Some Aspects of the Timber Supply in the Highlands, 1700-1850

JAMES M. LINDSAY

Travelling in the Highlands in the 1720s, Edward Burt was impressed by the way in which timber was made to serve in place of metal. '. . . Almost all their implements for husbandry', he wrote, 'which in other countries are made of iron, or partly of that metal, are in some parts of the highlands entirely made of wood; such as the spade, plough-share, harrow, harness, and bolts; and even locks for doors are made of wood' (Burt 1815:II.122–3).

Timber was important not only as a substitute for iron. It was used for a remarkable range of purposes, and careful use was made of the characteristics of different forms and species of wood. Trees provided material not only for house-building, furnishings, carts, other vehicles, and boats, but for farming and fishing implements, domestic utensils, basket-work, ropes, and harness; bark was employed in dyeing and tanning. Almost all the work involved was done by the intending consumers themselves rather than professional timber workers. The use of tree produce was not conspicuously extravagant. Thus throughout the Highlands, when a building ceased to be in use the main roof timbers were removed and used elsewhere: in some districts landowners thought it necessary to prevent outgoing tenants from taking the timbers of their houses away with them (Burt 1815:I.27; Barron 1892:113, 116; Michie 1901:142; Fairhurst 1967–8:146).

Recent research has added to knowledge of the techniques employed, but little is yet known of the rates at which Highland communities consumed tree produce. In the most general terms, however, consumption *per caput* was probably lower than in the burghs and lowland districts with access to imported timber. In building technique, for example, Highland forms made use of stone and timber in varying proportions for the frame, but timber flooring, boarding, interior panelling, and other such refinements were rare. This contrasts markedly with the burghal style of building around 1700 (Smout 1960:3–4). Recent research also tends to emphasise variation within the Highland zone: there is a clear difference between the massive and even to some extent superfluous framing of buildings at sites in the central and south Highlands (*e.g.* Corrimony, Inverness-shire; Pitcastle, Perthshire) and the evident shortage of suitable timber at Rosal in Sutherland (Dunbar 1960:116; Fairhurst 1967–8:146; Hay 1973:131–2).

This variation reflects the irregular distribution of woodland. Evidence about the position in 1700 is fragmentary, but suggests an uneven and relatively sparse distribution: the Military Survey of 1747–55 corroborates this. The Survey indicates that the Highlands, even if better wooded than the rest of Scotland, had a woodland cover of only about 5 per cent of the total area.[1] Throughout the Highlands woodland survived only at low levels, usually in lines or strips along valley bottoms and on the coast. The massifs of the west and central Highlands were sparsely wooded. At lower levels, Caithness and much of Sutherland was more or less treeless, as were Kintyre and other exposed parts of the west coast. The Survey provides no information about the islands, but they are unlikely to have been well provided with timber.

Bulk overland carriage was notoriously difficult in the Highlands. Even at the end of the eighteenth century there was only a rudimentary network of roads suitable for wheeled vehicles. Particularly in the case of the larger forms of timber, this was a major obstacle to the development of an internal trade in timber which might have rectified the initial imbalance of resources. In coastal districts, as will be seen later, some long-distance movement did take place, but it is evident that elsewhere tenant farmers were for most purposes dependent on the produce of woodland within a few miles of their homes.

If local supplies became depleted, or access to them was restricted, the community therefore faced a certain amount of hardship, the degree of which depended both on the community's requirements and the extent of woodland which remained within accessible range. After 1700 such a problem confronted an increasing number of Highland communities, as proprietors discovered uses for their woodland more profitable than service to the tenants of their lands. It is therefore of some interest to examine the ways in which the development of this alternative demand modified the established uses of woodland resources.

The evolution of land use patterns should not be seen as the result of the interaction of abstract forces. Recent research has emphasised the importance of individuals in the development of landscape (Adams 1968:248–55). Like other innovations in land use, the introduction of commercial forestry depended to a large extent on conscious decisions by landowners and others with executive power. For this reason it would not be inappropriate to pay particular attention to the decision-making aspect of change, the way in which proprietors tried to solve the problems of reconciling the different interests of existing forms of subsistence and new sources of income.

Unfortunately the type of information available puts some obstacles in the way of this aim. The primary evidence consists largely of estate papers, particularly contracts, memoranda, accounts, and other documents concerning wood management. Evidence of this type rarely provides direct illustration of the decision-making process in action, although it does frequently allow the nature of decisions to be inferred from the pattern of subsequent events.

A problem of a different kind relates to the measurement of the amounts of timber

and other materials utilised. The supply of tree produce to tenants (consisting as it did of a large number of very small quantities of different types) is less easily examined systematically than other aspects of wood management. Some sets of estate papers contain detailed records of the supply to tenants, but in too irregular a form to have more than illustrative value. Case studies may not therefore be feasible. Nor do estate papers provide a base for reliable generalisation: this is inevitable in view of the detailed and localised evidence they contain. Finally, by no means all Highland proprietors kept adequate records. As surviving collections relate only to the part of the landowning body enthusiastic enough to do so, they may thus not be truly representative.

In view of these problems, it is intended here only to examine the development of what may be interpreted as a conflict in demands for timber, to outline the range of solutions applied to the problem, and to suggest some effects it may have had upon the Highland rural economy.

The Development of Conflicting Demands for Timber

In Scotland all the woodland of an estate, including any planted by the tenants, was the property of the landowner: this was implicit in conventional leases, and even a lease 'with woods' allowed the lessee only to cut timber for the construction and repair of farm buildings (Bell 1861:517, 825). The use of woodland by tenants and their dependents was thus a privilege rather than a right, and Highland lairds were not unaware of this. Thus the heritors of Dull parish in north Perthshire, as early as 1627, classed woodland with peat bogs, grazings, and other resources bestowed on their tenants as 'benefits and commodities' independent of the lease of land (MacGrigor 1835:155).

Whatever the legal position, it was generally accepted that tenants should have access to woodland. Such evidence as is available about the seventeenth century indicates that this was the case. Apart from the force of tradition, the lack of commercial demand for Highland timber nullified the main incentive which the owners of woods might have had for exercising their right to reserve them for their own use: there was consequently no need for lairds to think seriously of curtailing their tenants' privileges. Use was nevertheless not completely uncontrolled. Some proprietors, particularly on the Highland fringe, directed the use of woodland by means of their baron courts. It is not unlikely that elsewhere use tended to be regulated by an unwritten code of the type which governed most aspects of Highland agriculture (Lindsay 1974:82–8).

Gradually in the seventeenth century and more rapidly after 1700, commercial use of the existing semi-natural woodland of the Highlands increased: felling of pine and the management of deciduous wood as coppice were most significant. Woods of Scots pine survived mainly in the east and central Highlands. Some of these pine woods had been cut for profit before 1700, when the emphasis was on the more westerly woods with good sea access, like those of Ardgour, Loch Leven, and Glen Orchy, and this continued

into the next century. The extensive inland woods of the east and centre became much more important as timber sources in the second half of the eighteenth century, and the peak of production seems to have come in the decades around 1800, although the scale of felling was very small in comparison with modern domestic soft-wood production. In most cases felling had largely ceased by 1850 (Lindsay 1974:215–16).

Mixed deciduous woodland was generally most common. Birch predominated in most areas, but oak was prominent in the west and south Highlands, providing the basis for a system of oak tanbark coppicing. Coppice management utilises the tendency of oak and other deciduous trees to produce repeated crops of shoots from the cut stump or 'stool'. In the case of Highland oak the most valuable part of each crop, cut usually at intervals of 19–25 years, was the bark: oak bark was the main British tanning agent until the late nineteenth century. Coppice oak timber was also saleable, and other deciduous trees were also coppiced for a variety of purposes.

Coppice management made tentative appearances on the Highland margin after 1600, and extended more definitely toward the end of the century. After 1700 the area of coppice continued to expand, and the peak was reached in the 25 years after 1790, during which the prices of bark and other coppice produce rose sharply under wartime conditions. After 1815, however, there was a gradual decline, and by 1850 prices had returned to the levels of 1790. At the height of its importance coppice was cut as far north as Sutherland, but throughout the period the main concentrations were in Argyll, Perthshire, and the Highland parts of Stirlingshire and Dunbartonshire (Lindsay 1975: 88–90).

Large areas were planted with trees. The period between 1750 and 1815 seems to have been the most active phase in the Highlands; there is, however, no reliable information about the acreages involved, and plantations ranged in form from small mixed ornamental woods to extensive monocultural forests like the Atholl estate larchwoods. In some cases, particularly around 1800, hardwood plantation was converted to coppice (Monteath 1824:25–8). More commonly, however, plantation took the form of high forest. Few parts of the Highlands were not affected to some extent, but most of the activity and the greatest individual efforts (*e.g.* the Breadalbane, Argyll, Atholl, Invercauld, and Lovat examples) were in districts which were already quite well wooded. In this way planting tended to reinforce the existing imbalance in woodland distribution.

The impact of commercial demand was plainly not uniform either in time or space. Where such a demand arose, however, proprietors found it necessary to consider the requirements of potential purchasers. In general terms the form of pine most in demand was large straight timber. Even-aged forest of tall straight trees was therefore most valuable, and it was also desirable that it should be compact and readily accessible by road or water. The requirements of those buying planted high forest were broadly similar, and thoughtful proprietors could minimise waste by designing plantations accordingly. In both cases timber sufficient for several years' cutting might be sold under

one contract, and it was necessary that the owner should be able to guarantee its security until the purchaser cut it.

The demands of coppice cutters differed in emphasis. The portability of the produce rather reduced the need for compactness and accessibility, and in some cases at least species diversity was desirable or at least acceptable. Uniformity of age was very important. A few years difference in age could mean a marked difference in the market value of bark and timber. In many cases several more or less equal annual sections or 'haggs' were sold under a single contract: the vulnerability of the shoots during the first few years after each cutting reinforced the need to maintain the quality of the haggs individually and as a group.

Not all of the woodland of an estate might be fit for use in such terms, and continued cutting by tenants could, in a number of ways, reduce the area of valuable wood still further. There is a variety of evidence about this: particularly illuminating is a set of proposals for the management of the regality of Atholl, submitted anonymously to the Duke of Atholl in 1708 (E.U.L. Dc 1.37 1/3). In general wasteful use by tenants was seen to take three main forms. Firstly, local users were often given a degree of choice which was no longer appropriate when woodland was to be conserved for commercial purposes. They might thus be permitted to take timber from any part of the woods which suited them: sometimes this was simply the most accessible, but at other times tenants ensured that they got the best. In Atholl they carefully selected the straightest young coppice shoots as girdstings (hoops) for domestic cooperage (E.U.L. Dc 1.37 1/3, 11).

Secondly, privileges might be abused deliberately or through negligence. In 1760 the Earl of Fife's case in a dispute over servitudes (under which the tenants of others had access to his pinewoods of Mar in Aberdeenshire) alleged that some of the best pines were cut for trivial purposes: the upper bole and branches might thus be taken for roof timbers, and the trunk itself left to rot or 'scandalously applied to improper uses'. As was also the case in Rannoch in Perthshire, large growing pines were damaged by the cutting of 'candle fir' (lighting splints) (S.R.O. E 783/17/1; Michie, 1901:142). The range of deliberate abuses was very wide. Petty damage was not unknown: the author of the Atholl proposals alleged that children, cottars, and the poor, who were allowed to gather dead wood for fuel, took care to damage growing trees in order to maintain the supply (E.U.L. Dc 1.37 1/3, 11). There was a certain amount of theft for profit. Thus timber from the pinewood of Rannoch was stolen by tenants and cottars on the estate in the 1750s, and sold in the neighbouring markets (S.R.O. E 783/17/1, E 783/26/11). In other cases, however, tree produce was stolen simply for domestic use. Thus at a baron court session on the island of Lismore in 1749 tenants and their dependents admitted stealing wood for couples and other house timbers, implements, creels, and fuel (S.R.O. GD 170/348).

Finally, timber consumption was increased by inefficiency in use. According to the Atholl proposals, professional timber-workers would have needed only a third of the

wood used by 'miskillfull and unexpert housbandmen' for house repairs and other purposes. Construction was in any case so poor that the timbers of houses tended to rot quickly (E.U.L. Dc 1.37 1/3, 11–12). The factor in Rannoch gave tenants leave to build three small bridges around 1752; the forester afterwards discovered that they had used twenty saleable pines worth about £10 in all, rather than the almost valueless wood of birch and alder (S.R.O. E 783/26/11).

Lax control, abuse of privileges, and inefficiency in use were all, therefore, obstacles to the effective sale of tree produce to external markets. A variety of solutions were applied to these three aspects of the problem.

Modification of the Use of Woodland

The available information points to a variety of compromises. There is no evident example of a proprietor deliberately spurning all chance of profit for the sake of his tenants' needs, nor is there evidence of tenants being totally excluded from use of an estate's woodland. Many proprietors, particularly those conscious of clan loyalties, may have been motivated by real concern for their tenants' welfare, but the poor quality of much Highland woodland made it intrinsically unlikely in any case that all the wood of an estate would be commercially acceptable.

The nature of the evidence makes it much easier to identify and explain positive changes than to establish which factors were most important among the many tending to maintain the *status quo*. For this reason it is not possible to say how far recognition of the existing needs of the local community restricted the application of commercial felling: many other factors may have played a part. On the other hand, when commercial use was adopted one of the most immediate needs was to ensure that whatever use tenants made of woodland interfered as little as possible with the demands of the purchasers. The privileges of the local community therefore had to be defined clearly and understood by tenants and purchasers.

Such privileges were sometimes recorded in contracts of sale: this was particularly the case if tenants were guaranteed part of the produce of woodland sold for commercial use. Sometimes no restriction was placed on the amount used for particular purposes. Thus in 1728, when Sir James Grant of Grant sold pinewood in Abernethy (Strath Spey) to the York Buildings Company, the purchasers were obliged to allow the cutting of pine timber for the upkeep of tenant houses (S.R.O. GD 248/135/1). The company had agreed to buy a set number of trees, and it was evidently thought that tenant use would not endanger this quota. Some coppice contracts allowed tenants to cut the less valuable material freely. In 1792 Campbell of Glendaruel in Argyll reserved his and his tenants' freedom to cut withies and small posts in coppice sold by him (S.R.O. GD 1/390[54]).

In other instances purchasers were obliged to provide specified quantities for the use of estate tenants. A memorandum of 1777 about the intended sale of mixed coppice at Barcaldine in Argyll recommended reservation of 20 stones of oak bark for the laird

and tenants, as well as birch and alder timber equivalent to three dozens of charcoal for the tenants alone (S.R.O. GD 170/438). Proprietors customarily provided timber for the upkeep of the mills on their lands, and in 1792 Campbell of Glendaruel reserved a specified quantity of oak as mill timber (S.R.O. GD 1/390[54]).

In one case at least tenants received set quantities in exchange for labour. For much of the eighteenth century the inhabitants of certain farms on Loch Rannoch-side cut and carried timber from the pinewood of Rannoch for the lessee of the sawmill in lieu of rent; they were also allowed for their own use a proportion of the poorer pine timber cut (S.R.O. E 783/1/10). In another form of privilege the purchaser was required to supply unlimited quantities of timber for certain purposes, but was reimbursed in proportion to the amounts used. Thus in the few decades after 1744 contracts for the sale of the Montrose estate oak coppices of Menteith in southwest Perthshire obliged the purchaser to supply as much timber as was needed for tenant houses. The estate paid compensation according to a fixed scale of charges (S.R.O. GD 220).[2]

These solutions all interfered to some extent with commercial cutting and required the co-operation of the purchasers, difficulties which could be avoided if specified areas were set aside for use by the tenants. This may indeed have been a more common policy, although assessment of its relative importance is difficult. Evidence is scanty, but this may in part be because surviving estate papers refer relatively little to those woods which for one reason or another were not commercially important.

The allocation of woodland to the local community is made explicit in a few cases. In the 1780s the Argyll estate coppices in Morvern were being cut and sold in haggs. Certain parts were reserved for the tenants and cut in sequence under the supervision of a 'wood ranger' (Cregeen 1964:150). In other instances tenant use may be inferred. After 1760 only the tenants of the barony of Port of Menteith were furnished with house timbers from the Menteith woods in the way described above (S.R.O. GD 220/6/50). The two larger baronies comprising the rest of the estate evidently had other means of supply. They were proportionally better wooded than Port, and their tenants may have been expected to get timbers from woods excluded from the oak coppice rotation.

Negotiating with Macdonald of Clanranald for coppice in 1794, the manager of an ironworks in Argyll suggested that he would be ill-advised to reserve a certain wood for his tenants, as it contained a quantity of oak fit for cutting: black wood (deciduous wood with little or no oak, also called barren wood or timber) would be more suitable (N.L.S. MS 995, 26). It seems likely that many proprietors did not need prompting to realise the advantages of confining tenant use to wood of the less profitable species. If the value of such woodland rose, however, even this privilege might be threatened. In 1758 the Montrose estate tenants of Craigrostan on Loch Lomond were so concerned by reports that their barren wood might be put to commercial use that they submitted a petition outlining its importance to them. This seems to have been successful (S.R.O. GD 220).[3]

Systematic wood management itself provided tenants with a supply of barren timber. For almost 30 years after 1751 the inhabitants of Rannoch were encouraged to cut birch and alder freely, in the belief that the removal of these trees facilitated the regeneration of pine (S.R.O. E 783/17/1; Lindsay 1974:288–9). It was not unknown for barren timber to be removed from mixed coppice. In one relatively early example, the second Earl of Breadalbane ordered in 1741 that his woods by Loch Etive (Argyll) should be cleared of 'common' species where they obstructed the oak. To defray costs the timber was to be sold, and preference was to be given to the people of Nether Lorn (S.R.O. GD 170/348).

In the cases considered so far the inhabitants of an estate or district were in a privileged position in terms of access to certain woods. In other circumstances, however, tenants found it necessary to buy supplies on the open market. Timber and bark merchants could not expect to sell all the produce of a wood to distant markets, and coppice merchants in particular were left with a residue of small timber and waste. The local community provided the most convenient if not always the best market for such material, and this was evidently a common means of sale in the south Highlands by the beginning of the nineteenth century (Robertson 1794:96–7; Whyte and Macfarlan 1811:155).

In Rannoch sales to tenants in fact formed a major part of commercial sales of pine by the late eighteenth century. Figure 1 shows the location and status of purchasers in the period 1779–81.[4] Tenants of the estate received pine timber free only in exceptional circumstances. They accounted for about 20 per cent of sales in the period, and men of tenant status bought 47 per cent in all. Professional timber workers (wrights) bought only 19 per cent; proprietors and others bought 34 per cent. The average tenant purchase (1·16 lots) was small in comparison to the average of six lots bought by the few local wrights, and Figure 1 also suggests that increase in distance from the sawmill had a particularly deterrent effect on tenant purchasers.

The Rannoch woods and sawmill were let to various local men, but some proprietors preferred to sell their timber directly. Thus the Barcaldine estate in Argyll had extensive semi-natural woods and plantations, timber from which was sold locally in the late eighteenth and early nineteenth centuries. A list of pine timber sold in 1810, for example, shows that the sixty-six lots went largely to tenants on Barcaldine and other estates within a radius of 15 miles (24 km) of the woods (S.R.O. GD 170/587/1).

To summarise, tenants could be allowed restricted use of woodland cut commercially, or the more complete use of other woods; alternatively they might be expected to compete for supplies on the open market. It should of course be emphasised that elements of the different solutions were often combined. A miller in Rannoch in the 1760s, for example, would have unlimited access to birch and alder, a free supply of pine specifically for the mill, and the opportunity of buying any pine needed for other purposes.

Turning briefly to the other ways in which tenant use conflicted with commercial

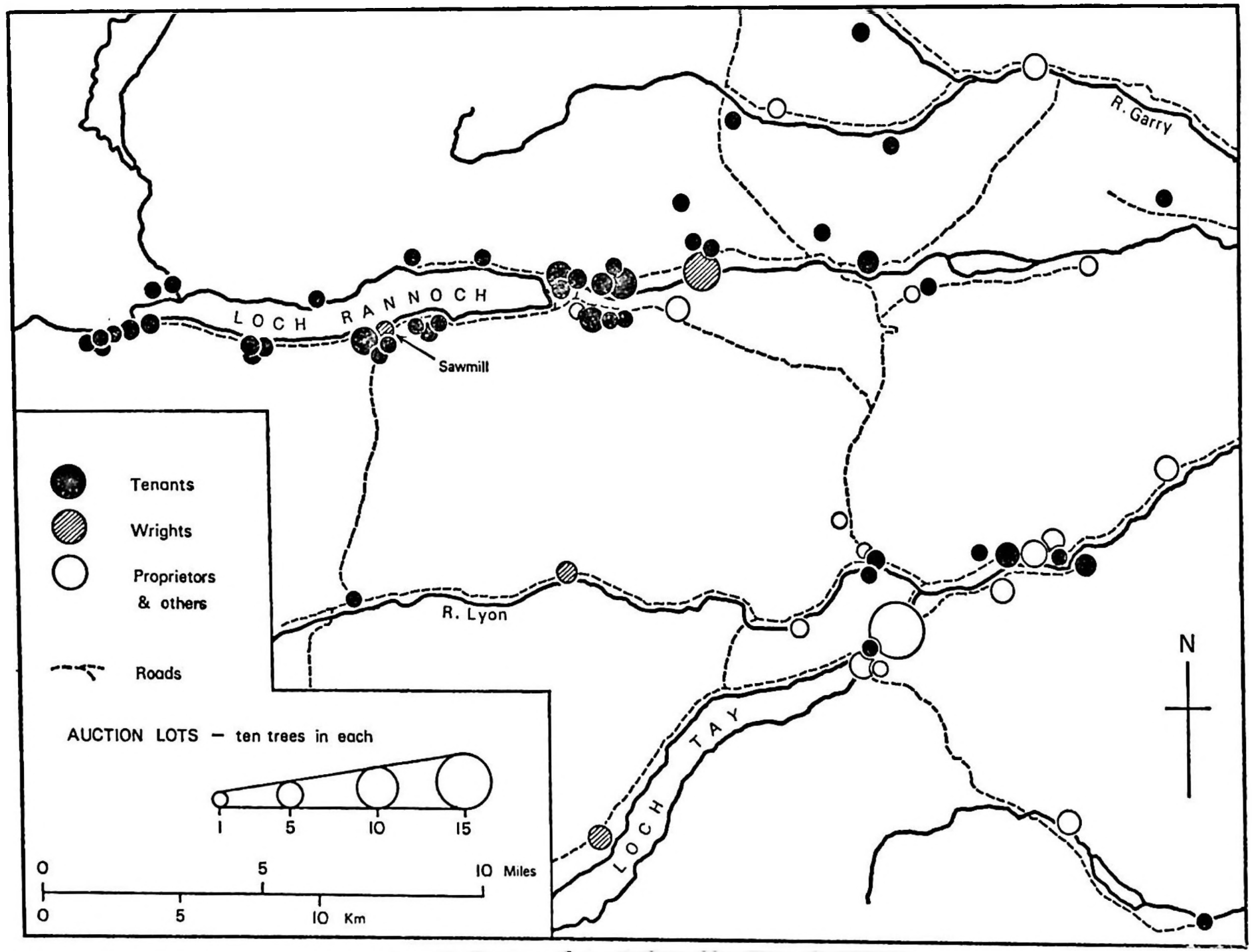

FIG. 1 Destinations of pine timber sold in Rannoch, 1779–81.

requirements, the problem of abuse of privilege remained even if an adequate supply of wood was provided by the means outlined above, and may have become intensified if privileges were greatly reduced. One solution to the problems of negligence and deliberate abuse was to combine strict supervision with exemplary punishment of convicted offenders. Foresters and woodkeepers increased in numbers as the eighteenth century advanced, but it is not possible to assess the general effectiveness of supervision: it cannot, for example, be certain how truly the numbers brought to trial correspond with the number of offences.

Prior to 1747 landowners were able to impose their own standards of justice on their tenants through the medium of the baron court. In that year, however, the competence of baron courts was greatly reduced, and thereafter they were gradually abandoned in favour of trial before a less partial but more effective judiciary. Landowners had to become familiar with different and often more cumbersome ways of proceeding against offenders.[5] This in itself may have made abuse more difficult to check, and theft of timber was still a problem in the Highlands in general as late as the 1820s (Monteath 1827:61).

As for the efficiency with which produce was used, the anonymous author of the Athole proposals foresaw quite correctly in 1708 that no fundamental improvement was possible unless the bulk of local timber-working was done by professional craftsmen (E.U.L. Dc 1.37 1/3 12–13). Figure 1 shows how little progress in this direction had been made in an adjacent part of Perthshire more than 70 years later. By the end of the century traditional self-sufficiency in the use of tree produce could be regarded as a thing of the past on the southern Highland fringe, but the evidence of later travellers indicates that old and relatively inefficient methods survived considerably later to the north (Allardyce 1888:II.198–9).

Effects on the Rural Economy

Population rose in most Highland districts at least into the early nineteenth century, but accessible timber stocks probably decreased: the produce of part of the semi-natural woodland and most of the plantations went to external markets. It might therefore be expected that there would be a recognisable shortage of material for local use, but there is remarkably little evidence of this. In the coppice counties of Argyll and Perthshire, for example, some of the 110 Old Statistical Account reports complained of the poorly wooded state of particular parishes, but only three made unambiguous reference to a shortage of timber (SA:II.187, 280–1; XIX.631).

It is possible to suggest a number of factors contributing to this situation. Consumption may have been lowered by substitution of other materials or techniques, or by concentration of production in the hands of professional timber workers, although it is apparent that the development of craft specialisation in the Highlands was slow and limited. The role of theft in augmenting supplies should not be overlooked. Planting

may have eased the supply situation in some cases, but tenants could expect only an intermittent benefit from high forest plantation, in the form of periodic thinnings and perhaps a chance to buy the poorer material when the plantation was finally felled. Imported timber also became more accessible. Foreign pine was threatening the local dominance of Rannoch timber by the 1770s; imported wood was in use in Argyll by the end of the century (S.R.O. E 783/60/220; SA:8.422–3; Smith 1805:141).

Perhaps the most important single factor was the limited proportion of woodland reserved for commercial use. A certain amount was not considered fit for cutting, and more was eliminated by the pressing need for winter grazing. The more careful landowners managed their woods with the aim of ensuring future productivity; the conflict between woodland management and winter grazing has been more fully described elsewhere (Lindsay 1974:132–83). In brief, almost all Highland districts had winter pasture so much smaller than summer pasture that it greatly limited overall stocking capacity. Woodland, if present, usually lay within the wintering range, and removal of such land from the free grazing area entailed a reduction of stocks and therefore loss of revenue from grazing rent.

On the other hand, protection from grazing animals was vital for the success of regeneration. Permanent enclosure might be necessary for the long-term survival of a pine wood, and in coppice a crop could be completely destroyed if it was not protected for the first few years after each cutting. Proprietors were compelled to balance the needs of the two land uses. The usual result was that much less woodland was protected than might otherwise have been the case. Pinewood was affected: enclosure of the Wood of Rannoch was confined to the compact central part (S.R.O. E 783/76/9). Coppice management tended to be restricted to compact and accessible woods of the more valuable species. A rise in the relative value of grazing, as in the early nineteenth century, could lead to widespread abandonment of coppice throughout the Highlands (Monteath 1827:53).

Management was thus a selective process, and a varying proportion of woodland was excluded from careful supervision. Some proprietors preferred to exploit their woods without regard to sustained yield, and this casual approach is unlikely to have been accompanied by strict control of consumption by tenants. Whichever strategy was adopted, therefore, it is improbable that commercial use would monopolise resources.

Some commercial consumers did, however, use all or most sizes and types of timber, and it is with such uses that the limited evidence of shortage is associated. Foremost among them was the production of charcoal for smelting. The possibility that woods in south Perthshire might be bought by an iron company was enough to cause concern about timber supplies in the 1760s (S.R.O. E 777/133/2). Two charcoal furnaces had already been founded in Argyll in the 1750s: the one at Furnace on Loch Fyne worked until about 1815, and the other at Taynuilt by Loch Etive until 1876. These provided a major demand in the county, especially for the poorer timber. James Inches, a forester,

wrote in 1801 that the sale of barren timber in Argyll '. . . depends entirely upon the coaling & the Tennents in the Vicinity where it grows' (S.R.O. GD 170/587/1).

To some extent the ironworks and local consumers were competing directly for supplies; it was also common in Argyll for an estate's coppice to be cut in one or a few large haggs rather than small sections spread over the whole rotation. Speaking of the Highlands in general but probably drawing mainly on Argyllshire experience, the Reverend John Smith of Campbeltown complained in 1799 that farmers in many parts could not get large timber at any price. Tree produce was available only when woods were cut every 19 or 20 years and the ironworks took most of it, leaving a small and relatively expensive residue (Smith 1799:171–2).

The poorly-wooded parts faced most difficulty, although the relative ease of sea transport could reduce this to some extent. Smith's own district of Kintyre obtained timber from distances of 50 to 100 miles (Smith 1805:141). The Barcaldine estate papers of 1776–9 record the sale of small quantities to tenants in Kintyre, Gigha, Islay, Jura, Skye, Uist, and Harris, all between 20 and 120 miles (32–193 km) linear distance from the woods (S.R.O. GD 170/438). According to the minister of Kilchoman in Islay, timber had to be brought from the 'northern lakes' but was often unavailable because of the demand for charcoal (SA:11.280–1).

Unlike the tenants of timber-producing districts, who were better placed through proximity to bid for the residue left locally by the smelting companies and might also have access to other woods, the inhabitants of the treeless parts were forced to search a wide area for timber without a guarantee of success; additional transport costs were also likely to increase the relative cost of their supply. Smith's statements indicate that the presence of an intensive commercial use of timber created difficulties throughout Argyll, but there seems to have been a severe shortage only where the uneven distribution of timber resources added to the problem.

It is therefore apparent that commercial use did not bring about a widespread timber famine. The examples given earlier testify to the existence of some degree of conflict between established and new demands. That this did not lead to a shortage of material for local use depended partly on the type of demand and partly on the nature of the woodland itself. Another important factor, as indicated earlier, was competition with other activities for the use of wooded land: the importance of grazing in the Highland economy severely restricted the scope of woodland management.

One may therefore ask what effects commercial use did have on local supplies. Restriction on the type of timber available was one. The reservation of pine as well as oak and other valuable timbers like ash compelled tenants to make proportionately greater use of birch, alder, and other barren timbers. The extent to which this caused difficulty is not clear: detailed case studies may cast some light on the problem. It should be noted, however, that the common timbers had intrinsic value for certain purposes. Birch, for example, resists tainting and was thus very suitable for the making of containers of certain kinds (Blaikie 1829:364–6).

Commercial use also put a monetary value on tree produce, and can thus be seen as one of the factors assisting in the slow transformation of the Highland economy. In 1700 cash payment for tree produce was exceptional. As in other aspects of Highland economic life, services of labour played a more important part than money in payment for the use of woodland. Proprietors found it possible to adapt some established forms of service to suit commercial use: tenants might thus be obliged to transport oak bark over specified distances as one of the conditions of tenure (S.R.O. E 783/60/35[3]). Such services had almost disappeared by the end of the eighteenth century, however, and by then it had also become common, in the south Highlands at least, for tenants to pay cash for their supply of timber.

In certain respects knowledge in this field remains far from complete, for the reasons outlined earlier. The preceding study is in one sense a preliminary survey, and while future research might profitably be directed along a variety of paths, quantitative assessment of the use of woodland in the Highlands, and of the effects of commercial use on domestic supplies, would be particularly valuable. Much depends on the evidence available. Assessment may prove feasible on a local scale, but it is possible that the information necessary for a general appreciation no longer exists.

NOTES

1 For a map based on the Military Survey pattern of woodland see A. C. O'Dell and K. Walton, *The Highlands and Islands of Scotland*, Edinburgh 1962, p. 115. According to the most recent Forestry Commission census 8·5 per cent of Scotland as a whole was under woodland in 1965.

2 See 'Woods of Monteith. Contract betwixt the Duke of Montroses Comm^{rs} and Alex^{r} Stewart & Cau^{rs} 1744' in box of unsorted documents labelled 'Wood Contracts', S.R.O. GD 220.

3 See 'State of the tennants of Craigroston with regard to their barren timber, 1758' in 'Wood Contracts' box, S.R.O. GD 220.

4 Figure 1 is derived from S.R.O. E 783/76/10 and E 783/105/2–5. It shows the destinations of 164 of the lots (88 per cent); of the remainder, 12 cannot be located and the other 10 were sold outside the area depicted.

5 See for example the memoranda and other papers on this topic in S.R.O. GD 170/502 and GD 170/587/1.

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