Tree Planting in Ireland During Four Centuries

By A. C. Forbes

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In a previous paper[1] the probable history of forests in Ireland was sketched down to the end of the seventeenth century. It was suggested that this period marked the conclusion of a long process of destruction or exploitation which commenced in prehistoric times, and has been in operation down to the present day. The object of this paper is the gathering together of records, from the seventeenth century onwards, of the various steps taken to make good some of the loss incurred, and which have led to the present appearance of most parts of the country as regards woods and trees.

One of the earliest references to planting in a general way in Ireland is found in *Ordinances for the Government of Ireland*, issued in 1534.[2] It was "enjoyned that every husbande having a plough within the Englishe pale shall sette by the year 12 ashes in the ditches and closes of his farme upon payne of 2d to be forfyte to the Deputy." Whether this injunction was observed or not cannot be proved. It certainly shows, however, the scarcity of timber at that time. The specification of ash is also interesting, as the area covered by the Pale is naturally rich in this species, and if the planting of it was necessary, the country must have been practically denuded of native woodland.

In Petty's *Political Anatomy of Ireland*, published in 1672, the planting of 3,000,000 timber trees was advocated, which were to be on the bounds and meares of every denomination of lands, and estimated to cost 3d. each, or a total of £360,000.

There does not appear to be any direct evidence, positive or negative, as to the extent to which the above proposals were put into practice. They were probably recommendations made without any consideration of the difficulties which might arise in carrying them out, but as already stated, they show clearly enough that the country during the sixteenth and seventeenth centuries was extremely bare of trees, leaving out of account altogether anything in the nature of woods.

It is, of course, impossible to fix any precise date for what is popularly known as "re-afforestation". The operation of pulling up a seedling, carrying it to a chosen site, and again fixing it in the soil, is so simple, that it may have been, and to a certain extent probably was, practised in the Bronze Age. But before this practice could become at all general, protection of the planted tree must have been assured, and this was only possible in some corner or patch of ground fenced against grazing animals, whether wild or

1. *Some Legendary and Historical References to Irish Woods and their Significance*, Proc. R.I.A., Vol. xli, Sect. B.
2. *State Papers (Ireland)*, 1515-38.

domesticated. Settlement in some form or other must therefore have preceded tree planting or the cultivation of crops, and that is as far as one can state with any certainty. The more immediate question is: When did settlement and the relative permanency of land occupation advance sufficiently far for planting to regarded as a reasonable undertaking? So long as native trees abounded all over the country, there was little or no incentive to add to their number by planting, and this alone hindered the development of the work. But by the twelfth century, the Church had more or less permanently created enclosures in many spots throughout Ireland, and it is in these places that we must look for the first faint indications of that branch of rural economy, which we now call "arboriculture."

It is, perhaps, not inappropriate to note, so soon after the arrival of St. Patrick in this country has been celebrated, that the Saint is credited with having planted a yew tree on the spot now known as Newry. This incident is recorded in *The Annals of the Four Masters* as follows: – 1162 – "The monastery of the monks at *Iubhar chinn trechta* was burned, with all its furniture and books, and also the yew tree which St. Patrick himself had planted." Whether St. Patrick was ever at Newry is not clear, but the official seal of the monastery represents a mitred abbot in his albe, sitting in a chair supported by two yew trees. The monastery is also described in old records as *Monasterium de viride ligno* and the word Newry is undoubtably connected with yew. In connection with this incident, a statement made by Harris in his *Co. Down*, published in 1744[3], is not without interest. This statement is as follows: – "In the year 1688, certain English soldiers, in burying their dead, discovered in the S.E. corner of the Abbey (*Newry*) the stumps of some trees of fine wood, and without regard to the place, sawed up and converted them to several domestic utensils, the wood being red and of a fine polish." Whether these stumps were the remains of the two yew trees represented on the official seal, it is impossible to say.

In a fourteenth century copy of *Topographia Hiberniae* it is stated: "Yew is commonly planted in cemeteries and for ornament." This statement leads one to speculate on the antiquity of the old avenues, walks, and single trees of yew still found in the immediate vicinity of ruined abbeys and monastic sites scattered throughout Ireland. The largest yew in the country is at Maynooth, and measures 18 feet in circumference at $4^1/_2$ feet from the ground. This tree is credited with having sheltered "Silken Thomas" the night before he left Maynooth to join the Desmond rebellion. From its position, it is not likely to have been planted before the College came into existence in 1513, but tradition ascribes the planting to Maurice Fitzgerald in the twelfth century.

The avenues and rows of yews scattered throughout the country, and too numerous to mention, clearly indicate their origin by planting. The old yew at Crom Castle is undoubtedly a planted tree, and according to the Rev. Wm. Henry, the author of *Upper Lough Erne in 1739,* dates from about 1670. This tree is popularly regarded as of fabulous age, but neither its size nor appearance justifies this assumption. The authority quoted above gives its dimensions as follows :– Straight stem for about 10 feet, horizontal branches with a diameter of 75 feet. In the O.S. Survey Memoirs of 1835, Lieut. Durnford described it much as it is to-day. Johns in *Forest Trees of Great Britain*,

3. *The Antient and Present State of the County of Down*, 1744. [17*]

published about 1845, records it as being 8 feet in height and 3 feet in diameter – branches 75 feet in diameter. The Earl of Erne described this tree in Vol. II of the *Ulster Journal of Archaeology* in 1896. It was then 25 feet in height, 12 feet in girth, and the branches $77^{1}/_{2}$ feet in diameter from North to South, and 70 foot from East to West, and the writer adds: "There is no authentic record of its age, but I have heard a tradition that an O'Neill, who was attainted in the reign of Queen Elizabeth, took leave of his ladye love under 'the old yew' at Crom." This tree is now (1932) of exactly the same dimensions as in 1896, and if Johns's measurement is correct, increased 3 feet in girth between 1845 and that year, or an increase in radius of 6 inches in 50 years. The question of interest is the probability of this tree being older than the date assigned, viz., 1670. This date is also that of the accidental burning of the old castle, and suggests a plausible theory. After the castle was burnt, the ground surrounding was maintained as a kind of rough garden, and it is quite possible that the existing tree was planted as the successor to one previously there in the time of Elizabeth. It is planted on an artificial mound which would encourage rapid growth, but the position of this mound has no obvious relation to surrounding objects, The interest taken in the tree to-day is not connected with its age, but with the fact that the branches are supported on posts which give it an imposing appearance. There is also fairly clear proof that the branches were artificially interwoven or tied down to form a canopy or roof, below which a walk followed the base of the mound. Under these conditions the tree might easily have been brought to its present condition in the 260 years assigned by the authority first quoted, although it certainly looks older.

Another "ecclesiastical" yew is the well-known tree at Muckross Abbey which measures 9 foot 6 inches at $4^{1}/_{2}$ feet from the ground, as measured by Major Phelps recently. This tree is the exact opposite of the Crom Castle yew, having been pruned up to a height of nearly 20 feet before the branches were allowed to spread. The planting is ascribed to the fifteenth century (1440) by the author of a *Tour in Ireland*, published anonymously in 1775, and to the founding of the Priory (1483) by the author of *The Compleat Irish Traveller*, published in 1788. This would make it between 400 and 500 years of age. Most of the descriptions and measurements of this tree are evidently copied from previous writers, and the recorded girth varies by 2 or 3 feet in the course of a few years. Arthur Young described it as the most prodigious yew tree he ever beheld and 2 feet in diameter!

The yews at Youghal, under which Sir Walter Raleigh is said to have smoked, are comparatively small, and certainly do not look their reputed age. Many other old yews and yew walks could be quoted if space permitted, but all indicating that the oldest *planted* trees existing to-day are of this species, and practically all are within the protecting influence of the Church, or a fortified residence of the past. They possibly go back 500 or 600 years, but the proof of this antiquity is lacking, and their exact age must be left to imagination.

Another tree (if that term can be applied to it) of great antiquity is the old Mulberry in Trinity College, stated to go back to the time of the monks of All St. Hallows. Dr. E. J. Gwynn has been good enough to furnish an extract from Provost MacDonnell's Inventory of Trinity made in 1860. This extract is as follows: –

"The foregoing plates (drawings of a table made out of different kinds of wood) derive their principal interest from that portion which is marked mulberry. It represents part of a mulberry tree which stood, and of which a part still stands in the Provost's lawn. The tradition is that that lawn is part of the garden of the old Monastick Establishment of All St. Hallowes on the site of which the College was built.

"The mulberry tree consisted of three main branches springing from a common stem–The three branches existed when I was an under-graduate–One of them was wrenched off in the great storm of Christmas 1839, and a second in the remarkably curious storm of April 1850 during the Bursarship of Dr. Luby and the Provostship of Dr. Sadleir–From Dr. Sadleir both when he was a Senior Fellow and when he became Provost I often heard the following account which he said that he had from Dr. Barrett – Dr. Barrett told him that about 150 years before ('before' I suppose means before the time of his mentioning the circumstance to Dr. Sadleir) there had been an investigation as to the age of that Tree and that Evidence had then been laid before the Board showing that it was then at least 300 years old – and that an Entry of such investigation was made in the College Registry-Dr. Barrett died in 1821–Supposing the communication by him to Dr. Sadleir to have been made by him even so late as 1820 then add 40 to 450 and it will make the present age 490. So far all well–but I searched the Registry so fully for the said entry and in vain that I am satisfied that there is none such in the College Registry. Meaning by *that name* the official Book in which are recorded the acts and decision of the Board – Dr. Sadleir had never taken the trouble of searching the Resistry for the matter – I did when I was Registrar–Now as to the accuracy of Dr. Barrett's memory there can be no question, and I presume that what Dr. Sadleir heard from him was that it was registered, meaning thereby that there had been a memorandum made of it in some other College Books – such as one of the Bursar's, or Senior Lecturer's books –

"As I believe that I am the only or almost the only person alive who had this communication, by only one stage removed from Dr. Barrett, I have thought it right to enter this memorandum of what I had heard.

"Few persons have searched through more College records than myself.

Richard MacDonnell,
Provost Trin. College,
May 21, 1860."

The vitality of this particular tree may be attributed to the fact that it repeatedly layers itself where the branches touch the ground, and this has apparently been assisted by covering the branches with earth from time to time. As regards its age, the efforts of James I to encourage silk-worm culture between 1605 and 1610 may have some bearing on the question. In 1607 one William Shellinge was granted a licence for 21 years to print a book called *Instructions for the planting and increase of mulberry trees, breeding of silkworms, and making of silk*, and in January of that year James I wrote to the Deputy Lieutenants of Counties to require landowners to purchase and plant 10,000 mulberry trees which would be delivered to purchasers in the March or April following at the rate of six shillings the hundred. Possibly the Trinity tree was one of the 10,000. The white mulberry is said to have been introduced in 1596, and the black variety in 1537 or 1548, so that the age of the Trinity mulberry is possibly less than 400 years at the present time. King James' efforts do not appear to have led to any permanent results, for we find W. Shellinge in 1611 asking for instructions about the nursery of mulberry plants he had

established at Westminster, and which had apparently become more or less a 'white elephant'.

Another tree, alleged to have been planted by St. Maelruain at Tallacht, may be mentioned in this connection. If this legend were in accordance with facts, it would make it the oldest tree in Ireland, as the Saint was living in the eighth century. An interesting point is the question whether it is one or two trees. Dr. Handcock, who wrote a little history of Tallacht in 1899, states "It looks like two trees arising from one stem, but it was originally one stem of about 10 foot in height, dividing into two branches, which, towards the end of the last century, separated about 5 feet from the ground." With due respect to Dr. Handcock, however, there is little doubt that there are either two trees, or one which has divided at or near ground level. One tree or arm was laid flat on the ground, and the other leans in the opposite direction at an angle of about 45 degrees. Neither of these trees or arms is much more than 12 feet in girth, and a single tree, which has been severely pruned, standing a few yards away, and apparently of the same age, is 11 feet 9 inches at breast-height. A liberal estimate of their ages would be about 300 years, which would roughly correspond to the earliest mention of walnuts elsewhere. The double tree was sketched about 1875 by Henry O'Neill, and is reproduced in O'Hanlon's *Lives of the Irish Saints*, but no measurement is given. The trees are in perfect health, and bear sound nuts more or less annually.

Apart from the examples referred to above, instances of extreme age in trees of artificial origin are very few: Harris, already referred to; Hayes, who wrote his interesting book *On Planting* in 1795; and various authors of "Tours" have all left records of trees which were undoubtedly of artificial origin before 1700, but the majority of these have disappeared. A few, however, still remain, and may be specifically mentioned. But perhaps, the most interesting, as showing the connection of the Church with tree planting, are the trees in the episcopal grounds at Kilmore, Co. Cavan. These are referred to by the Rev. Wm. Henry[4] in the following words : –"Between this garden and the south-west corner of the house, stands a venerable grove of sycamores, planted an hundred years ago by Bishop Bedell, the largest of them stands in the middle of the terrace, and from thence spreading its boughs into the churchyard, shades its planter's tomb." The same author refers to "large fir near an hundred years old" hanging over the lake at Castle Hamilton, and an avenue "shaded with large trees of an hundred years old." The phrase" one hundred years" is apparently a figure of speech, and must not be taken too literally.

In Harris's *Co. Down* several trees are mentioned which must have been planted by or before 1700. These were an evergreen oak at Bangor, and Robinia and Pinaster at Moira, all in or about their fiftieth year when recorded. The owner of Moira sent his gardener, James Harlow, to Jamaica for plants in 1694, but whether these were intended for the open air or not is left in doubt. An old walnut reputed to be 300 years old was reported by Dubordieu[5] in 1811 at the Maze in the same county.

In Smith's *History of Waterford*, published about 1750, no definite record of trees

4. *Op. cit.*

5. *Statistical Survey of Down,* 1802.

being planted before 1700 is made, except the cherries at Affane planted by Sir Walter Raleigh, but introduced trees appear to have been planted very early at Tooreen and Ballyntaylor, elms, walnuts, and Newfoundland spruce being mentioned. In the same author's *History of Cork* (1750) a large fir brought from Newfoundland is mentioned at Ballyvirgone near Youghal, and a "Liquorice" tree. At Mount Uniacke, there were Cypress and Plane, and at Aghada an *Arbor-vitae*, 15 inches in diameter and 30 feet high. At Carrigrohin was a large sycamore with "branches 90 feet round, thickness of body very great." In his *History of Kerry* (1756), Smith states there were very few plantations in the county, either for use or ornament. He suspects that many of the trees round Muckross were "laid" there by the monks of the adjacent abbeys. Near Castlemaine there was a "large apple tree, 50 feet spread, could shelter 72 horses." Near Ballybeggan were fine avenues of walnuts, chestnut, and other trees" which had escaped the universal devastation of the times." Some of these are now or were in existence a few years ago.

Pocock's *Tour in Ireland*, made in 1725, refers to a plantation of "20,000 firris on the south of Cool-na-Mucky which thrive much." He also refers to "firris" at Drummana. C–Loveday's *Diary of a Tour Through Ireland in 1732* has the following in reference to Thomastown, the seat of Geo. Matthews near Cashel : –" It is supposed there are more improvements in Planting at ye seat than anywhere else in Ireland. Large plantations of Fir." These, together with Henry's record on Lough Erne, are the earliest references to fir trees met with, and were probably Scots pine.

Loudon, in his great work, *Arboretum et Fruticetum*, published about 1835, makes occasional reference to trees of commendable age and probably introduced before 1700, but much of his information is second-hand. One of the most interesting is that of the Summerstown cork oak, growing near Cork, an appropriate location. The owner of this tree introduced a clause in the lease of the land imposing a penalty of £20 if the tree were cut down or injured. This interesting specimen, of which a full account is given in the *Journal of the Cork Historical and Archaeological Society* for September, 1893, died about 1850. It was then 10 feet 6 inches in girth at 3 feet from the ground, and 30 feet high. An English elm at Howth Castle was stated to be 250 years old, but the authority for this is not given.

Arthur Young's Tour was made in 1776-9, and his notes are chiefly valuable in showing the almost universal youth of plantations throughout the country. The oldest trees he notes were usually under 50 years of age. These will be dealt with later.

Hayes' book *On Planting* is not only of great interest, but is remarkable as being the first book devoted to the subject in Ireland. He was an ancestor of the late Charles Stewart Parnell, and owned the estate of which the demesne is now the Avondale Experimental Forestry Station. In addition to many interesting statements on native trees Hayes mentions several which must have been planted a century before his book appeared. A sycamore between Rathdrum and Shillelagh was 15 feet in girth and the largest he ever saw, the next largest being two at Kilmacurra, the larger of which was blown down only a few years ago. One still standing is 16 feet in girth. At Dunganstown, an old avenue of Spanish chestnuts of 110 years of age was standing in 1793, when it was felled on account of decay. The largest were then from 14 to 16.6 feet in girth. A silver fir at Mount Ussher was 100 feet high and 12 feet in girth. A cherry at Clonmannon

measured 15 feet and 5 feet from the ground, and must have been one of the largest in the British Isles. The great Elm at St. Wolstan's, blown down in the winter of 1776, was regarded by Hayes as the largest tree of its kind in the world, but unfortunately he does not indicate the species. From its exceptional size, 38 feet 6 inches in girth, it was probably the Wych elm, and tradition supposed it to have been planted by the monks of St. Wolstan's before the Dissolution. It may have been of natural origin. Other trees are mentioned, but were probably planted in the following century. Hayes does not mention two trees which are now of exceptional interest. These are the big Spanish chestnut at Rosanna, the largest tree in Ireland, and now 30 feet in girth, at $4^1/_2$ feet, and the evergreen oak at Courtown. Both these places were visited by Hayes, and it is obvious that they had then attained no great size, or he would have mentioned them. In connection with the latter, which is a wide-spreading tree with many branches near the ground, a statement was made by Lord Courtown to the late H. J. Elwes in which he attributed the planting of this tree to as early a date as 1648. The probability is that it is younger, although this does not detract from its remarkable character. The Rosanna chestnut is probably about 200 years old.

The Statistical and Agricultural Surveys of Irish counties, carried out for the Royal Dublin Society about 1880, furnish a good deal of information about early tree planting, but unfortunately many of the reporters had a limited knowledge of trees, and were unable to discriminate between those worth recording and disregarding. These reports were filled up with any information which owners liked to give, while they missed a good deal of value from an arboricultural point of view. The two best reports in this connection are probably those for Kilkenny by Wm. Tighe, and for Galway and Clare by Hely Dutton. Most of the information refers to the eighteenth century, but an avenue of elms is reported by Tighe at Rosenarra, planted to commemorate King William's visit in 1690. He also mentions oak planted in 1700. Dutton's *Survey of Galway* mentions an immense "pinaster" brought to Killeen by Porter, one of Cromwell's soldiers, and also a large Scotch pine near it, said to have been planted at the same time. As Dutton imagined the bogs to be full of "pinaster," both trees were possibly Scots pine (*Pinus Sylvestris*).

Amongst other trees which probably date back to 1700 or before are Spanish chestnuts at Kilruddery, Powerscourt, Shelton Abbey, Burton Hall, and other places, and it is quite evident that the planting of avenues and single trees was going on from about 1650, and even before the country had become really settled. Woods and plantations of artificial origin must have been rare in this century, for reasons which are fairly obvious.

The species introduced before the end of the seventeenth century were apparently the pine (*P. sylvestris*), Stone Pine (*P. pinea*), English and Dutch elms, Spanish chestnut, lime, walnut, hornbeam, sycamore, evergreen oak, plane, robinia, and mulberry. Some doubt exists as to when the beech was introduced into Ireland. Hayes states that the earliest trees were planted at Shelton Abbey, and Wakefield[6] writes under date June 10th, 1809, "Lord Wicklow has near his house eight beech trees which were planted a century ago round a bowling green, and are now 11·6 ft. in circumference. A Spanish Chestnut is 17 ft. but scarcely 6 feet high where it branched." Hayes believed the seeds from these

6. *An Account of Ireland Statistical and Political*, 1812.

beech trees were distributed over Ireland. If this is so, the spread of the species throughout Ireland must have been very rapid, and it is singular that one of the commonest trees in England should not have found its way here before the *Robinia* from N. America, or the Stone Pine, evergreen oak, or walnut from the Mediterranean region. A very old beech is recorded in Mason's *Parochial Survey* at Maghera in 1798, and in Lady Chatterton's *South of Ireland* she refers to majestic beech trees at Caha and Lord Bantry's in 1839. A letter from Dr. Molyneux, F.R.S., to the Rev. St. George, Lord Bishop of Clogher, is published as an appendix to Boate's *Natural History of Ireland*, describing swarms of cockchafers infesting some parts of Connaught at the end of the seventeenth century. The letter states "At Eyre Court, they did great damage to a well improved English plantation, and stripped the hedges, gardens, and groves of beech in 1697."

The Hornbeam is also a tree for which no definite date of introduction can be found. It is not a favourite with tree planters, but was certainly introduced before 1700, probably for hedges, as these are mentioned as having been planted by Bishop Bedell at Kilmore. The fine trees at Headfort, the largest of which is nearly 20 feet in girth, probably date from about this period.

The reintroduction of the pine is, of course, open to doubt. It may have survived as a native tree long enough to have been artificially propagated in nurseries, but the term "Scotch fir" universally applied to this tree rather throws doubt on the idea. There are several references to native pines existing at Cool-na-muck near Carrick-on-Suir about 1750, but the identity of the trees is doubtful.

Another tree whose introduction into Ireland is of rather doubtful date is the Lebanon cedar. Loudon asserts that the oldest in the country in 1830 were at Mount Anville, near Dundrum, and were brought there by an ancestor of Lord Trimlestown, but the date is not given. What are presumably the trees referred to are still standing, and the largest of these was measured by the late Professor Henry in 1904, and was then 14 feet 6 inches in girth. This tree is now 16 feet 7 inches at 2 feet from the ground. Equally fine trees exist at Carton, and still finer at Castle Forbes, which were planted about 1730. The largest, if not the oldest, Lebanon cedar was probably at Castletown, which in 1830 had a girth of 13 feet at 1 foot from ground and a clear stem of 30 feet. This tree was blown down some years ago. All the evidence available tends to show that this species was introduced into Ireland shortly after 1700, although it was brought into England in 1683. Many of the Carton trees could not have been planted before 1739, and probably not until 1750, as the demesne was only being laid out about that time.

Other records which are not very definite as to actual operations are those quoted by Gilbert in his *History of Dublin*. In 1664 sycamores *were* to be planted in building plots adjoining Stephen's Green (for what purpose is not stated). In 1669-70 lime trees *were* to be sold at reasonable rates in large quantities, and in 1671 elms and sycamores *were* to be planted between the bowling green and the Liffey at Oxmantown. Whether these directions were carried out is not known.

But before the close of the seventeenth century the inadequacy of planting operations to make good the losses of many centuries of waste and exploitation had attracted attention in Government circles, and in the tenth year of William III (1698), an Act was

passed entitled *An Act for Planting and Preserving Timber Trees and Woods*. This Act provided that all resident free-holders having estates of the annual value of £10, or tenants paying rents of the same amount, should plant 10 trees of ash, oak, elm, fir, or other timber trees each year for a period of 31 years, and that owners of ironworks should plant 500 trees yearly as long as these works were going. Occupiers of 500 Irish acres were required to enclose and plant one acre, and preserve the same for 20 years. All other land-owners were required to plant their proportion of the total of 260,600 trees laid down as the annual number for the whole country during a period of 31 years. In the fifth year of Queen Anne (1705) an amending Act was passed on similar lines, the chief point of interest being the extension of the list of trees by the addition of walnut, poplar, abele, and alder. This Act also substituted holdings of 30 acres for the £10 valuation laid dawn in the first Act. In these lists, the omission of beech and Spanish chestnut is peculiar.

It is generally assumed that these Acts produced few or no results, but it is impossible to prove this. At least one parish in Co. Down agreed to carry out the Act, for it is recorded in the parochial records of the parish of Seagoe that a vestry was held on March 9th, 1708, and it was agreed that 137 persons, holders of 30 acres each, should carry out the provisions of the Act.[7] This was probably not the only case in Ireland, but it shows how bare much of the country had become by that time to render action of this kind necessary.

But a great change in the wooded condition of Ireland was impending. In many respects the eighteenth century must have been Ireland's "planting age." Whether viewed from the political, social, or economic standpoint, the progress made throughout the country in rural matters was enormous, but the one feature of interest here is that relating to the development or laying out of demesnes. To trace this movement to its source it is necessary to dip into the general history of the country, as unless this is done the picture remains incomplete.

The original land divisions of ancient Ireland are stated by Keating and various later authorities to have been three in number, namely: – the trica ced, the bailiebetagh, and the ploughland. The trica ced is supposed to have contained thirty bailiebetaghs, and the bailiebetagh twelve ploughlands. The history of the first named has been exhaustively dealt with by Professor James Hogan,[8] who came to the conclusion that this division was based on some military organisation, more or less common to many parts of Europe. The trica ced corresponded roughly to the Norman cantred and the existing barony. The ploughland and the modern townland also appear to have had some common origin. But of the bailiebetagh no trace remains. The term itself means literally the place or land of the betagh, but who or what the betagh was no clear explanation can be found. Joyce[9] defines the word as "public victualler," Hardiman[10] as some official whose duties comprised entertainment of the chief or some other functionary. Donovan, in a footnote

7. *Kilkenny Arch. Soc.*, Vol. 16, 1883-84.

8. *The Tricha Cet and Related Land Measures*, Proc. R.I. A., Vol. xxxviii, C.

9. *Irish Names of Places*, 1895.

10. *Statute of Kilkenny*, Ir. Arch. Soc., 1843.

to the *Four Masters*, interprets the term as applying to a farmer or landowner possessing one hundred head of all kinds of stock. Other definitions are equally vague and uncertain, and all that can be gathered from them is that the betagh was an individual of some importance, and holding approximately from three thousand to four thousand acres of land. Hogan believes that the bailiebetagh was a development from the ancient hundred, and supplied its quota of one hundred men to the military strength of the community. He connotes it with the Gaulish "pagus", the Latin "centuria", and the Welsh "cantref".

While no new theory regarding the bailiebetagh can be advanced here, it might be suggested that the existence in Ireland of two territorial divisions having a common origin in Europe at a very remote period might indicate that the bailiebetagh bore some relation to the manor, which was a universal feature in Saxon times, and survived the Norman occupation in England. When the Normans occupied Ireland, or at least parts of it, the bailiebetagh possibly disappeared through no convenient means being found by the newcomers for retaining it as part of their organisation. The trica ced or cantred was large enough to be handed over to barons or nobles, the ploughland was too small a division to be interfered with, but the bailiebetagh or the individual occupying it possibly disappeared with the functions it or he previously carried out. This is merely a suggestion put forward without any evidence to support it, and must be taken for what it is worth.

In connection with this particular subject an intesting point arisies as to the period during which this ancient system of land-division reached its full development. Professor McNeill[11] states that the evidence points to the seventh and eighth centuries as a time of very great agricultural development, when much of the fertile land began to be partitioned among holders and fenced off for the first time. If this was the case, the diffused character of the rural population of Ireland can be accounted for. This diffusion lies at the root of many land problems of the present day, and has a very close connection with the early de-afforestation of the country, and the difficulties connected with its re-afforestation at the present day.

The Norman invasion does not appear to have interfered with the ancient ploughland distribution, but lands occupied by the native chiefs were transferred to the new-comers, and on these, Norman castles made their appearance, while the officials and retainers attached to these erections occupied the land round about. Possibly the "vills" on these lands were not greatly interfered with, but the occupants or "betagii," as they were subsequently termed, who remained, had to render services of various kinds to the new-comers. Monastic institutions also occupied a prominent place in the distribution made by the new landowners, and under Norman rule increased their possessions in many parts of the Country. Many of these Norman castles and Church lands formed the *nuclei* of what are now termed demesnes, but the probability is they were never developed by any high state of cultivation or process of enclosure, and only differed from the remainder of the country through their occupation by retainers or officials of the ruling powers. The country was never settled sufficiently long to encourage what we should

11. *Ancient Irish Law,* Proc. R.I.A., Vol. xxxvi, C.

now call permanent improvement, and it is practically certain that tree planting did not interest anyone in a country still full of scrub and scattered trees, and which supplied all that was required for fuel and building purposes. The Elizabethan wars and Cromwellian disturbances during the sixteenth and seventeenth centuries maintained the country in perpetual unrest, and land improvement must have played a very small part in the rural economy of the country.

The extent to which modern manors were created after the Norman invasion of Ireland has always been an interesting problem. The word "manor" enters into various grants and patents, and from the days of Henry II down to those of Queen Anne it would appear that all land granted by the Crown was held under the forms and conditions of the manorial system, either by Knight's service, fee farm grant, or common soccage. But the large areas of land usually comprised in these manorial grants render it doubtful if the Irish manor was an exact counterpart of that existing in England down to a comparatively recent period. As an example of the Irish grants referred to as "manors," two may be quoted from the State papers of the seventeenth century. In 1619 a patent was granted to William Parsons, Surveyor General of Ireland, of land in Cavan, Leitrim, Tyrone, Wexford, and Wicklow and which together formed three manors, containing from fifty-three to one hundred and seventeen townlands. While the exact acreage cannot be ascertained with-out identifying each townland it is obvious that areas of from 100,000 to 300,000 acres were being dealt with in these manors. In 1668 four manors of a similar character were granted to the Duke of Albemarle in Wexford. In both cases large areas were specified for the purpose of demesnes.

To compare the grants quoted above with the typical English manor one need only quote F. W. Maitland[12] in his definition of the ancient manor in Saxon or Norman times. "When men spoke of a manor they thought primarily of the single group of tenants who worked in common at their ploughing and their reaping, of the single hall or manor-house whose needs were supplied, whose garners and larders were filled, by the labours or this group. An estate too large or too scattered to be managed in this way would not, according to the common use of words, be a "manor."

One fact comes out in these Patents, however, and that is the prevalence of deer parks, many of which survive to this day, but only a few are now used for their original purpose. In the Rolls, the words "liberty to empark" up to 300 or 400 acres are frequently mentioned. According to Fynes Moryson, the only deer parks he saw in 1618 were those at Carton and in "Mounster." These were stocked with fallow deer, and most of them must have been carved out of semi-waste land. The O.S. maps show deer parks in hundreds or places which no longer contain deer, and most of them are now absorbed into the present day demesnes, which are legally defined as land lands the hands of, and utilised by, the owners and not subject to the various Land Acts in the form of "tenanted' land. The interesting feature about these deer parks is the frequency with which they possess scraps of old forest or woodland, in many cases not more than a few acres, but sufficient to carry the mind back to a by-gone Ireland, when small patches of forest still existed in a natural condition. The earliest of these deer parks has already been dealt with

12. *Select Pleas in Manorial and other Seignorial Courts,* 1888.

in a previous paper, that of Glencree, formed in the thirteenth century, and under the name of Powerscourt still survives. Maynooth (or Carton) was in existence in 1540, when J. and T. Allan were made keepers of it on the King's behalf. The Earl of Cork created a deer park at Ballinatray, near Youghal, in 1617, and an interesting account of the process by which it was stocked is given by Miss Dorothea Townsend.[13] Deer were sent to Portumna and Lisfinnan about this time. Many of the animals died in transit.

When demesnes came to be laid out in the eighteenth century, these deer parks doubtless enabled many of them to be designed with much greater freedom and space than would otherwise have been possible. They also enable the antiquarian to judge fairly closely the locality of old country seats which came into existence after many of the castles and monastic establishments of the sixteenth century had fallen into disuse, for there was little or no possibility of areas of 300 or 400 acres being obtained for this purpose when land became valuable and thickly populated.

In other cases, however, deer parks were quite separated from the demesne of the manor. Arthur Young points out this peculiarity and regards it as a look of taste. But he does not appear to have considered the condition under which these parks were created, and the late period at which they came into existence. In England, the park is an essential feature of a demesne, and in many cases part of the primeval forest land of the country. In Ireland, both demesnes and parks were converted from occupied or partly occupied land, and many holdings must have been absorbed into these systems. What became of the occupiers cannot be traced. Many of them probably became labourers on the estate, occupied lodges, or were moved to other sites. The park could not be formed out of thickly occupied land without a great deal of trouble and expense, and this accounts for the position in which they are frequently found and their comparatively small size.

The Ulster Plantations of 1609-20 appear to be the first indication of modern estate development, and in *Pynnar's Survey* of 1618-19, a great deal of information can be gleaned as to certain phases of this work. In that Survey one reads such items as the following: – Kilmacrenan, Co. Donegal, "Capt. William Stewart has built three houses in the English fashion."– Precinct of Tyrone, "The Earl of Abercorne built for the present near the town of Strabane some large timber houses, the groundsells of oaken timber, and the rest of allor (alder) and birch, which is well thatched with heath and finished."– Tullaghoge, Co. Tyrone, "Strong bawne of earth, with a Quick-set hedge upon it."

It is clear that down to 1620, the greater part of Ulster had nothing more than small semi-fortified houses, with bawnes or paddocks attached. No sign of demesnes is found at this stage, but the buildings erected were probably the originals of those stately mansions which replaced them 100 years or more later. The position in Ulster was probably typical of the remainder of the country.

It is supposed by some that one of the earliest demesnes in Co. Wicklow is that of Kilmacurra, subsequently called West Aston. From papers in the possession of the family, however, it appears that previous to 1715, this demesne did not exist. An old map of that date shows the land M divided into three holdings, and a lease of these lands was taken by the T. Acton of that time from Walter Byrne. A man of this name held

13. *The Life of the Great Earl of Cork,* 1904.

Kilmacurra in 1619, and after the rebellion (in which Byrne presumably took part) the lands were allotted to Hugh Montgomery and Sir Richard Parsons. In 1669, a Thos. Leigh apparently paid hearth tax for Kilmacurra, and T. Acton tax for the townland adjoining. A Byrne again evidently came into possession of the lands after their forfeiture subsequent to 1640. These changes show how unsettled was the tenure of land down to that period on an estate which is popularly supposed to have been carved out of primeval forest. This T. Acton was one of the earliest planters in the county, for an old account, probably dating about 1730, has an item of £200 for "dibbing," trees. The same account shows that he purchased foreign timber for building purposes. A grant of £10 he received for planting from the R.D.S., probably about 1750, was spent in "foreign" trees which were planted at the entrance to the Deer Park, the wall of which was built in 1718, and "near Baucis and Philemon, so named long ago." The identity of these trees is not known.

But after 1700 and the beginning of the Georgian period, things begin to move with almost startling rapidity. Costly mansions sprang up in all parts of the country, a few retaining their castellated form, such as Lismore, Kilkenny, Howth, Malahide, Gormanstown, etc., but the majority were built in the style of architecture common to the period. These building developments were accompanied by the improvement of the private lands, deer parks, and demesnes round them, and it is during this period that tree planting on anything like a large scale began.

This work, which seems to have spread from one end of the country to the other in the course of half a century, was largely based on the principles enunciated by "Capability" Brown, a landscape gardener who flourished between 1750 and 1780. The chief characteristic of Brown's work was that of laying out a place by planting a belt round the circumference, and dotting the space in between with circular clumps and single trees, in contrast to the formal style of gardening introduced from France during the time of Charles II. In some places, the result was good, in others bad, but in course of time, persons of taste revolted against the stereotyped methods adopted by this artist. For many years, the results must have been extremely ugly, but time and natural thinning, added to the weeding out of marketable trees from time to time, have toned down and partly obliterated the unsightly efforts of the "Brown" school. One of the ruling passions of his disciples was that of destroying or breaking up avenues, or anything approaching formality, but in some instances in Ireland, sufficient courage was shown to set this principle at defiance, and avenues of limes and other trees are the chief features of many demesnes still. As far as is known, Brown never visited Ireland, but a disciple of his, James Robertson, had a good deal to do with Carton, Castletown, and, judging by their appearance, dozens of other places in Ireland about 1780. From the tree planting point of view, Robertson's work was chiefly remarkable for the practice of transplanting trees of from 10 to 15 foot in height by means of transplanting machines, diagrams of which are given in Hayes' book. The species used were chiefly beech, oak, elm, chestnut, lime, etc., with a mixture of pine, spruce, and silver fir. Labour was cheap, and the ground was probably trenched or thrown into lazy-beds to obtain quick results.

Simultaneously with these landscape plantings the laying down of young plantations was also proceeding. Ireland about this time was being visited boy various persons who looked upon a journey through it as a great adventure, and who have fortunately left their

impressions on paper, and we can gather from these, not only the extent to which natural woodland had disappeared, but also the efforts being made to replace it. The most frequently quoted of these "Tours," is, of course, that of Arthur Young,[14] made between 1776 and 1779. Young's attention was chiefly taken up with agricultural matters, but stray notes refer to trees and woods. The plant which excited Young most was the old arbutus at Newtown Mountkennedy. Collon, which twenty-two years before Young's visit was a sheep-walk, possessed 1700 sorts of American trees and shrubs. The finest woods for their age of 35 years were at Strokestown, and the largest exotic tree was a silver fir, of *immense height and size*, of 48 years' growth at Ardfert. The best wooded estates were Inistioge, Adare, Castlemartyr, etc. The best wooded country was between Urlingford and Monasteveran, which must have included Durrow and Abbeyleix. Young's general comments on the condition of Ireland at that time represented a country practically bare of trees, except on demesnes, and he indicates that all the plantations he saw did not exceed fifty years of age, and the trees in general were young and immature.

He makes the following observations on Trees and Planting: – "The greatest part of the kingdom exhibits a naked dreary view for want of wood, which has been destroyed for a century past with the most thoughtless prodigality. Baltic 'fir' supplies all the uses of the kingdom, even those for which nothing is proper but oak. The profligate, prodigal worthless landowner cuts down his acres, and leaves them unfenced against cattle. If you could hang up all the landlords who cut wood without fencing. and destroy trees without planting, you would lay your axe to the root of the evil. [This sounds rather like an Irish bull.] The honestest boor upon earth, if in the same situation as the Irish, would be stealers of wood,"– and so on. He would give premiums and specially favourable terms to all tenants who planted and preserved trees, but overlooked the fact that the Royal Dublin Society were actually doing this at the time he wrote. Young also condemns the practice of planting trees on banks, and using oak and other trees of too large a size in planting, and strongly objects to pruning. He states he never saw a good tree growing on banks, but commends the result of this very practice on certain estates he visited.

Like many other ardent advocates of reform, Young looked at most things from his own stand-point, and not from that of the person to be reformed. His advocation of planting on small holdings might have been greatly modified had he attempted to plant on them himself. Goats, sheep, pigs, and limited space do not afford the best conditions for raising young trees, while the small holder in Young's time had more serious problems to solve than tree planting, however desirable it may have been.

Another writer of Young's class was J. C. Curwen[15] a Cumberland landowner and Member of Parliament greatly interested in the Irish land question. He toured a portion of Ireland in the autumn of 1813, and his remarks are more interesting than those of Young from a forestry point of view, owing to the fact that he was a landowner engaged in planting on his own estate. His observations were very similar to those of Young, and as his route was not the same, nor the places he visited identical, it may be taken for granted that these two observers give a fairly accurate picture of Ireland between 1780

14 *A Tour in Ireland,* 1780. PROC. R.I.A., VOL. XLI, SECT. c. [18]

15 Observations on the State of Ireland, 1818.

and 1820. The only individual trees Curwen specifically mentions were larches at Baronstown, near Mullingar, and at Tullymore, both of about 35 to 40 years' growth, and 60 feet in height and 7 feet in girth, and a silver fir at Tullymore a few years older, 13 feet in girth at $4^1/_2$ feet. At Collon he was impressed with Mr. Foster's nursery, and a weeping larch and oak, and he refers to the transplanting of large trees at Lord Louth's near Dundalk. He admires "the noble rows of elms on the banks of the Grand Canal" but his statement that "wood alone is wanting to make this a most beautiful country" demonstrates the general impression of Ireland he received.

Wakefield's[16] section on trees and planting contains general observations which support those of Young and Curwen. He was acquainted with no place in Ireland which "exhibited any of those magnificent trees, the monarchs of the forest, as frequently seen in England." The largest planted trees he saw were Spanish chestnuts and beech at Tralee and Shelton, and he considered Fermanagh the best wooded county in Ireland. He noticed elms at Adare, Tralee, Woodstock, and Avondale, and in the counties of Carlow and Dublin, but stated that in some parts of Ireland these were unknown. Wakefield refers to the difficulty of finding workmen acquainted with the raising and taking care of woods. Wood-rangers he considered were the "idlest and most drunken vagabonds in the kingdom. " A list of nurseries in Ireland is given, but these appeared to be declining.

Sir Richard Colt Hoare in *A Journal of a Tour in Ireland*, published in 1807, remarks on the general lack of trees, although the country was admirably adapted for them. He regrets that a colony of Scotchmen were being transplanted to the base of Torc Mountain on the Muckross estate, but was informed that they were only intended as nurses. It is interesting to note that these same Scotchmen were cut down in 1917, together with some very fine larch beside them, and probably of the same age, for war purposes, and consisted of some of the finest timber ever produced in Ireland.

A Report of the Agriculture and Live Stock of the County of Kerry, by the Rev. Thomas Radcliffe, was published in 1814, and considerable information is given regarding the planting activities on the estates of the Marquis of Lansdowne at Kenmare, and those of Mr. Herbert of Muckross and Lord Kenmare at Killarney. This information is interesting as showing the prevailing, practice in nursery work at that time, and the species of trees used. At Kenmare (Lord Lansdowne's) cones and seeds were collected from local trees, and in the years 1801-1812, 1,100,000 transplants were supplied by the Kenmare nursery for planting out on the estate. These included most of the ordinary species now used in forest planting, and also trees for planting on farm holdings. At that time, however, Lord Kenmare, who was carrying on similar work at Killarney, was contemplating reducing or closing down his nursery, as "he found in his tenantry (whose interest he should particularly consult by keeping it working) a strong, but determined aversion either to the planting or protection of trees." On the Muckross estate, the nursery supplied most of the trees planted during the early part of the following century, including the" Scotchmen" referred to by Sir Richard Hoare. Details of this planting will be given later.

A Memoir Explanatory of the Chart and Survey of the County of Londonderry was

16 *Op. cit.*

published by the Rev. Geo. Vaughan Sampson in 1814. References to various estates show that planting had been going on during most of the eighteenth century. The greatest planter in the county was said to be the owner of the Cannings estate at Garvagh, but the earliest planter was a Mr. Richardson at Somerset, near Coleraine. Reference is made to the injurious effect of the north-west wind on trees along the coast. None but the ordinary species is mentioned.

Between 1741 and 1808 the Royal Dublin Society gave premiums for planting and the stocking of nurseries. A summary of the results was given by Mr. R. J. Moss before the Departmental Committee on Irish Forestry in 1908. Premiums or medals were given for 10 to 40 acre plots containing a definite number of trees of specified species, but the conditions varied from time to time. The system was considerably expanded under Grattan's Parliament in 1783, when the plantations were required to be maintained for 10 yeas. In 1786 the premiums were paid in the form of agricultural implements to be obtained from the Society, not a particularly attractive method to some of the recipients one would imagine. The premiums were discontinued in 1807, it being subsequently stated by the honorary secretary of the Society that "the frauds practised were so numerous, that it was found expedient to abandon the system." The total number of acres planted by means of these premiums amounted to 2,800 during the period of about 40 years, or an average of 70 acres per annum, but the actual number of trees planted was probably greater than would correspond to this average. Of the total amount of premiums awarded, nearly one half went to Co. Galway. Inattention to fences seems to have been a prevalent cause of failure.

To Dublin citizens the conversion of the Phoenix Park from a mere deer park in a natural condition to a public park for recreation was an important event. This took place in 1740, when Lord Chesterfield occupied the post of Viceroy. One of the early references to the Phoenix Park in State Papers was in 1674, when Henry Allan succeeded Lord Dungarvan as keeper of all the King's parks and of Phoenix Park. A grant was made to Viscount Grandison and Edward Villiers in 1676, when lands of the annual value of £1,000 were transferred to these grantees in lieu of Phoenix Park and Newtown Walk. Where Newtown Walk was is not quite clear, but the 1835 O.S. shows Oldtown Wood a little north of the Fifteen Acres, as a scrub-covered piece of ground intersected by rides, doubtless the condition in which the park originally existed. The author of the Compleat Irish Traveller states in 1788 that "except for thorns and clumps of elms planted by the late Lord Chesterfield, very few trees in Phoenix Park." These elms were the English variety and were mostly blown down in the gale of February, 1903, although a few still survive and are about 12 to 15 feet in girth. The park was the subject of another re-planting scheme in or about 1850, and another after the storm of 1903. Four hundred elms along the Grand Canal were planted in 1766 by Patrick Edgar, as recorded in Gilbert's *History of Dublin*. These were 30 feet high, for which 3s. 3d. each was to be paid.

The additions to the forest flora of Ireland during the eighteenth century included Weymouth pine and silver fir, both of which were extensively planted during this period. The former never attained a great size, but silver fir is now the largest European conifer in the country, and many of the original trees still exist. Horse chestnut, tulip tree,

American red oak, Turkey oak, maritime pine, and a number of miscellaneous species of no great importance were also introduced during this century. Of more importance than any of these was the European larch, which was probably planted in many places as an ornamental tree about 1750, and a few of which may still be met with. The oldest tree encountered in the writer's experience was one cut down in 1910 at Greenmount, near Antrim, when this estate was swept bare of trees before sale to the Department of Agriculture for an agricultural training school. This tree had a clean bole of about 15 feet and a girth at breast height of 14 feet. The annual rings counted on the stump, which was perfectly sound, numbered 165, which would give the date of planting somewhere about 1745, and about the same time as the famous trees at Dunkeld in Perthshire. The oldest larch in Scotland is said to have been planted in 1725. A tree at Carton, supposed to be one of the earliest, was planted after 1750, and old trees reputed to be original larches occur at Abbeyleix, Doneraile, Headfort, and many other places. Owing to the value of this species in the timber trade, most of the older trees in the country have been felled, but it does not appear to have been used for ordinary planting in Ireland until the latter part of the eighteenth century. It was one of the most numerous trees being used at Kenmare in 1801 in Lord Lansdowne's nursery, and also in Lord Kenmare's at Killarney.

By the year 1800, the laying out of demesnes had been more or less completed, and planting operations henceforth assumed a more economic aspect. There is no doubt, however, that the extensive demesne planting of the eighteenth century is responsible for the present wooded appearance of Ireland. This is due, not so much to the extent of the woods, as to their uniform distribution over the surface of the country, and to the shelter belts and scattered trees which were associated with them. From a statistical point of view, Ireland has been poorly wooded for three or four centuries, but from the landscape point of view, she compares favourably with a great deal of Southern Europe, and many countries which show a much larger forest area. Demesnes cannot be kept under glass cases, nor can they be entirely hidden behind stone walls. Tourists and local residents benefit enormously by their presence, and they are not altogether useless from an economic point of view when run on rational lines. Their rapid disappearance during the last quarter of a century cannot be regarded as an unmixed blessing to the country, and no recent developments in rural economy can entirely take their place.

To epitomise the changes which have taken place on Irish estates, and the course of planting operations over a period of nearly 300 years, a typical example may, be quoted. Kilruddery in Co. Wicklow is known to most residents south of Dublin, and is particularly interesting because its occupation can be traced from the Norman invasion down to the present day. Much of its early history is admirably set out in the Rev. Chancellor Scott's *Stones of Bray*, from which it appears that in the twelfth century it was part of the property of an Irish Chieftain named MacGillamoholmoc. After Henry II had reserved the two cantreds of Obrun and Othec from Strongbow's grant of Leinster, the Irish chief still retained possession of Kilruddery, but he subsequently leased it to a Norman of the name of de la Felde, who sublet it again to the Abbey of St. Thomas in Dublin. The monks again sublet it until the Dissolution, when it appears to have been in the occupation of a family named Archbold, who, by some means or other, failed to retain their hold on the manor, and it was apparently forfeited to the Crown. In 1618 a

grant of the manor was made to Sir William Brabazon, ancestor of the present Earl of Meath, and its history as a modern estate begins from that date. Apparently bits of it here and there had been leased or let to various parties by the Archbolds, and the first fifty years after the grant was made to Sir William were spent in regaining the scattered portions of the manor. From one of the legal documents still preserved in the Meath estate office, it is possible to gain some information of the condition of the lands in 1679. On the recovery of a portion of the manor at that date, six townlands had a total area of about 3,500 acres, and these were made up of 1,030 acres of land (arable), 800 acres of meadow, 600 acres of pasture, 600 acres of mountain, 200 acres of wood and underwood, and 200 acres of furze and heath. The lands possessed 4 castles, 1 water mill for grain, 40 messuages, 20 tofts, and 20 cottages. Tree planting appears to have commenced about 1680 in the form of rows and avenues of Spanish chestnut, beech, ash, and elm, the two first named surviving to the present day. In or about 1750, English elms, yews, evergreen oaks, and probably other trees were planted in the pleasure grounds, and a clump of Scots pine dates from about this time or a little earlier. In 1780, limes were largely used for filling up the avenues and additions to the pleasure grounds, and probably certain plantations, clumps, and belts were laid down about this time. During the famine times, more planting was done, and a good deal' of money spent on roads, walks, and other improvements. About 1900, planting was commenced in the old deer park with the newer conifers, and is continuing to-day.

Almost every estate in the country shows much the same record, the dates varying from place to place according to circumstances and the views of the owners. They illustrate the gradual development of planting during the last 300 years, and show that, before that time, the occupation of land was too uncertain, and the means of protecting it too weak to encourage permanent improvements beyond the building of castles, and the raising of crops or cattle. It was not until round about 1700 that estate development commenced in earnest, or anything like the laying down of plantations began. The earliest plantings were undoubtedly single trees, rows, or lines of trees on banks, and short avenues. This was followed by planting for landscape effect, and after 1800 or so for the production of timber.

Between 1800 and 1845, no great developments are recorded in tree planting, except the clearing and replanting normally carried on, and the planting of a certain area of mountain land. The population was increasing rapidly, and most of the land was too valuable for plantations.

No statistics of a reliable nature are available until 1851, and in the earlier returns an attempt was made to enumerate individual trees on farms and in hedgerows. From a return prepared for the Forestry Committee in 1907, the acreage under woods and plantations was estimated in 1791, and in the five following decades down to 1841. Previous to 1791, the plantation area was supposed to be 105,000 acres, but this did not include a great deal of natural wood and scrub, much of which was subsequently cleared and replanted. For the five following decades, the returns showed an average annual planting or replanting of 4,800 acres, bringing the total woodland acreage for the whole of Ireland to 345,000 acres in 1841. Between 1857 and 1880, the additions to the woodland area by new planting amounted to 29,000 acres, but in the five years following

a decrease of 23,000 acres in the woodland area took place. In 1891 this acreage had decreased to 311,000 acres, and in 1905 to 301,000. The increase in the first period was probably connected with the Famine. During the years following this calamity, all kinds of works were in progress with the idea of giving employment in rural districts. Road-making, draining, wall-building and planting were pushed forward, and schemes of planting once inaugurated could not be stopped under two or three years. The increase during 30 years only averaged about 1,000 acres per annum throughout Ireland. The decrease between 1880 and 1891 were probably connected with the Land Acts and agrarian troubles of that period. These returns cannot be regarded as possessing any great degree of accuracy, however. They were mostly collected by means of voluntary returns, or by those made by the constabulary, and in any case accurate figures regarding woodland acreages are extremely difficult to secure.

At the end of the nineteenth century the first attempt at State afforestation was made with somewhat disastrous results. About 1885, and during the Chief Secretaryship of Mr. Arthur Balfour (later Lord Balfour) representations were made urging the Government to start afforestation on some of the waste land in Ireland. Mr. Balfour replied that the cost of land for this purpose would probably be prohibitive, as most of the mountain land was subject to grazing rights. This view was challenged by Father Flannery, the parish priest, of Roundstone in Connemara. Father Flannery called attention to about 1,000 acres of typical Connemara land, consisting of rock and bog well exposed to Atlantic gales, which he stated could be obtained without difficulty. After negotiations, the land, which was practically worth *nothing*, was obtained at a very reasonable price, experts of various kinds were called in, and eventually the work of planting was commenced under the Congested Districts Board. The reports of the Board for about ten years afford an illuminating record of the carting of young trees on to this remote spot, and their lingering death after planting. Every conceivable species was tried. In the words of Sir Henry Doran in 1907,[17] "They planted trees which were imported, and most of these failed. They planted various kinds that were grown in Ireland. They more or less failed. They planted trees raised from seed sown in a portion of the ground specially prepared on the area itself, and then transplanted. The forester tried every way he knew to get trees to grow, and the experiment must be declared to be a failure." The total expenditure on the scheme was about £10,000 and the result *nil*, as might have been foretold by anyone having the slightest knowledge of forestry in Ireland. But a prophet is accounted little of in his own country.

Of a somewhat similar nature to the Knockboy experiment, but fortunately confined to paper, was the scheme outlined in a report of a Mr. Howitz, a Danish "expert" engaged by Mr. Gladstone in 1884. This report was entitled *The Reafforesting of Waste Lands in Ireland* and is an interesting document, which recommended, amongst other things, the planting of a shelter belt along the entire West coast-line to exclude the Atlantic gales and diminish the rainfall to the east. Mr. Howitz also recommended the planting of every known tree, without respect to rank or fame, on about 5,000,000 acres of waste land. Fortunately for Irish forestry, the Knockboy experiment was carried out in time to

17 *Minutes of Evidence. Departmental Committee on Irish Forestry*, 1908.

prevent subsequent futile schemes of the kind being put into operation on a larger scale.

Knockboy has been quoted without any idea of ridiculing the idea of planting waste land, but simply to illustrate the danger of technical problems being influenced by political considerations. In the long run it probably served as a useful warning, for had it not been tried and found wanting, succeeding generations of foresters would have, sooner or later, been under pressure to attempt something on more expansive lines, and with more serious financial results.

The most far reaching development, however, in the nineteenth century was the introduction of Western American conifers into Great Britain and Ireland. For some reason or other, the great forests of Western America had never been explored in a forest botanical connection until the middle of the century. Between 1835 and 1850, however, Scottish nurserymen and land owners interested themselves in these trees, and various collectors were sent out to obtain seeds of the more important species. The most outstanding of these were the Douglas fir and Sitka spruce, while several others, like Thuia, *Abies grandis*, and Western Hemlock, were all valuable timber trees in British Columbia. Oregon and Washington possessed the well-known *Sequoias*, usually known as Wellingtonia and Redwood, *Pinus insignis* and *Cupressus macrocarpa*, and all of these were expected to be valuable for planting in the British Isles. Subsequent experience has proved the accuracy of these anticipations, and specimens of all those mentioned above can be seen throughout Ireland, many of them from 15 to 20 feet in girth. But the most important from a forestry point of view are undoubtedly Douglas fir and Sitka spruce, the one adapted for dry and the other for damp ground, and if no other American tree had been introduced, the loss would not have been serious in the economic sense. Of almost equal importance in its way was the introduction of Japanese larch towards the end of the century, practically the only Asiatic species to make any serious impression on Irish woods.

During the last eighty years these conifers have been planted in increasing numbers, and are almost as familiar to the ordinary observer as the native oak or ash. Whether their planting has been overdone, is largely a matter of taste. Quick results are so attractive to the ordinary human being that it is almost useless to expect him to consider any other feature, but there is no doubt that many of these species have been planted in places better fitted for broad-leaved species so far as permanent landscape effect is concerned. Their economic value is another and more complicated matter.

The end of the nineteenth century witnessed another incident in the political world which was destined to have an important influence upon Irish re-afforestation. In 1895 a committee was hastily called together by Sir Horace Plunkett to discuss the rural economics of the country, and suggest measures for their improvement. This committee, subsequently known as the "Recess Committee," drew attention in its Report to the activities of foreign countries in developing their agricultural resources and technical possibilities, of which forestry was regarded as one of the most important of the former. It recommended that a public department, to be known as "The Department of Agriculture and Technical Instruction for Ireland," should be set up. Unlike many other committees of this nature, it resulted in almost immediate action being taken, and what is familiarly known as "The Department" was created in 1900. This new body had many

functions to perform, and would no doubt have been glad to have left forestry alone for a few years, while more easily solved problems were being dealt with. But a small body of enthusiasts, banded together under the name of the "Irish Forestry Society," and led by the late Dr. Cooper, M.P., were continually calling attention to the subject of afforestation, and urging the Department to take action. This Society was inaugurated in 1900 by a few politicians who had been nursed in Utopian dreams of an undeveloped Ireland, which only required the wand of an economic wizard to make its waste places blossom like the rose. A school of academic foresters also existed in Great Britain who believed, or affected to believe, that trees would grow anywhere, and who obtained the few practical ideas they possessed from visits to Central Europe, where climate and soil conditions produced forests on hill ranges apparently similar to those found in Ireland. The Society's ideas were largely borrowed from this school, and were widely broadcast, and a benevolent Government having provided a Department for the purpose, it was only natural for innumerable demands to be made upon it. The Irish Quit Rents, derived from revenues partly received from forfeited lands, and fee farm grants over several centuries were also demanded by the Society for afforestation purposes, but these had nothing directly to do with the Department.

Although possessing no technical knowledge, this little Society was probably responsible for State Afforestation being inaugurated in Ireland. Its views were, of course, chiefly of an abstract nature, but its insistence that something should be done in Ireland to create Crown woodlands of a similar nature to those existing in Great Britain was not altogether unreasonable.

The reluctance of the Department to take premature action was, however, also reasonable. The example of Knockboy was still fresh in the minds of many, and there was no great desire to repeat the experiment. But like the importunate widow, the Society never ceased to make demands of a more or less impracticable nature, and in the end they bore fruit–not exactly the fully ripened fruit asked for, but something which may ripen in due course. In 1904, the Department arranged for reports on Irish woodlands being made by an ex-Indian forestry official and an Irish land-agent, which led to no definite result. It probably did not know quite what to do nor how to do it, and in any case the funds at its disposal were quite inadequate for any large scale afforestation work. Then, again, the problem of land purchase was a thorny one for a newly created Department to deal with. What kind of land should be purchased, and where was it? Every county in Ireland imagined it had the first claim to an experiment of this nature, and every owner of useless land insisted that he had the very best for the purpose. With the whole country divided up amongst some half million occupiers this question was not easily answered.

After careful consideration, a decision was made to start a school for training working foresters as a preliminary to any afforestation which might be subsequently adopted. Several possible sites for this school were suggested, but the choice finally fell upon Avondale in Co. Wicklow, the old home of Charles Stewart Parnell, and previously of Samuel Hayes, already referred to. It is rather a strange coincidence that Avondale, built and chiefly planted in or about 1779, should have been the scene of two distinct pioneer movements in Irish tree planting, one by a private owner, and the other by a

Government department. Hayes, of course, was by no means of the first generation of planters, but lived early enough to see their work and place it on record.

Avondale was, in many ways, not too suitable for its purpose. It was only about 550 acres in extent, consisting of a long narrow strip parallel to the river Avonmore, and the bulk of it fairly good tillage land of a class not usually devoted to tree planting. It happened to be in the market at the time, however, and possibly its association with Parnell had something to do with its purchase. For training purposes it lacked a sufficient area of existing woodland and was too limited in size to enable work to be carried on for long on economic lines. Having been acquired, however, and opportunities for training installed, the problem of laying it out had to be solved. The writer was selected by the Department for this task, and rightly or wrongly, decided to turn it into a forest experimental station on the lines of a Continental forest garden. The ground was laid out in plots of about an acre each, and on these, various mixtures were planted, typical of ordinary plantations on different types of soil. About 100 plots in all were planted between 1906-9, consisting of some 40 species either pure, or in mixture with the commoner trees of the country. In addition to these plots, about 50 species were planted singly or in small groups for purely experimental purposes and these were added to as opportunities occurred. Several reports on this station have been published, and there is no necessity to repeat them here.

In 1907-8 two important events occurred affecting Irish tree planting and arising out of the following facts. The duties placed upon the Department in connection with forestry development, and the pressure being brought upon it to exercise its powers were becoming a difficult problem. For several years the Estates Commissioners had been acquiring properties with plantations and woodlands upon them, but having no statutory power to retain these, were frequently under the necessity of selling the timber, and throwing the woodland in which it stood into small holdings in process of creation. Not only was this denuding the country of much immature timber, but the land so dealt with was frequently of little value to the recipients. Offers made to the Department of these woods were refused for financial reasons, although a small area in Co. Wexford had been taken over pending some arrangement being arrived at. But while the offers were increasing in number, the funds of the Department were being absorbed in other schemes and enterprises, and it was evident that if forestry was to be a serious feature of the Department's work, money would have to be specifically provided and ear-marked for the purpose. It was also necessary for the Department to have a clearly defined policy and programme of work. What could be done, and how to do it had never been seriously considered by the advocates of afforestation. Estimates of land suitable for the purpose usually included all the waste land and turf bogs of the country, and varied from 5,000,000 to 2,000,000 acres, all assumed to be capable of growing timber and at anyone's disposal who happened to come along.

Questions of title, private ownership, grazing-rights and customs, methods of acquisition, and dozens of inevitable obstacles were never considered, and discussions, schemes, and proposals were all in the abstract, and usually drew their inspiration from some thickly wooded country in Northern Europe. The prevailing conditions in the British Isles, whether climatic or economic, were usually ignored.

The then Vice-President of the Department, the Rt. Hon. T. W. Russell, thought the best way out of the difficulty was to appoint a Departmental Committee to deal with the whole question, and in 1907, the Committee began its enquiries under the chairmanship of Mr. T. P. Gill. Evidence was given by all persons in any way interested in Irish forestry, and this evidence was extensive, and in some cases peculiar. One witness, for instance, thought that the whole of Connemara might be planted if it were first cropped with potatoes! After everyone had expressed their opinions, a Report was presented which advocated the purchase of 300,000 acres of mountain land, of which two-thirds would be plantable, within a period of ten years. Forty years was allowed for the planting of this area. Financial requirements amounting to nearly £3,000,000 over 40 years were specified, and many other details given which need not be recapitulated, as they can all be found in the Report[18] itself. These few items have been given to allow a fair estimate to be formed of the work actually done. The fact that the Report was not entirely ignored by the British Treasury is an interesting one, but, needless to say, the amount suggested for adequately developing Irish forestry was not granted, and probably never will be under existing conditions of financial stress and uncertainty.

It is seen from the Report that the estimates of nominally waste land suitable for growing timber had been steadily decreasing for nearly one hundred years. Sir Arthur Griffith, in his Valuation Report of 1845, put the total area of waste land at 6,000,000 acres, half of which was considered suitable for planting. Howitz, the Danish expert, added another million acres to this figure, but his estimate could scarcely be taken seriously when considered in the light of his other proposals. Sir William Schlich, Dr. Nisbet, and others brought the figure down to about 2,000,000, but possessed no definite data, outside agricultural statistics, for their opinions. These estimates were repeatedly quoted for some years, but it was not until the Forestry Committee was set up that serious efforts were made to get down to solid facts as regards not merely the existence and extent of land available for afforestation, but the possibility of obtaining it in fairly large blocks. Practically all estimates previously made had assumed that acquistion could be effected almost automatically. The fact that Irish land was divided amongst 500,000 or 600,000 owners or occupiers, each one of whom had his own views about parting with it, was entirely unrecognised, and the idea lying dormant in the minds of most advocates of afforestation was that what was usually termed "waste land" could be had by asking for it. The necessity again for securing land not only suitable for growing trees, but securing it in large blocks, never entered the minds of enthusiasts. The latter appeared to have a vague idea that planting was the only operation involved, and that this planting could take place anywhere outside enclosed holdings with little or no preliminary bargaining. Investigation showed that all those premises were erroneous. Land purchase, when confined to individual holdings, was largely a question of price, but the essential principle of State afforestation is based upon the condition that it should not be carried (out on land suitable for agriculture, and this condition rules out a large proportion of every holding in the country, whether the latter is large or small. Experience quickly proved that acquisition resolved itself into a question of give and

18. *Report of the Departmental Committee on Irish Forestry*, 1908.

take, and to enable the average price of a block to come within the accepted figure of £4 or £5 per acre, useless land had to be taken over as an offset to the better quality found in any area of adequate size. The former class could be obtained without difficulty, but was practically useless for timber production. The latter could only be taken in limited quantities owing to political and economic reasons. Taking everything into account, the conclusion was reached that about 250,000 acres of land might be obtained of the class required, and at a price within the limits of a forest policy. So far, about one-fourth of the Irish Forestry Committee's estimate has been acquired, but only by including a fair proportion of old woodland, which was originally planted regardless of soil quality. From a technical point of view this is rather an advantage than otherwise, but it adds little to the forest area of the country, being simply a transfer from private to State ownership.

The first fruit of the Forestry Committee's report was a Vote of £6,000 per annum from the Treasury for acquiring estate woodlands passing into the hands of the Estates Commission. This sum was never intended for ordinary forestry development, but merely to tide over the difficulty already alluded to. The first item of expenditure from this grant was the purchase, for an almost nominal sum, of 1,200 acres of woodland, with the timber thereon, in Co. Tipperary, and another area of 600 acres in Co. Wexford was taken over shortly after. In these transactions, the Department was simply carrying on work previously done by private estate owners, and no question of afforestation was involved, although clearing and replanting worn-out woodland had to be undertaken. The function of the Vote, however, was soon being interpreted with sufficient elasticity to enable any land to be acquired which was passing through the hands of the Land Commission, whether wooded or otherwise.

On the heels of these developments, a Commission was set up in Great Britain with power to grant sums for the advancement of enterprises in practically any form which could be discovered, provided they were not directly remunerative. This was known as "The Development Commission." There was little difficulty in qualifying for grants, and forestry, whether in the practial or academic form, was brought within the scope of the Commission's activities. After a great deal of discussion on matters of principle the Commission agreed to finance the afforestation of three centres in Ireland in which the Department were negotiating for land, provided that 5,000 acres could be secured in each centre, the money, of course, being advanced annually as required. In this particular direction, Ireland was the first part of what was then the United Kingdom to receive any money for afforestation. Both England and Scotland talked round the subject, and had various differences of opinion with the Commission which acted as obstacles to progress.

By the time work had actually started on these areas, however, Europe was thrown into a state of chaos by the outbreak of the Great War. This brought everything in the form of planting to a standstill for four or five years, both on public and private estates. During the War period, home-grown timber was felled in all directions, and the woodland area of Ireland was reduced by about 30,000 acres, and a much larger aea was cleared in Great Britain. When reconstruction became a problem for Government consideration, the question of these derelict or devastated woods was dealt with by a

Sub-Committee of the Reconstruction Committee set up in 1918. The work of this Sub-Committee was followed by what is usually known as "The Acland Report," so-called after the chairman. It recommended the acquisition and planting of $1^{3}/_{4}$ million acres of land throughout the United Kingdom in the course of 40 years, following in principle much the same lines as the Irish report of 1908. The programme already laid down for Ireland was not interfered with, and when the Forestry Bill of 1919 was passed, the Forestry Commission took the forestry work or the Department over as a going concern. From 1919 to 1922 afforestation was rapidly speeded up by the enlargement of nurseries and acquisition of land, and when the Free State came into existence, it merely had to continue the programme already in existence. This programme was roughly the acquisition and planting of 3,000 to 4,000 acres annually, together with purchase, through the Land Commission, of the larger woods coming into their hands from year to year. It is satisfactory to note that no material change has been made in this programme during the last twelve years and if steadily continued, it should eventually accomplish all that is possible in the direction of State afforestation in the Free State. In the opinion of many it is not proceeding fast enough, but few appreciate the various difficulties in the way.

The position in Ireland to-day is, of course, greatly affected by the existence of two Governments, those of the Free State and Northern Ireland, approximately three-fourths of the country being under the former, and one-fourth under the latter. This division has led to the work of afforestation being divided since 1922, when Northern Ireland took over the work initiated and land acquired within the six counties up to that date. The practical effect of this division, however, has not been very great. The policy laid down in the Forestry Reports of both Ireland and the United Kingdom in 1908 and 1919 respectively has been generally followed, and both parts of the country are at present doing their best to increase their woodland areas.

The results up to date are, without going into exact figures, an afforestation of about 25,000 acres in the Free State, and 5,000 acres in Northern Ireland on bare or mountain land not previously under plantation, and the transfer from private to State ownership of about 15,000 and 8,000 acres respectively of estate woodlands for the purpose of replanting.

Against this State development, however, is the serious decline in private planting which has taken place during the last fifty years, and which shows little sign of abating. The various Land Acts since 1884, and the increase in taxation during the last fifteen years, have greatly affected the opportunities for planting and the spending capacity of private owners, and the larger the estate, the more severely have these deterrents been felt. Grants for planting, and other forms of assistance to private planters have done something to encourage a revival during the last ten years but the fact remains that tree planting and diminished incomes are not good companions, and it is to be feared that planting on an extensive scale must either be carried out by the State or remain undone. In a country like Ireland this is a misfortune for one very good reason. The private planter can and does work on small areas of five, ten, fifty, or more acres, and every square mile contains a few patches of ground suitable for the purpose. The State can only work in large blocks owing to administrative requirements. Without the co-operation of

the private planter, therefore, the wooded condition of the country as a whole must diminish, and the final result will be that few woods will be found in districts which do not facilitate State enterprise. Economically this may be an advantage, but it certainly does not tend to make the country more attractive to its inhabitants, or to the casual tourist. To the rural resident and small farmer, the absence of woodland in his immediate vicinity is a more serious feature than many suppose, whether considered from a fuel or timber point of view, and this is already being felt where demesnes have disappeared within the last half century.

In connection with this point, the extent to which the State can carry out its programme has to be considered. The objective aimed at by the Irish Forestry Committee was a woodland area of 1,000,000 acres, equal to 5 per cent. of the entire country. This was estimated on the assumption that the private owner would do his share, amounting to roughly three-fourths of the total. There is no indication at present that anything like this proportion will be attained. The planting activities of the landlords are rapidly being brought to a stand-still, through causes already referred to, while the estates themselves are being abolished by the operations of the Land Commission. The existence of the Forestry Department allows a certain number of woods to be taken over and maintained, but of the total area of approximately 300,000 acres of privately owned woods throughout the country, probably not more than one-third are capable of economic transfer in this way. The obvious remedy is the acquisition of more unplanted land, but so far as can be judged, the opportunities for this are gradually being reduced, unless prices are paid well above the economic value of the land. The intense division of the country into small holdings is making at more and more difficult to find blocks of two or three hundred acres in the hands of one individual with whom negotiations can be carried on. The greater the sub-division the more complicated the process of acquisition becomes, and the more difficult the task of making satisfactory bargains on a uniform scale. Every occupier of a holding has his own views about sale, price, and the reservation of various rights, while in the vast majority of cases, an agricultural holding cannot be abolished until the occupier has found accommodation elsewhere, and this is almost an impossibility under existing conditions. The occupier has seldom the power to take the necessary initiative, while the inducement to do so can only arise from financial considerations. These factors are gradually but surely bringing acquisitions to small proportions, unless a policy of buying up entire estates can be adopted, as is being followed in Great Britain. A policy of this kind in Ireland is out of the question, except through the Land Commission, and the latter has its own functions to perform before taking forestry into account. The forestry administration is, therefore, handicapped at the outset, either by political, administrative, or economic causes. If its programme is to be carried out, it must secure an adequate area to work on, and this area must be free, not only from physical disqualifications, but from objections of a political, social, and financial character. Politics impose considerations foreign to technique; social conditions hinder freedom of barter and exchange; and financial restrictions act as a brake on a machine already clogged with rust, and attempting to surmount an upgrade. The possibility of increasing the already limited area in hand is, therefore, becoming more and more circumscribed by factors which were never contemplated in the original conception of

the afforestation programme. Another feature of modern State planting is the tendency to use the faster growing conifers in place of broad-leaved species. Economically, again, this is probably sound, and for purposes of winter shelter, it is difficult to overlook its merits. By lovers of the picturesque and students of natural history, the rapid conversion of oak and ash woodland into dense crops of Douglas fir and Sitka spruce may be deplored. But the productive capacity of these latter species is too great to overlook their commercial value, and provided oak and ash are retained where nature intended them to thrive no great harm will be done. The twentieth Century has been marked by another wave, as it may be termed, of introductions, owing to the discoveries of Wilson and Forrest in Western China. These are now being tested by experimental planting in the pineta of the country, much in the same way as Douglas fir and Sitka spruce were tested 100 years ago. Whatever the results may be they are not likely to seriously affect the composition of Irish woods for many years. But enough evidence has been produced to show what has been done to alter the general appearance of Ireland during the last 300 years. On the whole the benefits have been vastly greater than the drawbacks. Timber, increased shelter, and the interest attaching to growing trees of unknown possibilities have all to be placed on the credit side of the account. To briefly summarise the facts brought together in this paper, it may be stated that –

1. The Church was probably a planter of trees in Ireland as far back as the fifteenth century, and the yew appears to have been the chief species used. The statement made in a copy of *Topographia Hiberniae* to this effect is probably correct.
2. The laying down of plantations did not take place on an appreciable scale until the eighteenth century, and then chiefly in conjunction with the creation and improvement of demesnes.
3. The present tendency in tree planting is that of using Western American conifers in place of European species. This will undoubtedly alter the appearance of the country during the present century.
4. During the last fifty years a serious decline in planting is shown on private estates, and energetic State action becomes imperative if the woodland area is to be maintained.

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