study of the land, the good (or indifferent) earth. In such a study, there is no place for the townsman-theorist. Not only is the survey one of actual country, but it is also one of local climate and soil: it is not necessary to explain to foresters that different trees have their varied qualities of adaptation to particular types of habitat, but it is important to stress that during the past eighty years farmers have abandoned large areas of submarginal land without necessarily yielding their grazing rights over such lands. All the optimism of Sir Robert Kane in 1844, of the Devon Commission of 1845 and of many more writers who hoped to see a vast extension of the farmed area by bog and hillside reclamation, has not been justified, by experience. Those who say that people should re-occupy the abandoned areas would be well advised to study them in the field, and to ask themselves whether, in this age, it is likely that people will be found to till a few poor acres in remote valleys or on mountain sides. Will anyone desire the high-lying farms of Wicklow once the present holders have gone? Concentration on the better lands, intensification of farming methods, even the production of more food, can all exist even though less land is farmed. The 'other land' will have various uses, but one of them is forestry, provided that the forester is, like the farmer, given land that offers a reasonable chance of successful working.

Increase or decrease of  
'improved land' in  
Irish counties, 1871-  
1944, per cent. (1871  
figure, 100%)

% of each county  
which was im-  
proved land' in  
1944

## LEINSTER

CARLOW	...	...	- 5	84
DUBLIN	...	...	- 5	80
KILDARE	...	...	- 7	82
KILKENNY	...	...	- 4	88
LEIX	...	...	- 9	74
LONGFORD	...	...	+ 4	83
LOUTH	...	...	+ 1	87
MEATH	...	...	+ 1	94
OFFALY	...	...	- 3	70
WESTMEATH	...	...	- 1	84
WEXFORD	...	...	- 1	88
WICKLOW	...	...	- 29	52
Whole Province	...	...	- 5	80

## MUNSTER

CLARE	...	...	- 13	70
CORK	...	...	- 11	72
KERRY	...	...	- 31	47
LIMERICK	...	...	- 0	90
TIPPERARY	...	...	- 2	81
WATERFORD	...	...	- 10	67
Whole Province	...	...	- 11	70

## CONNACHT

GALWAY	...	...	- 24	53
LEITRIM	...	...	- 10	71
MAYO	...	...	- 20	43
ROSCOMMON	...	...	+ 2	80
SLIGO	...	...	- 8	66
Whole Province	...	...	- 15	57

## ULSTER

CAVAN	...	...	- 1	86
DONEGAL	...	...	- 36	35
MONAGHAN	...	...	+ 1	89
Three Counties	...	...	- 17	56

EIRE	...	...	- 11	62
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### THE UNINHABITED AREAS OF IRELAND

This map shows, with some necessary generalization, the areas with no inhabitants. The mountains above the limit of settlement are prominent: on the lowlands, there are numerous bogs and some of the bare limestone Karsts near Galway bay. It cannot be too strongly stressed that only part of the areas shown will prove suitable for forest development.

From 'Ireland, its physical, historical, social and economic geography,' 1949; map reproduced by kind permission of Methuen and Co.

## REFERENCES

<sup>1</sup> The date used here and in the table are drawn from Saorstat Eireann, Agricultural Statistics, 1847-1926, Dublin 1930 and from the annual Statistical Abstract of Eire.

<sup>2</sup> The reports of the Land Utilisation Survey have been published under the title 'The Land of Britain,' 10 vols., 1937-1948. The first report for Northern Ireland is 'The Land of Ulster, The Belfast Region,' by D. A. Hill, Belfast, 1948.

<sup>3</sup> Tansley, A. G., 'The British Islands and their vegetation, Cambridge, 1939, esp. pp. 473-475. In this work, there are descriptions of other Irish woods, including the Killarney oakwoods, pp. 327-340.

<sup>4</sup> Pethybridge, G. H., and Praeger, R. L., 'The vegetation of the district lying south of Dublin, "Proceedings of the Royal Irish Academy," vol. XXV B6, 1905.

<sup>5</sup> See Micks, W. L., 'An account of the constitution, administration and dissolution of the Congested Districts Board from 1891 to 1923,' Dublin, 1925.

<sup>6</sup> Henning, D. V., 'The demesne at Mitchelstown, Co. Cork,' "Irish Geography, vol. 1, 1947, pp. 97-101.