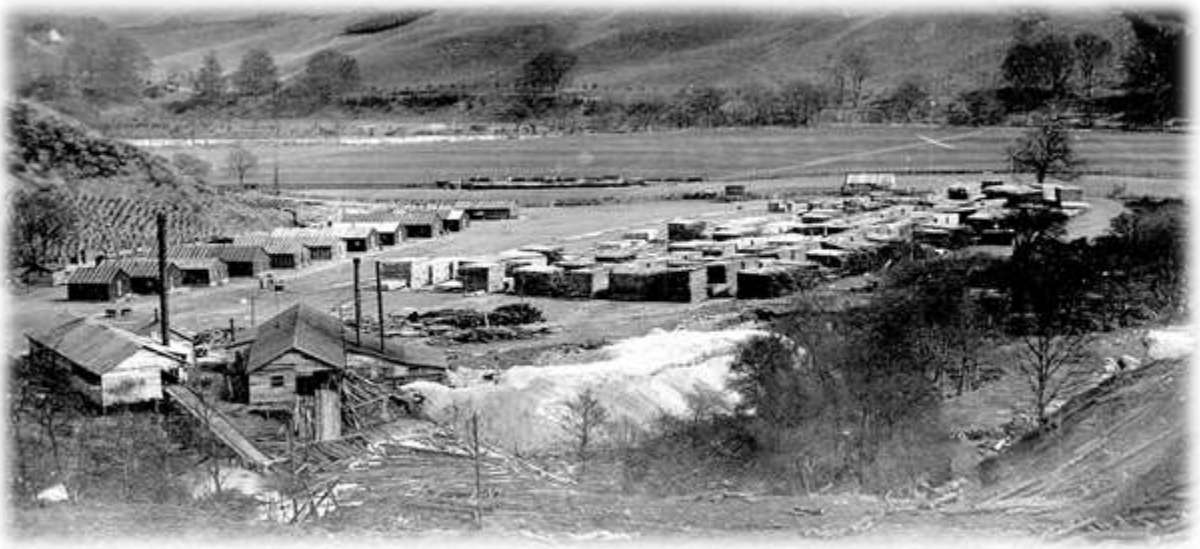
SCOTTISH WOODLAND HISTORY CONFERENCE

NOTES XXI

Policies & products through the ages: the role of the state and private interests



TWENTY FIRST MEETING

FRIDAY 18TH NOVEMBER 2016

SCOTTISH NATURAL HERITAGE CENTRE
BATTLEBY, PERTH

A C K N O W L E D G E M E N T S

The Native Woodlands Discussion Group is indebted to the undernoted for their sponsorship and help in making the 21st meeting of the Scottish Woodland History Conference a success:

Edited by Mairi Stewart

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In 2016, the NWDG Scottish Woodland History Conference (*formerly the Scottish Woodland History Discussion Group Conference*) was organised by Mairi Stewart and Noel Fojut with the administrative support of Alison Averis. We are grateful to all those who helped to make the conference a success including our sponsors, chairpersons, speakers, helpers and delegates.

Front cover illustration: The First World War Newfoundland Forestry Corps Camp at Craigvinean, near Dunkeld (© Grand Falls-Windsor Heritage Society)

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The twenty first annual meeting of the NWDG Scottish Woodland History Conference was held at Battleby on Friday 18th November 2016. The following papers were presented

INTRODUCTION

Mairi Stewart

The twenty first annual conference of the NWDG Scottish Woodland History Discussion Group took place at the Battleby centre, Perth, on 18th November 2016 with about 80 people attending. The conference – *Woodland Policies and Products through the Ages: the influence of state and private interests* – marked a return to the recurring theme of "woodland policies and products over time", focussing on the products that the policies of each era were intended to promote and the role of state and private interests.

Richard Oram, whom we have been eager to include on our programme for some years, was the first speaker of the day. Richard, a mediaeval historian, is probably best known for his work on Scotland's historic landscape and environment. He spoke about the laws and policies put in place by successive kings of Scotland to control woodland use and management. However, pointed out that this was only part of the story and that 'public' policy was directed at a largely 'private' resource, even if a significant portion of that resource was on crown land.

Anne Crone's work on the archaeological evidence for key products in the middle ages and early modern period dovetailed well with Richard's talk. Anne gave an illustrated account of the dendrochronological (tree-ring) evidence for the tree species used in Scottish buildings and other timber constructions such as boats. Native, home-grown oak and pine were used until the 15th century, but by about 1450 there was increasing evidence of imported timber in Scottish buildings, initially from England and France but later from the Baltic countries, Scandinavia, and finally North America.

Attention then turned to the influence of the Enlightenment when the contrasting influences of reason and delight were at play. Jackie Lee, an historian who specialises in heritage interpretation, suggested that much of the large-scale tree-planting in Enlightenment Scotland was done, as a sort of sylvicultural one-upmanship, by landowners anxious to be seen by their peers as exemplary improvers. This was augmented by the new merchant classes, whose great wealth, often accumulated on the back of the slave trade, allowed them to acquire country estates, setting about 'improvements', including tree planting. All of this, it seems, was part of an endeavour to gain power and status and have their offspring marry into the aristocracy.

After lunch, Scott Wilson spoke about the military use of timber through history, from fortified buildings to ships and railways, and from simple fuel to the establishment of alder plantations for producing charcoal to make gunpowder. In a clearly laid out account of developmental periods, Scott gave an account of the significance of war on how woods were managed – something that re-occurred in the 20th century – especially the demand for naval timber during the Napoleonic wars.

Syd House led us through background to the formation of the Forestry Commission in 1919, which had a huge impact on 20th century woods and forests. Syd described the use of timber during the Great War, when a vast supply was needed to create the infrastructure for trench warfare, at a time when existing UK supplies were inadequate, and the presence of German U-boats restricted the amount that could be imported. He explained how the Forestry Commission was established in order to ensure a better supply of home-grown timber. Syd's historian son, Euan, has provided an account for these *Notes,* which excellently covers the subject matter of Syd's presentation.

Our final talk of the day was from Andrew Barbour, whose family have long held lands in north Perthshire. Andrew gave an insightful and personal account of how state policy influenced two Perthshire estates of contrasting size, Atholl, and his family estate of Bonskeid. Andrew discussed how, over the course of the 20th century, changes in policy affected these estates, including the effects of forestry policy, hill farming legislation, forestry and woodland grants schemes, conservation legislation and the perennial problem of

[1] The introduction is based on a summary which appeared in the Spring edition of the NWDG Newsletter, written from notes taken by Alison Averis and information from Coralie Mills – to both of whom the editor is grateful.

making ends meet. Andrew drew attention to the unique private/ public partnership that developed in the field of forestry by the end of the 20th century, a development which he feared was not sustained into the present century. It seems there remains the ongoing issue of disjuncture between policy and practice, essentially about how intentions for the long term are often subverted by circumstances.

The sessions were ably chaired by Coralie Mills and Noel Fojut and included the usual vigorous and productive discussions. Many thanks to Scottish Natural Heritage staff at Battleby for their excellent conference facilities, and to all delegates for supporting this event.

My thanks also to Noel Fojut for scrutinising the various drafts of the *Notes* and generally being supportive in the woodland history conference planning process.

Public Policy and Private Practice: Protection, Management and Development of Scotland's Woodland Resources from the 12th to 17th Centuries

Richard Oram

Any essay which focuses exclusively on parliamentary legislation concerning the protection, management and development of trees, woodland and planting in medieval Scotland would be very brief. For most of the Middle Ages and into the modern era there was nothing that could be classed as formal governmental 'policy' in respect of trees and woodland in the sense that we understand the term, other than legislation set in place in response to mounting difficulties in obtaining domestic supplies of building timber and firewood. Limited legislation, however, does not mean that there was no concern for the subject, and there is an abundant body of non-parliamentary record evidence to show that protection of growing timber and management of the resource was of major interest to landholders and tenants throughout the kingdom across the whole of the period examined in this paper. Such sources reveal that woodland was of significant concern long before the first protective legislation in the fifteenth century, but they also reveal that the primary questions were matters of simple possession of the trees for their personal use and exclusion of others from access to them rather than any notions of planned management of a resource for sustainable use. While there can be little doubt that sustainable management techniques like coppicing were indeed being practiced across these five centuries, for most of that period decisions about their protection, management and development were mainly personal or corporate, local ones rather than the result of national directive policies.

The legal framework within which trees and woodland were set viewed them essentially as items of property attached to the land on which they stood and, accordingly, assets that were disposable or retainable at the will of the landholder. In the case of common land, all men who held rights in the common resource could exploit it, but their exploitation was still governed by those laws that related to common property. Over-use was responded to by fines which gave monetary compensation to other users for the loss of their share of the common resource, but the level of fines seems to have been no real deterrent and to have reflected actual value of the asset as a commodity instead of projecting the loss forward against potential wider economic benefits from the woodland resource more generally. Most protection for trees, therefore, fell under the remit of the laws of property and treated damage such as barking or peeling, illegal fuel-gathering, unlicensed clearing and so forth as criminal acts against items of real, privately-owned property. In essence, the individual trees or the woodland itself was seen as having no other character than as an extension of the land upon which they grew and as an asset attached to that land. Protections afforded to the trees, therefore, were at most incidental to any deterrent effect of penalties for criminal damage and property theft.

Throughout the succession of assizes or law-codes attributed to kings David I and his grandson, William, rights of possession of and protections extended to property – moveable and immoveable - were expressed in fairly general terms. The laws do not name specific property types or commodities, but there does seem to have been common understanding of what those terms encompassed, and this probably reflects widespread awareness of property rights as expressed in traditional laws. The generality of property types is perhaps best illustrated in the ritualistic jingle of subject matter listed in the charter formulae that had developed by the middle of the twelfth century. These were commonly expressed in some variant of 'in woods and plain ground, in waters, in meadows and pastures, in moors and marshes, in pools and mills, and in all other easements pertaining to [the land in question]'. Such broad categories were intended to be comprehensive, making it clear to all that everything that could be associated with these generalities was accommodated within an award of possession under the single, broad heading. A grant of woods, therefore, unless qualified by a burden or servitude due to others, was understood to encompass exclusive possession of all of the green and dead wood, the bark of the trees as much as the wood, the fruit of those trees, both on the branch and on the ground, as well as the under-storey of scrubby species and herbs, and all rights to wood pasture, within

the land specified by the charter. How the recipient chose to exercise his rights over these items of property was, again subject to any burden, servitude or restriction, entirely at his discretion.

When written charters begin to survive in significant quantities during the reign of King David I (1124-53), we can also see woodland being treated as discrete entities in transactions and not simply as a component of a wider grant. Early in David's reign, for example, he granted his clerk Nicholas 'the whole of that wood (*nemus*) which is within the bounds of that land which Syrand the priest held of me before him in Pettinain' near Lanark, setting it to Nicholas in forest ferme (Innes (ed), 1847, no.48). Nicholas received only the woodland, with the exclusive right to the hunting within it, and all other (unspecified) rights pertaining to the woods. David's clerk may well have enjoyed the hunting afforded by this element of the king's forest land around Lanark, but we can suspect that it was from the other sadly unspecified rights that he benefited most. The 40s fine levied against those who hunted there or who otherwise disturbed Nicholas's possession shows that there was a framework of legal protections which secured him in these rights, unrehearsed in detail because the laws of property were probably well-enough known and sufficiently broad to accommodate the types of threat likely to face woodland and its owners at that date. It is only as those threats grew and woodland became a scarcer resource in the later twelfth and thirteenth centuries that greater specificity of the protections began to be articulated in records.

A separate body of laws which afforded woodland a degree of protection, but one which still treated trees as elements within a wider category of property, was Forest Law. In England, it was the efforts to preserve the *vert* – the green vegetation growing within woodland that provided cover for deer – that constituted one of the chief mechanisms for woodland protection down to the Tudor period. In this context, the protection stemmed from the landholder's rights to hunt on his lands and to manage his woods in a manner designed to maximise the effectiveness – and enjoyment – of the hunt. Woodland management in this regard should be seen both as an extension of hunting activity and also, as with wider property laws, as curation and value-realisation of an item of real property. Scotland's twelfth-century forest laws were in origin largely an importation of English forms, with additional modifications made following English models in succeeding centuries down to the 1400s (Gilbert 1979, 244, 247). Again, the safeguarding of vert in Scottish forest law was intended primarily to preserve the cover utilised by hunted game. That it had the consequence of protecting a commodity whose value increased as the Middle Ages progressed was a secondary outcome.

Pressures on woodland which can be detected in the charter evidence and pollen record increased steadily through the later twelfth and thirteenth centuries as the more benign conditions of the medieval climate anomaly combined with an expanding population to bring more land into intensive agricultural use and more wood and wood-related products was consumed. Landscapes of clearance, such as we can see in Lauderdale and Wedale, saw extensive assarts into what had been wood and scrubland, with the woods reduced to ribbons of trees separating blocks of cleared ground. Such a position can be seen by 1164 at Colmslie, where the canons of Dryburgh conceded possession of that property and 'the wood which divides the clearing of Colmslie from a certain other clearing' to the monks of Melrose (Innes (ed) 1847, no.80). Here, a dispute over woodland property was resolved by a straightforward composition which addressed the needs of both monasteries, but in the same rapidly clearing landscape possession of dwindling woodland resources could be more fiercely contested. Such appears to have been the case at Bemersyde, whose lord, Peter Haig, was involved in litigation with Dryburgh over possession of the appropriately-named Threipwood, which appears to have been a block of woodland (*nemus*) separated from the larger Flatwood by the high road through his property (Innes (ed) 1847, nos 133-5). Again, however, although the nature of the litigation is not detailed in the surviving records, the dispute appears to have been a question of property pursued under property laws through the secular courts.

Despite what appears to have been an increasing volume of litigation involving woodland and woodland rights through the thirteenth century there is no evidence that it was thought necessary to frame new legislation specifically to deal with trees; property laws were evidently considered adequate and appropriate to the task, and so it continued into the 1400s. No pre-fifteenth-century Scottish legislation exists to provide any insight on what might be regarded as an emergent royal 'policy' towards trees or woodland more generally, but that is not to say that there is no evidence for what might be described as political concern for matters directly related to them. This concern manifest itself in the first decade of the thirteenth century in

respect of the supply of wood to Scotland's burghs and arose from what can be inferred to have been deficiencies in the volume of building materials and firewood delivered from managed woodland resources within the burghs' common lands. Where burghs were not planted within already agriculturally developed areas the establishment of a new community might entail extensive clearances, as in the example of the six acres of land to be cleared from the brush (*boscus*) for each burgess's toft granted to the burgh of Ayr by King William (Cooper (ed) 1883, no.1), with further inroads on the woodland resource arising from the colonists' fuel and materials needs. There is no surviving evidence for how exploitation of these common resources was regulated or policed, but perceptions of a free-for-all 'tragedy of the commons' situation should be counterbalanced by indications of coppice-management of woodland on burgh land. Physical growth, however, meant that demand may soon have outstripped the capacity of managed resources to supply community needs. The pressure for action to address this situation came certainly from burgesses, to whom any shortage of such materials posed a potentially devastating economic threat that affected all aspect of burgh life spanning commercial processing activities and domestic routines to the built environment in which these functions were performed. Probably capitalising on King William's need in the period 1209-12 to raise large cash sums rapidly, the leaders of several east-central Scottish royal burghs secured the expansion of their communities' legal and economic privileges and the enshrining of these royal concessions in a fresh royal charter. The best-known of these charters, that granted to Perth in 1209, contained amongst other new clauses one which extended the king's firm peace to all men who brought timber and firewood into the burgh for sale (Barrow (ed) 1971, no.467). These were the only commodities identified so specifically in any burgh charter of this period. Perth's privilege has attracted much discussion but it was not, however, unique, for a similar clause was contained in Alexander III's 1285 re-confirmation of the burgh privileges of Lanark and Robert I's 1318 charter to Haddington (Neville and Simpson (eds) 2012, no.163; Duncan (ed) 1988, no.142), both apparently *verbatim* rehearsals of earlier William I charters.

That urban communities saw protection of timber-suppliers as an essential extension of their burgh's economic privileges that was desirable to enshrine in a revised royal charter shows understanding of the threat to their economic wellbeing posed by wood shortages. We lack price records to provide a market context for these acts, but the high value of wood is unquestionable, as illustrated by the regular gifts of oak building-timbers from royal or lordly demesne woodland to ecclesiastical institutions and noble favourites throughout the thirteenth century and beyond. The concern which drove these charter extensions, however, was one of maintaining access to an in-demand commodity and not of safeguarding – let alone of regenerating and extending - the sources of that commodity. King William's concessions effectively represented a liberalisation of trade which encouraged owners of woodland assets at a distance from burghs to increase the exploitation of their resources through commercial supply of materials to burgh markets.

The perception of unregulated exploitation of woodland which the above document creates is difficult to counteract, but there is also early thirteenth-century charter evidence for royal efforts to protect such resources. In April 1236, King Alexander II issued a feuferme charter to the burgh of Ayr of the five pennylands of Alloway, Corton and Carcluie in which the burgesses were prohibited from burning, alienating, selling or in any way destroying the growing timber on that land but permitted to take what was needed for the burgh's buildings and ships (Cooper (ed) 1883, no.5). This, however, was not a conservationist measure directed at addressing wood shortage; it was the straightforward protection of a feu-superior's asset from over-exploitation by the feufermer. The same principle can be seen half a century later in a 1282 Perth mortgage arrangement, where the lender received possession of the borrower's woodland as security against a loan of 20 merks, but with the latter retaining felling rights in the greenwood for his personal needs while the former had only rights to fallen or dead wood (National Records of Scotland GD86/3). On redemption of the loan, the borrower intended to resume full possession of an unwasted asset. The legal protection for the borrower was the laws of property which constrained the activities of temporary possessors of any form of real property from wasting it in any way that would injure the future value or benefit from it to the true possessor.

So, what changed that traditional position? The promulgation of law is reactive and remedial, made in response to already prevailing circumstance as a corrective where some condition has arisen that is perceived to constitute an ill or injustice. That laws directed specifically at matters relating to property-rights in woodland required to be enacted in the first half of the fifteenth century indicates that the existing generalised

laws of property that had developed three centuries earlier no longer provided adequate protection to property owners. It might also reveal that there had been a change in the nature of challenges to property rights and an increasing level of threat to that property type. The first surviving legislation from Scotland which has trees as its subject matter provides us with a clear view of an understanding of them as items of property. In the March 1425 parliament of King James I, two acts were passed which both addressed aspects of wood thefts. The first instructed the justice clerk, when he received indictments, to make specific inquiries about men who steal green wood, or peel the bark from trees, so destroying the woods. Anyone who was convicted of such a crime was to pay a fine of 40s to the king for the unlaw, and also make reparation to the owner of the trees (Brown et al (eds) 2016, 1425/3/11). This was a significant level of fine and was clearly intended to be punitive and preventative. That it was paired with a second act concerning the discovery of stolen wood in the land of another lord and provision for the return of the wood and for the trial of the trespasser in the court of the injured party (Brown et al (eds) 2016, 1425/3/12), indicates that there was a newly significant and growing problem of damage to and thefts of green wood. The second law hints at some general deficiency in wood supplies, but, as this seems to have been a problem for much of Lowland Scotland since the later twelfth century, there is likely to have been a recent change in the intensity or nature of the pressure on the resource. The texts of the two acts are not forthcoming of the reasons for their promulgation in 1425 but it is possible that the climatic deterioration that had occurred since the middle of the fourteenth century, which saw colder and wetter weather become more common, had seen mounting demand for wood as access to adequate supplies of dried peat became more difficult.

James I's 1425 laws, although constituting the first clearly-articulated legislation that had wood as its specific subject-matter, were still framed in terms of property rights and possession. It was another generation before the question of planting was addressed directly in a parliamentary act. The 1544 English Statute of Woods attempted to institute a form of management plan for coppices and is regarded in England as 'effectively the first legal formalisation of silviculture' in that kingdom (Johnston 2015). The absence in England until the middle of the sixteenth century of formal legislation concerning woods is likely to have arisen from the higher level of accessible and better-managed woodland resources in that kingdom than in Scotland throughout the medieval period. That the first Scottish act which aimed directly at stimulating woodland plantation was agreed nearly ninety years before the English statute presumably indicates that despite the presence of a tradition of wood management including widespread coppicing, demand on the woodland resource in the most intensively cultivated and heavily populated parts of the kingdom far outstripped the capabilities of the accessible sources in terms of supply.

The Scottish act, issued on 6 March 1458 in King James II's Edinburgh parliament, was the first parliamentary legislation anywhere in Britain concerned explicitly with encouraging the planting of woods, and also planting of hedges and sowing of broom (Brown et al (eds) 2016, 1458/3/28). Although its subject-matter is clear, like all earlier legislation it is studiously vague in setting out how this new policy was to be implemented. It is far from prescriptive, stating simply that the lords of parliament had deemed it profitable that the king charge all his freeholders, both spiritual and temporal, that when making new tenancy agreements they were to require their tenants to 'plant woods and trees and make hedges and sow broom after the quantity of their mailings in places convenient'. The only reference to enforcement was that the landholder could apply 'such pain and unlaw as [they] shall modify' to tenants who failed to adhere to this requirement, the fruits of those sanctions presumably being the incentive on the landholders' part to apply the act rigorously and on the tenants' part to comply with that demand.

In common with most Scots laws where the subject-matter was property, the 1458 act empowered landholders to take particular action but it did not obligate them to do so. Neither king nor parliament wished to create circumstances which could be viewed as interference in heritable private property and jurisdictional rights and the freedoms of the landholder to deal with those properties and rights as they best saw fit. As with much legislation in a kingdom where legal franchises were widespread, this was effectively an enabling act which the holders of regality, barony and free forest jurisdictions could apply as rigorously as they chose. With the rights to exercise the jurisdictional powers contained within the law delegated to men across the kingdom, the crown was here providing a carrot to landholders to address a problem which was widely recognized but the only stick was for landlords' use, being wielded against tenants who failed to comply with the terms of their leases. The act, therefore, was only as effective as the landholders who chose to apply

it, tempered always by the judgement of the tenants as to whether the likely penalties to be levied against them would be costlier than the burden of making the plantations. Such considered trade-offs must have been manifold across the kingdom, but they have left little visible trace in the historical record from the later fifteenth century.

What effect might the 1458 act have had on landlords' policies towards planting on tenanted property? Although it is not referred to specifically, there may be some correlation between the passing of the legislation and the appearance from the 1460s in lease terms of specific requirements to plant trees. In what look very much like later 'improving' leases, dated June 1468, the monks of Coupar Angus stipulated that their tenants at Aberbothrie, Cotyards and Coupargrange were to plant ash trees and osiers or willows on the land. (Rogers (ed) 1879, vol 1, 141-2, 150). It was only in 1472, however, that there is reference to tree-planting on tenanted lands as being an ordination of the statutes of the abbot's court (Rogers (ed) 1879, vol 1, 163). Frustratingly, the surviving record does not reveal if the abbot was using the powers afforded him by the parliamentary legislation. By 1472/3, Coupar Angus leases were requiring the tenants to provide the trees with 'hanyng and defens'. (Rogers (ed) 1879, vol 1, 164-5, 166-7), perhaps indicating that the first plantations had been unenclosed and suffered through grazing or illicit wood-cutting by third parties; a 1472 lease required the planting of hawthorn to form the hainings around the tree-plantations, following the 1458 act's terms . (Rogers (ed) 1879, vol 1, 162-3). At Middle Drimmie north of Rattray, the tenant was to put the land to 'al polici efter her pouar that is to say in biggyn and plantatioun of treys, eschis, ozaris, and sauch, with hanyngis and defens of thirs', while at Cotyards in 1473, in addition to the trees, the tenants were to plant broom parks – a second stipulation of the 1458 act - and orchards 'with hanyng and defensuris of the said plantacionis' (Rogers (ed) 1879, vol 1, 167, 171). Enclosures to protect woods from any form of encroachment or damage was nothing new, a 1425 Melrose perambulation describes a 'bra and dyke' with a 'yet closand and opynand for the caring of tymmer' around a wood belonging to the canons of Dryburgh (Romanes (ed) 1917, 224), and which had already existed in the thirteenth century. Such enclosures, however, seem to have been the work of landlords to protect valuable components of demesne resources; the fifteenth century legislation was shifting the obligation to protect plantations onto the tenants who were being made responsible also for planting the trees. The key word in the leases is 'policy', which in this context appears to mean 'improvement'. For the monks of Coupar Angus, planting of trees and broom and provision of hawthorns for fencing or hedging were seen as measures to increase the quality and value of their properties. The fragility of that improvement in a wider environment where growing timber of any size was a coveted resource, however, might be reflected by the sudden inclusion from 1472 of protective requirements into the lease formulae. For the 1458 act to have had a measurable impact, landlords in general would have required to have been as proactive and responsive as the abbot and convent of Coupar Angus.

How widespread was landlord responsiveness and, consequently, the effectiveness of the 1458 act as an instrument of change can perhaps be measured in the need for a restatement and expansion of its provisions in an act of King James V's 1535 parliament (Brown et al (eds) 2016, 1535/16). This piece of legislation was much more detailed than the earlier act, in part reflecting the growing reach and intrusiveness of parliament into areas where the public and private spheres overlapped. It provided a clear exposition of what it described as the 'policy to be had within the realm' in respect of planting of woods, making of hedges, orchards, yards and sowing of broom. Beginning with a restatement of the 1458 act and subsequent ratifications by James III and James IV, the 1535 act called for all earlier provision to be 'observed and kept and put to sharp execution in all points'. It went beyond simple restatement, however, making the additional requirement that 'every man spiritual and temporal within this realm having a hundred pound land of new extent per year, and may spend so much, where there are no woods or forests, he should plant woods and forests and makes hedges and enclosures for himself extending to three acres of land, and above or under as his heritage is more or less in places most suitable'. In short, the landlords were themselves being encouraged to make planting on their demesnes, taking direct personal action to do so rather than off-loading responsibility onto their tenants. James V's parliament had presumably recognized that the original act's enabling powers had been relatively ineffective in securing the desired result. Under the 1535 act the landlords still had the power to require their tenants to plant trees, being empowered to 'cause every tenant of their lands that has the same in tack and assedation to plant upon their dwelling-site yearly for every merk land one tree'. Failure to comply, however, was to be judged against the lord, not the tenant, with a pro rata fine of £10 (with the norm being a £100 land) being imposed for each failure. Again, unlike the 1458 act,

the James V legislation set in place monitoring processes, empowering the king to make an annual inquisition into compliance and ordering all men to begin planting from the next season. The inquisitions and collections of the resulting fines were to be undertaken locally by sheriffs, or whoever held crown delegations of jurisdictions, with the process being repeated annually and applied through the Easter head-courts of each shire.

Given James V's reputation for rapaciousness and extortion, this act could be dismissed as another example of his revenue-raising efforts. Again, in the case of Coupar Angus, the monks appear to have adopted its terms swiftly into their own lease-making arrangements. The general language of the agreements remained much as they had since the 1460s, instructing tenants to plant ashes, osiers, and willows, and protect them adequately with 'defensouris' (Rogers (ed) 1879, vol 2, 7), but from 1541 the clause relating to these plantations referred to both 'the actis and statutis of our courtis and actis of parlyament' (Rogers (ed) 1879, vol 2, 14, 17, 19). The date correlation between the James V act and the change in lease language is suggestive and points to the new legislation as having greater effectiveness as a mechanism to require planting. That the leases also explicitly referred to the fines that would be imposed for breaches of the acts indicates that it was the coercive weight of the 1535 act that was valued by landlords and which truly differentiated it from its 1458 predecessor. Its impact, however, appears to have been short-lived if the Coupar Angus rental agreements are any indication of more general practice; by the 1550s all reference to the 1535 act and its associated penalties had vanished from new leases.

The 1535 act was strengthened in 1607 by a new act designed specifically to safeguard particular forms of property and to improve the process for actions against men who damaged such property or allowed it to be damaged (Brown et al (eds) 2016, 1607/3/17). The preamble stated that 'considering how woods, parks and all sort of planting and fencing decay within this realm, and how dovecots are broken, bees stolen, men's proper lochs and ponds despoiled of fish, to the great hurt and prejudice of the country and decay of policy', the new act was designed to ratify and approve all previous parliamentary legislation which aimed at their conservation and instructed that they were to be applied rigorously. Going beyond the 1535 act, which placed enforcement in the hands of jurisdictional franchisees and sheriffs, law-breakers were to be called either before the privy council or the ordinary magistrate, at the option of the complainer. The penalty that could be imposed by these two levels of tribunal differed significantly and it was clearly intended that the former, whose fines were likely to be in excess of £40, should deal with major disputes between landlords themselves, whilst the ordinary magistrates were to deal with more minor contraventions of the act. Surviving court records suggest that the level of action raised under the terms of the 1607 act was generally low and could simply involve claims over single trees or generalised damage which occurred as a result of uncontrolled grazing by the defendants' livestock. At Melrose in 1608, for example, Willie Boustoune in Gattonside was fined £6 10s – described as the value of one ash tree – to recompense Alexander Admson in Bowden for his loss (Romanes (ed) 1914, 65). For the most part, the levels of fine remained so low that the charges seemed more like enforced belated payment of the true value of the property taken or damaged than punitive impositions designed to deter future infractions.

In conclusion, by the beginning of the seventeenth century legislative remedies existed which, if applied rigorously, could have brought about significant expansion of Scotland's woodland resources as an act of public policy. A tension still existed, however, between the earlier medieval legal position, where woodland was an element of private heritable property, matters in which both crown and parliament were reluctant to begin to interfere, and a more modern view of woodland as a public resource whose extent and well-being were matters of general concern as being of benefit to the kingdom as a whole. The transition in thinking can be traced from the mid-fifteenth century, but the 1458 act should be seen as a response to pressures from landholders and their estate-managers, establishing as national policy procedures which are likely to have been already practiced on some properties. Enforcement was the key, however, and the 1458 act remained as effective as the will of landlords to implement it on their properties and take the steps to apply it rigorously. The subsequent 1535 and 1607 acts represent a scaling-up of the mechanisms for enforcement and mark a transition from the laissez-faire medieval mind-set in regard to private property towards the renaissance view of interventionist government working for the wider public good. There was still a long way to go before capitalism, mercantilism and enlightened thinking entrenched the vision of expansive woodland as a 'good' that was both public and private, economic and social, but the ground had been prepared.

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Buildings & Boats; The Tree-Ring Evidence for Woodland Products

Anne Crone

Introduction

The span of my evidence largely coincides with the same period discussed by Richard Oram – 12th to 17th century – and the title indicates the main sources of my evidence. There are actually only two boats referred to in my paper, but they bookend the data – one at the beginning and one at the end.

As you all probably know, dendrochronology is a technique, which is used primarily for producing exact calendar dates for the felling of timber, and by implication dating the buildings or sites where the timber was used. But in that process, dendrochronology can also produce other information and it is the interpretation of this information which forms the basis of my talk.

One of the most important by-products of the dating process can be the ability to identify the source of the timber, a process known as dendroprovenancing. All across Europe there is now an extensive network of regional master chronologies and it is standard procedure to compare your data against all available master chronologies. The stronger the statistical correlation with any regional chronology, the more probable it is that this is the region from which the timber came. In the case of the oak timbers from Stirling Castle, for example, there is a strong statistical correlation with regional chronologies from southern Scandinavia, i.e. Sweden and Denmark.

The analysis can also reveal something about the quality of the timber being used, and thereby something about the woodland it came from. What was its biological age at felling, i.e., was it young or old? Was it fast- or slow-grown? And of course, the wood species is critical. There are only two species used to any extent in dendrochronology in Scotland, oak and Scots pine. This is because throughout our history and prehistory, one, then the other, was our principal building timber.

Native timber AD 1200 - 1500

In Figure 1 each bar represents the chronological span of a tree-ring chronology from a building or archaeological site. Many more buildings and sites have been dated since this diagram was compiled but nonetheless, it still shows the broad trends in timber exploitation in Scotland from the 12th century to the early 19th century.

What it shows is that, until the 15th century, Scotland was able to provide all the timber it needed for building. All the white bars represent sites or buildings which have used native grown oak. This group are all from archaeological excavations in Aberdeen, Glasgow, Perth and Inverness. They probably represent major building episodes, following the establishment of the early burghs in the mid-12th century.

Throughout the 13th and 14th centuries native oak was used in buildings such as Caerlaverock Castle, Glasgow Cathedral and Darnaway Castle, all high-status buildings, where one might expect that the owners had access to mature oak woodland. We also have more prosaic examples of the use of native oak at this time; these include plank-lined wells excavated in Elgin, the oak for which was felled AD 1301, and timber-lined pits in Aberdeen, each of which have produced felling dates in AD 1200/1, AD 1209/10 and AD 1281/2.

The first of the boats referred to in the title is the logboat discovered in 1874, in the River Conon, near Dingwall. It was recently rediscovered, in pieces, in the National Museum of Scotland stores and reunited digitally. This proved to be a medieval logboat, with the added status of being the most northerly oak to be dated in Scotland. Dendrochronological analysis dated the outermost surviving ring of the logboat to AD 1273 so it was probably fashioned in the late 13th/early 14th century AD. It had been made from a mature oak tree which was around 300 years old when felled. The date fits well with the wider picture from Britain

and Ireland, where the majority of logboat dates fall into the Medieval period and prehistoric examples still remain relatively rare.[2]

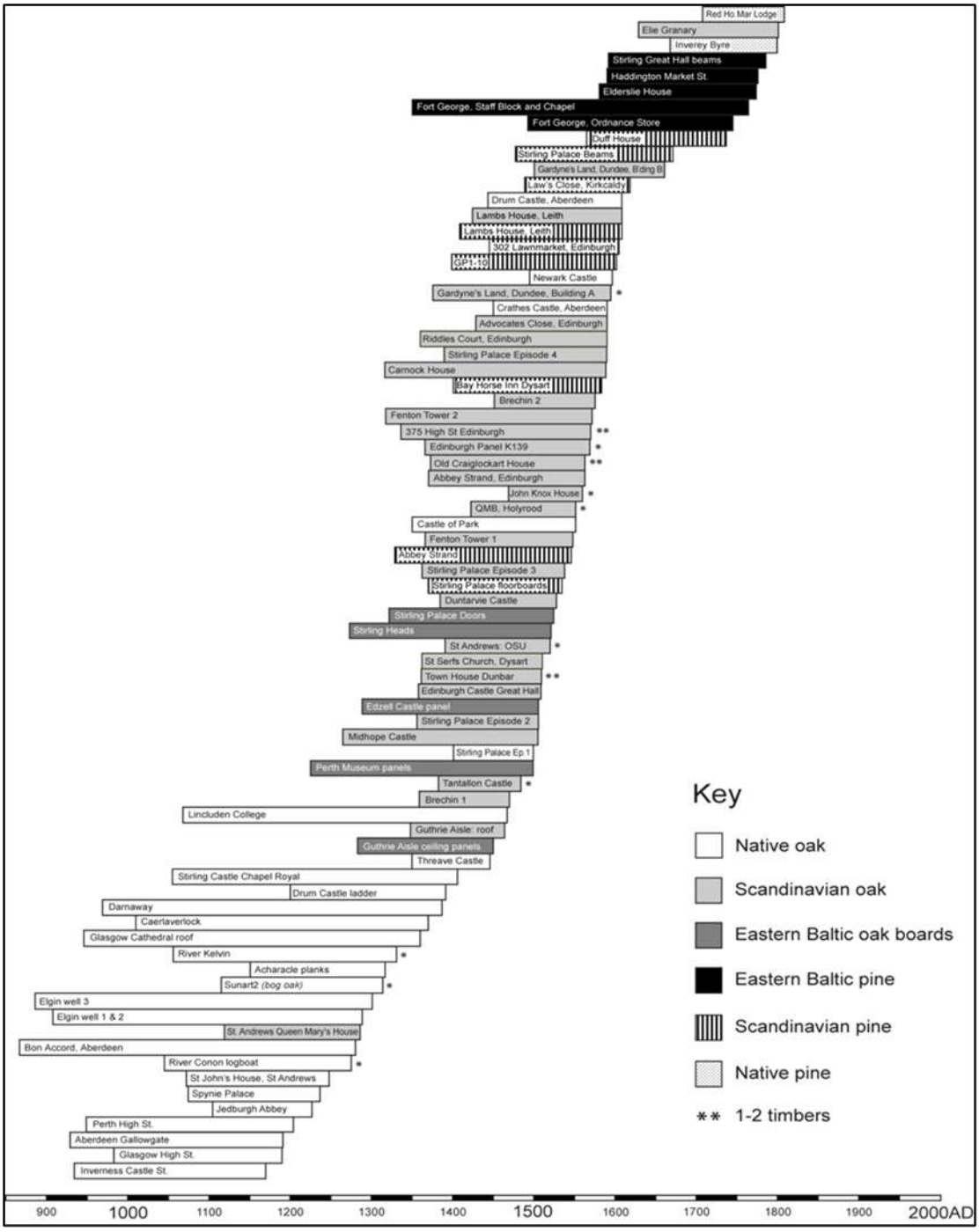


Figure 1: Dendrochronological evidence from Scotland from the 12th century AD to the early 19th century AD (source: author)

The dendrochronological evidence provided in Figure 1 also tells us something about the quality of oak timber that was available in Scotland up until the 15th century. The length of the bars indicates the great age of the oaks used in these buildings. Some of the oak used to line the Elgin well were over 355 years of age, when felled in the early 14th century and, even in the early 15th century, there were still oaks of that age available for the builders of the Chapel Royal at Stirling Castle.

[2] http://www.aocarchaeology.com/key-projects/river-conon-logboat/.

Coralie Mills has pointed out that the use of such mature oak does not reflect well on forestry practice in Scotland at the time. It hints at the use of whatever was to hand without much thought for management. This is in contrast to English practice where younger oak, probably from managed woodland, is more frequent at this time.

Work in Ardnamurchan, on the west coast, has perhaps given us a glimpse of forestry operations there in the 14th century. A group of planks were found in a peat deposit in Acharacle; three of which came from the same tree, which had been felled in 1318 AD. An oak log found in a bog further up Loch Shiel produced a similar date. We have speculated that these timbers might represent 14th century forestry operations; the oaks fringing the loch being felled and rafted to Acharacle, where they were then converted into planks, before being taken down the River Shiel for shipment to other parts of Scotland.

Imported timber pre-AD 1500

We do have evidence for some foreign imports into Scotland before AD 1500. For example, we have now dated a handful of barrels from urban excavations throughout Scotland, from Perth, Irvine, Aberdeen and Edinburgh. These had been used to line either wells or pits and hence survived below the water table.

What is interesting is that they are all imported. Many of them came from northern France and were probably carrying wine but one of the barrels from Aberdeen came from Poland. This raises the question of why we are not finding barrels made of native oak, when all the aforementioned tree-ring evidence suggests that there was plenty of native oak with which to make barrels. Perhaps they were smaller in dimension and therefore not so useful for lining barrels & pits?

There are few documentary references to specific types of imports into Scotland before the late 15th century, but small amounts of timber and wood products were certainly being imported during the 14th century. However, dendrochronology has so far identified only a single example of imported structural timber before 1450. This came from Queen Mary's House, in St Andrews. Oak from this building was felled sometime in the early 14th century in the eastern Baltic, possibly Poland. This example illustrates the problems we have in interpreting the evidence – is this a rare example, a merchant trying out a new market perhaps, or do we only have a single example because of survival? Scotland has very few buildings that pre-date 1450, in which original timber has survived.

Native oak post-AD 1500

The Queen Mary's House timber was a hint of things to come. As Figure 1 shows, there is overwhelming tree-ring evidence that by the late 15th century native oak was in very short supply and, by the 16th century, Scotland was almost totally reliant on imported timber for its building needs, for high status buildings at least. As noted by Richard Oram (p.1), the Scottish Parliament was increasingly anxious about the state of the woodland resource and the reasons can be seen in the tree-ring evidence.

The quality of one of the last examples of dated, native oak, from Stirling Palace hints at what may have happened to the woodland resource. This is native oak felled in AD 1500, and subsequently re-used in the construction of the King's Bedchamber at the Royal Palace within Stirling Palace (see figure 2). It was relatively young and fast-grown, 80-100 years, at most. Most of the timber used in this room was even younger, and consequently could not be dated.

Figure 2: The King's Bedchamber, Royal Palace, Stirling Castle (© Historic Environment Scotland)

This was also the case at Alloa Tower, one the few 15th century buildings where the original roof was, and is, intact. Unfortunately, the oak used, which was mostly between 40-50 years old, was too young to be dated by dendrochronology. What both these buildings are hinting at is that the slow-grown, mature oaks seen in the earlier buildings were no longer available. It would appear that even the Crown could not source such timber. We have speculated that the oak used in Alloa might have been coming from managed woodland because there was a consistency of age throughout the timbers and this fits with the evidence that Parliament was encouraging the plantation & management of woodland around this time.

We see evidence for the fruits of these policies in later buildings, in Drum and Crathes Castles, in Aberdeenshire, as well as in Newark Castle, at Port Glasgow in Renfrewshire. These are rare examples of post-15th century Scottish buildings containing Scottish oak. In all these cases the oak began growth in the latter half of the 15th century, possibly planted by the landowners in response to parliamentary legislation.

At the mansion house of NTS-owned Drum Castle, in Aberdeenshire, native oak timber, felled over a period of years from AD 1603 to at least AD 1612, was used in the construction of the roof. This is one of a very few Scottish buildings of this date built with native oak, which probably came from the nearby forest of Drum. The oak is not high quality, generally around a century old, of small scantling with very irregular grain – twisted & curved timbers with lots of waney edge – strongly indicative of the need to get the maximum scantling from small timbers. The quality of this timber probably signals poor management of the forest in the previous century. An early 17th century documentary record shows Drum oak being bought by shipbuilders in Aberdeen, and it may be that the best oak was sold, and what was left was kept aside and used in the castle rebuild.

Native oak has also been identified in two later 17th century buildings – Hamilton Palace and a building in Jedburgh – but, apart from these rare examples, the bulk of the timber used in Scottish buildings throughout the 16th, 17th & 18th centuries was imported.

Sources and types of imported timber

The findspots of imported timber in Scottish buildings is very east coast focussed, with a particular concentration around the Firth of Forth (Figure 3). This distribution is an artefact of the differential survival of historic buildings, but it also reflects the focus of development-led archaeological and historic building investigations over the last couple of decades. From the latter half of the 15th century and throughout the 16th century, we begin to see two main types of imported timbers appearing in Scottish buildings – beams and boards of both oak and pine – and what is increasingly clear is that certain regions specialised in particular types of products.

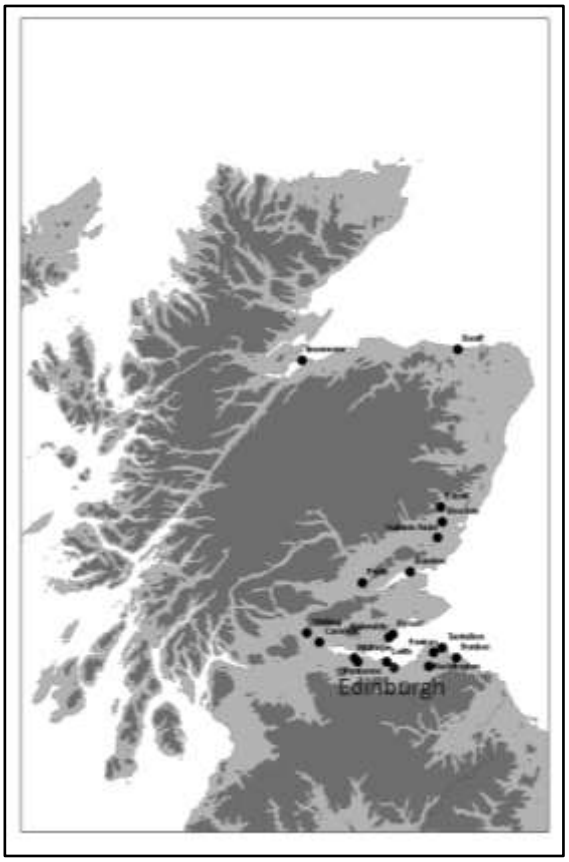


Figure 3: Locations where imported timber has been found in Scottish buildings

Eastern Baltic Oak

The countries bordering the eastern Baltic specialised in the production of oak boards, so-called 'Eastland' boards, so frequently referred to in documentary sources. Eastland boards were exported out of the Hanseatic ports of Danzig, Konigsberg and Riga, but the oak will have come from forests over a vast hinterland that included modern day Poland and probably as far east as present-day Belarus and the Ukraine. This type of slow-grown, fine-grained oak was favoured for carved and painted panels, for doors and probably for other types of panelling which have not survived. This type of timber was probably not imported because there was a lack in Scotland, but because it was ideal for the purpose, e.g., carving and ornamental panelling (see figure 4).

Figure 4: L to R: Edzell Castle panel (1517), at Stirling Palace doors (1533), The Stirling Heads (1530) (© AOC Archaeology Group)

Scandinavian Oak

It would seem that at this time, Scandinavia was the go-to place for workaday oak timber suitable for all types of general framing. Scandinavian oak beams have been found in a wide range of buildings, including the Guthrie Aisle in Angus, St Serfs Church, Dysart, The Merchant House, Brechin (figure 5) and Fenton Tower in East Lothian. In these buildings, the imported timber has been used mainly as rafters and joists. The beams were either squared logs or half-logs and were generally quite small in cross-section, like the timbers used in this roof in Brechin (see figure 5). Here, Scandinavian oak, felled in 1470, had been re-used in a 16th century house, which was also built with Scandinavian oak.

Figure 5: The Merchant's House, 68-74 High St Brechin ((© AOC Archaeology Group)

Some timber can only be ascribed to a generic Scandinavian provenance but as more data has become available, it has become possible to distinguish between Norway and southern Scandinavia, i.e., Sweden and Denmark. In fact, almost all of the dated 16th century buildings from Edinburgh and the Lothians contain Norwegian oak.

Pine

So far, the focus has been on Scandinavian oak, which we have only ever found as beams. However, the Norwegian records document that huge quantities of pine deals, or boards, were being exported from Norway to Scotland, as well as to the Netherlands.

Figure 6: Norwegian deals used in a painted ceiling from Abbey Strand (© AOC Archaeology Group)

Norwegian pine deals first appear in Scotland in the 1530s, which coincides with the development of a peculiarly Scottish phenomenon in architectural design – painted board-and-beam ceilings. This fashion for painted wooden ceilings did not develop anywhere else and, with a few rare exceptions, it is not seen in

England or in mainland Europe. We have speculated that the arrival of this new commodity stimulated the development of this fashion; the wide, regularly-sawn boards offering a good medium for the application of painted decoration.

We have less dendrochronological evidence for the 17th and 18th centuries, but what there is tends to reflect the historical evidence for the timber trade. As we move into the 17th century, the sources of timber become more diverse. Scandinavian oak became increasingly rare, following the Danish crown prohibition on the export of oak in 1602. As a result, pine came to dominate the import trade. We can see this in buildings like Lambs House, Leith (AD 1608/9), Gardyne's Land, Dundee (tpq AD 1660) and the military refurbishment of Stirling Palace (AD 1671) which were built almost exclusively of pine, with the very occasional Scandinavian oak timber.

Scandinavia remained the main source for pine until the middle of the 18th century, but Scandinavian forests became exhausted from over-exploitation and the Scots moved further east in search of their building supplies. From the mid-18th century, Russian forests supplied almost all of Scotland's timber needs, the timber being exported out of the ports of St Petersburg, Riga and, latterly, Memel (modern-day Klaipeda and the source of the term Memel pine). 18th century buildings in Scotland which were built with pine from what are now the eastern Baltic states include the Great Hall at Stirling Castle (AD 1783-1786), the Ordnance store at Fort George (AD1752-1757) and various merchants' houses in Haddington and Glasgow.

Native pine

What of our native pinewoods? When do we start seeing their exploitation in the tree-ring record? The documented exploitation of Scottish pinewoods begins in the early 17th century, but for a long time, it has proved difficult to identify native pine, dendrochronologically. However, recent research by Coralie Mills, who worked with Rob Wilson, as part of the University of St Andrews SCOT2K research project, has furthered our knowledge. Using a new technique, Blue Intensity measurements, alongside traditional ring-width data, the team at St Andrews has been able to date some previously undated assemblages and demonstrate the exploitation of native pine from as early as the late 15th century. Their work has demonstrated that pine logs, used in the construction of Eaderloch Crannog, were felled in the mid-16th century (tpq 1549), thus confirming the artefactual evidence and oral tradition surrounding the site.

Furthermore, the team also demonstrated that pine used in the earliest building phase at Castle Grant was also early 16th century in date (tpq 1512). The use of native pine at Eaderloch and Castle Grant should not, of course, be unexpected because both sites lie within areas which once supported extensive pine forests. It would have made sense to exploit that which was most accessible. However, the use of native pine at St Johns House, in St Andrews (tpq 1463) is unexpected. As we have seen, by the late 15th century, Scots were beginning to go abroad to find their building timber and as a major port at the time, ships carrying foreign timber would surely have docked there. The use of native pine is perhaps yet another reflection of the difficulties in sourcing native oak at that time.

As part of a HES-funded research project Coralie Mills and I spent five years looking for native oak and pine in buildings in north-east Scotland. We visited 48 buildings, of which only two contained oak (Crathes and Drum Castles – see above). The rest was pine, and it was mostly very young and fast-grown, and therefore undatable. Some buildings did contain older pine timber, but it has only been with the SCOT2K project in St Andrews that we have been able to establish dates for some of these buildings. These are all vernacular rather than high-status buildings, and their dating represents a major advance in our knowledge about the development of the vernacular building stock.

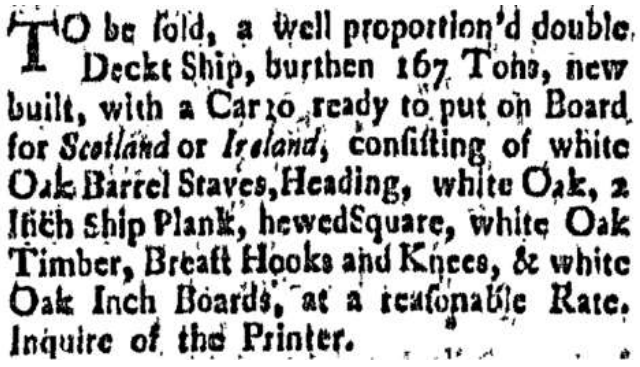
American oak

And finally, another source of timber has appeared in the dendro record, rather unexpectedly! Given the uncertainties in the Baltic timber trade, with the onset of the Napoleonic Wars in the early 19th century, the American colonies were an obvious alternative source of timber. The first building in which American oak was identified was Elie Granary in Fife. It is dated to the early decades of the 19th century and so could be viewed in the context of those wars.

Other examples of American timber are surprisingly early. A shipwreck, located in Galmisdale Bay, on the island of Eigg, was found to have been built using American oak, felled sometime after 1754. It is of a design found on the west coast and so the excavators argue that it was probably made locally, using imported timber, and not made in America.

Other examples of American timber are surprisingly early. Oak planks re-used in the foundations of the Poorhouse on Caltongate Road, Edinburgh (Figure 7) were felled sometime after AD 1707 and must represent some of the earliest exports from America. This early American data is matching best against chronologies from eastern Massachusetts and the Boston area and may be examples of the colonists exploring the possibilities of the British market prior to the War of Independence.

Figure 7: Excavation at Caltongate Poorhouse, Edinburgh (source: author)



TO be ſold, a well proportion'd double Deckt Ship, burthen 167 Tons, new built, with a Cargo ready to put on Board for *Scotland* or *Ireland*, conſiſting of white Oak Barrel Staves, Heading, white Oak, 2 Inch Ship Plank, hewed Square, white Oak Timber, Breaſt Hooks and Knees, & white Oak Inch Boards, at a reaſonable Rate. Inquire of the Printer.

Figure 8: Extract: *Boston Gazette*, February 26, 1751.

Finally, the other boat that bookends this talk - a shipwreck, located in Galmisdale Bay, on the island of Eigg, was found to have been built using American oak, felled sometime after 1754. It is of a design found on the west coast and so the excavators argue that it was probably made locally, using imported timber, and not made in America.

There is surprisingly little of substance written about the timber trade between Britain and the American colonies in the early 18th century, but we do get snippets of valuable information, such as this notice in the Boston Gazette. The dendrochronological evidence is therefore helping to build a picture of the type of timber cargoes crossing the Atlantic at this time.

Further Reading

The text above is based on lecture notes and is therefore not referenced. More information about the evidence presented above can be found in the following references.

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"Most Spirited Cultivators": New Merchant Landowners And The Influence Of The Enlightenment

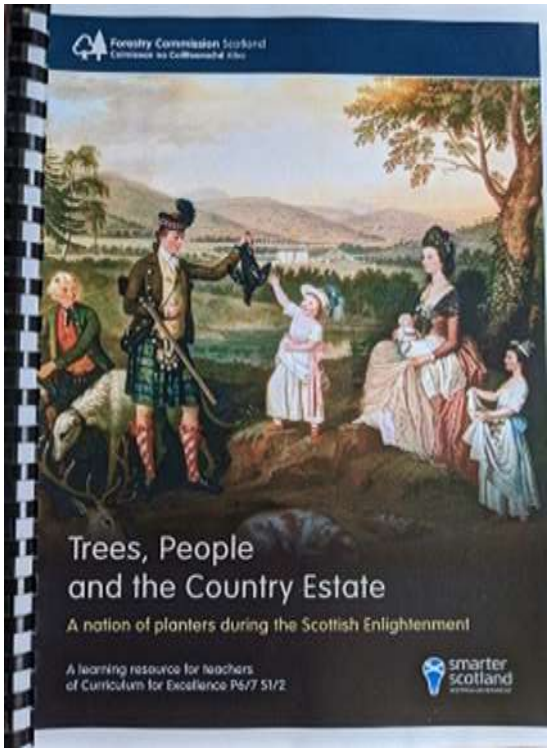
Jackie Lee

Most Spirited Cultivators[1]

People are more familiar with my work and that of my business within the world of costumed interpretation. What people are less familiar with is that I also research, devise and write learning resources with my partner, Chris Lee. My background as a teacher means that I understand what the teaching profession want from a resource. As the Curriculum for Excellence arrived into schools, it became evident quite quickly that there was a distinct lack of resources to enable teachers to do cross-curricular work. For too long they had been straight jacketed into very strict subject based work. Connections were just not made.

Fortunately for us there were some visionaries out there who wanted to help teachers and amongst these were the Scottish Forestry Commission. So, on a cold November morning we arrived at the offices of the Commission in Edinburgh and met Nicholas Shepherd and his team and started our discussion about designed landscapes. One has to say that they were very open to the fact that they were not historians and did not really know where to begin. We equally knew very little about trees.

After much discussion it was decided to focus on the designed landscapes that had emerged as a result of the Scottish Enlightenment and examine how and why the Enlightenment was so important in the construction of these landscapes. This topic fitted well into the Curriculum providing many opportunities to link it to other topics as well as providing opportunities for site visits to investigate the designed landscapes that are still visible today as a result of the work of the 18th century planters. Thus, we embarked on the development and production of this resource on the Scottish Enlightenment and its influence on the country estate.



Trees, People and the Country Estate: A nation of planters during the Scottish Enlightenment

[1]Sir John Sinclair on agriculture in Renfrewshire, Edinburgh 1814, vol 1, p27.

It is, as we discovered, a huge subject. It was also, until this was written, a much-neglected topic but very important to how Scotland is today. In a sense we knew the topic was too big but as no one had ever done it in schools essentially this had to be written before a more manageable version could be produced which you can see below. Both versions include classroom activities and guidance on how to deliver these activities.

Trees and the Scottish Enlightenment: an introduction to the Enlightenment and the beginnings of modern forestry.

What is this "Scottish Enlightenment" that all the fuss is about?

Despite the fact that Scotland entered the 18th century in a rather impoverished state, having lost its royal court to England in 1603, endured the "killing times" of the Covenanters and suffered from a succession of poor harvests at the end of the century, there were elements in Scottish society that meant it was well placed to develop new ideas and ways of thinking. No one really knows exactly what sparked off this hot bed of thinking and new ways of doing things but certain features peculiar to Scotland greatly helped:

1. The Presbyterian Church wanted everyone to be able to read the Bible – everyone from the lowest to the highest in the land. This is so important because it meant Scotland had a very high rate of literacy, and of course people read books other than the Bible.
2. Scottish Universities were more accessible to a wider range of people, and many lectures were in English rather than Latin.
3. Scotland has had connections with Europe for a long time – through its monarchy and diplomatic links (Sir James Spens was a master spy of James VI in Stockholm) and trade routes which widened with union of 1707 giving them access to European ideas.
4. The departure of the Scottish aristocracy to London as a result of the Union of Crowns in 1603, with only a return in the summer for a quick look round their estates, left a vacuum in the cultural world. It enabled Scotland to develop a very distinct professional middle class of men with new ideas they could try out without the interference of those who viewed themselves as their superiors.

These elements came together to produce a remarkable number of outstanding thinkers and practical men at around the same time. In philosophy, there was David Hume, possibly the greatest Enlightenment figure Scotland produced. He questioned everything, from what morals are to the existence of cause and effect, physical objects and God. Amongst the scientists there was Joseph Black whose research into the subject of heat would have important influences on the development of the steam engine and the Industrial Revolution. His chemistry lectures at Edinburgh University were so popular people went to be entertained just as today they would go to the cinema. The botanist John Hope turned Edinburgh's Botanic Garden into a world leader

in the study and cultivation of plants. He used innovative teaching methods, collected plants from around the world, some of which he grew in the Botanic Garden and others which he dried and preserved in an herbarium. He also changed the way people designed gardens mixing trees, shrubs and flowers.

Added to the above are many more household names like Adam Smith, James Watt, Robert Burns, Henry Raeburn and Sir Walter Scott – all giants of the Scottish Enlightenment, and only the tip of the iceberg of the genius around at the time.

How did the Scottish Enlightenment influence the planting of trees?

The Enlightenment quickened the pace of change. It made people realise they could try new things and not be laughed at. This included making changes to the landscape for those in a position to do so. The whole idea of improving your estate was bound up in the idea of being enlightened and therefore thinking a little more about the future and doing things differently. "Improvers" as those who changed the landscape were called, were enlightened men, and very occasionally women!

Who were these people?

The Traditional Landowners

While the aristocracy spent a lot of their time in London, their estates made the money that sustained their lifestyle. They now wanted their estates to be impressive with comfortable houses to live in with the mod-cons of the day so that they looked as civilised and cultured as their English and European counterparts. They wanted areas of their estates to be used for leisure as well as profit.

Alongside the aristocracy were the wealthy lairds who also belonged to what we think of as the traditional landowners. It seems to have dawned on both these groups that timber was needed and that they could produce that and sell it. There was certainly a distinct lack of trees as was pointed out by Dr Johnson on his visit to Scotland in the 1770's when he said: *A tree might be a show in Scotland as a horse in Venice*. Even in 1803, Dorothy Wordsworth commented on the lack of trees in Scotland as she travelled around with her brother, William.

The Planting Dukes of Atholl – the 2nd, 3rd and 4th – among others, made the Perthshire we know today. In fact, Perthshire has been called *the cradle of the Scottish Forest Renaissance* by House and Dingwall in *People and Woods in Scotland*. From the beginning of the 18th century Atholl dukes planted 21 million trees over 15,000 acres, their favoured tree being the non-native European larch, known for its strength and used in shipbuilding, fencing and general building. The 2nd Duke is said to have planted the first larch trees in Scotland, with five of these original trees still alive near Dunkeld Cathedral. Other members of the aristocracy were enthusiastic planters too like the dukes of Argyll and Buccleuch, the earls of Breadalbane and the like.

Taking a lead from the aristocracy, the wealthy lairds also began planting trees and among all of this, improvements made on the land fed into what we now call the Agricultural Revolution – but that is another story.

There was also a realisation by both traditional landholders that tree planting could be done in such a way as to enhance the look of their estates, with attractive woodlands as well as vast plantations. And thus began an appreciation of the designed landscape.

The Merchants

As well as the traditional landowners, there were the wealthy merchants involved in overseas trade who wanted to own land for a variety of reasons, though primarily for the power and status it brought with it.

It's worth highlighting that for this paper, I have concentrated on the wealthy merchants rather than those involved in the Industrial Revolution. This is covered in *Trees, People and the Country Estate*, with

particular reference to the iron industry. However, it is worth noting that many of the wealthy merchants had their fingers in industrial pies as well.

As a result of the 1707 Union of Parliaments new colonial markets opened up to the merchants who could now trade in tobacco and sugar, and by implication therefore were also involved in the slave trade. They were very wealthy, but along with the new industrialists, without land they had no political power. To vote you had to own land, to influence politics you had to own land. Land also brought status and showed you were a "gentleman", it enabled you to indulge in country pursuits like hunting and shooting and as the traditional landowners were initially unlikely to invite you along to shoot on their land, you had to have your own to do it on.

In addition, taking an interest in gardens, woodlands and plantations was another way of showing your education and gentlemanly qualities. Producing apricots at dinner from your greenhouses; examining your Cedar of Lebanon - the must-have for all gardens of the period; enjoying a walk with guests to a vantage point on your estate to show off your tree planting and landscaping; driving down your tree-lined drive to your house – all these demonstrated you had made it and were suitably enlightened. It even opened the doors to the possibility of the children marrying into the aristocracy and landed gentry so that they did not have to be merchants like their parents and in time their origins as new money would be forgotten. And of course, the land could make money from agriculture, timber and mineral exploitation. These merchants took on the role as landowners most enthusiastically and Adam Smith commented that:

Merchants are commonly ambitious of becoming country gentlemen, and, when they do, they are generally the best of all improvers. (Smith 1778)

In 1814, Sir John Sinclair when looking at agriculture in Renfrewshire stated (Edinburgh 1814, vol 1, p27):

> *Some of the landed proprietors who have been, and still are, manufacturers have distinguished themselves as most spirited cultivators.*

He wrote of Castle Semple estate also in Renfrewshire:

> *There are not above 30 acres of natural woodland in this parish, but the proprietors of Castle Semple have made very extensive plantations....they extend to above 400 acres and will probably receive considerable additions from the present proprietor. (*ibid.*)*

Now we will have a look at the remarkable Castle Semple Estate, which is a good example of the transformation brought about by a merchant to an ailing estate.

It was bought in 1727 by Col William McDowall from Hugh, 11th Lord Sempill, whose family had held it since the 14th century – the family fortune had declined and the only way to avoid financial disgrace was to sell up. McDowall had plenty of money - he had created a commercial empire based on sugar and rum using slave labour in the colonies. He owned sugar plantations on St Kitts where he had lived for about 20 years building up his business before his return to Scotland and purchase of Castle Semple. At the time of the purchase of Castle Semple, McDowall was one of the richest commoners in Britain.

When McDowall got the estate the first thing he did was to demolish the existing house and build a new one, a common practice of new owners. It was too old fashioned and the new one used the fashionable Palladian style that echoed the influence of the Enlightenment and Grand Tour.

He also undertook extensive drainage work to improve his land, and this was continued by successive generations of McDowalls and most importantly, like his son and grandson, he planted trees. In 1809, John Wilson who made an agricultural survey of Renfrewshire noted mixed planting in Skiff Park, part of Castle Semple estate, listing the following trees – larch, Scots fir [Scots pine], birch, alder, elm, beech and spruce fir.[2] Of these trees, larch dominated as it was the most profitable and pretty to look at. It was estimated that

[2] Wilson, J., *General View of the Agriculture of Renfrewshire*, Chapter X, p120, 'Woods and Plantations'. [editor's note: 'Spruce fir' probably refers to Norway spruce (per.com. Syd House)]

380 larch trees could be planted on each Scots acre, 4 yards apart, which provided trees of considerable size.[3] At anything from 12-20 shillings per tree, a plantation of larches was very valuable.[4]

None of the McDowalls were that interested in constructing a garden. Their concentration was on landscaping the estate and effectively planting for future generations. The gardens were laid out by a subsequent owner, John Harvie. The McDowalls sold the estate in 1814 as they too faced financial ruin because of the American War of Independence followed on by the French Revolutionary Wars. The one thing the McDowalls did plant as a decorative feature was a Cedar of Lebanon, the great specimen tree to be shown off to all visitors and which was described as being one of the largest in Scotland.

The McDowalls certainly fit the bill of being "spirited cultivators". There were many others like them – John Glassford, a tobacco lord, bought Dougalston in 1767 and began planting as well as creating features like a loch. Andrew Buchanan, also a tobacco merchant, bought Drumpelier estate and set about transforming it with features and tree planting. The tobacco, sugar and rum trade created incredible wealth for these men who in their home territory of Scotland came across as good citizens; enlightened men. For us today it is hard to comprehend that the landscapes created by the McDowalls and others like them were on the back of enslaved labour. While McDowall might consider where best to plant his Cedar of Lebanon, he thought nothing of having a slave lashed for disobedience. On one hand he is the enlightened man and on the other the cruel master.

With all this planting going on, there inevitably was also a desire to plant new trees; to be one up on your neighbour and show you were willing to try new things. Larch became popular quickly, but new species were sought and thus were born the plant hunters – men who went abroad with the express mission to bring back new specimens. Many Scots were involved in this and the most famous is probably David Douglas who sent 7,000 species, mainly from Canada to Britain. It was his trees that caused the most excitement and it is thanks to him that the Sitka spruce and of course Douglas Fir are part of Scottish forestry today.

In conclusion, *Trees, People and the Country Estate*, which we produced for the Scottish Forestry Commission, highlighted for the first time the importance of Enlightenment thinking on wider Scottish society. While I have not made mention of the great upheaval caused by the Jacobite Rebellions of the 18th century (another whole paper!), which certainly impacted on how landowners viewed their land, it is quite likely that without the thinking that came from the Enlightenment, the drive behind change would have been much slower. The questioning of what had gone before was fuelled by the new enlightened thinking.

The contribution of the wealthy merchants to the designed landscape is very important. Many of the traditional landowners still own the same land today; that is not the case of the merchants many of whom lost their money and sold their land. The designed landscapes they created like Castle Semple were designed to create privacy and keep out prying eyes. Today Castle Semple is part of Muirshiel Park where the descendants of those the McDowalls were trying to keep out enjoy walks and leisure pursuits. It would seem that the spirited cultivators have left more of a legacy than they could ever have imagined!

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Paper presented by Jackie Lee, Director, Artemis Scotland Ltd

[3] A Scots acre was the equivalent of 1.3 acres in England.

[4] These were larch thinnings sold at 29-35 years old. Wilson, p118/19.

Answering The Call Of Duty: Military And Naval Requirements As Influences On Scottish Forestry

Scott McG Wilson

Introduction

Demand for timber to meet military and naval supply requirements has been a significant influence on forest resources in Scotland over three millennia. While arguably over-emphasised by traditional historical writers, military and naval requirements for timber were among the earliest examples of "policy" influences on the forest resource, not arising exclusively from natural effects or local economic conditions (as with utilisation for woodfuel and domestic construction). Military and naval timber demands have often called forth "action at a distance" over regional, national and international scales. Timber products for these uses have had to be transported to distant centres of demand in response to "calls of duty" from a centralised political and military authority. This brings into play the potential tension between strategic and local economic priorities for their usage. Military and naval demand, by its very nature, has usually been stochastic and unpredictable, making it difficult to plan management of the forest resource to effectively address these requirements. As a consequence, the Scottish forest resource has often been sub-optimal for military and naval requirements, creating a preference for imports from Northern Europe or North America. Nonetheless, at certain key points in military history, especially during the four centuries from 1500 to 1900, Scottish forest products have periodically become indispensable.

Scope of military and naval requirements

Demands for wood products for military and naval requirements can be divided into several key utilisation categories, applying across the long historical period considered: -

- ***Land fortifications*** - material for construction and reinforcement of castles, fortresses, barracks and entrenchments, both at home and overseas.

- ***Naval construction*** - material for ship-building and ship-repair at home and overseas, ranging from *birlinns* to large "men-of-war" (Smout, 1992).

- ***Weapon making*** - material for the manufacture of weapons, ranging from spear and arrow shafts and bows to siege engines and artillery mountings.

- ***Transport and vehicles*** - material for the manufacture of land vehicles for the transport of personnel, weapons and military supplies, and also for packaging war materials (e.g., boxes and barrels).

- ***Fuel*** - material used to supply energy directly within a military context (in the form of logs or charcoal for iron weapons manufacturing) or indirectly to allow the extraction of coal to serve these purposes, as with pit-props during the latter decades of the period under consideration here (1865-1914).

- ***Chemical*** - material used to supply chemical products of military significance, as with alder for gunpowder charcoal or Scots pine for turpentine ("naval stores").

Throughout much of history the primary demand has been for regular "man-portable" timber supplies in the 10-20cm diameter class (dbh), in lengths of 2-3m. For example, it was material of this type that was favoured for palisade and entrenching, weapons and woodfuel uses. Such material can be produced from the harvesting of relatively immature woodland resources, managed on some form of rotational basis, with felling intervals ranging from 20-50 years. This can be secured by natural regeneration, plantation or coppice management systems, of the types commonly applied to the production of "small wood" for local civilian purposes. There has always been military demand for a minority component of larger material in the 20-30cm and 30-60+cm diameter classes, for fortification framing and naval construction. The relative significance of that demand for larger timbers has risen over the centuries and became of particular note during the "naval heyday" (from AD 1500 to 1865). For much of the period under consideration, such material could only be obtained as a "gift of nature" by harvesting of mature, self-sown timbers within remnant semi-natural forests. With the progressive depletion of such resources within Scotland, attention focussed on augmenting supply by importation from natural forests overseas, or by establishing home plantations.

In terms of species composition, military and naval demands upon the forest resources of Scotland have been predominantly for two common native species - oak and Scots pine. These have been suitable for virtually all of the main utilisation categories discussed above. A wider range of native species have been used for general fuel supplies - including hazel and birch. Certain other native species have been in demand for specific applications, including ash and yew for weapons manufacturing and alder for gunpowder charcoal production. Among the home-grown introduced tree species, the only example of clear significance for military and naval purposes during the period before 1914 was larch, which had begun to substitute for oak and pine to some extent during the nineteenth century (Fowler, 2002). Spruces and firs have been grown in Scotland since the 1600s, but only became major military supply constituents during the late 1800s, for railway, mining and packaging timber. Their true significance, covered elsewhere, did not really emerge until the two World Wars.

Developmental periods

It is possible to define five broad developmental periods in terms of the history of military and naval utilisation of forest products sourced from within Scotland: -

- ***The "age of fortification" (before AD 800).*** The Bronze and Iron Ages, together with the Roman occupation of parts of Scotland and the subsequent Dark Age period. During this epoch, military use of timber was primarily for land-based fortifications. These took various forms, but characteristic timber-using types were palisaded hillforts (surrounded by sharpened timber stakes) and vitrified forts (where the timber was burned in quantity to fuse a smooth *glacis* of stones). Smaller timber forts, crannogs and lookouts, together with flooring within, and roofing over, otherwise stone structures (e.g. brochs) also used timbers. Cooking fuel, carts, chariots and weapons (spears, bows, arrow shafts) likewise, with growing fuel use for smelting of copper and iron to produce metal weapons. The bulk of this demand would have been for "man-portable" material (less than 20cm dbh) consumed within a mile of its growing stance. During the Roman period, more elaborate timber forts and marching camps used larger dimension timbers for framing, and these may have had to be transported along the road network, which itself required some forest clearance. The extent of domestic boat-building during these earlier periods is uncertain, with much shipping deriving from further south. However, the Picts raided Roman Britain along the North Sea coast, which must have required substantial fleets. Some vessels may have emulated Roman galley construction rather than native hide-covered *curraghs*.

- ***The "age of the longship" (AD 800 - 1450).***

Birlinn-type vessel, Denmark (© Scott McG Wilson)

During this period almost all of the former military uses for timber continued substantially as before, although greater use of stone in the construction of major fortifications during the Anglo-Norman period (after AD 1100) confined timber to structural, flooring and roofing materials. The major innovation was the advent of the Viking incursions, and most particularly their influence on ship construction in and around Scottish waters. The construction of longships, galleys and smaller *birlinns* used increasing amounts of both pine and oak from native woodlands in areas accessible to the sea - for example Argyll, Lochaber and the Moray Firth. This tradition of ship-building continued along the western seaboard for two centuries after the Viking defeat at Largs in AD 1263, and continues to inform vernacular boat building in these areas, together with the Western and Northern Isles. The eastern seaboard saw greater adoption of wider-hulled vessels for naval and trading purposes following Baltic and Low Country design models. At the end of this period shortage of home-grown timber for naval purposes was evident.

- ***The "age of transition" (AD 1450-1603).*** Broadly coincident with the Renaissance and the Stewart monarchy of Scotland before the Union of the Crowns, this period saw four major trends of direct relevance to military and naval timber use. Firstly, the importation of pine and oak timber (beam and board) from Scandinavia and the Baltic region reduced inherent dependence on home-grown timber supplies, which were increasingly recognised as being deficient, particularly in larger size classes. The aspirations of the Scottish crown to "Renaissance monarch" status, and the increasing mercantile trade with France, the Low Countries and Scandinavia, gave rise to the need for a wide-hulled Scottish Navy. James IV's construction of the *Great Michael* in the early 1500s further highlighted the perceived timber shortages (Anderson, 1967; Smout *et al*, 2007). Legislative enactments from the mid-1400s sought to protect remaining stocks from over-exploitation, and later to encourage or mandate landowners in Scotland to establish plantations of timber of potential naval utility. Finally, the advent of gunpowder and artillery (both terrestrial and naval) gave rise to a rapidly increasing demand for iron, and therefore for the oak charcoal to smelt it.

- ***The "age of sail" (AD 1603-1865).*** This has been seen as the "classic" period during which naval demand for timber impacted Scottish forest resources. It is a period for which written records are substantially better than for any earlier, and during which the Scottish forest resource came to be seen as part of wider British resources, supplying Royal Navy yards (e.g. on the Thames estuary). The development of overseas mercantile trade with American, African and Asian colonial possessions dramatically increased shipping and naval protection thereof (Graham, 2002). In "normal times" this naval timber requirement was met from Scandinavian and Baltic sources (for pine beams, masts and spars) and oak planks. By the early 1700s, white pine (*Pinus strobus*) and oak timber from New England colonies were also entering the supply mix. However, the series of naval wars fought against the Dutch in the 1600s, the American colonies in the mid-late 1700s, and the French between 1690 and 1815, created risk and reality of timber import interruption, both by

privateering and blockade. Encouraged by a regime of import duties on foreign timber, this caused timber supply agents to look to the Scottish pinewoods for supplies of naval masts and spars (Steven and Carlisle, 1959). Early activity in this regard was in areas most accessible to the coast, such as the pinewoods of Ardgour, Arkaig and Strathcarron (Anderson, 1967; Smout, 2003; Smout *et al*, 2007). Later, aided by river flotation, naval pine was sourced from Speyside pinewoods for ship-building at Garmouth on the Moray coast or on the Humber and the Thames. While some useful material was sourced, quality was often seen as notably inferior to import supplies, with over-estimation of the resource and frequent extraction difficulties (Smout, 1999, 2003).

With the advent of cannon, demands on the Atlantic oakwoods for charcoal for iron-smelting grew rapidly from the early 1600's onwards, following previous over-exploitation of the resources further south in the New Forest, Weald, Forest of Dean, Wales, Cumbria and Ulster. A number of iron furnaces were established in Wester Ross, Lochaber and Argyll, from which a significant component of pig iron output was used for ordnance manufacture. Alder coppice was a significant source of nitrogen-rich charcoal for gunpowder making. Demands for naval timber encouraged many private landowners to establish plantations of Scots pine, oak and larch, especially from the 1660's onwards (Anderson, 1967; Fowler, 2002), whether from patriotic duty, an "eye to the main chance" commercially, amenity or all of these. However only a small component of this material came to market before the decline in demand for ship timbers and charcoal after the American Civil War of the 1860s.

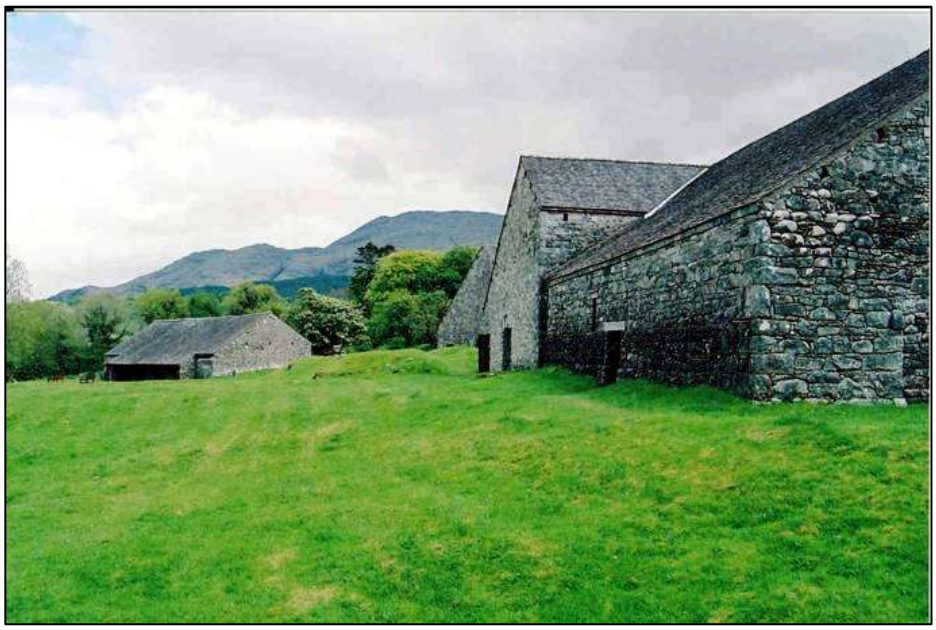
- ***The "age of importation" (AD 1865-1914).*** The period after the end of the American Civil War was characterised by rapid decline in requirements for timber for naval construction and iron manufacturing, due to the advent of the "iron clad" warship and the predominant use of coal as a fuel for the process of iron and steel manufacture. This was accentuated by adoption of "*laissez-faire*" economic policies, implying removal of previous import duties on timber supplies from North America. The consequence was overwhelming import dependence and a rapid decline in the establishment and management of timber plantations in Scotland, and the British Isles generally. This despite the continued latent military requirement for large volumes of timber for applications such as mining pit-props, railway construction, vehicle manufacture, trench reinforcement and ammunition packaging etc. Renewed risks of naval (especially submarine) blockade in the early twentieth century exposed once again the strategic value of having a home timber resource, which was addressed by Forestry Commission and private plantation campaigns from 1919 to ~1960.

Relevant locations

Three categories of woodland in Scotland can be highlighted (Wilson, 2015) where a history of military exploitation (rather than destruction and removal) influenced current condition: -

- ***Coppice oakwoods and iron furnaces***. These resources and facilities have been extensively studied over the past half century, from Letterewe in Wester Ross, through Lochaber, Argyll, Lorn and Kintyre to Loch Lomond and Galloway. While their output was directed to a wide range of early industrial applications, the demand for pig iron for the production of ordnance (cannon barrels and shot) for military and naval purposes was one of the key outlets. Although production of cannon barrels in earlier times tended to be dominated by Continental suppliers (e.g., Sweden), mastery of relevant founding techniques later led to significant British home production. Key sites: Letterewe, Loch Shiel, Bonawe, Taynish, Dalavich, Furnace, Loch Lomond.

Bonawe ironworks, on Loch Etive, Argyll was a major centre of iron manufacture, including for artillery (© Scott McG Wilson)



- ***Naval supply from Caledonian pinewoods***. During the three centuries AD 1565-1865 naval timbers were drawn from major Caledonian pinewood areas. The earliest activity was concentrated in pinewoods with immediate or close access to the sea, such as Ardgour, Arkaig, Shieldaig and Rhiddoroch. The latter half of the 1600s saw attention switch to Strathcarron in East Sutherland, from which flotation to the Moray Firth was quite feasible - the "mast hunting" activities of Phineas Pett on the lands of Ross of Balnagown are well referenced (Smout *et al*, 2007). In these areas, surviving pinewood resources are fragmentary, which may reflect their histories of accessibility for naval supply and other exploitation. In the "French wars" period (AD 1690-1815), emphasis was on extraction from the larger pinewood resources of Strathspey, which required flotation down the Spey to Garmouth. Despite the reported inadequacies of much of the timber extracted from these areas for prime naval applications, there was considerable felling, especially during the key period of the Napoleonic Wars (1790-1815). However, unlike in the cases of many of the western pinewoods, regeneration between 1815 and 1845 was quite satisfactory. Key sites: Ardgour, Loch Arkaig/ Glen Mallie, Amat/ Alladale/ Diebiedale, Abernethy, Glenmore, Rothiemurchus.

- ***Oak, pine and larch plantations.*** Particularly during the two centuries AD 1665-1865, a number of private estates formed early plantations of oak, Scots pine and larch that were intended to augment potential supplies of naval timber from natural forests (Anderson, 1967; Fowler, 2002). This was undertaken partly for estate improvement, profit and amenity, but partly in response to a national "call of duty" reflecting an early example of "policy influence". Activity was concentrated in lowland and upland marginal areas of Scotland - Argyll, Borders, Dumfries, Lothians, Angus, Perthshire, Aberdeenshire and Moray. Only a minority of these resources were ready for harvest before the widespread use of timber for naval ship-building declined after the end of the American Civil War. Key sites: Shambellie (pine/ larch), Castle Grant (pine), Dunkeld/ Craigvinean (larch), Cawdor (oak), Dinnet (oak), Drummond Castle (oak), Floors (oak), the Hirsel (oak).

Long-term influences

Chatham mast ponds - destination of Scots pine masts harvested in Scotland (© Scott McG Wilson)

Formative historical influences on distribution, composition and condition of Scotland's forest resources were many and various, including natural environmental factors and the patterns of human modification and utilisation. In the case of the pre-historic destruction of the native woodland resource, it is no longer possible to fully resolve these. Earlier generations of historical writers have tended to see the effects of military campaigns (for example the clearance of Roman road-lines and the burning of forests by Vikings) and exploitation for military utilisation (e.g. the felling of pinewoods for Royal Navy masts) as being major or even decisive influences on woodland decline. Such notions are almost certainly unreliable, and were often motivated more by political than historical interests.

However, we can see the hand of military demand in certain aspects of woodland history. In the period before AD 1500, demands for timber for land fortifications and naval purposes was one of many calls leading to over-exploitation of the Scottish forest resource. In some more accessible areas (for example in Stirlingshire and south Perthshire in Roman times, Sutherland straths in Viking times or Argyll and Lochaber in the seventeenth century) forest fellings for military purposes may well have been a local determinant of woodland decline. By contrast, in other locations and at other times, military demands, and the anticipation thereof, acted as a motivation to retain and expand the national forest resource. The clearest examples of this are the campaigns of afforestation by enclosure and plantation on private estates in Scotland after the Union of the Crowns, and in some cases earlier. While these efforts had other motives of profit, amenity and learned curiosity, the "patriotic call" for naval supply was certainly active, if perhaps less pervasively so than in England of the time. Similarly, with the preservation and management of semi-natural Atlantic oakwoods on the west coast for charcoal, or Caledonian pinewoods on Speyside and Deeside for mast supplies.

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The Impact Of The First World War On The Woods and Forests of Scotland

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This paper aims to explore the important changes that occurred to forestry and woodlands in Scotland during the First World War and how these were achieved. It will consider the general situation of forest management and the state's role before 1914, the demands that the war made upon timber supplies and Scotland's woodlands and people, as well as some of the consequences for how Scottish forestry was managed in the years immediately following the war.

The Situation at the Outbreak of War

With the outbreak of war in August 1914, the United Kingdom faced a potential crisis in timber supplies. Dependent on foreign imports for approximately 95% of all her timber, the U-boat campaign on commerce that began in early 1915 strangled this supply from Russia, the Baltic and North America.[1] With no more than 10% of the timber used in Britain sourced domestically in peace time, a wartime strategy for ensuring supplies reached those reliant industries – most significantly pit props used in the construction of coal mines, which in turn powered heavy industry – would be vital if the conflict was not over by Christmas 1914.

The first year and a half of the war largely represented a continuation of policy and practice from the previous decade. Import stocks were still high, and a lack of forestry experience and skills amongst the general population, combined with the *ad hoc* nature of the war and its planning, led to a general complacency on the issue of sourcing timber. With the war's entrenchment and the German Navy targeting commercial shipping, however, the government gradually came to realise a plan of action at home would be necessary to stave off an escalating crisis. As David Lloyd George himself remarked, Britain came closer to losing the war through lack of timber than want of food.[2]

Redress was begun in December 1915, when the Home Timber Committee was created under the Directorship of John D. Sutherland, who had previously headed up the Forestry Department of the Board of Agriculture for Scotland.[3] To some observers, it was a belated response to a problem they had been speaking of for years. Two Scots landowners who would independently chair the Forestry Commission in its early years – Simon Fraser, 14th Lord Lovat, and Sir John Stirling Maxwell – had been pressing the need for a national forestry body for years before the war. In 1914 Lovat commented:

"(We) *have seen, since the foundation of the Society (Royal Scottish Arboricultural Society) sixty years of private endeavour and sixty years of organised inactivity on the part of the state*".[4]

It is peculiar today, perhaps, to consider two individual, extensive property owners pushing for public intervention in land management, but they were certainly not unique in their thinking amongst the gentry. Sir Francis Acland, whose committee in 1916 formally established the grounds for the Forestry Commission, was likewise a substantial landowner, in Devon and Somerset.[5] Across Britain, and especially in Scotland, there was growing opinion amongst interested parties that land that could have been used for forestry was going to less worthy uses for want of concerted organisation.

Many academics were also concerned, such as the Head of Edinburgh University's Forestry Department, Professor E. P. Stebbing. Likewise more radical thinkers, such as future President of the Royal Scottish Forestry Society, John McEwen, and future Scottish Secretary, and later Chairman of the National Committee of the Forestry Commission in Scotland, Tom Johnston, similarly harboured plans for a state role

[1] Affleck Gray, *Timber!*, p.1 (East Linton, 1998). Estimates vary; contemporary accounts such as Stebbing and Bird & Davies, put Britain's domestic supply nearer 8-9%.

[2] David Foot, "The Twentieth Century: Forestry Takes Off", p.160 in *People and Woods in Scotland: A History* (Edinburgh, 2003)

[3] Transactions of the Royal Scottish Arboricultural Society, Vol. 29, p.118 (Edinburgh, 1915)

[4] T.C. Smout, Alan R. MacDonald & Fiona Watson, *A History of the Native Woods of Scotland, 1500-1920*, p. 279 (Edinburgh, 2005)

[5] David Foot, *Woods and People: Putting Forests On the Map*, p.40 (Stroud, 2010)

in planning and directing forestry in the UK, though to their mind it would be a programme of nationalisation regardless of the interests of the landowners.[6] Though collectively they made for strange bedfellows, the circumstances of the war did much to advance the case for a state body to oversee forestry, regardless of political viewpoint. As the Earl of Selborne commented in the House of Lords in August 1918, "The whole problem of re-afforestation depends on the decision of the Cabinet."[7]

Ironically, it was to Germany, as well as France, that many looked for guidance on how and why the state should take a greater role in forest management. Many Scots forest managers in the Victorian and Edwardian eras had received training in Germany, where formal higher education and the notion of "scientific forestry" had a longer pedigree than in Britain.[8] Indeed, the man credited as the "father of Indian forestry" during British colonial rule in the subcontinent was a German, Dietrich Brandis.[9] A visit by the Royal English Arboricultural Society (today the Royal Forestry Society) to Saxony in 1913 left them highly impressed at the state forest management, though the author suggested that transplanting these state practices to *laissez-faire* Britain would not be straightforward, "Such things as, for example, a 300 years' (crop) rotation is out of the question."[10] This arguably points to a difference between the English and Scottish societies as much as anything though, with the latter body more widely sympathetic to the idea of the state playing a role in land improvement where reasonably possible.[11] All the same, there was little evidence in 1914 of any concern within the Cabinet to radically change the *laissez-faire* policy on timber imports that had seen Britain become a net importer to such an overwhelming extent, to the exclusion of significantly expanding Britain's own forest resources.

Crisis & Response: Help from Canada

The finer points of such policy debates were of secondary concern for most of the war's duration. With imports increasingly at risk and unable to meet demand, timber stocks running low, and with the relative lack of experience and equipment at home, Britain faced a potential crisis if action was not taken. It was in such circumstances that the Colonial Secretary, Andrew Bonar Law, telegrammed the Governor-General of Canada in February 1916 explaining that, "Owing to the very serious shortage of freight for munitions, food, forage and other essentials, which is a matter of the gravest concern to H.M. Government, it is impossible to continue to import Canadian timber on a sufficiently large scale to meet War requirements… (Request) that a Battalion of Lumbermen might be formed of specially enlisted men to undertake exploitation of forests of this country."[12]

The response was swift; approximately 10,000 lumbermen arrived to work in Britain during the course of the war, with approximately one-third of them based permanently in Scotland. The first Canadians were logging by June 1916 in Dalbeattie and Kirkconnel in Dumfriesshire, and advanced quickly throughout the country. They would serve throughout the country, establishing headquarters at Stirling, and intermittently at Edinburgh, Inverness and Nairn.[13] Overcoming adverse terrain and relatively rudimentary infrastructure, especially in remoter parts of Speyside and the Highlands, they often had to erect their own sawmills, light railways and, in the case of a Newfoundland Forestry Corps unit (the N.F.C., made up of 500 volunteers, arrived 1917 and were organised separately from the Canadians) at Craigvinean Forest on the Atholl Estate near Dunkeld, a 3,200 foot log chute that was a revelation to the locals.[14]

The Canadians were not ones to shy from their labour and brought the ingenuity that working in their homeland required to Scotland. So called "steam donkeys", engines that combined with winches to drag

[6] Thomas Johnston, *Our Scots Noble Families*, "A General Indictment" (Glasgow 1909; republished Argyll 1999)

[7] *Hansard's Parliamentary Debates*, Vol. 31 cc678-80, House of Lords Debate, 8th August 1918

[8] See *Transactions of The Royal Scottish Arboricultural Society* (Edinburgh), where a regular feature entitled 'Continental Notes' kept readers abreast of developments in Europe

[9] Jan Oosthoek, *The Colonial Origins of Scientific Forestry in Britain*, http://www.eh-resources.org/colonial_forestry.html

[10] *Transactions of The Royal Scottish Arboricultural Society* Vol. 28, p.104 (Edinburgh, 1914)

[11] Foot, *Woods and People*, p.42

[12] C. W. Bird & Lieutenant J. B. Davies, *The Canadian Forestry Corps: Its Inception, Development and Achievements*, p.5 (London, 1919)

[13] Ibid., p.22

[14] Helen Jackson, *Neil Gow's Inver*, p.85 (St. Andrews, 2000)

felled timber onto waiting train carts, were used where possible in place of the traditional method of horses.[15] There is even an unverified account of one unit clearing an entire plot in Ayrshire to build their cabins, only to be told that they had felled the entire crop intended to help the war effort! Operations were ultimately directed by Major-General Alexander McDougall, a civil engineer by background who had worked on the great Transcontinental Railway's construction in his native Canada, amongst other projects, before taking up this post.[16]

On the whole, the Canadians appear to have had a warm reception during their stay, many of them finding wives amongst the locals, and a dinner hosted in their honour by John Stirling Maxwell, a month prior to their completion of duty, at the Royal Hotel in Inverness on 15th May 1919 is reported as being held in good spirits and humour.[17] Their stay wasn't entirely without incident, though. Joseph Edward Boyce, a lumberman soldier in the 107th Company of the Corps was accused of, "Theft by housebreaking with intent, malicious mischief, breaking open lockfast places and assault with intent to murder at Drumdelnies House, near Nairn," in 1918.[18] What this amounted to, in effect, was a drunken breaking-and-entering incident at the local manor, whereupon Boyce shot wildly at the arresting policeman. Fortunately for both parties he missed, but was jailed nonetheless for his misdemeanours. Whilst there is no mention of this particular case in the Corps' official history, it is admitted there were some minor offences committed by the men, as initially "there was very little in the way of amusement."[19] Besides the Canadians, Finns, Portuguese, and even some German Prisoners of War also found themselves working in Scotland's woods. The Finns in particular, most of them rescued sailors from torpedoed shipping vessels, were noted for their aptitude for the work.[20]

Opportunities for Women

In addition to foreign labour, the second half of the war also provided opportunities for women to become practically involved in forestry in an unprecedented manner. This wasn't without reaction – the Treasurer's Remembrancer replied curtly to a Board of Agriculture request for an additional £2,000 to employ women in forestry work by stating he thought there was "… no likelihood of the Board spending the £10,000 on putting women into knickerbockers to work on farms."[21] But employ them they did. The Women's Forestry Service was set up under the Board of Trade, and worked closely with the Women's Land Army. Across Britain, though based mainly in the south of England, there were nearly 2,000 women working in forestry at the war's end, around 350 as measurers and forewomen, and 1,500 as loggers.[22]

Women's Land Army advert (© Imperial War Museum)

Whilst the funding for this enterprise came from central government, it was the private estates that hired women to fill the labour shortage and help supply timber. Eleven such "ladyworkers" arrived at the Blair Atholl Estate in March 1917, and a further eleven "ladystudents" a month later, where the former tended to felling, clearing and planting duties alongside men and boys, and the latter to the newly founded garden nursery at Inver. Lord Tullibardine, heir to the Duke of Atholl, noted in a letter to his brother that "when they are not squabbling, (they) work well."[23] Sadly, three of these young women of the "Girls' Forestry

[15] Bird & Davies, *The C.F.C.*, p.7
[16] Ibid., p.15
[17] Ibid., p.24; and James Miller, *The Foresters*, p.42 (Edinburgh, 2009)
[18] National Records of Scotland, Ref. AD 15/18/67
[19] Bird & Davies, p.24
[20] Ibid.
[21] National Records of Scotland Ref. E 824/243
[22] *Land and Water Magazine: Women in the War Edition*, April 1919, http://www.scarletfinders.co.uk/160.html
[23] Jane Anderson (ed.), *Chronicles of the Atholl and Tullibardine Families, Vol. 6, 1907-57*, p.110 (Aberdeen, 1991)

Corps" drowned in the Tay near Dunkeld in July 1918, having gone swimming at a notoriously dangerous spot unbeknown to them.

Interestingly, estate records show that the gap in average pay between the men and women working in forestry was not as great as might be expected for the time and, on the whole, it closed as the war progressed.[24] Without specific details of individual pay and tasks, however, it's difficult to draw too many conclusions from this. Even so, it remains that forestry, like the more renowned industrial job sectors of the war, such as munitions production, provided novel employment opportunities for women.

Foresters at the Front

For men working in forestry in 1914, the call to arms was heeded much as it was by those of any other profession. For Lord Lovat, who had raised the Lovat Scouts during the Second Boer War and who became chairman of the Inverness Territorial Force Association in 1908, it was unlikely he would abstain from active service. He served first in the Dardanelles with the Highland Mounted Brigade before being invalided back to Britain in 1915. He resumed both an active role and his passion for forestry in 1917 with his appointment as Director of Forestry on the Western Front, directing loggers from various Allied nations in the Jura in Eastern France for timber supply to the frontline, for which he received the *Ordre du Mérite Agricole* and the *Légion d'honneur*.[25] He likewise remained in contact with Lord Acland and his Committee's progress during the later stage of the war.

John Campbell, employed as a woodsman on the Blair Atholl estate prior to the war, volunteered and served as a Sapper in the Royal Engineers of the Black Watch and was awarded a Distinguished Conduct Medal in 1916.[26] He returned to Blair on furlough in February of that year to a hero's welcome; shortly thereafter his brother Duncan, likewise employed on the estate woods, signed up for duty. But whilst John would survive the war, his brother would not be so lucky. It is likely he volunteered before conscription was enforced in May 1916, as those working in forestry were exempted from the frontline, being in a reserved occupation.

The Impact on Scotland's Forests

The timber from Atholl Estate wound up being sold to a number of firms. By far the greatest buyer was a Robert Frazer & Sons of Newcastle, an iron and steel merchants as well as "wagon builders and repairers, oil and grease manufacturers and merchants, colliery stores merchants, railway and colliery plant, bolts, nuts, rivets and spikes producer."[27] From the moment imports were struck by the German naval blockade in 1915, Frazer & Sons, as well as a number of heavy industries in Glasgow and elsewhere, began demanding unprecedented quantities of timber that would persist into 1919.[28]

Of the Atholl woods themselves and the landscape in which they stood, the war brought about significant change to certain areas. As per most of the rest of the country the first eighteen months saw little development, but by the second half of 1916 felling, timber prices, revenue and employment had all increased remarkably. In October of that year, a £26,000 contract (approximately £2.3m today)[29] was signed giving access to Edinburgh-based timber merchants Calder Dixon & Co. to stands of Scots pine, Larch and Spruce from around the Cally Loch near Dunkeld, amongst other sites.[30] Lord Tullibardine suggested in a letter dated April 1918 that this was "absolutely necessary, as it was all rotting."[31] James Calder, chairman of the company, was himself Controller at the Timber Supply Department of the Board of Trade from 1917 to 1919, so one can probably assume he was wise to the nature of the deal.[32] Baluan Wood near Bruar, today

[24] Blair Atholl Estate Archives, *Atholl Woods General Monthly Reports*, (1917-1918)

[25] John Martin, "Simon Joseph Fraser", Oxford Dictionary of National Biography http://www.oxforddnb.com/index/33/101033254/

[26] Perthshire Advertiser, 2nd February 1916, A K Bell Library Archives, Perth

[27] *Grace's Guide to British Industrial History*, http://www.gracesguide.co.uk/Robert_Frazer_and_Sons

[28] Blair Atholl Estate Archives, *Atholl Woods General Monthly Reports*, (1915-1919)

[29] Conversion made using historic inflation calculator at http://www.thisismoney.co.uk/money/bills/article-1633409/Historic-inflation-calculator-value-money-changed-1900.html and http://safalra.com/other/historical-uk-inflation-price-conversion/

[30] *Abstract of Agreement and Conditions of Sale of Wood Lots at Craig-y-Barns between His Grace The Duke of Atholl and Messrs Calder Dixon & Co.*, October 1916, Blair Atholl Estate Archives

[31] Jane Anderson (ed.), *Chronicles of the Atholl and Tullibardine Families, Vol. 6, 1907-57*, p.110 (Aberdeen, 1991)

[32] Calders & Grandidge Company History, http://www.caldersandgrandidge.com/about-us/our-history

a larch plantation, was reported as having been almost entirely felled by April 1918, though care had been taken to plant up the "Middle District", that is, the area around Blair Atholl, as a future asset.[33]

In early 1918, £34,000 (approx. £2m today) worth of timber felled in Craigvinean was sold to the government.[34] One of the oldest and largest managed forests in Scotland, it was established by the Dukes of Atholl between 1738 and 1830 with the intention of providing timber for the Royal Navy, and is today part of the National Forest Estate, managed by Forestry Commission Scotland. This would later be followed by the sale of the land, the deal only concluded in 1937.[35] It was not the first occasion that the estate and government had sought to work together in forestry. In 1913 Lord Tullibardine had proposed an arrangement whereby the Board of Agriculture's Forestry Department would plant a variety of species at Rotmell, near Loch Ordie, as their educational plot. In return for having got the land for nothing, ownership of the trees would revert to the estate after thirty-five years or so, i.e., whenever they ceased to be of educational value.[36] This shrewd proposal, that would have furnished the estate with a valuable range of timber at little to no personal cost, was weighed up by the Board. Many influential figures, including Lovat and Stirling Maxwell, were supportive of the idea, though concerns were raised that its commercial appeal would be detrimental to its educational purpose. Ultimately the onset of war put a brake on the plan's development but as the sale of Craigvinean's timber demonstrates, it certainly did not bring an end to cooperation between government and landowners.

Looking across Scotland, it is notable that Speyside was a particularly concentrated area of felling activity, unsurprising given that it was historically one of the most widely and densely afforested areas of the country. Plantations on the Darnaway and Moray Estates were also worked on extensively by the CFC for approximately two years whilst large areas of remnant native Caledonian pine in the Abernethy, Glenmore and Rothiemurchus Forests between Nethy Bridge and Aviemore were cleared from October 1917 until the end of the war, producing over 56,000 m^3 timber.[37]

Canadians at Methven, near Perth, World War One (©Culture Perth & Kinross archives)

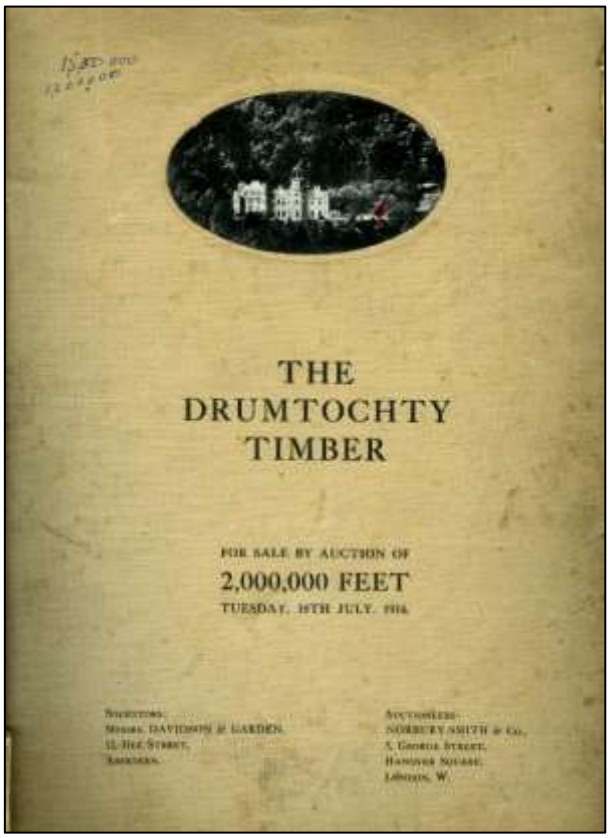
[33] Jane Anderson (ed.), *Chronicles of the Atholl and Tullibardine Families, Vol. 6, 1907-57*, p.110 (Aberdeen, 1991)

[34] Ibid. [*editor note -the price disparity may be due to timber control measures affecting pricing later in the war*.]

[35] Helen Jackson, *Neil Gow's Inver*, p.86 (St. Andrews, 2000)

[36] Ibid., p.66

[37] H. M. Steven & A. Carlisle, *The Native Pinewoods of Scotland*, p.117 (Bodmin, 1959); the figure and date are from Bird & Davies, p.33


THE
DRUMTOCHTY
TIMBER

FOR SALE BY AUCTION OF
2,000,000 FEET
TUESDAY, 18TH JULY, 1916.

Drumtochty auction catalogue, 1916 (© RSFS)

Several other estates of varying sizes also furnished the war effort with timber. The Canadians logged extensively around the country, notably at Drummond Hill, Logiealmond, and Taymount in Perthshire, Braemore in Ross, Dornoch in Sutherland, Drumtochty and Kemnay in Aberdeenshire, Tulliallan in Fife, Mauchline and Kilkerran in Ayrshire, Kirkconnel and Castle Douglas in Dumfriesshire, and Birkenside in the Borders. Ultimately, just less than 47% of the Canadian Forestry Corps' total timber production in Britain was sourced in Scotland.[38] Given that Scotland was one of the least afforested areas of Europe at this time, at somewhere around 5% of land area under woodland, this felling was to have a dramatic impact upon the forest landscape and resources.[39] The Forestry Commission census of woodlands in 1924 showed Scotland to have around one million acres (405,000 hectares) of woodland at the end of the war, of which some 21% was classed as felled or devastated. As the likely area of productive woodland accounted for only a further 40%, it is probable that around one-third of the potential source of timber was felled over the course of the war – a vast impact.[40] John Stirling Maxwell went so far as to estimate that had the war continued another year or two, Scotland's woods would have been "largely swept away."[41]

The War's Legacy

It was in such an environment that greater action on the part of the state was deemed essential. The largely fruitless campaigns for government to acquire and manage forestry holdings before 1914 had been given fresh impetus and a clear motive by the war. In Acland's words, never again could "the United Kingdom run the risk of future wars without safeguarding its supplies of timber as every other Power that counts has already done."[42] With the Acland Committee of 1916, the various supporters of an independent state body to oversee forestry found a vehicle for their cause and a government at executive level that was willing to listen. Following the Russian Revolution in 1917, the supplier of at least 35% (and possibly as much as 50%) of Britain's timber in 1914 fell into disorder.[43] Allied to growing concerns over the depletion of forests across the Empire, notably in Canada, the need for domestic afforestation was as clear as it was varied.

The Committee was not afraid to think long-term, suggesting as a target the near-doubling of the UK's woodland area over the course of the twentieth century, from approximately 2m acres to 3.77m.[44] This target would later be revised upward, but nonetheless displays the early ambition and seriousness with which the project was handled. The independent state body created was to be the Forestry Commission, which officially came into being on September 1st, 1919, supplanting the Interim Forest Authority that had been provisionally

[38] Bird & Davies, p.33, table of statistics. Of the near 398 million FBM of timber felled, 187 million was from estates in Scotland (this relates only to the CFC).

[39] Smout, MacDonald & Watson, *A History of the Native Woods of Scotland, 1500-1920*, p. 259

[40] Forestry Commission, *Report on Census of Woodlands and Census of Production of Home-grown Timber, 1924* (H.M. Stationary Office, 1928)

[41] Mark Louden Anderson, *A History of Scottish Forestry, Vol. 2: From the Industrial Revolution to Modern Times*, p.454 (London, 1967)

[42] David Foot, *Woods & People: Putting Forests on the Map*, p.41 (Stroud, 2010)

[43] E. P. Stebbing, *British Forestry: Its Present Position and Outlook After the War*, p.67 (London, 1916)

[44] George Ryle, *Forest Service: The First Forty-Five Years of the Forestry Commission of Great Britain*, p.28 (Newton Abbot, 1969)

created ten months earlier at the end of the war.[45] Of the eight Commissioners, all but one were private landowners – three of them in Scotland, with Lord Lovat the Chairman.[46] The Commission's northern office – the only outside London – was in Edinburgh.

The primary objective of both bodies was a rapid programme of afforestation and the acquisition of land to do so. With the war having devastated timber stocks on many private estates, some landowners recognised the financial and practical difficulties of taking on such a long-term project as the planting and maintenance of woodlands and decided to sell, or in some cases donate, land to the Commission. With the end of price controls for agriculture in 1921, as the Commission was beginning its task of planting in earnest, forestry became a significant employer in rural areas and a partial check on the migration of workers to cities.[47]

Amongst the areas of land that would come under control of the Forestry Commission in Scotland during its early years were Monaughty Forest and the Culbin Sands in Moray, Inchnacardoch and South Laggan Forests in the Great Glen, and Benmore and Kilmun Estate, along with the adjoining Glenbranter, in Argyll, the last two former properties of Harry Younger, of the Edinburgh-based brewing dynasty, and Harry Lauder, the music-hall entertainer, respectively.[48] By 1924, the government owned 29 forests across Scotland, comprising 141,900 acres.[49]

As in so many other areas, the First World War acted as a catalyst for considerable and radical change to forestry in Scotland. Events of diplomacy and warfare abroad, that seemingly had little to do with woodland management, subtly shaped a profound change in government policy toward forestry in Britain, changing Scotland's rural economy and landscape in a manner that continues to be seen to this day.

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[45] James Miller, *The Foresters*, p.46 (Edinburgh, 2009)

[46] Ibid. In addition to Lovat and Stirling Maxwell was Walter Scrymsoure-Steuart-Fotheringham, a Perthshire landowner.

[47] Foot, *Woods & People*, p.45

[48] Ibid., p.49

[49] Anderson, *A History of Scottish Forestry, Vol. 2*, p.434. This acreage represents land holding area acquired, not forest area.

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The Influence Of Policy On Estate Forestry In The 20th Century

Andrew Barbour

The period in question has been key for forestry in the UK and this paper looks in particular at this subject as affecting two private estates of contrasting size and nature in Highland Perthshire. Bonskeid estate owned by the Barbour family is a medium sized property at about 4000 acres, (concentrating on timber production and agriculture) and Atholl Estates, owned wholly in the early part of the century by the Murray family is much larger at about 145,000 acres (as in 2016), with a mixed portfolio of businesses in land/property management and tourism.

Pre – First World War: These two properties had seen widespread afforestation, principally with larch, in the 19th century, influenced by the romantic movement and the traditions of 'land improvement' rather than by any government policy. The British Government had no discernible forestry policy affecting private estates in the 19th and early 20th century although forestry as a subject was frequently covered by agricultural committees (the development commissioners) and there was discussion about establishing a national forestry training school or 'board'. John Murray, the 7th Duke of Atholl, was in secret discussions with Government about this in relation to leasing Rotmell farm and the Dunkeld woodlands to act as a centre for this 'Board', but the First World War intervened.

1914 – 1939: The First World War had a major impact at a UK level on the existing woodlands, with an estimated 15% felled. The work of the Timber Control Committee was a sword hanging over all timber growers and at Bonskeid timber was felled in advance of requisitioning. Income from these sales were used to buy war stocks which were then subsequently used to fund the gap in income and expenditure in the early 1920s, a deficit in part created by the large rise in wages then experienced through First World War and into the 1920s. On Atholl, large scale fellings were also experienced, with Craig Vinean felled in 1917/18 and Craig y Barnes the year later. Both Bonskeid and Atholl Estates (under the 8th Duke John) restocked their woodlands after the war, although in the case of Atholl much of this was done in the 1930s. However, the mid rotation woodlands on Atholl were somewhat ignored according to a report commissioned by Tony Murray in 1937. The post war period saw both estates suffer considerable financial hardship with Atholl Estates losing much of the land that it had acquired through the 19th century. To all intents and purposes bankrupt, the estate was saved by marriage into the Cowdray family who then effectively controlled it. Bonskeid survived intact but the strain was obviously keenly felt by the then owner, GF Barbour (GFB).

During this period, the newly formed Forestry Commission supported private forestry with grant aid. Planting grants and unemployment relief grants were used to implement a programme of restocking felled and 'neglected' woodland across the UK, with some 31,000 acres restocked in the private sector in the 1920s and a total of 73,000 acres of new and restocked woodland achieved over this period. In the 1930s a further 53,000 acres were added in the private sector, well short of what was identified in the influential Acland Committee Report of 1917 (this committee had set the policy framework for the still to be formed FC and existing private forestry for the next 20 years). Against a pre-Great War estimated UK woodland area of 3 million acres, the restocking and new planting effort in the private sector was fairly limited.

Grant aid was not the only measure used nationally to support forestry and woodlands were de-rated in England and Wales during this time, although not in Scotland where rating levels were very low for forest land.

In the 1920s and 30s at Bonskeid, GFB was keen to restock the woodlands and used these Government grants to help him do that. He records that one restocking at Balchraggan was helped by an unemployment grant of £65-12-8 in 1924. The planting details show the close spacing and the species mix, with larch retaining its pre-war dominance. The problems caused by rabbits was a major issue and in 1934 GFB records the

repayment of government grant aid originally given in 1928 due to this issue – 13 ½ acres at 30/- per acre, total £20-5-0, with interest of £6-10-0 taking the total to £26-15-0. Some things never change.

Grant aid was not limited to forestry in this period, but it is noteworthy that there is no mention of agricultural grants in GFB's diary entries through this period. Housing, for instance, was supported and the Rural Housing Act provided grant aid to improve houses over the UK, this being used on Bonskeid. The collapse of the upland agricultural economy in the 1930s was keenly felt and GFB found himself with more land in hand than he intended over this period. Forestry income was used over this period to provide the working capital for the farming. Income from timber kept the estate intact, with sales of birch to bobbin mills in particular providing income.

At a national scale, there was widespread concern that private woodlands were in decline and were being neglected. This was thought to be, at least in part, due to wider high taxation levels and the depression of the 1930s. Neither Bonskeid nor Atholl were immune from these concerns. On Atholl, this was highlighted by Tony Murray's report of 1937 on the woodlands which suggested a plan of re-investment to be developed. This was overtaken by events, not least the death of its author in Italy in the Scottish Horse. More widely, the concern about the condition of private woodlands led to the creation after the War of the Dedication Scheme.

1939 – 45: An early impact of the War on forestry activities on Bonskeid was the increase in wages as directed by the Wages Board. Foresters were deemed to be on par with farm workers in 1943 and the rises duly noted in the diary. Timber felling had early on in the war been put under the control of the government, with maximum standing prices fixed in 1939 at £1/cubic foot for conifers with 'lower prices for trees under timber size' with the exception of larch at sleeper size set at 1/6d. Despite appeals from national bodies to the government, these prices were maintained throughout the war. On Bonskeid, the second war saw further compulsory fellings including trees dating from early 1800s that had been spared the fellings of the Great War. The difference this time was the desperate shortage of wood and the presence of the Canadian Forestry Corps in the area with their mill at Blair Atholl needing timber. The diaries show that GFB quite understood the need for these fellings though he was clearly sad to see 'fine trees' that had stood for so long being felled. He articulates his respect for the divisional officer for Timber Control, Mr Frank Scott. It is interesting to note that he was allowed to keep shelter belts important to the farm which otherwise held useable timber. These same woods provided the shelter which enabled the sheep flock to fully survive the 1947 winter, a winter which saw the UK upland sheep flock halved through snow losses.

On Bonskeid, the parlous state of finances and knowing that there was going to be a big restocking cost after the war, GFB tried to interest the FC (known as the Commission to him) to buy or lease several of the hill farms on the estate (the Mains of Bonskeid and Clochkan) but this was eventually turned down in late 1941 on the basis that the combined area was only 400 acres and the FC were only interested in areas larger than 500 acres. Three years later the FC bought Allean in Strathtummel and started its planting. The hill land areas in question were subsequently designated as SSSI in the 1970s.

Post-War Years: The second War had a major effect on the nation's woodlands and the national woodland census of 1947 showed that of the 2,850,000 acres of privately owned woodland (land carrying evidence of having been woodland), some 484,000 were classed as felled since 1939, with a further 275,000 acres having been left unstocked since the First War fellings. The concern existing before the War about the state of private woodlands was amplified by the effects of this latest war, where many young plantations had been felled to provide timber props for the coal industry. A proposed dedication scheme was first drafted in 1943 and eventually, after consultation, appeared as a scheme with planting grants and maintenance grants to back up the long-term commitment that owners would take on when dedicating their ground to woodland. It wasn't until 1949 that the dedication scheme finally opened, with the then Minister for Agriculture and Fisheries, Mr Tom Williams, saying in Parliament that of the 2.8 million acres of privately-owned woodland, 1 million were needing re-planted. Planting grants, thinning grants and maintenance grants were all introduced to go alongside the advantageous tax treatment of forestry. Owners were cautious about this scheme and this was true on both Atholl and Bonskeid. On Atholl, the scheme wasn't entered into until 1952, two years after the new head forester, Mr J B Hendry, was appointed.

On Bonskeid, GFB died in 1946 and the estate's affairs were then overseen by his son, Robin Barbour (RASB). He records the replanting of the Milton Wood in Glen Fincastle at £784 (with grant aid at £126) and notes the difficulty in securing Japanese or hybrid larch, European having to be used. The uncertainty of the 1930s and the war years carried on over into the late 1940s and RASB notes his concern at the obligations of the dedication scheme when so much was still so uncertain. It wasn't until 1952 and with RASB's brother, Alec (AWB), in charge that the decision to dedicate the woodlands was taken. The diaries show that the convincing argument was that the new forestry act forced restocking obligations on owners, whether the land was dedicated or not.

The decision to dedicate on Bonskeid (with the post war rise in timber values) gave this generation renewed optimism in the future of both the woodlands and the wider property. Indeed, the sale of the remaining wood behind Fincastle gave the funds (£6500) to buy back from the Commission the neighbouring lands of Edintian which the Agricultural Dept had blocked as plantable land. Attempts to buy back parts of Allean unplanted hill were however unsuccessful in 1972 when the associated inbye lands of two small holdings in Glen Fincastle were bought back by the estate. So, FC policy, in part through its relationship to agriculture, had shaped the land use on this property to a very large degree, both through the refusal to buy / lease smaller areas in the war years and its willingness to sell open, unplantable land in the post war years.

The dedication scheme, willingly renewed in 1957 on Bonskeid after the first five years, gave a structure to forestry work and planning which had been missing in the pre-war years. The stability this gave (with the grant aid) and the arrival of myxomatosis meant that areas that had been considered too difficult to fence against rabbits were taken into forestry and the woodland area on Bonskeid was considerably enlarged by some 25% in the late 1950s.

1960 - 1988: The tax shelters which the dedication schemes enjoyed, resulted in a new type of private forestry across upland Britain: 'investment forestry' by wealthy individuals and institutions who bought land specifically for this purpose. The UK wide resistance to this commercial afforestation (with mostly spruce) led to the abolition of this scheme and the far-reaching tax changes for forestry found in the Lawson 1988 budget. On Bonskeid, there had been no new plantings of this type through the 1960s to 1980s whilst Atholl had continued a programme of coniferous plantation investments at Tulliemet and Calvine (about 2000 acres in total). Encouraged by the dedication scheme and its mix of grant and tax support, both properties had heavily re-invested in their existing woodlands in the post war years.

The tax changes in 1988 (with a change of emphasis away from commercial planting to amenity and the environment) brought in the greatest period of new planting on Atholl seen since the mid-19th century. The grant levels introduced to persuade owners to plant native woodlands – including native pine woodlands in highland areas – were greeted warmly by the owners of Atholl where through the 1990s some 7500 acres of new native pine planting were introduced, effectively doubling the estate's woodland area. Bonskeid also added new woodland area at this time with a more modest 125 acres of new native pine woodland. Atholl Estates was once again in the forefront of a new wave of re-afforestation in the UK, although the results weren't always very successful. These plantings were all completed in the 1990s although remedial work carried on well into the present century.

Outside of the state controlled fellings of the two world wars, there have therefore been two key interventions by the State which have had a major impact on the way forestry has developed on these two estates: the dedication scheme of the 1950s to 1980s which brought management rigour to the existing woodlands and the post 1988 switch in emphasis away from conventional timber production towards 'native woodland' with environmental enhancement objectives which saw dramatic w7oodland expansion. At a national level, the twentieth century saw the most unique private/ public partnership develop in the field of forestry but one that is not being sustained as we advance further into the 21st century.