

An Assessor's Observations on Irish Conifer Crops

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THE work of assessment provides, for the forester involved in this occupation, an excellent opportunity to observe how native and exotic conifers are adapting themselves to present-day forest conditions in this country. He has the advantage of being able to see, concentrated in a relatively short period, conifer stands of the majority of common and not so common species through various parts of the country. Our forests are now at the stage where some of the more obvious merits and defects of our planted crops are coming to light; and I have been able to observe many of these in the most promising aspect, and conversely.

To commence I would like to mention Scots pine, it being one of the few indigenous conifers we possess and one of our most tried species, though, indeed, the fact that the Scots pine we now plant and that which formed our ancient forests is the same is open to controversy. The overall impression that one gets is rather pessimistic and that, far from being adaptable to a wide variety of conditions, the species is more than slightly limited to favourable sites. Most of our Scots pine plantations are twenty to thirty years old but show startling differences in quality class. This was very apparent to me in the areas I worked in, viz. Tipperary, Wicklow and the south-east part of the country. The most disturbing aspect of Scots pine has been its failure on the Old Red Sandstone areas in Cork and Tipperary, especially in the vicinity of the Glen of Aherlow, Cahir and Clonmel. Here the effects of exposure, vegetation and soil conditions have caused stagnation in a number of areas, primarily on the higher slopes of the hills over 700 feet where there is a tendency to podsolisation with strong *Calluna* and *Ulex* vegetation. The Scots pine roots have not been able to penetrate to a very great depth and growth has been smothered by the vigorous opposing vegetation. On the lower and steeper slopes, and the non-peaty areas, there is a marked change and the best quality Scots pine is giving some 1,500 cubic feet* per acre at twenty-five to thirty years. These lower plantations, especially on good mineral soils where briar and bracken are predominant, show promising vigour but one cannot help wondering whether or not some more profitable species could have done as well. The oldest Scots pine I have seen over 60 years does not yield over 3,600 cu. ft. per acre. The impression I gained was that Scots pine shows promise on lower dry slopes and especially in the midland peat areas of cutaway bog rather than on the often tried high and dry mountain site types.

Sitka spruce, which we on assessment had ample opportunity of

* All volumes given in cubic feet, Hoppus measure, excluding thinnings.

observing, is a species of which a great portion of our forests now consist. Generally, observations showed that spruce appears to be a forest tree excellently suited to our country. In most areas visited, and in all areas that I have seen, spruce, except for sporadic patches, shows promise on the sites planted, these being primarily the wetter, higher slopes of up to, and over, 1,000 feet, and low-lying boggy areas. It has volumes of 1,000 to 2,000 cubic feet per acre, excluding thinnings, at twenty years, to 3,000 to 4,000 cubic feet at thirty years depending on quality class. The most promising areas are those where it is planted on moist hillsides yielding quality class I crops. I saw excellent stands of thirty years old Sitka spruce in Glengarra and Thomastown forests, an example of how well it does in these favourable conditions, and a very vigorous young crop at Coolgreany on bracken and *Molinia* covered slopes showed promise for the future. Sample plots taken by other assessors show very high volumes from our older Sitka spruce plantations in Dundrum, Baunreagh and Camolin. Sitka generally is holding its own in mixtures with Scots pine, Contorta pine and Norway spruce as seen in Carrick and Aughrim but the overall volume is, of course, not equal to that of the pure crop. The Sitka and Contorta mixture is rather promising for Irish forestry as on the more difficult *Calluna* peaty ground it shows promise of proving to be a stepping-stone to bridge the gap between good and poor conditions and yet yield a crop of relatively good volume (1,600 to 2,000 cu. ft. per acre at 20 years). Where these crops came away neither species seemed to suffer at the expense of the other. The apparent defects of Sitka spruce are its well known habit of checking when young in low lying, boggy and frosty areas and its sporadic failure on unploughed *Calluna* ground due to strong vegetation and the tendency of the soil to pan. As the majority of the plantations assessed are less than forty years old there is yet no appearance of butt rot as a danger to the timber crop although group dying of Sitka may yet prove dangerous. In many of our southern forests the failed Scots pine sites have been ploughed and replanted with Sitka spruce, as in Kilsheelan. The spruce, though as yet too young to show marked results, appears to be living up to its name of being one of our most promising forest trees thriving in a wide variety of conditions showing possibility of carrying forestry, with mechanical and chemical aid, to our more difficult sites.

Though it has since lost its rather exalted position in Irish forestry opinion, we on assessment had the opportunity of seeing many good stands of Douglas fir. Again, the greater number of Douglas stands are in the twenty-five to thirty-five year old age group with the exception of a few older estate plantations. Most of the forests in the counties of Louth, Tipperary, Waterford, Kilkenny, Wexford and Wicklow which I visited have well established stands of Douglas fir. The first impression gained of the species is that of an attractive and high volume producing tree. This, however, is rather deceptive as most

of our Douglas is quality class III, sometimes reaching Q.C. I. In pre-Department plantations forty to fifty years old on favourable sites volume was infrequently greater than 4,000 cu. ft. per acre, 2,400 to 2,800 cu. ft. per acre for thirty years old trees, and rarely over 2,200 cu. ft. per acre for stands less than twenty-five years old. Most of the stands seen contained a small percentage of European or Japanese larch; this, when low, had no detrimental effect but Douglas does do disappointingly in mixture, however, when not present in an appreciable majority and was often subdued by the larch. There are very few of the intermediate age-group stands, the planting of Douglas fir being reduced to a minimum at that time, but in the under ten years old group a number of promising young plantations can be seen—as in Monaghan and Shelton forests. Douglas does best on low-lying, fairly dry, unexposed slopes with a good mineral soil and vigorous grass, bracken and bramble vegetation. Especially good stands were seen in Carrick-on-Suir, Coolgreany and Aughrim. The species has been overrated in the past but, as a result, has been rather harshly treated. Given time it is still a tree that should prove its worth on suitable sites.

When on assessment we had a prelude of things to come in our observations of *Pinus contorta*. We were fortunate in being able to view many stands of this controversial species in various age groups and at different stages of development—though to the detriment of recording purposes most of the older plantations were on comparatively good sites. Plots taken in twenty years old contorta in Kilsheelan forest gave over 1,600 cubic feet per acre at altitude 1,000 ft. on peaty ground of *Molinia* vegetation. It was observed, however, that *Pinus contorta*, at this age, is rather subject to windblow and distortion was evidenced in areas in Piltown, Slievenamon and Blessington forests. In *Pinus contorta* plantations the very marked difference between inland and coastal type contorta is illustrated markedly by stands in Aughrim and Clonmel forests where volumes up to 1,000 cu. ft. per acre accompany as yet almost unclosed stands. In general, *Pinus contorta* is showing promise on high exposed peaty ground where *Calluna* dominates, both in areas ploughed and unploughed—although I saw a small area in Kilsheelan that has become stunted like retarded mountain pine. As previously mentioned contorta pine + Sitka spruce mixtures are doing promisingly. Scots pine + contorta pine mixtures show substantial dominance of the contorta causing the majority of the Scots to die out. Very striking examples of Scots and contorta on the same site can be seen at Glengarra and Avoca where the *Pinus contorta* appear like sentinels over the rest of the crop. Present appearances show that faith in contorta appears to be justified.

Norway spruce, which is another of our well established species, was extensively covered by the assessment. One noticeable aspect of the tree in plantation was the scarcity of any large, failed areas on the sites planted. Though in places volume and stocking were low Norway spruce invariably, as far as I could see, closed to form a crop. I saw a

number of fine old stands of fifty years old and over with volumes over 5,000 cu. ft. per acre at Carrick-on-Suir and Kilsheelan. Department planted crops of up to thirty-five years vary in volume from best quality at 3,000 cu. ft. per acre, excluding thinnings, to 2,500 in the lesser quality classes. Twenty years old crops have 1,700 to 2,000 cu. ft. per acre. Generally, all stands observed were vigorous though some of the younger plantations remain open until approaching the twenty years old age class. As most of our Norway spruce plantations are on good sites having good mineral or alluvial soil with plentiful vegetation and often bordering rivers and streams growth does not fall off at any stage. However, in all the south-east forests I was in, on rich sites, where birch, rowan and ash grow naturally these species grow quickly through the younger (fifteen to twenty-five years old) conifer plantations keeping the crop open and preventing full volume from being reached. Norway spruce shows a characteristic absence, at its early stages, of the check which is evident in Sitka spruce. In Aughrim forest there is an interesting area where Norway spruce has survived, though checked by opposing vegetation, mainly *Ulex*, and Sitka spruce has been completely swamped. On sites seen through the country Norway spruce shows itself to be a reliable, good volume producing tree.

One of our best known and longest established forest trees is European larch. Japanese larch has, however, in my opinion, proved itself superior to European larch in all conditions—as a volume producer, for adaptability to site and in quickness of growth—having seen both larches pure and in mixture in most forests visited on assessment. European larch is the commonest species in the fifty to sixty years old pre-Department plantations (many now at the felling stage), final volumes being 3,000 to 3,800 cu. ft. per acre. There are good-looking stands of this type in Kilsheelan, Piltown, Curraghmore, Aughrim and Carrick forests on best forest soils—many in the process of being felled for telegraph poles. The picture is rather different in younger plantations; though some produce 1,000 to 2,000 cu. ft. per acre, in a number of areas stagnation occurs. Very poor, cankered larch was seen at Monaghan and Aughrim. Young European larch shows itself to be a poor competitor against opposing vegetation, especially *Ulex*—as seen in Nier forest. It was also observed to be more liable to wind distortion than Japanese larch both in pure crops and in mixtures. The older plantations of Japanese larch (of thirty years approximately) yield volumes of up to 3,000 cubic feet per acre; twenty-five to thirty years over 2,000 cu. ft.; twenty to twenty-five years 1,200 to 1,500 cu. ft. In Coolgreany are examples of promising young stands which have subdued site vegetation and are relatively good volume producers at twenty years. Japanese larch appears in many of the forests assessed as wind shelter-belts and compartment margins. Growth on difficult sites tends to be patchy in areas, coming away vigorously between suppressed spots. A large percentage of larch, both European and Japanese appears in mixture with Scots pine; though height growth is satisfactory, there is a very marked

fall in volume as compared with pure crops—the Scots pine suffering at the expense of the larch in 50-50 mixture and *vice versa* in mainly Scots pine mixtures. Larch with Sitka spruce does well and an encouraging stand of these species was seen in Piltown forest, volume and overall appearance were much better than the Scots pine larch mixture.

Besides these common forest species mentioned a number of stands of the rarer exotic species were observed, giving an indication of the number of trees that can thrive in good conditions here in Ireland. *Tsuga heterophylla*, now becoming popular, was seen quite frequently in various aspects. Most of these stands are just entering volume category and plots in twenty years old *Tsuga* have shown results of 2,000 cubic feet per acre—this being higher than first appearances indicate. It does satisfactorily on all the better quality Sitka spruce sites, slopes not too poor in soil and vegetation, i.e. an absence of peat with grasses, briar or bracken dominating. Lawson cypress and *Thuja plicata* are present, though not plentiful, in our woods. They are in volume and quality alike, in similar conditions, though less tolerant than *Tsuga* to vigorous vegetation. Cypress stands were noted in Thomastown yielding 2,500 cubic feet and over when twenty-five years old, though beside this area the volume fell remarkably due to suppression by shrub growth. A small, attractive stand of *Thuja* is present in Coolgreany forest and some fine, old *Thuja* was noted at Comeragh. *Cupressus macrocarpa* of the same age as the Lawson yielded, in Dundalk, upwards of 3,000 cubic feet per acre in favourable forest conditions.

Of the firs *Abies grandis*, *Abies alba* and *Abies nobilis* hold a place, if small, in Irish forests. There are many huge individual trees of silver fir of enormous volume, some of them rating about 200 cubic feet per tree, which date from the nineteenth century and appear as remnants of old plantations. These are more interesting as curiosity pieces than of any great commercial value themselves. Very few younger stands can be seen due to the ravages of *Adelges musslini*, though some have managed to make the grade. Among the early Department plantings at Coolgreaney are some of *Abies alba* over 3,000 cu. ft. per acre at forty years—also some healthy youngsters can be seen at Kilsheelan—these are, however, among the rare survivors. *Abies grandis*, on the other hand, except for susceptibility to wind damage is adapting itself well and is a remarkable volume producer. There is an excellent stand thirty years old with 4,000 cu. ft. per acre at Roddenagh, Aghrim and well growing twenty years old stands surprisingly under old oak, bearing 2,000 cu. ft. per acre. *Abies nobilis*, as yet a dark horse, grows quickly but when young remains very open due to sporadic failure.

Among the less common pines planted we saw stands of *radiata*, Corsican and maritime pines. Most of the *Pinus radiata* was too young for measurement but where successfully established it has shown remarkable vigour and a ten years old stand on a low, dry hillside at Slievenamon has almost measurable volume. Timber appears to be very rough but would prove adequate for the less exacting modern uses of

timber. Corsican pine does well in our eastern and southern forests, though where it has difficult vegetation to cope with it takes up to twenty years and more to close crown properly. Its Austrian variety, rougher in form, was seen growing well at Dundalk. Maritime pine has been planted at Curraghloe but is less satisfactory as a volume producer and generally hardy species than similar Corsican pine. A small but attractive looking stand of *Pinus strobus*, which escaped blister rust, was observed at Coolgreaney; over forty years old its volume was over 3,000 cubic feet per acre.

Finally, when carrying out this work we met, on occasion, the unexpected. To briefly record some of those seen, I wish to mention a very impressive sixty years old stand (the only one in the country) of *Cedrus deodara* at Glengarra of volume 6,500 cu. ft. per acre with individual heights over 100 feet; suckering of *Sequoia* in Gorey Forest; natural regeneration of fifty years old Sitka spruce, once more at Glengarra; and a remarkable contrast in height increment between Sitka spruce and Scots pine in some forests, spruce showing long twelve to eighteen inch leaders in contrast to Scots leaders which were unusually short and stubby due, probably, to climatic conditions in the last two summers.

Forestry aspects seen were many and varied and, though the time to form opinions was short, a lasting impression, I feel, of forestry to-day was gained by all of us in that brief period.
