

# Coppice Wood Management in the Eighteenth Century: an Example from County Wicklow

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## ABSTRACT

The extent and commercial significance of semi-natural coppice woods in Ireland in the past are far from clear and relatively little detailed analysis of coppice management using primary sources has been undertaken. Employing a collection of documents relating to the Watson-Wentworth estate in Co. Wicklow, coppice wood management in the first half of the eighteenth century is analysed. Evidence is presented which shows that during that period coppice woods covering more than 800 hectares were managed in a fairly sophisticated way, resulting not only in the preservation of important semi-natural woods but also in the production of a wide range of commercial products. The woods made an important contribution to the income of the estate, generated local employment, developed trading links over a surprisingly wide area and provided a renewable supply of raw materials for a number of important manufacturing industries.

## INTRODUCTION

The extent and commercial significance of semi-natural coppice woods in Ireland during the three centuries before the First World War remain unclear despite a longstanding interest in the exploitation and preservation of native woods. Arthur Young in the late eighteenth century appeared to suggest a fairly widespread distribution, being of the opinion that the surviving woods in Ireland were 'what in England would be called copses' (Young, 1892 edn., vol.2, p. 90), but he is often better remembered for his view that woods had been 'destroyed for a century past, with the most thoughtless prodigality' (Young, 1892 edn., vol. 2, p. 85). Durand (1980), for example, in a review of the history of forestry in Ireland stresses wasteful exploitation and clearance for agriculture in the seventeenth and eighteenth centuries and planting during the nineteenth century; no mention is made of coppicing in his account. Others, though acknowledging the role of landowners in planting and preserving woods during the eighteenth century, are equally silent about coppice management (e.g., Freeman, 1969). Those

writers who do acknowledge the existence of coppice management either lament (Hayes, 1822) or record (e.g., McEvoy, 1944; Fitzpatrick, 1966; McCracken, 1971) its limited role, geographically, commercially, or both. Eileen McCracken, for instance, in *The Irish woods since Tudor times* mentions coppicing four times and devotes only 16 lines to it in 137 pages. She suggests that coppice management was restricted to a few localities, principally Co. Wicklow, and in that county refers to it only in connection with charcoal production.

How widespread was coppice management? What were its origins in Ireland? How long did it persist? Was it limited to the estates of a relatively small number of aristocrats and gentlemen? Was it restricted to the maritime economy within easy reach of the coast and the largest towns and cities? Were coppices felled 'smack smooth' (McEvoy, 1944) or were there marked variations in practice with simple coppicing in some areas and coppice with standards in others? How efficient was coppice management in preserving woodland and producing a range of serviceable woodland products? Was it commercially successful? Were markets local or regional or did they extend beyond the island?

These and other related questions are unlikely to be convincingly answered until a substantial number of case studies of coppice management on individual properties — large and small, of resident and absentee landlords and in the maritime fringe and less accessible locations — has been accumulated. Rackham (1976), commenting on McCracken's few references to coppicing, wonders whether it really was as restricted as she seems to suggest or whether there is simply a lack of written evidence. It is certainly likely that much potentially valuable archive material has not survived: it is equally likely that evidence does exist in widely dispersed estate archives and that it has not been fully exploited. Smyth (1976) points out that estate records — account books, rentals, estate correspondence, valuation surveys, deeds and leases — have been surprisingly under-used by geographers involved in analysing the transformation of the Irish landscape in the landlord era and, with a few notable exceptions such as Crawford's (1964) study of woods on the Brownlow estate in Armagh and Mrs. McCracken's pioneering work, the point is applicable to research into the history of the management of Irish native woods.

It may be, of course, that estate archives have not survived in sufficient quantity to build up a coherent picture of coppice management throughout the island in the period in question or if quantity is not a problem bias may be: continuous management details are most likely to have survived for the largest and most

durable estates and they may not constitute a representative sample of silvicultural practice. However, these potential weaknesses will not be confirmed or repudiated, nor will the specific questions about coppice management raised earlier be able to be answered, even in part, until more surviving estate archives have revealed their secrets. The objective of this paper, therefore, is to make a modest contribution to this end by summarising the main features of coppice wood management on one absentee landlord's property in Co. Wicklow in the first half of the eighteenth century as revealed by surviving estate records for that period.

#### THE WATSON-WENTWORTH IRISH ESTATE

The estate in question was that of the Watson-Wentworth family whose home estate was centred on Wentworth Woodhouse in south Yorkshire. Thomas Watson, the third son of Lord Rockingham of Rockingham Castle, Northamptonshire, inherited in 1695 the English and Irish estates of his uncle, William Wentworth, second Earl of Strafford, who had died childless. The properties then descended from father to son through two generations until 1782 when Thomas Watson-Wentworth's grandson, Charles, second Marquis of Rockingham, died without issue. The estates then passed to his nephew, Earl Fitzwilliam.

The Watson-Wentworth estate in Ireland lay in six blocks (Fig. 1). Five of these were in Co. Wicklow at Shillelagh (including one farm across the Co. Wexford boundary), Cosha or Cashaw (including an outlier at Toorboy), Rathdrum, Wicklow and Newcastle. The sixth block was in Co. Kildare near the town of Naas. The entire estate totalled some 56,000 plantation acres (about 91,000 statute acres or 37,000 hectares).

#### SOURCES OF DATA

The surviving records of the Watson-Wentworth/Fitzwilliam estates are widely dispersed. Important collections are to be found in the county record offices in Northamptonshire and North Yorkshire, in the archives division of Sheffield City Libraries, in the muniment room at Wentworth Woodhouse and in the National Library of Ireland in Dublin. Additional, Aalen (1970) reported the existence of copies of two important eighteenth century surveys in the Fitzwilliam estate office at Coolattin.

The present study is based on documents in the collection known as the Wentworth Woodhouse Muniments (WWM) in Sheffield City Libraries. In that collection there is a continuous record of coppice wood management on the Irish estate throughout the eighteenth century though after 1749 the information is less

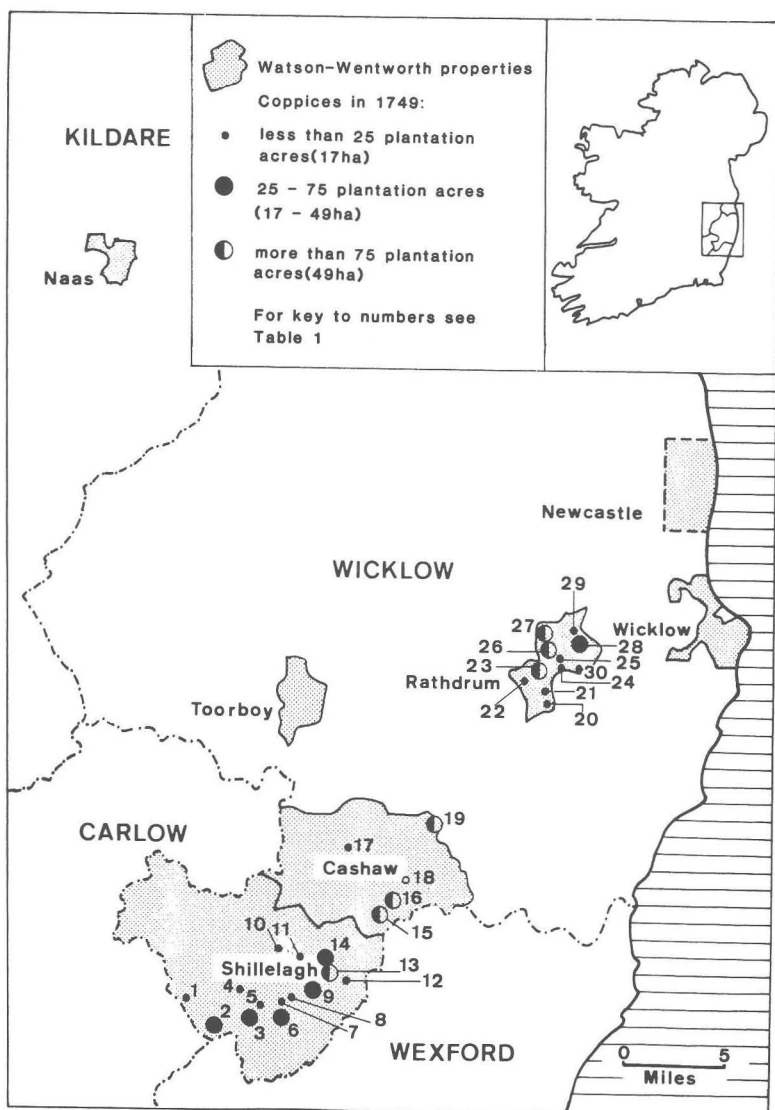


Fig 1. For key to numbers see Table 1.

Table 1: Watson-Wentworth coppices in Co. Wicklow: their sizes in 1724 and 1749, contemporary comments on their sites, and their composition in 1749.

No. on Fig 1	Name	Area in Plantation Acres		Site	Composition 1749
		1724	1749		
1	<b>Moylisha</b>	7	8	on very rough ground	chiefly oak, some alders and sally
2	<b>Raheengraney</b>	25	35	low side wet and boggy	oak, ash, birch, alder and sally
3	<b>Balisland</b>	19	30	—	birch and sally, some oak
4	<b>Ballard &amp; Minmore</b>	—	22	—	chiefly oak, some birch and hazel
5	<b>Ballynockers</b>	6	14	—	mostly oak, some alders and birch
6	<b>Cronyhorn</b>	28	30	hilly, barren	mostly birch
7	<b>Carrig</b>	—	19	hilly, barren	mostly birch
8	<b>Coolattin Scrub Wood</b>	25	21	—	mostly oak and ash, hazel underwood
9	<b>Coolattin Wood</b>	65	63	—	mostly oak, some ash and birch
10	<b>Cronelea</b>	2	2	—	mostly oak, some alders
11	<b>Nickson's Brow</b>	—	17	—	oak, birch, sally
12	<b>Paulbeg</b>	2	2	—	mostly oak, some hazel
13	<b>Tomnifinnogue &amp; Ballykelly</b>	131	126	—	birch, hazel, oak
14	<b>Ballyraheen</b>	27	41	—	oak, birch, sally, alder
15	<b>Killaveny</b>	84	84	—	chiefly birch, some oak and ash

No. on Fig 1	Name	Area in Plantation Acres		Site	Composition
		1724	1749		1749
16	Coolalug	102	97	—	chiefly birch, some oak and ash
17	Corndog	4	20	—	old part oak, new part mostly birch
18	Tomcoyle	14	15	—	birch and oak
18	Ruddenagh	112	104	—	mostly birch, good no. of oak and ash
20	Upper Corballis	11	15	ground very craggy	mostly ash, some oak
21	Lower Corballis	10	11	very steep hillside	mostly ash, some oak and alders
22	Round Coppice	16	17	cold, hungry ground	oak
23	Ballygannon	80	95	poor, hungry ground	oak
24	Glasnarget	4	8	—	oak and birch
25	Keys' Coppice	—	17	—	oak and birch
26	Stump	113	125	—	oak and birch
27	Cronybyrne	120	120	ground dips/hangs	oak and birch
28	Ballynakill	30	32	a deep glen	oak, birch, ash
29	Barnbawn	15	17	—	oak, birch, ash
30	Bahana	14	18	—	oak, a few birch
<b>Total</b>		1,066	1,225		

Sources: WWM A764, A766, A767, A770.

detailed, being just one element of the general estate account books.

For the first half of the century the records are varied and voluminous. There is a general survey of the estate by Moland completed in 1728 consisting of a survey book (WWM A769) and a related, but incomplete, set of maps (WWM MP96) on which coppices are marked and named. Of central importance are five surveys of estate coppice and scrub woods for the years 1724; 1728; 1731; 1747 and 1749 (WWM A764; WWM A766; WWM A770 (containing the 1731 and 1747 surveys) and WWM A767). These surveys include observations on woodland sites, the age and state of the underwood, underwood composition, numbers of standards set out and valuations of underwood poles, cordwood and bark. The 1747 survey also contains some information from a survey of 1743 and a scheme for a 'Revolution of Falls' covering the period from 1748 to 1769. For the period 1707-21 there is a remarkable series of account books (WWM A758-763) in which woodland management matters and woodland products and sales are itemised in meticulous detail. For part of this period (1714-19) there is also a separate coppice trespass book (WWM A765). Finally, the papers dealing with a case in Chancery, concerning Dr. John Griffith who was agent of the Irish estate from 1742 to 1747, give details of woodland management and mismanagement in the 1730s and 1740s.

In the following analysis the records covering the whole of the period from 1707 to 1749 are used to describe the coppice woods and to outline the main features of coppice management on the estate in the first half of the eighteenth century and the detailed account books for the 1707-21 period are employed to describe the wide range of products derived from the coppice woods, to enquire into trading patterns and to evaluate the significance of the coppice woods to the estate and to consider their role in the local and regional economy in the first two decades of the century.

## THE COPPICES AND THEIR MANAGEMENT 1707-49

### *Coppices and scrub woods*

By 1749 about 2.5 per cent of the total area of the Irish estate, some 1,450 plantation acres (2,356 statute acres or 954 hectares), were coppices and scrub woods, about 1,225 plantation acres (805 hectares) being coppice woods proper. All the coppices and almost all the scrub woods lay in Shillelagh, Cashaw and Rathdrum and represented the remnants of a much more extensive woodland cover that had been cleared relatively recently. A survey of 1,656, for example, gave a figure of 5,609 plantation acres of woodland in

Shillelagh alone, more than 20 per cent of the total area. Although the Shillelagh woods produced timber commercially throughout the seventeenth century it is not clear when coppice management (i.e., rotational felling of underwood in *fenced* woods) began. The earliest record found of a coppice wood being cut is for 1698.

Although many of the scrub woods were managed as coppice woods and provided a modest but regular source of income for the estate they were not fenced and this is what distinguished them from the coppices. Among reasons given for the absence of fences was their shape (a number were specifically described as 'a scattering of trees' or as 'reyns') and their location out of danger of cattle. Besides the coppices and scrub woods there were also the famous Shillelagh Oaks in the deer park at Coolattin, numbering 2,150 according to the survey of 1728 when they were described as 'The Glory and ornament of the Kingdom of Ireland' and valued at £8,317. The deer park oaks had been even more numerous in 1725 when nearly 900 were sold to Jonathan Chamney, an ironmaster, and were felled for the use of tenants.

By 1749 there were 30 coppice woods on the estate and these are located on Fig 1 and listed in Table 1. The coppices varied enormously in size from over 125 plantation acres to less than two. During the first half of the eighteenth century adjustments were made to the numbers and sizes of the coppices, sometimes through planting but more usually by taking in adjacent scrub woods. It should not be assumed, however, that all the increases in size between 1724 and 1743 shown in Table 1 were the result of coppice enlargement; some of the differences shown were undoubtedly due to surveying and transcription errors. The increase in the size of Corndog coppice in Cashaw from four to 19 acres was certainly a real increase, the old part and the new part being clearly differentiated in the 1749 survey. The additional 15 acres were the result of enclosing an adjacent scrub and planting up a vacancy. Small enlargements were also recorded in the 1749 survey at Bahana, Upper Corballis and Cronyhorn coppices. Not only were existing coppices extended, but completely new ones were created by enclosing good scrub woods. The account book for 1707-13, for example, records the making of a new coppice in the deer park at Coolattin and in 1711 fifty six acres were taken from a tenant to add to an unidentified coppice. The 1749 surveyor noted that two of the coppices described in that survey — Nickson's Brow coppice and Keys's coppice — had been created since 1728. In 1728, Nickson's Brow, then a scrub wood, was already a candidate for conversion to a coppice, the surveyor noting that 'if well reserved and fenced will make as good A Springe if not The Best in Shelelagh'.



*Coppice sites and species composition*

The coppices were located for the most part on agriculturally unattractive sites; on the wet floor of the valleys of the Derry River and Derry Water in Shillilagh and Cashaw, on steep hillsides, particularly those above the floor of the Avonmore valley in the Rathdrum area, and on high ground. The contemporary observations on sites given in Table 1 speak for themselves. Where scrub woods occupied land with good agricultural potential there was pressure to clear; on the other hand thriving scrub woods on poor soils or difficult terrain were suggested as future coppices. In the 1749 survey, for example, three scrub woods in Shillelagh were said to be not worth coppicing as they were on very good land, whereas another was reckoned to be well worth making into a coppice, 'the wood being thriving & the ground bad'.

The coppices were mainly composed of oak (*Quercus petraea*) although, as Table 1 shows, birch was an important component of most woods. If the eighteenth century surveys are taken at their face value, in addition to what appear to be almost pure oakwoods there were three other well defined stand types. First, on the valley floors and lower slopes, were birch-hazel-oakwoods (e.g., Tomnifinnogue and Ballykelly coppice). Secondly, at higher elevations and on steep slopes were birch-oakwoods without hazel as a Cronybyrne and Stump coppices. Thirdly, again on steep slopes on freely draining soils, were ash-hazel-oakwoods as at the two Corballis coppices on the steep slopes of the Avonmore valley south of Rathdrum. On wet ground alder and willow ('sally') were locally important and holly was said to be an important constituent of one coppice in 1724. Rowan (*Sorbus aucuparia*) rarely absent from native Irish woodlands, is not mentioned in any of the surveys. It is probable that species composition was gradually changed in the coppices through planting and the suppression of less valuable species. The process would necessarily be a slow one and evidence, such as it is, is sparse and circumstantial. For example, in Tomnafinnogue/Ballykelly coppice in 1724 approximately half of the underwood was said to be holly and the wood agent who surveyed it wondered whether it was worth managing as a coppice in its then present state. It also contained a vacancy of 30 acres. By 1749, although the vacancy remained, it was still a coppice and the underwood was said to be mostly birch and hazel with some oak 'of the best sort'.

*Coppice with standards management*

The coppices were worked as coppice with standards thus combining the growing of mixed underwood with timber trees of

selected species and of various sizes. The intervals between successive cuttings of the underwood (the coppice cycle) varied according to site, demand and management efficiency. During the first half of the eighteenth century known cycles varied from 16 to 33 years, with a mean of 25 years, but this period included a phase of lax management in the 1730s when some coppices were allowed to stand beyond their projected felling dates. The 1748 scheme assumed 22-year coppice cycles for all the woods with coupes of 41-90 plantation acres, with an average of about 65 acres per year.

Alder, ash, birch, hazel, holly, oak and willow would all have contributed to the underwood but the standards were overwhelmingly oak. In the 1749 survey the species of the standard trees were given for 12 of the 30 coppices: oak was named in all 12 (in six it was the only species named), ash in six and alder in one.

In 1749 the stocking of standards in existing coppices varied from nine to 129 per plantation acre (6 to 80 per statute acre). The coppicing scheme projected to run from 1748 to 1769 laid down that at each fall 60 standards per plantation acre (37 per statute acre) should be left. These figures may be compared with the 40 timber trees per statute acre suggested as traditional in Britain by Evans (1984) and contemporary practice on the Watson-Wentworth estates in south Yorkshire where surviving schemes for 1727 and 1749 stipulate 75 per statute acre.

The standards (in general referred to as reserves) were not even-aged. After each fall of underwood they usually consisted of a large number of young trees (wavers) of about 20 years of age, presumably saplings or single poles retained from coppiced stools, together with a small number of more mature trees (black barks) grown on through a number of coppice cycles. The wavers were thinned at later falls leaving a few selected trees to reach full maturity. The proportion of wavers to black barks varied. The 1748 scheme stipulated that at each fall ten black barks and 50 wavers per plantation acre should be left.

### *Protection of coppices*

The most vital element in coppice management is the protection of young growth from grazing animals and around the Watson-Wentworth coppices in Co. Wicklow ditches (i.e. ditched banks) were made for this purpose. In some cases double ditches were constructed. For the 1707-21 period for which detailed records have survived there is only one reference to building a stone wall around a coppice 'where it was so Rocky it could not be ditched'. On the banks whitethorn hedges were planted, sometimes with the addition of hazel, birch and willow. In some cases there was a

double hedge. There are also references to coppice hedges being laid ('plashed') but not enough to make it certain that this was an invariable practice. Existing ditches were periodically scoured and remade where necessary at the beginning of new coppice cycles.

Views of the period during which animals should be excluded from coppices have shown wide variations. In some coppices in Dunbartonshire in Scotland in the eighteenth century grazing was allowed after as little as two years (Lindsay, 1974). Some writers believed that grazing and the development of young coppice were incompatible, Monteath (1824), for example, being of the opinion that ten years was the minimum protection period. Although income was received for hay cut in young coppices in the second decade of the eighteenth century, nowhere in the surviving documents for the 1707-49 period is there any reference to authorised grazing in coppices. Whether permitted or not in the later stages of coppice cycles, browsing by domestic animals was blamed for the poor condition of coppices on a number of occasions. For example, when a new agent took up his position in 1748 he noted that Ballyteige, a 54-acre wood on the Rathdrum property, had formerly been a coppice but after being cut in the 1730s had been allowed to be grazed by cattle so that by 1748 scarcely any remains of a coppice were to be seen. Twenty years earlier the wood surveyor sent from England to value the coppices complained of the depredations by cattle in four of them noting that part of Ballyraheen coppice was 'Eaten as Bare as A Bowling Green'.

### *Coppice managers and workpeople*

The coppice woods were the responsibility of the resident land-agent. He was assisted by a clerk, a small team of coppice keepers or woodrangers and a substantial but fluctuating force of woodmen recruited from among the estate under-tenants and their families.

During the 1707-21 period the land-agent also had a general factotem, a relative of the agent and a chief tenant on the estate. The general factotem dealt with the tanners coming to the estate to buy bark and spent a good deal of his time travelling through eastern and southern Leinster and sometimes into neighbouring parts of Munster settling with tanners and other purchasers of woodland products.

There were two types of coppice keeper, 'area' keepers, one each for Shillelagh, Cashaw and Rathdrum, and keepers of individual coppices recruited from among the woodmen and based in particular coppices during and immediately after a fall to prevent trespass, theft and browsing by domestic animals. The woodmen, who worked on a piece-work basis, included woodcutters, squarers, sawyers, cleavers, barkers, ditchers, hedgers and carters.

The land-agent, in his capacity as woodward, arranged for the falls of underwood and great timber, the sale, and often the delivery, of woodland products, the setting out of reserves, the fencing in of coppices, the building and repair of bark mills, the payment of wages and the receipt of payments from dealers. He was also an assiduous pursuer of trespassers and thieves. Expert assistance was available to him in the form of the periodic valuations undertaken by visiting English wood agents. The resident agent was expected to pay close attention to their observations and valuations. In the 1720s and 1730s these were liberally annotated by Thomas Watson-Wentworth the Younger (later the 1st Marquis of Rockingham) who had inherited the estate in 1723 and who took a close interest in coppice management on his properties.

#### END-USES AND MARKETS FOR UNDERWOOD AND TIMBER, 1707-21

It is not possible with certainty to separate the products of the underwood from those of the timber trees; bark and cordwood for charcoal production came from both sources as did small building materials, but large building timber came from mature timber trees. The main products were ship timber, building timber including items for industrial use, bark, cordwood, coopers' ware and a miscellaneous group of small stuff dominated by items used in furniture production, farm implements, vehicles and fencing. The very full and itemised accounts for the period from Lady Day (March 25) 1714 to Lady Day 1720 show that the average annual gross income from the sale of timber, wood and associated products during that period was £3,923 of which 50 per cent was earned from the sale of ship and general building timber, 36 per cent from bark sales, eight per cent from cordwood and six per cent from coopers' ware and miscellaneous small products.

#### *Ship timber*

Ship timber, like general building timber, was sold squared, sawn and in the round. It was sold in the woods, at the timber yards and delivered, sometimes at the estate's expense, sometimes at the buyer's. It was generally sold direct to shipbuilders whose buyers came to the estate, but some went to dealers and some was carried to Wicklow 'to be laid on the Murrow for Sale'.

All types of ship timber were sold: keels, keelsons, futtocks, stems, skegs, rudders, ship frames, deck beams, boat boards, ship planks or plank logs, gunwales, knees, bowsprits and masts, besides many 'bend trees' for unspecified uses. Scaffolding poles and bilgeways (cradles used when launching vessels) were also sold to

shipbuilders and treenails, described in the accounts as 'trunnils' or 'shipp pins', were sold by the thousand.

Most ship timber went to Dublin and Wicklow, although a substantial proportion of that carried to Wicklow was then shipped to England. Between 1707-20 twenty-one different shipbuilders and ship timber dealers were mentioned by name. Of the 16 for whom a location was given, two, apparently dealers, were from within the estate itself, one was from Arklow, four were from Wicklow, four were from Dublin and five were from Whitehaven in Cumbria. There are several references in the accounts of timber for Whitehaven shipbuilders being taken by car to Wicklow for despatch.

### *Building timber*

Building timber was sold by named piece and in undifferentiated lots. Named pieces included unworked wood described as poles and saplings and semi-finished and finished articles such as riberrys (cleft-spars), principals, purlins, beams, collar-beams, hammer-beams, rafters, laths, shingles, lintels, doorcases, clapboard and 'window stuff'. Named industrial items included helves, millshafts and timber for waterwheels.

Timber was also provided for a substantial number of named building projects including Dublin barracks for which £1,453 were received in 1708-09, Dublin 'Colledge' (£410 in 1719), courthouses at Athy, Carlow and Wicklow, repairs to market houses at Blessington and Newtown Mount Kennedy, new churches at Coolkenna, Dunard, Inch and Kilcullen, church repairs at Ballymore, Baltinglass, Carnew, Clonegall, Donaghmoor, Hackettstown, Hollywood, Kilcommon, Lymrick and Tullow, a new gaol at Carlow, five bark mills and a fulling mill. The accounts reveal a great diversity of business with buyers great and small. Jostling with the purchasers of many tons of timber were customers like the one in 1715 who bought ten round poles for a dog house.

### *Bark*

Bark for tanning was sold by the barrel. A barrel was, according to the valuation of 1747, '4 bushels upheaped wn. cut'. The accounts for 1709 record a payment of ten shillings 'for making showels for measuring Bark'. The bark was not differentiated by species; Clarkson (1974), states that in England until the 1790s oak bark was the only bark used by commercial tanners and in the absence of evidence to the contrary it is assumed that most of the bark described here was oak bark.

The whole of the barking operation from the felling of the trees

to the grinding of the inner bark into small pieces was done by undertakers who operated with teams working particular coppices from particular bark mills. Most of the bark was peeled in large pieces after felling by a first team of barkers; some bark, inevitably, remained on the trees which were re-worked by a second team and their product was called 'pickt bark'. Bark was also knocked off old, decaying trees. The peeled bark was 'stucked' (stoked) to dry and then stacked under cover at the bark mills before being shaved and ground there. The bark mills, of which eight were in operation during the 1707-20 period, though never more than four at one time, were simple premises with wattle and daub walls and thatched roofs. Clarkson (1974, p. 145) writing about bark production in England, suggests 'about the third quarter of the eighteenth century, if not earlier' for the replacement of hand operations by bark grinding mills, the simplest being horse powered and more sophisticated ones employing water power. The mention of making mill wheels for a bark mill in 1711 and the record of a water course being dug for the use of another in 1715 suggest that water powered bark mills were in use at the Watson-Wentworth coppices as early as the beginning of the second decade of the eighteenth century if not earlier. As falls were completed in particular woods and bark production brought to an end, mills were taken down and re-erected in or near coppices that were due to be cut next.

Annual output between 1707 and 1720 was very uneven, being related not only to the amount of wood and timber being cut but also to the proportion of oak felled. It varied from over 7,400 barrels in 1707 to less than 1,400 barrels in 1712. Over the 13-year period from 1707 to 1719 annual output averaged almost 3,500 barrels. Calculating the gross income from bark sales for a particular year's output is difficult because payment was sometimes spread over more than one year and some bark was sold and payment received before it was peeled, as in 1712 when Thomas Murphy and Bryan Bracken, Dublin tanners, paid £100 'before hand for bark to be delivered'. The highest annual gross income from bark sales in the 1707-20 period was £2,772 in 1707; the lowest was £840 in 1711. The average annual gross income from bark between 1707 and 1720 was in excess of £1,500, the equivalent of almost 40 per cent of the annual rental income from those parts of the estate (Shillelagh and Cashaw) where it was produced.

Although there were some substantial buyers of bark a typical year's production was sold to between 10 and 20 tanners in an area extending as far as 40 miles from the estate. In 1713, for instance, there were 16 different customers for bark; five years earlier the agent had settled with 18 tanners in Dublin alone. Besides Dublin,

which was the largest market, bark was sold in Baltinglass, Dunlavin, and Wicklow town in Co. Wicklow, Ballycarney, The Deeps, Enniscorthy, Gorey and Wexford in Co. Wexford, Athy and Naas in Co. Kildare and in Carlow town in Co. Carlow.

### *Cordwood for charcoal making*

The market for the wood destined to be made into charcoal lay, as far as is known, entirely within the barony of Shillelagh where the Chamney family had an ironworks in the form of a furnace and forge in the townlands of Ballinultagh and Ballard and where two other English tenants had a forge in Balisland townland. Wood for charcoal making was sold by the cord, a cord on this estate being a pile of underwood and branches from timber trees cut into short lengths (and barked if oak) measuring four feet high, three feet broad and eight feet long. The average yearly production from 1714 to 1720 was about 1,200 cords.

What is surprising, in view of the emphasis McCracken placed in her two brief references to the Wicklow coppice woods on their relationship with ironworks, is that compared with shipyards, tanneries and general building projects, the ironworks were, in the early eighteenth century at least, only minor consumers of coppice wood products. During the 1714-20 period, for example, gross income from cordwood sales amounted to a little over £1,805; for bark it was nearly £8,500. Nor is this difference reduced if costs of production are taken into account: payments for cutting and cording cordwood between 1714 and 1720 amounted to £485; the cost of felling, peeling, stooking, stacking shaving and grinding bark and for making and repairing the bark mills in the same period was £1,108. Cordwood must, in this period at least, be seen as a by-product of bark and timber production in the Watson-Wentworth coppices.

### *Coopers' ware and other products*

Income from the sale of coopers' ware in the form of staves, though small in comparison with that from ship and building timber and bark, was derived from a wide geographical area. Besides local sales of staves for barrels, half-barrels, pails, churns, piggins and keelers and of hazel and willow hoops, staves for barrels, firkins and hogsheads were sold to coopers in the ports of south-east and southern Ireland, namely Dublin, Wexford, Ross, Waterford and Cork. Of these Waterford was the main destination of stave wood, the two largest single transactions in the 1707-21 period involving that port: 4,000 barrell staves in 1707 and 9,000 in 1708.

There was also a brisk trade in the all-purpose farm and general



haulage vehicle, the car. The account books record the sale of complete vehicles and parts including solid wheels, axle-trees, bodies and shafts. Estate tenants were important customers. It was on such vehicles that timber for the Whitehaven shipbuilders was recorded to have been taken to Wicklow and bark taken to Dublin. Coach wheel spokes were also made.

Among the smaller products made in and sold from the coppice woods was a wide range of fencing material including stakes, rails, oak pales, hurdles, sheep pens, gate posts and gate bars. Parts were also made for farm implements notably plough beams, crosses and soles and handles for pitchforks and rakes. Chairbacks, stool legs and planks for cupboards and dressers also found a ready market. The smallest items derived from the coppice woods were wooden buttons, 'button mould timber' being sold on a small but regular basis.

#### SUMMARY AND CONCLUSIONS

The evidence presented here shows that by the end of the period in question more than 800 hectares of coppice wood were being managed in a fairly sophisticated way. Woods were not only preserved, they were extended and some new coppices were created through planting and the taking in of scrub woods. Standards of oak, ash and alder and mixed underwood dominated by oak and birch provided a wide range of commercial products. In the early eighteenth century there was a wide sales area and there is no reason to believe this later decreased in size: sales destinations were distributed widely in counties Wicklow, Kildare, Dublin, Carlow and Wexford and stavewood went as far as the Munster ports of Waterford and Cork. Oak timber for ships also found favour beyond the Irish Sea at Whitehaven in Cumbria. The coppice woods were also important creators of employment, not only directly through the recruitment of coppice keepers and woodmen, but also indirectly in the building industry, shipbuilding, tanning and iron manufacture in the local area and the wider region. They also stimulated the carrier trade to the extent that an observer in 1732 wondered what local car men would do 'now all the woods are fallen'.

Income for the estate from the coppices in Shillelagh, Cashaw and Rathdrum was considerable, easily taking care of the costs of administering that part of the estate and thus turning the rents from gross income into net income and still returning a sizeable profit. For example, in the 1714-20 period gross average annual income from the Shillelagh, Cashaw, Rathdrum and Kildare parts of the estate was £7,805, of which almost exactly half came from rents



and half from sales of timber, wood and bark. Average annual outgoings during the same period were £1,250.

Were the Watson-Wentworth coppices unique in Ireland? The answer is emphatically no, though such woodland management was undoubtedly not common. It is stating the obvious to say that more light from primary sources needs to be shed on the extend, form and significance of coppice management in Ireland.

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