**Chapter 10: Post-Medieval Highlands**

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**10.1 Post Medieval Introduction**

The start date for this chapter is fairly arbitrary. National ScARF termed this period Modern, with a start date of the 16th century. For convenience the Highland Regional ScARF follows this, though avoids the term Modern as this is often used for the last few centuries (Modern Panel 1.1). Major events or developments occurred in this period which impacted on the Highlands, including the Protestant Reformation of the 16th century (Modern ScARF 2.2), the civil wars of the 17th century, Union of Parliament in 1707, Jacobite risings, growing involvement in international trade including links to slavery, agricultural improvements and landscape transformation, clearances, and crofting formation, urban growth, large scale industrial projects such as the hydro schemes, improved communication, particularly through Thomas Telford’s work, railway construction and shipping, and the importance and legacy of fishing, tourism and energy industries. These and others will be discussed in this chapter, with a special Highland focus on the material remains.

By the end of the Medieval period, the Highlands was more or less firmly part of the Scottish kingdom. The Lordship of the Isles had been suppressed and the far north and west no longer part of the Norse empire. However, this political relationship was not always smooth, as shown by support by many of the Highland clans for the Stewart cause. The Protestant Reformation swept through the Highlands as in other areas of Scotland, though some clans held to the Catholic religion. Moreover, following the religious see-sawing of the 17th century a good number of leading families remained Episcopalian into the following century.

The number and range of sources available are vast (see Chapter 2), requiring interdisciplinary studies. Good examples for the Highlands include some of the NoSAS projects (see eg Marshall 2011b; 2013), though too often there is little crossover between disciplines, or a tendency at times to see archaeology as only corroborating historical research (Dalglish 2002). Some of the sources are discussed in Chapter 2 and others will be highlighted in the discussion below. Most of course relate to the later Post-Medieval period, but a useful article summarises key non-Gaelic Highland sources for the 17th century (Shaw 1986).

Useful background works for Scotland as a whole include *The History of Everyday Life in Scotland* series which provides a useful overview of evidence from documentary sources and material culture (Foyster and Whatley 2010; Morton and Griffiths 2010; Abrams and Brown 2010). The 14 volume *Compendium of Scottish Ethnology* published by Scottish Life and Society addresses various thematic issues.

Evidence consists of maps, available from the beginning of the period (see eg maps.nls.uk; James and Horning 2017, 10.5), observations from people working in the Highlands such as engineer Burt (1754) and Episcopalian bishop and Jacobite supporter Bishop Forbes in the second half of the 18th century (Sutherland 2008), and accounts by travellers such as Johnson and Boswell (1775), Pennant (1776), Knox (1787) or Southey (in 1819, published 1929). Martin Martin, a native of Skye, provided an early insight into late 17th century Skye (Martin 1716). The memoirs of Elizabeth Grant of Rothiemurchus, Strathspey provide a glimpse into late 18th century/early 19th century society and land in this area (Grant 1988). All of course have bias, with some written with preconceived notions of the primitive Highlanders, but without them we would be poorer off (Dalglish 2002, 476ff).

Estate papers become more available from the 18th century, with a few collections with earlier materials. These are scattered amongst numerous archives and private collections. The annexed estate papers in particular are a rich source for some mid to late 18th century areas (Scottish Record Office 1973).

Studies based on collections of artefacts and oral tradition include I F Grant (1961) and Alexander Fenton (1997; 1999) providing detailed consideration of agricultural traditions, housing and material culture. Gaelic oral traditions collections are also useful, for example Tobar an Dualchais (<http://www.tobarandualchais.co.uk/en/>, accessed October 2020). As Dalglish noted (2002), the historical context of all these sources is important, because the Highlands was not a single conservative entity.

Oral traditions, both recorded and still circulating, also enable access to place-associations and the intangible heritage of folklore, customs beliefs and traditions. Highland folk-belief placed significant emphasis on other or supernatural worlds and the connections between such worlds and the here and now. Sometimes places have particular associations, such as Tomnahurich in Inverness which was also known as ‘The Fairies Hill’. The second sight was of particular importance to Highland folk-belief and Tomnahurich is also associated with predictions of the Brahan Seer. There are also historical associations of, for instance, places with the Jacobite uprisings, or of particular places, for instance, Borreraig on the Isle of Skye which is notable for its association with the MacCrimmon dynasty of pipers. Places may have literary associations, for instance, Neil Gunn and Dunbeath. Many such associations are, by their nature, complex: they are often in the process of being rediscovered, reworked or re-invented. At the same time, new associations or traditions are in the process of being made.

A large number of studies of individual communities and areas have been published of varying academic rigour, many the product of the over 100 active heritage societies or 50 museums and archives in the Highlands. Some are privately published, others in limited editions, and it would be useful to have a listing.

Those studying this period must, to a greater or lesser extent, pay regard to both history and archaeology (other disciplines are not irrelevant). At the most basic level are preconceptions about Highland society and how and when it changed. In fact both history and archaeology has a part to play; neither can be set to one side. There should not be a closely policed border between them; material culture is, after all, of interest to historians as well as archaeologists. There are limitations and possibilities set by the amount of information available to each which makes an interdisciplinary approach highly relevant.

Some elements of Highland societies in this period are visible, not surprisingly the elite landed class, but also inhabitants of burghs. Other people are far less so, including the rural crofters and labourers, and the Highland Travellers. The testimonies of the Napier Commission (crofting) and Brand Commission (deer forests) (Royal Commission 1895) provide for the first time detailed first-hand accounts from the poorer tenants on properties (see Chapter 2).

The social structure around clans created a different focus than the rest of Scotland, with Highlanders sometimes seen as very different from contemporaries. The prevalence of Gaelic supported this identity (Modern Panel 5.4; Devine 1994). On the one hand, Highlanders have been portrayed as wild and untamed (Modern Panel case study: Archaeology and the Persistent Myth of Aboriginal Scotland). At the same time, the Highlands have also been romanticised, in no small measure by Sir Walter Scott, colouring perceptions but also local responses (Modern Panel 8.3; Withers 1992). For example, some tree planting initiatives Highland Perthshire in 1814 were guided by concerns for tourist perception (Stewart 2003, 125).

Just how different the Highlands were has been the topic of much discussion; see for example Adamson 2014 for a summary of key works, which include Dodgshon (1993; 1998; 2015), Hunter (2000), Dalglish (2002), Devine (2005) and Richards (2007; 2008). A common view that the Highlands were entirely a society apart, overwhelmingly controlled by paternalistic lairds in a highly hierarchical structure until the Jacobite 1745 aftermath, has been challenged (eg Devine 2005; Richards 2007), as it is clear that the system was more complicated (Donnachie 1986), already unravelling in some areas before then, with long distance grain trade and some industrial enterprises initiated in the late 17th and early 18th centuries (see 10.5, 10.7). Nor was it universal across the Highlands; Mowat notes that a social system anchored on clan loyalty was not present in Caithness or Easter Ross after the mid-18th century (Mowat 1981, 143-144).

The disparities in income, and the insecurity of tenancy, even under the clan system, resulted in a difficult life for those at the lower ends of the hierarchy. Rents were often collected inkind, but also in cash, especially where cattle droving was important to the local economy (Bangor-Jones 2000, 66). Nevertheless the results of the aftermath of Culloden, and the impact of clearances and emigration were undoubtedly severe (see eg Taylor 2016, 7ff; Devine 2018). Archaeological remains can help nuance this picture.

Before suggesting research questions and recommendations (see 10.9), it is useful to identify the regional Post-Medieval period strengths and weaknesses and to characterise these as either “within reach of a solution” (opportunities) or with no obvious solution (threats). Many of these relate to all periods, and are outlined in Chapter 3 which is relevant in this context.

Strengths:

* Large number of settlement remains, including individual buildings, townships, corn kilns, lime kilns and shielings, especially in upland locations though occasional survivals elsewhere as well.
* Large number of well-preserved mills and other industrial remains with good mapping and documentary evidence.
* Large number of surviving wartime remains.
* Large number of metal detected finds, together with excavation and older museum finds, largely untapped for the information they can provide.
* Documentary sources, maps and aerial photographs can be integrated into the picture, with opportunities for further environmental work.
* Good evidence of industrial and craft activity.
* Napier Commission and Brand (or Deer Forest) Commission testimonies provide perspectives of the poorer tenants on many estates in the late 19th century.

Weaknesses:

* Improved arable farming destroyed pre-Improvement settlements particularly in the eastern Highlands.
* Afforestation in the last centuries has destroyed evidence in a number of locations including Great Glen, Badenoch and Strathspey.
* Limited investigation from human remains possible due to burials in long-used cemeteries.
* Lack of landscape studies, and few excavations of rural settlements.

Opportunities:

* The first edition OS maps preserve a wealth of data which is in many cases untapped. There is great potential for mining this material, adding to heritage databases, and checking for remains on the ground.
* Dendrochronology holds great promise for dating, climate information, and evidence of native or imported timber.

Threats

* Increased afforestation targets for coming years threaten a number of sites.
* Vernacular buildings are under threat from redevelopment and the ravages of time.

**10.2. Post Medieval Environmental Research**

While in general much less attention has been focussed on the Post-Medieval environmental evidence compared to earlier periods, work in this period has much potential, especially when combined with documentary and archaeological work.

There have been some studies especially relating to climate variation. The impact of the decline in temperature and increased storminess from the Late Medieval to the 19th century (the Little Ice Age), with especially severe weather around 1670s-1715 (the Late Maunder Minimum) was discussed in the Argyll ScARF (James and Horning 2017, 10.2) and by Dodgshon (2005) and Harrison (2020).

Documentary evidence has recorded various famine years, though often for Scotland as a whole rather than for the Highlands (Richards 2007, 30ff; Cullen 2010; Hunter 2019). Rental evidence for some areas of the Highlands suggests that the effects of the Little Ice Age resulted in abandonment of some farms (Dodgshon 2005). Environmental analyses have the potential to focus on the local manifestations. For example, work at Loch Sunart, Lochaber has showed a brief warming of temperatures in the early Post-Medieval period (Cage and Austin 2010). Dendrochronology can also provide important local evidence for temperature variation (Wilson et al 2011), and should be utilised more widely, especially since the research can be combined with analysis of source location for timber.

Pollen studies can provide evidence of local cultivation. For example, environmental work at a northwest Sutherland township and shieling shows evidence of cultivation and grazing, with burning used to control moorland at the shieling, especially in late 17th century. Upland sites at other locations outwith the Highlands showed cultivation at shielings, suggesting as well as herding the animals, some cultivation may have occurred (Davies 2016). Any investigations of shielings should incorporate multi-proxy studies to determine activities in the Highland shielings and changes over time. Environmental investigations such as phosphate analysis also has potential to identify manuring and other soil enrichment strategies (Oram 2011b, 9).

Woodland cover has changed over the Post-Medieval period, and pollen, plant macrofossil and charcoal all can contribute to this picture. Although much of the Highland was with limited tree cover in this period, especially the north and west, microclimates preserved some trees. But there was also active reforestation, continuing today, which also has affected much of the Highlands. Detailed work at Migdale, Sutherland has shown that some development of increased oak and pine actually dates to the last 1000 years (Davies et al 2017; Bangor-Jones 2014a). Elsewhere in the Highlands, studies show varied woodland coverage, with human intervention, for a variety of reasons, appearing to account for changes in woodland structure over the last 500 years. Oak and pine in particular are useful indicators of climatic factors especially in the Highlands where these species are often at their limits (Davies 2011). The Highlands hold great potential for investigating charcoal burning platforms, where environmental studies could shed more light on what wood was being used.

Evidence of woodland management can also now be applied to this period, with documentary evidence, analysis of charcoal remains and waterlogged remains, and even some woodland survivals showing coppicing.

Sites with good Post-Medieval environmental evidence:

Migdale, Sutherland: Davies et al 2017

Garbh Allt catchment area near Golspie, Sutherland: Tipping et al 2008a; 2008b

Glen Affric, Inverness-shire : Tipping 2003b; Davies and Tipping 2004; Davies et al 2004; Tipping et al 2006; Tipping 2008

Glenleraig and Ruigh Dorch, northwest Sutherland (Davies 2016)

Loch Sunart, Lochaber (Cage and Austin 2010)

**10.3 Post-Medieval Settlement**

The Post-Medieval period is one where we can have a much better idea of the structure of society and how that might be reflected in the record which ranges from the castles and mansions with their policies and designed landscapes to the humblest abode of the mailer or cottar. There is an opportunity to assess how people got by at the lowest points in the social scale and discover the buildings they lived in.

Although the Highlands contain a wealth of surviving Post-Medieval rural settlement, interest in this resource has been relatively recent. Apart from the work of Fairhurst (detailed below) and a few others it was only in the early 1990s that there was a resurgence of interest in what came to be known as Medieval or Later Rural Settlement in Scotland (MoLRS). A statement of current research which usefully covers not just Highland case-studies but also studies from elsewhere in Scotland as well as England and Wales is provided by Atkinson et al (2000). The Conference Proceedings *Medieval or Later Rural Settlement in Scotland: 10 years on* (Govan 2003) provided a key summary of work up to that time. Since then there have been three developments: a revival of academic interest, developer funded work, and, most significant of all, the rise in community archaeology and survey which has seen many surveys undertaken and some excavation. These three developments are not entirely separate: there has been a fair amount of cross-over.

Settlement evidence in the Highlands is diverse in this period, including isolated rural buildings and shielings, townships, burghs and villages - some planned and some with a more organic evolution - a few urban centres and special focus communities such as the spa town at Strathpeffer.

**Landscape and settlement**

As in other periods, there are limited landscape studies for the period, despite a good body of surviving remains and often good documentary evidence. At the broadest scale there are the overview surveys of the Cairngorms and of Wester Ross (RCAHMS 2001, 2003). The North of Scotland Archaeological Society (NoSAS) has also undertaken large scale survey, notably at Loch Hourn (Wombell 2003; Case Study X), Glen Feshie, Badenoch and Strathspey (Marshall 2013; Case study X) and Strathconon, Ross-shire (Marshall 2011b). Historic Assynt has been investigating multi-period settlement in northwest Sutherland for years with some limited excavation (Cavers and Hudson 2011). The ACFA surveys of Raasay, Skye (Gazin-Schwartz 2018) provide an example of a detailed survey at an intermediate level - and also an indication of the resource required - while a survey of a relatively small area is exemplified by the Lairg Project (McCullagh and Tipping 1998). Numerous small surveys have also been undertaken, including by the The Scotlands Rural Past project, on Moidart, Gairloch, Heights of Kinlochewe and near Strathpeffer (RCAHMS 2011).

The nature of rural settlement in areas and the remains visible today relate in many cases to the nature and history of agricultural organisation. In pre-Improvement times in general the runrig system held sway whereby the arable land was shared out amongst multiple tenants. In some areas, the arable was organised into infield and outfield laid out into fields which might be separated by dykes. The whole of the township arable and remainder of the in-byeland was usually enclosed by a head-dyke. Tenants in more upland areas shared in common grazings which might be extensive. Shieling areas - a form of transhumance -were set aside for summer grazing.

Crofts or individual holdings had been in existence for centuries and might, for instance, be held by specialised tradesmen such as millers. Such crofts were not necessarily enclosed but should be distinguished from crofts which emerged during the 18th and 19th centuries as a result of the colonisation of waste or through the process of clearance and resettlement.

Houses were in general clustered together in townships or fermtouns, though there have been suggestions that settlement in earlier pre-clearance times may have been more dispersed (Dodgshon 1993; Dalglish 2002). In most areas we are also missing evidence for the Medieval period (see 9.3), so that issues of continuity or change cannot be assessed. Lelong (2003a) offered some thoughts on finding the Medieval and earlier Post-Medieval settlements in current townships, but this challenge has not been taken up. We should also be cautious of seeing one pattern over the whole Highland area. Moreover, it should also be borne in mind that settlements did not always comprise inhabitants of equal social status. Particular attention needs to be paid to the relationship between the larger farmers, the tacksmen, and their subtenants on the ground (see eg Taylor 2016).

Landscape re-organisation may be said to have begun with the development of policies, landscape gardens and designed landscapes surrounding the castles and mansions of the landowners. Some had antecedents in the 16th century, others incorporated 17th century changes, most were development further still in the era of improvement.

Although often dated to the late 18th and early 19th centuries, the improvement movement was certainly evident in the Highlands during the first half of the 18th century and there were probably 17th century antecedents. At the same time, it may be said to have continued into the high farming era of the mid-19th century.

Landlords tended to be at the forefront of the earliest improvements which often commenced with mains farm, expanded (often by incorporating existing townships or farms) ditched, enclosed, and cleared of stones. The development of the mains farm was often associated with the development of the policies as a whole and the establishment of plantations. Plans could take decades to come to fruition, especially for the financially challenged.

Many Highland landlords, including Sir John Sinclair of Ulbster, and the Highland Society were at the forefront of improving (Sprott 1995; Mitchison 1962). Improvement was in many ways a form of conspicuous investment: for landlords it was fashionable and helped to bolster social or political standing; it did not necessarily bring a significant financial return.

Some landlords engaged in wholesale reorganisation and took on the burden of creating improved farms. On other estates the responsibility lay with the tenants. Sometimes, the larger farmers took the initiative themselves: some tacksmen farmers, who often took the better land and left the worst for their subtenants, began to improve rather in the same way that landlords improved their mains or home farms (see, for instance, Taylor 2016).

Even small tenants were involved in ‘improvement’ through the adoption of the potato, lazy bed cultivation, and more labour-intensive methods. Some areas saw considerable colonisation by ‘mealers’ or ‘crofters’ from the second half of the 18th century (Bangor-Jones 2014b; Mowat 1981). As settlements grew, some shieling areas in the more upland areas were brought into cultivation and in time some became permanently settled.

Colonisation by crofters and mealers/mailers along with upland areas coming into cultivation was driven by a number of factors but one of them was population increase which threatened the relationship between the existing population and the land and the way they worked it. One of the reasons for improvement was to find a better way of dealing with this land pressure. This is a separate issue to, but also overlaps with, tenants being cleared or relocated.

Farm consolidation and amalgamation took place over an extended period. The abolition of runrig was a long-drawn out process taking place from the mid-18th to the mid-19th centuries. It was achieved in part by the re-organisation into large arable farms, in part by the clearance of upland townships, and in part by the creation of crofts. Infield/outfield systems tended to disappear with agricultural improvement to be replaced with more regular crop rotations. Extension of the arable area into wetter soil conditions was given a boost by the availability of improved drainage techniques in the second quarter of the 19th century. Water management through the diversion of water courses and lowering of lochs (not always successfully) could alter the landscape in more fundamental ways (Symon 1959; Gibson 2007).

In the arable lowlands change sometimes took place over a protracted timescale but in some places it occupied a very short space of time. The same could be said of the introduction of commercial sheep farming. In both instances there was disruption to existing tenancies, often taking the form of extensive clearance, a process which lasted from about the mid-18th to about the mid-19th centuries.

Some landlords saw advantage in retaining their cleared population to engage as fishermen or in kelp manufacture. Those cleared were resettled on the coast, sometimes, but not always on newly laid-out crofts or individual holdings. In some areas moorland settlements were established. Whether on crofts or in runrig holdings, the possessions were usually designed to be too small to provide year-round support. In due course, the collapse of kelp manufacture and the advent of the potato disease encouraged landlords to reorganise remaining runrig townships into crofts as an encouragement to improvement (eg near Gairloch; Shaw 1988; Caird 1994). Crofting townships established at a relatively late point in time - the 1840s and 1850s - may incorporate elements of the runrig system in a way in which townships established earlier - the 1810s and 1820s - do not (Bangor-Jones 2000).

Some crofts were later consolidated into farms. However, this was essentially put a stop to by the 1886 Crofting Act and subsequent legislation which brought security of tenure. The pattern of crofts in the Highlands at the time of the Crofting Act was modified by land settlement schemes, for example in Sutherland (Bangor-Jones 2020). All of these activities have left remains, with the upland cleared townships the most visible.

Despite the large number of surviving remains in the Highlands, there has been relatively little investigation (Dalglish 2002). Only two townships have been examined in any depth. Fairhurst’s excavation in the 1960s of some of the ruins of the cleared or pre-Improvement settlement of Rosal in Strathnaver drew attention to the richness of such remains in the Highlands. He also considered the common grazings and outlying enclosures described in documentary sources (MHG11549; Fairhurst 1967-1968). The other excavated (partially) Highland township was Easter Raitts, Badenoch (Lelong and Wood 2000; case study X) where work informed the layout and construction of Baile Gean township at the Highland Folk Museum; these excavations, however, do not appear to have been fully published.

Overall there have been significant advances. Many surveys have been undertaken building on the 1990s afforestation surveys of the RCAHMS, including work by Scotlands Rural Past, NoSAS, ACFA, commercial units and individual groups, with for the most part results published via the HER or Canmore. There is a slowly accumulating number of excavations, though on a limited scale, and none with the township focus as at Rosal and Easter Raitts. The constraints of funding have meant that excavation has usually focussed on an individual structure within a settlement with perhaps some attention paid to one or two other structures. The other caveat is that most of the sites surveyed or excavated date from the immediate pre-clearance or pre-Improvement period. Rural settlement sites of the 16th and 17th centuries have proved elusive.

The Highlands can at one level be regarded as a zone of survival: this reflects the history of settlement and land-use, with clearance followed by sheep farming and deer forest. However, when examined at the local level this view must be modified. Firstly, the eastern lowlands of the Highlands - dominated by arable cultivation - are no different to other areas in Scotland where the pre-improvement settlements have, with few exceptions, been almost wholly erased. Secondly, many settlements in the Highlands proper have been ‘contaminated’ by post-clearance land-use, particularly shepherd’s houses, sheep enclosures and fanks. Settlements such as Learable in the strath of Kildonan (MHG11373; RCAHMS 1993) which shows a split settlement with two distinct clusters, rigs and small enclosures, are not as common as is often thought (even Learable has a shepherd’s house).

More attention also needs to be paid to the historical context for the settlements under study. For instance, illicit distillation in late 18th and early 19th century enabled marginal land to be settled. Did such settlement take particular physical forms? The distribution of mills in the 18th century (and preceding) requires an understanding of the institution of thirlage which could vary from estate to estate but which, until it was abolished, tended to limit the number of mills (see 10.4).

Physical evidence for land divisions, particular which might have played a part in the runrig system of land allocation, also need exploring. Head dykes can often be traced, usually of stone and turf or wholly of turf (particularly in wetter areas). Drystone dykes are the most prevalent, with many relating to post-enclosure divisions Little attention has been paid to these in the past.

The establishment of crofting is generally associated with the clearance period. However, as noted there could be a disjunction between clearance on the one hand and the later establishment of crofts in resettlement areas. This calls for an archaeology of the formation of crofting, not only in elucidating its chronology but also its mark on settlement patterns. The Napier Commission and Deer Forest Commission of 1895 testimonies provide a perspective from the tenants, which can be combined at a local level with estate details and landscape investigation.

Leaving to one side the majority of rural settlements, we should note the continuing use of crannogs, though not necessarily full time. Important dating has shown that crannogs continued to be built in the Post-Medieval period, for example Eaderloch Crannog, Loch Trieg in Lochaber (MHG4296; case study X) dated by dendrochronology (Mills et al 2017) and radiocarbon techniques (Crone 2010). Other crannogs show signs of re-occupation of Iron Age sites, for example at Loch Kinellan, Strathpeffer in Easter Ross (MHG6285; Fraser 1916-1917).

Occupation remains dating to the earlier Post-Medieval period have been discovered in caves by the Scotland’s First Settlers Project in Wester Ross (eg at Crowlin, Ard Clais Salacher, Allt na Criche, and Toscaig; Hardy and Wickham-Jones 2009) and Rosemarkie Caves project in Easter Ross (S. Birch nd; pers. comm), but further work on the nature of the occupation needs to be done.

Highland Travellers had seasonal camping sites and are recorded as using caves, with occasional archaeological remains of shelter walls (eg Cairds Cave on the Black Isle; MHG8855; Anderson-Whymark 2011). See 10.7 for further discussion of the difficulties of finding their evidence in the archaeological and documentary record.

Compared with many other areas in Scotland, there is relatively little urban presence in the Highlands; indeed only a handful of communities qualified to be included in the Scotlands Urban Past project. In 1700 there were only seven royal burghs (Wick, Dornoch, Tain, Fortrose, Dingwall, Inverness, Nairn), and a small number of burghs of barony where the landowner was entitled to hold markets for domestic goods. Mercat (market) crosses survive in several towns (Small 1900; Gifford 1992, 63, 65), though many have been moved over the years, and some are much weathered.

A great deal of work has been done in Inverness, but the archaeological remains and finds need to be brought together. The burgh surveys for Wick, Dornoch, Tain, Dingwall, Inverness and Nairn provide a wider perspective beyond individual buildings (Turner et al 1983; Simpson and Stevenson 1982b; Oram et al 2009; Simpson and Stevenson 1982a; Gourlay and Turner 1977; Dennison and Coleman 1999). It is important that archaeological research on Highland burghs is placed within the context of developments within urban Scotland as a whole.

Villages planned and built by landowners for the most part relate to the improvements of the 18th and 19th century, in many cases designed to attract craftspeople and industry (Gifford 1992, 63). A number survive in the Highlands, many with good survival and documentary evidence. Some have been the focus of community projects (eg Jamestown in Easter Ross; <http://www.archhighland.org.uk/strathpeffer-area.asp> accessed November 2020), and others have potential for further work. Other towns and villages have been investigated by community groups, with varying amounts of publication. A portal for this research would be useful.

Several well-preserved fishing villages survive in the Highlands (Gifford 1992, 640), including at Nairn and Avoch. Some were planned settlements by the British Fisheries Society, such as Ullapool, Wester Ross and Pultneytown, Caithness (see 10.5), or landlords, such as at Port Henderson near Gairloch, Wester Ross (MHG21344). Port Henderson is a good example of a well-researched and surveyed community project combining documentary research and survey (Malone and MacInnes 2013).

A large number of commemorative cairns survive throughout the Highlands, some in isolated locations, others in towns. These indicate not so much settlement, as concerns of people living in the Highlands. Ordnance Survey trig points/stations are also dotted throughout the landscape, part of national survey undertaken in the early 19th century and later resurveys. Recording these stations and the remains of camps for the surveyors are part of a proposed project to be rolled out in the Highlands.

**Buildings**

Captain Burt, an engineer who may have worked on the military road building in the early 1700s in the Highlands gave a vivid description of pre-improvement Highland dwellings, both in Inverness and rural settings, providing a number of illustrations as well (Burt 1754). Surviving buildings or parts of buildings from the early Post-Medieval period are dominated by elite houses (see below), with few other structures surviving from this period.

The Highlands are fortunate that a large number of later buildings survive in various states of preservation. Studies of Highland buildings are found in a number of sources including gazetteers and surveys (Stell 1986; Gifford 1992, Beaton 1992; 1994; 1995; 1996; Miers 2008) and publications focussing on specific types of buildings such as farms (Glendinning and Wade Martins 2009), churches (see 10.6) doocots (Beaton 2008) or industrial functions (see 10.5; Hume 1977; Watson and Bruce 2018). The Highland Buildings Historic Trust has been active in recording and repairing a number of key buildings, rural and urban (<https://highlandhbt.org.uk/projects>). The Scottish Vernacular Buildings Working Group provides a context within which to place the Highland material (https://www.svbwg.org.uk/).

Building materials were varied, including stone and turf, with the latter far more difficult to discern in surviving evidence (Noble 2003). The experimental work at the Highland Folk Museum has provided valuable insights into the use of turf including the time needed to cut, collect and repair (Noble 1983). While commonly viewed as a cheap and available building material, work by David Taylor has shown that even turf was not an inexhaustible source given the documentary settlement evidence (conference paper ‘”Green” housing: but was it sustainable’ given Highland Folk Museum, 2019).

In areas without much timber, other materials were needed; at Brotchie’s Steading in Caithness rare whalebone crucks survived (MHG46260; Holden et al 2008). More research is required to document the move from earth or clay mortar to lime mortar, the size and shape of cruck couples to support the roof, the sources of sawmilled timber, and the introduction of new materials such as tar and canvas, corrugated iron, and concrete. There are detailed questions around, for instance, the availability of machine-made windows and doors which could be shipped from the west of Scotland.

The potential of dendrochronology is starting to prove itself, providing not only detailed dating of felling, but also information on whether timber was local or imported. Many other samples have been taken and stored, awaiting further technical advances to allow dating of samples with fewer rings. Such sampling should take place as a matter of course when old buildings are renovated or excavated.

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| --- | --- | --- | --- | --- | --- |
| Location | Area | Wood | Dates | Comments | Ref |
| Eaderloch Crannog | L | pine | 1344-1549tpq 1550 | Native timber | MHG4296 Mills et al 2017 |
| Castle Grant | B&S | pine | 1393-1512 tpq 1512 | Native timber | MHG15426 Mills et al 2017 |
| Foulis Castle | ER | pine | 1610-1690tpq 1690 | Native timber | MHG8948 Mills et al 2017 |
| Wardlaw Mausoleum | ER | pine | 1592-1721tpq 1721 | Native timber; crypt hatch boards | MHG39898 Mills et al 2017 |
| Killiehuntley farm cottage | B&S | pine | 1629-1730 felled 1730 | Native timber; cruck | MHG18202 Mills et al 2017 |
| Off Galmisdale Bay, Eigg | Eigg | oak | 1557-1744 | Shipwrecked boat; American timber | MHG30701; Crone 2016 |
| Storehouse of Foulis | ER | pine | 1673-1747 felled 1747 | Native timber | MHG8949 Mills et al 2017 |
| The Doune, Rothiemurchas | B&S | pine | 1479-1745 tpq 1750 | Scandinavian timber | MHG15393 Mills et al 2017 |
| Fort George | I | pine | 1492-1744; 1350-1764 | Imported timber (Belarus & Karelia) | MHG15618Mills 2008 |
| Unprovenanced (in Highland Folk Museum) |  | pine | 1558-1771 felled 1771 | Native timber;  | Mills et al 2017 |
| Badden Cottage, Kincraig | B&S | pine | 1704-1801 felled 1771, 1801 | Native timber; cruck | MHG4425Mills et al 2017 |
| Morilemor Farm, Tomatin | I | pine | 1644-1779 felled 1779 | Native timber; cruck | MHG16115; Mills et al 2017 |
| Aultvaich | ER | pine | 1662-1778 felled c. 1800 | Native timber; cruck | MHG21643 Mills et al 2017 |
| Belladrum Steading | I | pine | 1742-1838 tpq 1838 | Native timber | MHG15457 Mills et al 2017 |
| Killiehuntley Farmhouse |  | pine | 1781-1846 tpq 1846 | Native timber | MHG58341 Mills et al 2017 |
| MacRobert House, Kingussie | B&S | pine | 1724-1848felled 1849 | Native timber | MHG15387 Mills et al 2017 |
| 96 [92] High St, Grantown-on-Spey | B&S | pine | 1775-1852tpq 1852 | Native timber | MHG24793Mills et al 2017 |

Roofing materials varied. Many buildings were thatched, but it is clear with variations in materials and styles (Noble 2003, 49). Slates were used for more affluent buildings, and flagstones in Caithness where the materials were readily available. The use and abandonment of pantiles needs further research, with few surviving buildings in the Highlands.

Rural Buildings

Highland rural building traditions are diverse, as shown by the research and then reconstructed dwellings at Baile Gean, Highland Folk Museum. This work, and its experimental nature, has provided useful insights into rural building construction (Noble 2003). Virtually no evidence survives for the 16th or 17th century, however. Functions changed over time, where an old dwelling might be adapted for animals when it became more ruinous (eg at Easter Raitts; Lelong and Wood 2000), and many structures show additions or adaptations which are often difficult to date. Cruck slots can often be seen in ruins in the landscape, together with byre drains. [IMAGE: Dun Laigaidh ruin with cruck slot and drain]

Despite so many dwellings in the landscape, few have been excavated, and most relate to the same period, just before clearances. The sites of Rosal and Easter Raitts have been discussed above. At Lairg, Sutherland, while excavations of the landscape generally focussed on the prehistoric evidence, a Post-Medieval house was also excavated. The Lairg longhouse fits into the tradition identified at Rosal and Easter Raitts with a central hearth and byre end. It had gable walls of stone but long walls of turf, with external drains. The finds included 19th century pottery and glass from the 18th and 19th centuries. The central hearth showed peat was used as a fuel, not surprising considering the landscape. Like so many dwellings, it showed adaptations over time. As at Rosal, the site was cleared in the 19th century, providing an end date of use (McCullagh and Tipping 1998; McCullagh 2000).

Other Post-Medieval buildings which have seen some excavation include trenching at a longhouse at Berriedale, Caithness (Williamson 2018), two multi-phase longhouses and ancillary building at Torbreck, Sutherland (MHG61685; Engl 2013), a building at Glenleraig, northwest Sutherland (MHG12259; Hindmarch 2011) and trial trenching of structures at Kinakyle, Badenoch and Strathspey (MHG25003; Francoz and Atkinson 2008). Unpublished excavations include Caen, Sutherland (<https://www.uhi.ac.uk/en/archaeology-institute/our-research/research-projects/translocation-excavating-the-highland-clearances/> accessed November 2020), trial trenching of several buildings at Ceannabeinne, north Sutherland (MHG17937) and work by Ardnamurchan Transitions Project, Lochaber (Phil Richardson pers comm).

Survey and limited investigation by the Tarradale Through Time project at the site of an abandoned township at Tarradale, Easter Ross, provided evidence of the houses of the poorest tenants (mailers), with the houses probably made of layers of clay and turf interspersed with field gathered stones. There were also remains of kail yards and irregular plots of rig and furrow. An estate map of 1788 provides some dating context, as well as names of the tenants. These houses were probably where poorer people were resettled on marginal land during early improvements on the estate (<http://www.tarradalethroughtime.co.uk/tarradaleabandonedsettlement.asp>, accessed December 2020). The final report is awaited.

Occasional rare survivals of rural housing exist with no piped water or electricity. For example, Groam Cottage, Kirkhill, Inverness-shire (MHG3076) is the focus of a community project to record and conserve this rare survive of a cruck-framed traditional dwelling which may date to the 18th century. Brotchie’s Steading in Caithness (MHG46260) was in a derelict state, but when excavated the latest phases were revealed to be an earlier dwelling house which incorporated whalebone crucks; the excavations also provided environmental analysis and historical research (Holden et al 2008). Other examples in various degrees of preservation exist, though the information needs to be pulled together, and there is scope for mapping and recording upstanding remains.

More heed needs to be taken of wider regional distributions. This applies not only to questions such as how ubiquitous was the byre-dwelling, but also particular features such as outshots which are particularly marked in east Sutherland but which also occur to the north in Caithness and can be tracked further south.

Internal fittings rarely survive, although excavations at Easter Raitts found possible remains of hurdles and a turf seat, as well as a door key (Lelong and Wood 2000; case study X). Hurdles are likely to have been used in a number of ways. Box beds became increasingly common in Scotland from the end of the 18th century, and were often used to create internal divisions (Fenton 1997, 193). The Easter Raitts longhouses had floors of beaten earth (Lelong and Wood 2000).

There is, as yet, good potential for discovering and investigating abandoned crofthouses such as may be seen at Tarvie in Ross-shire or Gartymore in Sutherland. These may assist in addressing the very difficult question of how the majority of the population were housed, whether in crofting township, fishing village or even burghs. ‘Improved’ house types with the classic layout of two room and closet were being built in the early 19th century. However, these were in many areas few and far between. At any one point there seems to have been a range of house types. There is a question as to whether the ubiquity of the typical croft house was a product of the 20th rather than the 19th century. The excavation evidence needs to be pulled together, with future targeted work to address some of these questions.

Over the years interest has been taken in farm steadings, for example by the work of the RCAHMS (RCAHMS 1999; Glendinning and Wade Martin 2009). The industrial scale which such buildings could take and the fact that most were architect-designed might place them outwith the strictly vernacular. They have, however, been included within most broadly-based vernacular studies, are of considerable interest and are under threat (Gifford 1992, 72).

In addition to dwellings and steadings, specialised rural buildings survive, for example creel barns in Wester Ross (eg New Kelso; MHG23652) and bull’s houses on Skye (MHG55548). The earliest surviving dated barn in the Highlands, perhaps Scotland, is from Flowerdale, Wester Ross, dated to 1730 (Beaton 1994, 183).

A number of follies are dotted across the Highlands, including mock ruined castles (eg near Dingwall, MHG7465), three Indian hillfort structures at Fyrish, Easter Ross (MHG8109), and towers (eg MHG48922; MHG24018); most of these relate to landlord aspirations, but some, such as Fyrish, were also destitution projects.

The role of shielings, their dating, building construction and regional differences remain very much understudied in the Highlands (but see Miller 1967; Love 1981, Bil 1997 and Randall 2017 for studies elsewhere in Scotland). The Highland HER has hundreds of references to shielings, but few have been investigated and even fewer dated. Shielings are recorded by mapmaker Timothy Pont in Wester Ross (Pont, folio121v-122r; https://maps.nls.uk/pont/). They survive in some quantities in the Highlands. For example, over 300 shielings were located in a variety of upland locations during the comprehensive survey of Strathconon undertaken by NoSAS. These had a variety of construction methods, from dished grassy mounds to rectangular roughly constructed stone structures and some had a number of special features such as outshots or stores. The number of shielings together with the documentary evidence of rentals as early as 1721 being paid in cash provided evidence of cattle rearing for export (Marshall 2011b). NoSAS also excavated two shielings in Glen Feshie (Marshall 2013; Case study X), one of the few excavations of Highland shielings, though unfortunately without dating evidence.

These surveys of shieling sites, a focus on individual huts or indeed hut groups will only take us so far (National Case study: Transhumance and Shielings). More attention needs to be paid to the relationship between the shieling ground and parent settlement or farm. What was the purpose of the shieling? Was it for milking and non-milking stock? Was it on or near the march to the estate?

Were all in use at the same time, or are we recording relics of different periods? As noted in earlier chapters (9.3), better dating is needed for these sites. Few shielings have been excavated (eg Case study X) or test pitted (eg on Skye; Wildgoose 2016), but rarely radiocarbon dated. Good dating is needed to see how shielings adapted to environmental and economic changes. Pollen cores have potential to identify and date shieling sites, as well as identify cultivation activity, which in turn calls into question definitions of shielings versus upland crofts (Davies 2016).

Along the coast isolated fishing bothies/stations can also be seen, some recorded on maps, others ruinous (see eg Loch Hourn; Case study X; Beaton 1994, 186). These include the building at Kiltearn (MHG30278) which has gained the reputation of being originally a medieval chapel but may well be no more than a ‘designed’ fishing station of the early 19th century. Other fishing bothies on banks of rivers relate to sporting estates; little attention has been paid to these in the past, and some have been destroyed without recording. Artificial fishing stances also survive in some cases, many like routeways requiring local memories to identify.

Elite and modern housing

In the late Medieval / early Post-Medieval period towerhouse castles were the main elite structure. A number of these survive in the Highlands (Meldrum 1975; Stell 1986; Gifford 1992, 48ff; Alston 1999, 148ff). Current architectural and archaeological work at Fairburn, Easter Ross (MHG7784), as the castle is being renovated into holiday accommodation, shows the complexity of many of these buildings, and will also focus on the areas around the tower (T Addyman pers comm).

Towerhouse castles give way to mansion houses in the 17th and 18th centuries with many fine examples throughout the Highlands (McKean 2001; MacKechnie 2015). Elite castles of the 19th century harked back to mock Medieval castles (Scottish Baronial architecture), with again numerous examples (Gifford 1992, 50ff). Prolific 19th century architects working in the Highlands include Alexander Ross and Andrew Maitland (<http://www.scottisharchitects.org.uk>, accessed October 2020). In the 19th century the Highlands also saw new construction of hunting and fishing lodges, as the region became a playground of the rich (Wightman et al 2002).

Estates included more than the elite dwelling, often with extensive gardens (Brown 2012), stables, gatehouses, kennels, laundries and estate cottages. There is scope for more detailed investigation of these structures in Highland estates.

Maudlin has focused on the introduction of ‘improved’ houses in the 18th and early 19th centuries which became the standard format for farmhouses, cottages and planned villages and were a key element in the Improvement movement (Maudlin 2009). Built as a symbol of modernity, they provide a link between the more elitist classical house and the era of Victorian prosperity. There is, however, much scope for uncovering the chronology and geography of the improved Highland house.

Less attention has been paid to urban and village buildings. Abertarff House, the oldest house in Inverness, was built in 1593 as the town house of the Lovat Frasers (Gifford 1992, 201). Later villas were built in all towns by the more affluent, with good examples in Inverness, Nairn and Strathpeffer (Gifford 1992, 71). Other remains of early housing in villages includes Townlands Barn, Cromarty (MHG8807;), originally a 17th century laird’s house, and subject of a feasibility study by the Highland Historic Buildings Trust (<https://highlandhbt.org.uk/projects/townlands-barn-cromarty>). The Trust has also investigated buildings in other Highland villages.

Council housing was built in many settlements from the 1930s. Also of interest is housing erected by the Forestry Commission, such as Contin, Hydro-electric board, aluminium companies or wartime housing, all little studied. There are also survivals of housing without electricity or water, though often not recognised or legally protected

Public Buildings

Public buildings include a range of purposes (Gifford 1992, 65ff) such as schools, almshouses and poorhouses, inns, shops, banks, theatres and music halls, even public conveniences (some of which were built over burns as at Golspie; MHG53669). Many public buildings are known only from maps, others have changed functions over the years. Few surviving remains date back before the 18th century. Exceptions include Dunbar’s Hospital in Inverness, an almshouse built in 1668 (Gifford 1992, 202). Most poorhouses date from after the introduction of the new poor law in 1845 and most were organised as combination poorhouses serving a number of parishes. In addition, there were many much smaller poorhouses built to serve local needs.

Some schools are known from early in the period (Withrington 1986), and later school provision has been covered in a number of local studies (eg Lawson 1975; Mowat 1981, 122ff; Bangor-Jones 2000), but this information remains to be brought together, with attention towards the different schools (Gaelic, church schools, SSPCK schools, grammar schools, side schools etc). Old schools are dotted throughout the Highlands, most from 19th century or later (Gifford 1992, 66-67).

Some banks are grandiose, including the Greek revival Caledonian bank in Inverness (MHG15526), now (2020) a bar. Many late 18th century and later hotels are also grand affairs (Gifford 1992, 69), some converted castles or hunting lodges, but some purpose built as at Strathpeffer.

Civic buildings include tollbooths (for housing taxes and prisoners), town halls, courthouses (many made redundant in the last decades), post offices (again many made redundant in recent years) and a prison in Inverness (Gifford 1992, 65ff; RCAHMS 1996). Although libraries are now part of local authority provision, many in the Highlands were funded by Andrew Carnegie who owned Skibo estate in Sutherland.

Few excavations have been undertaken in the Highlands of public or civic buildings. The recently excavated inn at Wilkhouse in Sutherland, probably of mid-18th century date, is exceptional in its early dating and details (Adamson and Bailie 2019; case study X). Much more work could be done researching these public buildings, placing them in local and regional contexts.

Some aspects of urban infrastructure also have archaeological imprint, such as public water supply and sewage (MacAskill nd), electricity substations, gasworks and telephone exchanges. All required supplies when building, providing evidence of local and long-distance networks. Few have seen much other attention.

**10.4 Post-Medieval Daily Life in the Highlands**

Until relatively recently subsistence in the Highlands could be precarious, with climate and poor soil causing difficulties for agriculture, especially in the west (see 10.2). Even without crises caused by extreme events, environmental conditions in the Highlands tended to promote marginal subsistence, requiring ways to minimise risks and contingencies for food alternatives (Dodgshon 2004).

Rural daily life has been the focus of a number of studies, many of them incorporating oral history and old photographs (eg Baldwin 1994). Isabel Grant was a determined collector, and her accounts of her travels, the objects sourced and then the foundation of what became the Highland Folk Museum are valuable insights (Grant 1961; 2007). Similarly, aspects of urban daily life have not been ignored. Undoubtedly more links could be made with physical remains on the ground and material culture, but the main difficulty is in drawing the information together, tracking down local studies and projects.

**Farming / Husbandry / Hunting and Gathering / Fishing**

The focus on food production in the Highlands, as elsewhere in Scotland, sees a watershed with the ‘improvements’ of the late 18th and 19th centuries, overturning long-established settlement structures, and conversion of much agricultural land into first large arable farms or sheep farms, then in some cases into deer forests, and even into the 20th century into forestry plantations. Our evidence for this period remains weighted on documentary sources, with little pollen or other analyses, though the potential is great. Rentals, particularly in the more arable areas, were often paid inkind, providing subsistence evidence (Donnachie 1986, 56).

Limited evidence survives for the early Post-Medieval period. Eighteenth century estate plans can show existing and proposed landuse. The information from estates annexed after the Jacobite 1745 rising is a valuable detailed snapshot of cultivation and animal husbandry – and attempts for new initiatives (Scottish Record Office 1973).

While the trend is certainly towards increased mechanisation as time goes on (Sprott 1995), some hand tools, particularly for agriculture, are preserved, with the Highland Folk Museum in particular having a good collection. Machinery required power, initially oxen or horse-power, and questions remain on different sources of power in local areas.

For meat and fish, preservation issues were important. Fish could be salted, dried or smoked. Large estates usually had icehouses: some of which were associated with the mansion house while others were scattered along the shore for the commercial fishing. A number survive, including Invergarry on the Great Glen where the construction plans also survive (MHG29834). Many of these structures are deteriorating, and further monitoring and recording is needed.

**Cultivated Food**

Following on from the Medieval period, barley (often in the form of bere) and oats continued to predominate, with rye and pease also known and wheat being introduced in eastern areas (Donnachie 1986). Barley was used both as food and for drink. Further work is required to determine the varieties of cereal crops being sown and, of particular importance, the yields. In the 18th century the major change was the adoption of the potato, providing more food security until the widespread blight showed how vulnerable the Highlands had become on one crop (Hunter 2019). Stone-lined pits for storing potatoes are increasingly being identified in some places, for example Culduthel (MHG56081) and Strathconon (MHG57694), and special potato pits are remembered in some oral histories (Baldwin 1994, 321).

The Highland landscape preserves both rig and furrow (Halliday 2003) and, in wetter and more marginal ground, lazy beds, both mainly where improvements have not ploughed out earlier evidence. Little attention has been paid to dating, though the potential of multi-proxy studies when investigating rig and furrow cultivation to provide dating and phasing of different types of ploughing has been shown by work elsewhere in Scotland (Carter et al 1997), and could be usefully applied to the Highlands. The remnants of the short-lived and ultimately unsuccessful attempt by the Duke of Sutherland to use steam ploughs on his estates can still be traced on the ground in some places (Tindley and Wodehouse 2014).

Coastal areas used seaweed for fertilising the soil (Baldwin 2000). The practice of re-using old turf from house walls and roofs on the fields was also well known. In urban areas, nightsoil was collected and spread on the fields (Oram 2011b; MacAskill nd), thereby accounting for many of the metal detected finds on fields in the backlands and outwith the burgh boundaries. The potential for exploring midden-enriched soils has been investigated in the Highlands at Nairn (Oram 2011b, 9), but there has been little work elsewhere. The benefits of lime were recognised with the improvement period. Areas with limekilns (especially Caithness, Badenoch and Strathspey, Wester Ross and Skye) had good supplies, and many small crofts may have made use of the local resource.

Drainage was a major drawback for fertility, and one of the problems improvers turned their hands towards. The landscape one sees today in the Highlands, particularly in lowland areas, has often had extensive drainage, reworking of water courses and land reclamation. For example, The Mound at Golspie, Sutherland (MHG11757), with its sluice gates transformed Loch Fleet, ensuring sea water could not penetrate into the loch, and allowing land reclamation; but there are countless examples of smaller works. The introduction of tiled drainpipes was of particular importance to the draining and extension of the cultivatable land in arable areas. By contrast the miles of drains opened on sheepfarms were open.

Once harvested, the grain needed to be threshed. At first by hand, but with the invention of the threshing mill in the 18th century, it became more mechanised, with horse drawn mills in steadings (circles still traceable on maps or at the steadings in some cases), or steam engines on large farms (where remains of smoke stacks can still be seen in some cases, eg Kirkton on the Black Isle, MHG8761). Photographs and memories record the portable steam thresher which travelled in some of the better agricultural lands (Hume 1977, 26-28).

Over time, landlords required grinding of the grain in their mills, requiring a payment (thirlage) and actively suppressing rotary hand querns in some cases (Gauldie 1981, 43ff). In general the abolition of thirlage in the late 18th to 19th centuries (formally with the Act in 1799), tended to encourage the building of more mills, particularly of horizontal mills. A number of corn mills survive in the Highlands, most with vertical wheels. Sites of 18th century vertical mills, such as at Grudie in Sutherland (MHG11241), are very rare. The remains of many horizontal mills survive in the north and west Highlands (eg Clashnessie, northwest Sutherland; MHG12224), (Hume 1977, 20ff). Information on individual structures is scattered (see eg Hume 1977; Watson and Bruce 2018; regional architectural guides; Cheape nd) but more work could focus on regional and chronological issues, as well as sources of millstones. Hand querns were in use into the 20th century, for example on Skye (Jones 2000, 99-100), showing the durability of this tradition first encountered in the Iron Age.

Many large mills had a kiln for drying grain before grinding. However, most townships had at least one corn kiln or kiln-barn. Excavation of a kiln at Glenbanchor, Badenoch provided evidence for the reconstruction at the Highland Folk Museum (Noble 2003, 48-49), and seven kilns were identified at Rosal, with one excavated (MHG11549; Fairhurst 1967-1968, 152) but there have been few other detailed investigations. Further work on these structures, dating and regional variations would be useful.

While most of the crops grown in the Highlands until the 19th century were for local consumption, some of the more favoured environments in parts of the eastern Highlands allowed a surplus which could be exported for profit by the landlord. Documentary evidence is the main source of this activity, although some girnals, large warehouses for gathering grain before export usually by sea, survive in the east (Beaton 1986; Adamson 2014). Exporting grain dates to pre-improvement times, for example at least from the 17th century on the Cromartie estate in Easter and Wester Ross (Baldwin 1986, 194ff; Richards & Clough 1989, 42).

**Domesticated Animals**

Documentary sources show that even small tenants kept a variety of stock including cattle, horses sheep, goats and poultry, and in some cases pigs. These were kept for local use, such as the provision of dairy products, and not primarily for meat, although some trade in butchered beef is recorded from the 17th century (Bangor-Jones 2000, 67). Access to good grazing lands, including shielings, was essential (Baldwin 1986). The better cattle were raised for selling on in the long-distance cattle droving, and from at least the 16th century (see 10.7; Donnachie 1986, 56-57; Baldwin 1986). Those involved in the cattle trade often paid rents in cash (Bangor-Jones 2000, 66-67). Poor harvests also had an impact on fodder for overwintering stock, which often resulted in fatalities or severely weakened animals (Baldwin 1986, 189ff).

With the improvement movement came the switch from agriculture to large scale sheep farming from the late 18th century (Bangor-Jones 2002; Macdonald 2005; Richards 2007), though cattle were still important (Baldwin 1986, 197-198). Remnants of sheep husbandry still survive in the landscape: sheep and lambing pens often constructed in cleared townships, larger stells (Slimon 2007), enclosures and more modern manifestations of fanks and sheep dips.

Pigeons were kept by for their meat and eggs in winter, probably from as far back as Medieval times, with the droppings (guano) a useful by-product for fertilising. Doocots (dovecotes) were allowed only for larger properties after 1617 (Close-Brooks 1995, 76; Beaton 2008, 12). Doocots survive in a number of locations: as freestanding beehive structures (eg Boath, Nairnshire MHG7224) or lectern-shaped structures (eg Ardersier near Nairn MHG44781), or sometimes built into towers at large farm complexes (eg Conon Mains, Easter Ross MHG16516). Little work has been done on dating or regional styles of doocots in the Highlands apart from Beaton (1980; 2008), and there is potential for integrating with documentary research, as at Lethen, Nairnshire (MHG7199).

**Hunting and Collecting**

Hunting was the prerogative of the rich and landed (Bangor-Jones 2000, 65f), primarily deer but also gamebirds. Little of this is preserved in the archaeological record, but photographs and documentary accounts show its importance to the elite Highland estate. The extent in which wild foods were collected to augment diet has been little explored, with evidence primarily from ethnographic accounts (Dodgshon 2004) or related to healing charms (see 10.6).

**Fishing / Shellfish Gathering**

Scotland’s coastal communities relied on fish and shellfish, although there is some debate as to how much use was made of them before the late 18th century. Fish was salted, dried and smoked to extend its shelf life. These communities were also heavily involved with commercial fishing, especially when the herring was present (see 10.5). Shellfish was also used for baiting, but documentary sources show how shellfish was often sought at times of scarcity (Dodgshon 2004, 15). In the 20th century the river fishing became part of the sporting estates and associations. Waterways were transformed and fishing bothies constructed, many still surviving.

**Overall Diet**

The diet of the rich was very different of course from the diet of the poor. For the rich we have documentary evidence including some recipes and letters (Geddes 1994). For the less wealthy, oats and then potatoes remained the mainstay (Brown 1996).

Evidence of drink is plentiful, thanks to the kirk session records, documentary accounts and oral traditions. While more attention has been focussed on commercial distilling and brewing (see 10.5), small production, both legal and illegal, for household use also took place (Bratt forthcoming). Identification and recording of small remote stills, probably illegal for the most part, has advanced in recent years (see 10.5). For example, the Strathconon, Easter Ross survey by NoSAS revealed a large number of still sites, in an area which was known to be off limits to excise men (Marshall 2011b). Further discoveries have been made on Highland National Trust for Scotland estates (eg Wordsworth and Harden 2002).

**Health and Demographics**

Only in the Post-Medieval period is it possible to gain an insight into population density and health, and even then realistically only from the 19th century onwards (Donnachie 1986; Flinn et al 1977; Anderson 2018). Highland examples include studies on Skye in the 1880s (Garrett and Davies 2003). The Old and New Statistical accounts, estate documentation and parish birth and death records all allow a rough picture to be assembled before the advent of mid-19th century census, Valuation Rolls and government recording of births, marriages and deaths. Before the clearances, even the rural Highlands had large populations, with many large families, and population growth continued in the 19th centuries. This was a real factor in economic hardship, with more mouths to feed. The increased population over the period created insupportable factors in a situation already unravelling (Dodgshon 2004; Richards 2007, 32ff).

Documentary sources provide details of diseases and ailments, with limited archaeological input (Modern panel 4.3). The marginal subsistence, and starvation during famine, resulted in a weakened population susceptible to disease (Bangor-Jones 2000, 66). The Highlands and Islands had a strong Gaelic tradition in the 17th and 18th century in medicine (Burnett 1997, 13-15). Healing wells were frequented into modern times and a variety of charms circulated for curing or prevention (see 10.6). Cholera epidemics show problems in public sanitary arrangements (Oram et al 2009, 76; MacAskill nd).

As most human remains are still in active cemeteries, there has been little analysis of remains for the evidence they provide of health. At Hilton of Cadboll, Easter Ross, a male 25-35 years old buried after 1527 showed general good health though with dental issues and a healed fracture of a right forearm. Infant burials in Phase 4 (late Medieval / early Post-Medieval but not radiocarbon dated) in contrast had poor health, suggesting malnutrition (Roberts 2008, 363-365). The poorly preserved human remains from the Carmelite Friary at Kingussie, Badenoch were mainly disarticulated provided only limited data (McSweeney 2020). Analysis of disarticulated bones from Kirkmichael on the Black Isle provided evidence of poor diet, disease, infections and a prevalence of arthritic symptoms, but the bones were undated, and could be Medieval as well as Post-Medieval (McKeggie, Lynne 2017).

**Material Culture**

The National ScARF places a welcome emphasis on material culture. Artefacts are of particular importance for assessing changes within Highland society and transport of goods, allowing us to move to a more sophisticated understanding of the relationship between the demand for luxuries and estate change. It was not just the lairds who were becoming conspicuous consumers. The lack of surviving inventories is a challenge which interdisciplinary work by historians and archaeologists will help to overcome. There are a host of questions to address: how unequal was society; how far down the social scale did items go; where did items come from - where were they made and how were they distributed?

No one source covers the material culture of Post-Medieval Scotland much less the Highlands, although a broad sweep was undertaken by Calder (1989) and certain artefact types have been the focus of attention. Brochard (2015) has made significant strides in the study of the early modern period. The discussion below is not comprehensive but highlights some diagnostic finds, known from the Highlands, and what they can tell us.

A number of Highland museums have collections rich in Highland material culture dating to this period, but this material is little known. At the least, online catalogues with images would be the first step to making this material better available.

Ceramics

Redware was manufactured from the later Medieval period (see 9.4) into the 17th century. There are likely to have been manufacturing sites in the inner Moray Firth supplying Inverness, Tarradale and Cromarty, although no kilns have yet been found (Eric Grant pers comm).

Mass-produced ceramics from the central belt of Scotland and England spread throughout the Highlands in 18th and 19th century Scotland, showing commercial contacts over a large area (Modern Panel 3.4, with refs; see also Fleming 1923; McVeigh 1979). At the two most extensively excavated late 18th century settlements, at Rosal, Sutherland (MHG11549, Fairhurst 1967-1968) and Easter Raitts, Badenoch (MHG4411), mass produced ceramics were found showing thriving imports at the time. This information still remains to be gathered from diverse excavation and fieldwalking reports throughout the Highlands. For example, the ongoing Tarradale Through Time project and fieldwalking is yielding a large amount of Post-Medieval ceramics, and previous fieldwalking by Tain Archaeology Group (finds now mainly in Historylinks and Inverness Museums) and the Caithness Fieldwalking project (finds mainly at Dunbeath Heritage) have barely been looked at. No production evidence survives from the Highlands apart from craft potters from 20th century and later, although crogan (craggan) pottery, handmade globular vessels, were in Skye and the Western Isles (Cheape 2010), and some may have been manufactured locally.

Metal

The Medieval annular brooch tradition lasted longer in the Highlands than elsewhere in Scotland (Shiels and Campbell 2011), and in the Post-Medieval period large Highland brooches some in silver, many of brass, were used by Highland women in the 17th century to fasten plaids (Calder 1989, 152). A number of these are provenanced, including a number of fragments from metal detecting, with finer examples in many local museums. Other jewellery includes betrothal brooches and rings.

Silversmiths were active in Highland burghs from an early time, producing high quality work, but also more everyday objects such as cutlery, snuff boxes and rings for the (relatively) less wealthy (Calder 1989, 74). The practice of marking objects with distinctive marks allows production centres to be determined. The work of Highland gold and silversmiths is covered by Moss and Roe (1999). The Tain industry was discussed by Quick (2012).

Metal detecting has produced a huge range of material in the last decades, some of it diagnostic to the period, others less so. For example, a number of 17th and 18th jaws harps have been found, suggesting a common musical instrument carried about, but then discarded when the tongue broke. This body of evidence remains to be quantified and assessed, with then comparisons to other areas of Scotland.

Portable nesting cup weight sets are also known, many from metal detecting. Many interestingly are 17th century examples manufactured in Nuremburg whose standards should not have been permitted in Highland burghs (see 10.7). Some Highland museums have collections of official county weights and measures, for example Dingwall Museum and Golspie Heritage Centre, both for 1826.

Coins present one of the most ubiquitous metal detected finds, primarily Scottish but also English and from other countries. More work could be done pulling the Post-Medieval finds together, and correlating with other known activities, for example movements of soldiers or drovers. Many are disclaimed from Treasure Trove, making it essential that good records and photographs are made of these items before they are returned to finders.

Trade tokens also appear from the late 18th century (Calder 1989, 179-180). Analysis of Highland finds would highlight Highland firms minting them, but also tokens from outwith the Highlands circulating here, shedding light on economic connections.

Beggars’ badges were issued by the church, permitting holders to beg within the parish. Usefully they often note the parish name or abbreviation and date (Kerr and Lockie 1961-1962). Few survive, but examples are known from Croy near Inverness (dated 1742), Killearnan, Easter Ross; references also appear in Kirk Session records of Inverness (Kerr and Lockie 1951-1962) and Kiltearn (case study X).

Clothing and Dress

A range of evidence survives for this period, including actual items as well as illustrations. For the earlier Post-Medieval period we rely primarily on the latter, although a few survivals are known. These include a 17th woollen knitted cap from Tarvie, Easter Ross and clothing found on a bog body at Quintfall Hill, Barrock Caithness, dated 17th century by coins in his purse. Clothing and part of a shoe from skeletons found in a moss at Culrain, Ross-shire in 1880 and woollen cloth from Loch Laggan on the Great Glen are less easy to date. Most are wool, but one of the Loch Laggan cloths was probably linen, or perhaps hemp or nettle (Henshall 1951-1952).

Wood

Provenanced wooden artefacts are not well represented, in part due to preservation issues, in part due to the small number of archaeological investigations for the period. Before improved transport allowed the movement of cheap industrial pottery, huge amounts of wooden items were in use including traditional Scottish vessels such as bickers, luggies, coggies and quaichs, some carved from solid wood but the majority stave made. Travellers sold handmade wooden ware round the countryside.

Certain regional styles of woodworking can be discerned, especially for furniture (Noble 1988; 1993; Cotton 2008), for example, Sutherland chairs (examples at Historylinks, Dunrobin Castle and Timespan museums). Crofting furniture said to be from Skye is preserved at the Museums of the Isles, Armadale Castle. Built in box beds and other items of vernacular furniture can still occasionally be found in some abandoned buildings.

Boat building was a craft undertaken in a number of coastal areas (see eg Scottish Built Ships website <https://www.clydeships.co.uk/> accessed November 2020). Many of these areas were without major sources of wood, and further work on provenanced ships would be interesting in identifying raw materials. Dendrochronology holds great potential here, able to not only provide dating but also source of wood. For example, a shipwreck off Galmisdale Point, Eigg (MHG30701) was constructed of eastern North American oak, probably from New England, evidence of little-documented import of timber from this region in the late 18th century (Crone 2016).

The herring fishing required large fleets. A number of these were scuttled around World War I or abandoned once steam powered vessels became available. These scuttled remains providing opportunities for further work. For example, 17 wooden vessels (Zulus) which belonged to Embo, Sutherland were recorded by SCAPE as part of their ScHARP project using local volunteers, drawing on documentary research and oral history. Analysis showed that different parts of the vessel were made from different species (Scape 2017).

Clay pipes, and snuff boxes

Tobacco was introduced to Scotland, probably from England, in the early 17th century (Calder 1989, 178ff). Its use became widespread, both for smoking and taking snuff. Clay pipes in particular are common finds, used by all levels of society, into the 20th century. There have been studies of pipes elsewhere in Scotland (Davey 1987; Gallagher 2011), but none for the Highlands.

Soldiers stationed at Castle Sinclair Girnigoe, Caithness (MHG417) in the 17th century may be responsible for the large quantities of pipes found during recent excavations. Nor were pipes only used by men. The Inverness Burgh accounts of January 1812 show that women who cleaned the Inverness Town Hall were given clay pipes. A photograph taken in the early 20th century in Cromarty shows a boy smoking with a clay pipe (<https://www.ambaile.org.uk/search/?searchQuery=22067>; accessed October 2020).

The common presence of pipe fragments on archaeological sites is not hard to understand: mass produced for all markets, the objects were easily broken and then tossed away in the midden, and then later spread onto fields. The presence of makers’ stamps allows us to trace movements of these common articles. Some Scottish pipes, for example, can be found all over the world, presumably carried by emigrants and travellers alike. Information about clay pipes made in the Highlands, as well as those found in the Highlands but made elsewhere, still needs to be pulled together and might indicate regional patterns; this could also be combined with investigation of local clay sources.

Snuff was very popular in Scotland with all classes, and proportionally more people took snuff, both men and women. Some elaborate and costly snuff boxes in silver and horn survive, some made in the Highlands, for example high quality silver examples particularly in Inverness and Tain. Snuff mulls of horn, mainly cow horn, were made by Travellers. Snuff was ground using small stone querns or small cow horns, with apothecaries using wooden mortars. By the 18th century milling had become mechanised, and some Highland sites are known, for example Gordon’s Mills on the Black Isle (MHG8765). Many of these objects survive, some with provenance. Inverness Museum has a good collection and further work looking at other museum collections would undoubtedly provide further insights (Grant forthcoming).

Stone Tools

Lithics including flint strike-a-lights and gun flints are found well into the historic period on sites, but in the past have received little attention (Hardy and Wickham-Jones 2009, 2.1.17). Assessing use in the Post-Medieval period requires good dating of course. Gun flints have received the most attention (see et Ballin 2012), but little work in the Highlands.

Printing Presses

Newspapers were important in the Highlands from the early 19th century, requiring presses and metal type (MacAskill 1975). Machinery and type are in collections of Wick Museum (for John o’Groat Journal) and Dingwall Museum (for Ross-shire Journal).

**Aspects of Daily Life**

With many areas of the Highlands with few trees (and landlords forbid the use of trees for fuel), peat but also turf was widely used as a domestic fuel. Throughout the Highlands the tell-tale cuts of local peat cutting for fuel are visible, with peat cutting rights still current in many places amongst crofters. Local routeways are often remembered as peat roads, and this information needs to be recorded before it is lost. A peat sledge is preserved at Timespan Museum. In non-wooded coastal areas driftwood would also have been used for fuel. Documentary sources also show later dependence on imported coal, both by ship and by rail. Investigation of hearths could shed more light on fuel choices.

Evidence of sport and leisure begins to be more prominent in the documentary and archaeological record in the Post Medieval period (Burnett 1995). For the early Post-Medieval period, the evidence is mainly relating to upper classes, especially the hunting and fishing which continues into modern times (Wightman et al 2002). As time goes on, we have other evidence of sporting activities used by a wider section of the population.

Curling was the most common sport in 19th century Scotland (Burnett 1995, 41). Many communities, urban and rural, in the Highlands had curling rinks, many now only noted on maps, in photographs or remembered, with many derelict and overgrown. Occasionally remains of the pavilion survive, and in a few cases curling stones which have local associations. Evidence of curling should be recorded before the memories are lost.

Many of the courts or grounds for sports such as tennis, bowling, shinty or football disappear when they go out of use, ideal for other building purposes. Similarly, the archaeological evidence of the iconic Highland Games is ephemeral, yet its importance in many Highland communities from Victorian times is undoubted. Golf has a long history in Scotland, although most Highland courses are from the last centuries. Historylinks Museum in Dornoch preserves tools used for golf repair.

**10.5 Craft and Industry**

The Highlands is not generally considered an area with industrial archaeology, but a surprising amount of activity took place, much of it linked with developments further south. The Highlands had varied raw materials, important products of grain, cattle, fish, timber, wool, whisky and kelp, and cheap labour. In fact, the dependence of the industry on southern and international markets, combined with infrastructure which kept the profits in the hands of lairds rather than working population, made it vulnerable to international downturns and harvest fluctuations. The range and scale of some of the industrial activities show that the Highlands were capable of dynamic change from the second half of the 19th century, and sometimes earlier (Devine 2005), though the impact of many of these on the local economy can be debated.

A great deal of industrial remains survives in the Highlands. John Hume’s 1977 survey of industrial archaeology in the Highlands remains invaluable, incorporating many old pictures. There have been few regional studies, but include Sinclair Calder’s unpublished thesis of industrial remains in Sutherland (1974) and Mark Watson’s exploration of Caithness (2018) showing the potential for detailed work in different areas of the Highlands. Map and documentary sources are available to fill in the picture of what is lost, and a number of local studies have done so.

In some cases the choice of industrial activity in the Highlands was due to raw materials. Woodlands and bog iron provided fuel and materials for ironworking, though interestingly the early blast furnaces imported the clayband ores. Limekilns and lead mines were situated in areas with good outcrops, operating on small and large scales. But many industries can also be linked to personal stories or entrepreneurship (see Case study X). Trade relations with other countries affected industry from an early date.

The Highlands are rich in mills, used for carding wool, sawing and boring wood, grinding and threshing grain and manufacturing machinery. Most were water-driven, but steam-powered mills are also dotted in the landscape, mainly for large farms, and there are some tidal and windmills. Many still preserve architectural details, and are sometimes found in documentary records. There is scope for more recording of this common but important industrial evidence for the Highlands.

**Ironworking**

As noted in chapter 9.5, there is good evidence of iron smelting and smithing in the Medieval period. Smelting required good supplies of charcoal and bog iron, available in many areas of the Highlands. A bloomery site excavated at Craggie, Sutherland (MHG62067) provides evidence of late 15th to early 17th century smelting, with over 58 kg of furnace linings, waste and tap slag. Charcoal analysis showed birch as the main fuel, with limited amounts of alder, unusual for bloomery sites where oak and alder usually predominate, and probably representing what was easiest to source locally. The furnace is notably larger than other known examples. It had no stone in its construction, being made entirely of clay. It may have been in use for a relatively short period of time (Atkinson and Wombell 2015).

In the 16th century blast furnace technology came to the U.K., and the earliest known examples from Scotland, dating to the early 17th century, were located in Wester Ross along Loch Maree at the Red Smiddy (MHG7711; Case study X), Letterewe (MHG7940) and Fasaigh (MHG7921). These are linked to the enterprise of the Fife landowner Sir George Hay, who used them to produce ordnance. This area provided good woodland for fuel, and transport links needed to import the clayband ores and export the finished products (Lewis 1984; MacCoinnich 2006).

Later initiatives in the Highlands by the York Buildings Company, an English firm, established blast furnaces during the 18th century at Invergarry, Lochaber (MHG5520) and Coulnakyle in Badenoch and Strathspey (MGH4599; Murray 1883 57ff); both were not successful, encountering fierce local resistance. Limited excavation was undertaken in the 1980s at Red Smiddy, where remains of the furnace can still be seen (Lewis 1984) and in the 1990s at Fasaigh by the Scottish Bloomeries Project.

The presence of smithies (smiddies) on the Ordnance Survey maps shows a local blacksmith was a common occurrence from at least the 19th century, and some museums such as Dingwall, Timespan, Historylinks and the Highland Folk Museum preserve tools and equipment from Highland smiddies. How far back this proliferation of blacksmiths operated is not clear, especially since there has been little detailed attention towards townships. In the early part of the period smiths were required by and supported by clan chiefs for producing arms and edged implements; some may have been specialised armourers, many were hereditary. Highland Travellers also essentially provided a mobile blacksmith and farrier service, but with little trace of such activity surviving (Eric Grant pers comm). There were probably more blacksmiths in the 19th century with the development of roads, requiring shoeing of horses and wheeled transport. Further research and excavation might shed some light on the development of blacksmiths throughout the Highlands.

Smithing on a large industrial scale occurred at some Highland sites, for example at AI Welders at the Rose Street Foundry in Inverness (MHG20159) from the late 19th century until 1988, the subject of recent research by Eileen MacAskill of the Inverness Field Club, using extensive archive material at Highland Archive Centre. The expansion of the Highland railway provided demand for its work, but the Foundry also produced more domestic works such as the gates leading to Strathpeffer station (MHG55620). Lochgorm Works (MHG17985), built c. 1855, is one of the best surviving examples of railway engineering works (Hume 1977, 206-207); other works were also established at Brora for the Duke of Sutherland’s railway (MHG9763), later converted into a woollen mill (Hume 1977, 311). The Admiralty also had large scale foundries during World War I at Invergordon (MHG57042) and Inverness (MHG3121). Many small towns such as Thurso and Tain had foundries in the 19th century, some capable of producing machinery and agricultural implements. Engineering companies such as Reids of Dingwall (MHG32243) were in a sense continuing in that tradition. Other foundries are known only from maps (MHG32318) or name, and further work is needed to pull together this evidence.

IMAGE: MOSAIC from Rose Street

**Other Metalworking**

The British Aluminium Company founded large scale aluminium industrial works from the end of the 19th century at Foyers on Loch Ness (MHG2698), Fort William (MHG4371) and Kinlochleven (MHG89) in Lochaber, taking advantage of hydro power. A much later development from the 1970s was established at Invergordon, Easter Ross (MHG8334) powered by nuclear-power produced electricity (Ash 1991, 254ff; Christie nd). All of the works had profound effects on the local populations; the Invergordon smelter led to the construction of the Cromarty Bridge, which in turn had a major impact on communications in this area (Ash 1991, 258-259). All works have closed, and while remains of the first three smelters still survive, only the pier for the Invergordon smelter remains.

**Mines and Quarries**

The varied geology of the Highlands has resulted in stone and other ores available for industrial and building uses (Table X; McMillan 2017a; 2017b). Some were the projects of local landowners, others were ventures by outside companies.

A cluster of lead mines were located in Ardnamurchan, worked by the York Buildings Company in the 18th century, then in the mid 19th century by John Barratt of the Strontian Mining Company, though with limited success. The mines were also briefly reopened in the 1980s (Cameron 1941; www.nmrs.org.uk/mines-map/metal/strontian-mines/). Remains survive on a number of the sites. Remains of one of the lead smelters at Strontian have also been uncovered (MHG29303).

Coal only outcrops in a few places in the Highlands, with the only enduring works at Brora, Sutherland (MHG19725; MHG9767). These were linked to saltworks initially, and then intermittently worked. In the early 19th century mining was renewed, and infrastructure of a railway and harbour developed. The poor quality coal provided fuel for local enterprises, including renewed salt production and for a local brick and tile works (see below), a distillery and for fuel for the Duke of Sutherland’s innovative but ultimately unsuccessful steam ploughs for land reclamation (Tindley and Wodehouse 2014). The colliery closed in the 1820s, but was reopened in 1872, closing finally in 1974 (Harker 1964). Albertite outcrops at Strathpeffer, Easter Ross, and may have been a source through prehistory, with further prospecting and use in the 19th century (Morrison 1883, 308).

Iron ores were mined in a number of locations (see Table X), most small scale production which presumably supplied in the main local foundries (see above). A few cases show larger production, including on Raasay, Skye (MHG6521) relating to WWI need for iron. A number of mines and buildings relating to this enterprise survive (Draper and Draper 1990).

Mining for both copper and gold occurred in some locations, with a small gold rush in Kildonan, Sutherland in the 19th century, prospecting mainly by panning from the burns (Saxon 1992; Pollard 2000; Callender and Reeson 2008). However, only limited quantities were obtained. The Kildonan camp has been excavated (MHG43572), providing insights into the features and lives of miners.

Flagstones from Caithness were quarried, cut and exported, in a large scale operation from the late 18th century (Porter 1982). Quarries were situated in a number of locations (see Table X for a selection), with some still in production. A cutting yard in Castlehill (MHG51241) operated in the 19th century with a water wheel for power, although all buildings have been demolished. This allowed easy access to export from the harbour. The flagstones were also used locally, in buildings (including as roofs) and fencing, as shown by a number of surviving buildings and fences.

At the opposite end of the Highlands, slates from the Ballachulish area, Lochaber (eg MHG14) were actively quarried from the late 17th century, with remains surviving of early buildings and transport infrastructure. Slates from the area were the most important source in Scotland and exported widely, especially for durable roofing (Hume 1977, 53, 156; McMillan 2017a, 11-12). In the 20th century bricks were made from quarry waste at the Ballachulish slate works, but the venture was not successful ([https://www.scottishbrickhistory.co.uk/ballachulish-slate-quarry-and-brickworks-ballachulish-lochaber-highlands/](https://www.scottishbrickhistory.co.uk/ballachulish-slate-quarry-and-brickworks-ballachulish-lochaber-highlands/%22%20%5Ct%20%22_blank)). There were also several local slate quarries in the Highlands few of which were successful commercially. Some produced products which should be regarded as stone slates. No slate quarries are still in operation.

In areas where limestone outcrops, particularly Caithness, parts of Sutherland, Badenoch and Strathspey, Wester Ross and Skye, OS maps show numerous limekilns, many still surviving. Some quarries have also been identified (see Table X; McMillan 2017a), but for small scale production would leave little trace. Lime was used for both building and agricultural fertilising. Large scale production and export occurred in a few Highland locations including Broadford on Skye (MHG5311) and Ard Neakie, northwest Sutherland (MHG11917), where the kilns were situated in locations able to export via ships (Hume 1977, 54ff), and also Shinness on Loch Shin, Sutherland (MHG13298; Hume 1977, 319). Although Medieval kilns are known from England (Johnson 2018), no dating has been done on Highland examples to see how far back they were used. Bricks were made at Lairg, Sutherland in the 20th century but not from clay, but firstly of cement bricks and then of lime and sand, with a poor quality result (Ketteringham 1997, 222).

Marble quarries were noted in the early 18th century on Skye on maps by Hermann Moll (‘In this Island is found Aggat, Chrystal, Marble, and Herrings are taken in almost all ye Bays’; maps.nls.uk). Near Broadford, remains of quarries and a railway to transport the stone to the bay remain (see Table X), with reports of a visit in the early 19th century by Isabell Burton-MacKenzie of the Highland Home Industries who tried to reinvigorate local work (Jones 2020). During the Napoleonic War period, when supplies from Italy were cut off, marble was quarried in Assynt by a stone merchant from Gateshead; the line of the track he had constructed to transport the marble blocks to the point of shipping may still be traced (MHG32862).

Sandstone quarries are located in a number of localities in the Highlands mainly utilising available outcrops on the east or west coasts. Some, such as Inninmore Bay, Lochaber (MHG155) and Dornoch Links (MHG11674) reputedly operated from Medieval times, though no dating has been undertaken. Others worth noting include: Isle Martin, near Ullapool, a Torridonian sandstone quarry (<https://www.islemartin.org/heritage-project/discoveries/> accessed December 2020); Clynelish (MHG32874) and Sputie (MHG30009) near Brora; Hill of Tain (NSA) and several sites on the Black Isle (McMillan 2017) including Cullicudden (MHG507777; MHG50781), Tarradale (MHG29399) which continued in use until the mid-20th century producing facing stone for hydro buildings and the Contin forestry village, and Redcastle which provided stone for the Caledonian Canal amongst other local sites (Clark 2009, 234ff). Easy access to the sea, often with special built piers, facilitated distribution.

There were granite quarries on both the east and west coasts, providing stone for a variety of purposes including hydro construction (McMillan 2017b). With the invention of concrete and top dressing needed for new roads, demand for sand and gravel increased rapidly from the 19th century, much of it being quarried in areas of glacial sand and gravel deposition on the east side of the Highlands. They were crucial for some road building projects. For example, Telford re-routed his proposed route on Sleat, Skye because insufficient gravel was available (Susan Kruse pers comm).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Location | Area | Materials mined | Comments | Ref |
| South Erradale | WR | Clay | Local knowledge; for pointing houses | MHG61286 |
| Inver Tote | Skye | Diatomite | 1886-1913; 1950-1961, initially transported by tramway.  | MHG37187; Canmore 191593 |
| Fascally, Brora | S | Coal | 16th- 20th c c (with gaps), originally linked to salt works | MHG19725; MHG9767 |
| Eathie | ER | Coal | 19th c | MHG19974 |
| Strathpeffer | ER | Coal / Albertite | Documentary evidence of 18th century prospecting | MHG61461; MHG61462 |
| Camas Ban; Eilean Tioram | Skye | Coal | Two 19th c, unsuccessfully worked by Lord MacDonald  | MHG5110 |
| Rassal Wood | WR | Copper | 1700s, closing probably mid 19th c. Limited excavation | MHG8264 |
| Allt an Doire Dharaich | L | Copper | 1700s | MHG546 |
| Castlehill | C | Flagstone | 19th c – early 20th c. Large scale | MHG698 |
| Mid Clyth | C | Flagstone | 20th c | MHG55803 |
| Spittal  | C | Flagstone | Large quarry, still operating, with other disused pits in the area | MHG185 |
| Achscrabster | C | Flagstone | 18th-20th c, now disused, but remains survive | MHG55433 |
| Weydale | C | Flagstone |  | MHG1476 |
| Baile an Or | S | Gold | 19th c gold rush. Excavated camp  | MHG9357 |
| Port an Aoil | WR | Gold | Cave reputedly made by gold prospectors. Not located | MHG7934 |
| Dornie | Lochalsh | Gold | 19th small scale underground | MHG29340 |
| Dalmore | S | Granite |  | MHG32972 |
| Near Loch Loyal | S | Granite |  | M Bangor-Jones pers comm |
| Migdale | S | Granite | Site of Bronze Age hoard | MHG10007 |
| Aviemore area | B&S | Granite | Used for local housebuilding. Now destroyed | MHG24833 |
| Glen Nevis | L | Granite | For use in Fort William | McMillan 2017b |
| Glen Spean | L | Granite | Used in hydro construction | McMillan 2017b |
| Achvarasdal, Reay | C | Iron ore | 1st ed OS (disused). With windmill | MHG43694; MHG51713 |
| Dunviden | S | Iron ore | Possibly 17th c. Remains not located | MHG13331 |
| Aberchalder | I | Iron ore | 19th c | MHG52894 |
| Upper and Lower Sanachan | WR | Iron ore | Short lived enterprises early 19th century  | MHG33079; MHG24889 |
| Tornapress | WR | Iron ore | Short-lived early 19th. Kishorn Iron Co. Ltd. | MHG33078 |
| Tubeg | NWS | Iron ore | OSA; little remains | MHG12247 |
| Inverarish  | Skye | Iron ore | Developed 1913 for WWI. Dismantled 1943. Railway. Scheduled site. Other mines also on island | MHG6521 |
| Achanarras | C | Lead | Active in WWI | MHG51712 |
| Maol Nan Ceap  | I | Lead | Disused by 19th c. Part of Lovat estate | MHG14732 |
| Tom a’Mhein | I | Lead, then graphite | 19th century. ONB describes stamping mill and water wheel | MHG2588 |
| Allt Tigh Cumhaig | I | Lead | 19th c map evidence | MHG23972 |
| Lurga, Sunart | L | Lead | c. 1733-43 and again early 19th c. Scheduled remains | MHG252 |
| Corrantee | L | Lead | 18th c, closed 1871. Scheduled remains | MHG133 |
| Whitesmith | L | Lead | 17th c and later, with water driven pumping engine | MHG323 |
| Middleshope | L | Lead | Some remains | MHG325 |
| Fee Donald, Allt Feith Dhomhnuill | L | Lead | 18th & 19th c. Scheduled remains including waterwheel | MHG321 |
| Liddesdale | L | Lead | 18th c company store | MHG39299 |
| Markwell | C | Limestone | Disused quarry | MHG4829 |
| Ulbster area | C | Limestone | Disused quarries | MHG48140; MHG48180;MHG48333 |
| South Clunes | I | Limestone | Large limekiln with nearby quarry | MHG3424 |
| Dulnain Bridge | B&S | Limestone | Limekiln and extensive quarry, said to have been linked by aerial conveyer system | MHG24933 |
| Bannockburn | B&S | Limestone | Identified by cavers | MHG51858 |
| Laggan Hill | B&S | Limestone | 18th & 19th c | MHG32719 |
| Glac nan Sgeulach | WR | Limestone | 3 limekilns associated with associated quarries | MHG39704 |
| Ard Neakie | NWS | Limestone | 19th c, associated with large limekilns (MHG30102) | MHG11917 |
| Rosehall | S | Manganese | Reputedly constructed by landowner using Cornish miners. 19th c? | MHG13151 |
| Ledbeg | NWS | Marble | On and off since mid 18th century | MHG32862 |
| Kilchrist | Skye | Marble | With railway to Broadford. Visible remains | MHG6578; MHG6394; MHG6236;MHG6577 |
| Coille Gaireallach | Skye | Marble | On 2nd ed map | MHG5236 |
| Torrin, Cnoc Dubh | Skye | Marble/ limestone | 19th/20th c; Still in operation.  | MHG52423; Canmore 293066 |
| Little Scatwell | ER | Mica | WWII. Surveyed by NoSAS | MHG54530 |
| Ballachulish area | L | Slate | From the late 17th century | MHG14; MHG518 |
| Creag nam Meall, Glen Righ | L | Slate | Disused, probably by end 19th c | MHG50310 |
| Ardintoul | Lochalsh | Talc | 1930s, transported to shore by aerial ropeway | MHG29629; MHG30910 |
| Black Pool | C | Unknown | Mine shaft marked on modern OS map but not 1st or 2nd | MHG18434 |

Table X: Probable or Certain Mining and Quarrying Highland Sites, excluding sandstone

Clay was extracted on small and large scales for building materials. Clay mortars were used extensively in a range of buildings until finally ousted by lime mortars. Improved lands needed drains, and remains of small tileworks are known (eg Allangrange, Easter Ross MHG53903). Large scale brick and tileworks are known from Brora (MHG10877) and Culloden (MHG4374; MHG29348). Brora bricks are found on sites throughout the east Highlands, including wartime installations. The works were founded in the 19th century, utilising a large nearby claypit and a tramway. They closed in the 1970s and were demolished (Calder 1974, 146-149; scottishbrickhistory.co.uk/brora-brick-and-tile-works-brora-sutherland/ (accessed October 2020)).

**Salt and Kelp**

Salt was important for preserving, on a local scale but also for the fishing industry (Modern panel 6.2). Brora was home to a large saltworks (MHG30002) from the late 16th century, an early industrial initiative by Lady Jean Gordon, widowed Countess of Sutherland. For three short periods, 1698-1617, 1767-1777 and 1812-1828 Brora coal was used to heat sea water to extract the salt. The eroding remains were excavated in a local community project involving Clyne Heritage and Timespan Museum with SCAPE Trust, providing detailed information about early salt production (<https://scapetrust.org/brora-saltpans/>; accessed October 2020). In 2020 an experimental salt pan was built, with experimental firings scheduled for 2021 (pers comm Jacquie Aitkin). Results of the work have also been presented as a 3-D reconstruction in a collaboration with University of St Andrews (<https://www.openvirtualworlds.org/salt-pans/>; accessed October 2020).

The sea also was a source for kelp, a seaweed used in the late 18th and early 19th centuries after burning for soap manufacture, glassmaking and other industries. Small tenants undertook the laborious work of collecting and burning the kelp. Once duty on imported kelp was removed, however, the industry collapsed however (Gray 1951). While much of this industry was centred on the Western Isles, significant production took place in Ardnamurchan and Morvern, Lochaber (Devine 2005. 86), with exploitation also on the west coast of the mainland (Bangor-Jones 2000, 68). A number of possible rectangular and circular kelp kilns are recorded in the Highland HER. Identifying kelp burning pits in the landscape remains difficult, often relying on oral tradition (Grant 2019).

**Peat**

The peat resources of the Highlands are huge; the Flow Country in Catihness/Sutherland alone holds the largest reserves of blanket bog peat in Europe. As outlined in previous chapters, peat formation began from an early time and continued through the Medieval period in some places. Elite households consumed huge quantities of peat prior to the availability of coal. Domestic use was widespread, however, and some peat deposits were worked out by the 18th century. Tracks to peat diggings may be traced and evidence for the impact of peat extraction for village settlements may be seen in a number of locations, for instance, above Helmsdale. Domestic peat digging still occurs today albeit on a much reduced scale.

Industrial scale peat extraction began in some places, particularly Caithness, with the demand for garden potting soils. The extraction is often a threat to local archaeology, as is conifer plantation on peatlands, particularly as there are often hidden sites covered by the peat. Increasingly peat extraction is a concern for global warming, given the carbon storing properties of peat (Lindsay et al 1988; Marsden and Ebmeier 2012; Sybenga 2020). This is one area where archaeologists can work with environmentalists to safeguard built and natural heritage.

**Forestry**

Alongside peat, areas of the Highlands have long been rich in timber, providing fuel resources for local subsistence, burial pyres and small scale industrial activity, as well as building materials. Woodland cover varied in the Highlands, but pollen analysis and charcoal identification at sites combined with maps and documentary resources can provide evidence of woodland cover, and also episodes of cutting (see 10.2).

Various research projects have focussed in part on Highland forestry, including the Touchwood history project (University of the Highlands and Islands Centre for History; see Stewart 2008; 2010); the Woodland Trust’s Ledmore and Migdale wood project (Bangor-Jones 2014a; Kruse 2014); a local community project investigating Boblainy Forest, Inverness-shire (Kruse and MacLean 2015); and The Sunart Oakwoods Research Group on the Ardnamurchan peninsula in Lochaber (Kirby 2001). The Forest Memories Website [www.forestry-memories.org.uk/](http://www.forestry-memories.org.uk/) (accessed October 2020) grew out of the success of the Touchwood history project and provides a number of pictures and oral history transcripts relating to forestry in the Highlands. George Dixon has assembled documentary evidence for Strathspey (Dixon 1976). Eighteenth century timber exploitation on the Cromartie Coigach estates was investigated by Clough (1994, 235ff). Maps and documentary sources can provide detailed information, eg see Bangor-Jones (2013) for the Sutherland estates.

Forests were managed on a commercial scale for a number of reasons. The wood could be used locally and exported, though in Scotland cheaper or better quality imports had already been making inroads in the late Medieval period (Mills et al 2017). In the Post-Medieval period, the Scottish trend is for increasing imports of first oak and then pine. However, the situation in the Highlands may well be different. Documentary sources note timber resources in a number of areas, and more detailed local investigation of these sources would be useful. Further dendrochronological work on timber, especially oak, in the Highlands needs to be undertaken to see if native timber use continued longer in this area (Coralie Mills, pers comm). The majority of pine from the Highlands dated as part of the SCOT2K Native Pine Dendrochronology Project has been shown to be native, however, with only samples from The Doune Rothiemurchus (MHG15393) and Fort George (MHG15618), used in the third quarter of the 18th century, shown to be imported, the samples from Fort George from the eastern Baltic (Mills 2008; Mills et al 2017). A number of other samples from the Highlands were unable to be dated, but await advances in ways to date smaller samples.

Dendrochonology which allows dating and evidence of origin is also beginning to show use of Highland timber in buildings elsewhere in Scotland, for example pine from the Cairngorms felled shortly after 1458 used at St John’s House, St Andrews (Mills et al 2017). Whether this export at such an early date applies to other timbers in Scotland will require further data. Documentary sources also show some landowners exporting pine in the 17th century (Smout et al 2005, 197). Other types of wood also need to be investigated.

As outlined in previous chapters, charcoal burning platforms can be traced back to the Early Medieval period, so dating is needed at these sites. A site on Loch Sunart, Lochaber, was used from Medieval period and again late 18th or 19th century. The Post-Medieval platforms were larger and were recessed into the hillsides, with considerable care in building (Ellis 2016). Whether this is diagnostic for dating platform burning structures or if it is a regional characteristic remain to be tested elsewhere. Certainly other clusters of platforms in the area at Ceann a' Chreagain, Strontian (MHG36040) also show this technique.

Some landowners actively promoted forestry on their lands, becoming known as ‘planting lairds’ (House and Dingwall 2003). In the Highlands these also included the Commissioners of Forfeited Estates who also encouraged planting, for example on the Lovat estate. In the 19th century, Sir John Ramsden (Loch Laggan), Sir John Stirling Maxwell at nearby Courrour and Loch Ossian, the Grants of Rothiemurchus, and Lord Lovat, responsible for the formation of the Forestry Commission after WWI, are among the planting lairds or those who capitalised on their large timber resources. There appears to have been less tree planting in the western Highlands. Species varied, and many landlords experimented with exotics, but Scots pine was favoured as it could be planted on heathland, and later the Sitka spruce which dominated commercial plantations in the 20th century (House and Dingwall 2003, 140ff).

Key to successful undertakings was an ability to transport the wood, and early experiments floating cut trees down rivers in the first half of the 17th century are known (Stewart 2003, 113-114; Kruse and Maclean 2015, 33). This practice continued into living memory, even when rail and road transport revolutionised the industry.

Sawmills were introduced in in the 17th century (Shaw 1984), water-powered in some cases and later steam-powered. However, the early use of sawmills in the Highlands remains to be investigated; the potential for research and memories can be seen from the projects mentioned above. In the 19th and 20th centuries there were mobile sawmills which travelled to the wood. The development of the railway, more extensive in the eastern Highlands than currently is the case, provided ways to transport finished logs, while at the same time fuelling need for timber sleepers (Foot 2003). During WWI and WWII forestry workers and their machinery arrived to the Highlands from the U.S. (for example at Ardgay, Sutherland), Newfoundland, Canada and Honduras (Bird and Davies 1919; Wonders 1991; National ScARF case study). These sawmills and camps have left little trace (see Case Study X). More research into Highland sawmills, and recognition of their traces in the landscape with dating evidence is needed.

In addition to timber, large pine trees in Strathspey were bored into pipes at so-called boring mills in the 18th century. These were exported to London, until cheaper English elm pipes undercut the business (eg MHG55515; MHG20107; Dixon 1976; Stewart 2003, 119). Little remains of these enterprises apart from the place-names.

In some areas of the Highlands evidence of woodland management can be seen, particularly coppicing. Documentary evidence is also available in some cases. For example, the Sunart, Lochaber woods were coppiced on a 20-30 year rotation. In other areas woodland management for bark can be demonstrated from oakwoods, for example at Skibo, Sutherland woods in the 18th century (Malcolm Bangor-Jones pers comm) and Sunart (Kirby 2001). Information on woodland management needs to be gathered together, with dating.

The sequence of repeated planting and felling has taken its toll on Highland archaeology, although there is more awareness now of archaeological sites in the forests. Nevertheless the current planting and felling machinery is undeniably destructive. The forestry industry continues to be widespread in the Highlands, with plantations managed by Forestry and Land Scotland as well as private firms. This is likely to increase in the 21st century given current targets for 21% woodland cover by 2032 (with current cover c. 17%) (https://www.nature.scot/professional-advice/land-and-sea-management/managing-land/forests-and-woodlands/woodland-expansion-across-scotland#:~:text=The%20Scottish%20Government's%20Draft%20Climate,hectares%20per%20year%20by%202024.). As such it will fuel continued forest enterprise but also potential threats to widespread archaeology.

**Textiles**

Textile production has a long history in the Highlands, from homeworking to small scale producers to large mills. Cottage industries of hand spinning and weaving have a long tradition, and continued alongside industrial-scale operations. Producing textiles over and above what was needed locally was often an initiative of the local laird, and increasingly in the 18th century by government (for example on annexed estates) or companies such as the British Linen Company (Hume 1977, 39; Durie 1979; 1996). Buildings at Lochcarron (MHG16172) and Inverlael on Loch Broom (MHG7839) are testament to the three unsuccessful linen stations established in the 1750s. An example of an enterprise linking small scale workers with outlets is Highland Home Industries, founded 1907 and active into the 20th century. While for the most part concentrating on knitted and woven products, they also included basketry and even marble carving from Skye (Jones 2020).

Estates annexed by the government after the Jacobite 1745 rising promoted flax, primarily for its textile rather than food potential. Documentary evidence including the Old Statistical Accounts makes clear that this was a huge industry in the Highlands, employing thousands of spinners in the 18th century. These then required weavers, often mills and bleachfields (Durie 1979; 1996). There is scope to explore evidence of linen production in locations where documentary evidence shows initiatives and buildings, combined with pollen analysis to indicate increased flax production, and the identification of retting ponds.

In the second half of the18th century proto-factories with large numbers of looms were established in Inverness, Cromarty (MHG8783; Case Study X) and Invergordon, taking advantage of cheap labour. These sites operated at a large scale and had to import the flax and hemp, with the products including bags destined for overseas (Alston 2006, 161ff). The sailing ships of the time required huge quantities of rope, and ropeworks in the Highlands helped to supply some of this need. Landlords and entrepreneurs in Easter Ross in particular promoted largescale textile working (Mowat 1981, 162).

Limited early attempts to mechanise textile production were established in the Highlands, all dating before 1810, with wool carding and spinning in Inverness and at Braelangwell on the Black Isle (MHG8765), and cotton spinning at Spinningdale, Sutherland (MHG10195) (Alston 2006, 167). All were short-lived. Remains survive of the Braelangwell mills, now adapted to housing, and the dangerous ruinous shell of Spinningdale. The Spinningdale operation was a short-lived (1792-1806) and unsuccessful experiment, designed to alleviate poverty and provide employment (Case Study X; Cooke 1995).

Holm Mills Inverness was established in 1798, reputedly the oldest woollen factory in the north of Scotland, worked by water power and steam, producing tweeds, plaiding and blanketing in the 1880s. In the last years of the 19th century further textile factories were founded to cater to the increasing demand for tweed (Groome 1901, 867-868). Other woollen mills were founded in other locations during the 20th century, but none currently operate.

Some smaller scale carding mills are noted on the first edition OS maps, many of which also appear to have had been used for other purposes such as sawing wood or grinding grain. Most appear to be water-powered. Each is likely to have a local story which could be explored.

Bobbin mills were also located in the Highlands, primarily supplying cotton mills of Paisley and Glasgow in the 19th century, and the jute industry in the 20th century. Birchwood was traditionally preferred. Most were in rural locations, but a mill is also known from Inverness. The information for the Highlands has been brought together by Gilliatt (2018).

**Brewing & distilling**

Small scale brewing and distilling, legal and illegal, has been a part of Highland life for centuries. Less is known about brewing, with some breweries only denoted on maps. Further work examining map and estate documents would likely draw attention to more establishments. For example, one area on the Black Isle in 1755 had eight brewers. Small scale operations like these would have left few traces, though buildings from larger enterprises still survive in places in the Highlands (see Table X; Case Study X; Donnachie 1979).

|  |  |  |  |
| --- | --- | --- | --- |
| Location | Area | Comments | Ref |
| Thurso Brewery | C | Late 18th c; demolished 2007 | MHG1445; Case study X |
| Pultney Brewery, Wick  | C | Early 19th c. Surviving buildings, much altered | MHG2119 |
| Brora  | S | Built 1817. Later used as lemonade factory | MHG32863 |
| Springfield Brewery, Tain | ER | On 1st ed OS map | MHG32317 |
| Cromarty Brewery | ER | Large 3-storey stone-built building; c. 1790-end 19th c | MHG8784 |
| Haugh Brewery, Inverness | I | Early to mid 19th c | MHG3065 |
| Thornbush Brewery, Inverness | I | mid 19th c | MHG3121 |
| Lewiston | I | On 1st ed OS map | MHG24097 |
| Nairn Brewery | N | On 1st ed OS map | MHG31211 |
| Fort William | L | No further information  | MHG36016 |

Table X: Highland Breweries recorded in the HER

More is known about distilleries, a long lasting and thriving industry still today. The distilling industry is currently the topic of a PhD in progress by Darroch Bratt who is investigating archaeological evidence of legal and illegal distilling in the Highlands. Documentary evidence, especially relating to illicit production, is discussed in a number of sources including Devine (1994, 119ff). Small stills have increasingly been identified in the landscape, most probably illegal. The NoSAS survey of Strathconon identified over 50 sites, some in remote mountain terrain with others in the lower more accessible wooded parts of the glen (Marshall 2011b). Many of the bothies had associated buildings such as lookouts, stores or for accommodation. While some were probably for local consumption, many fed into an illicit trade, clearly a thriving activity. Unusually documentary information on the illicit activities specifically for Strathconon, information not normally available for such clandestine operations, was located in a report to a Government Enquiry in 1822 (British Parliamentary Papers Vol VII “Inquiry into the Revenue Arising in Ireland etc” 1823, attached to MHG). Criminal proceedings following assaults on excise officers provide further information.

There is also scope for investigating legal small-scale distilling, using estate map evidence as a first basis. The lands of Ferintosh on the Black Isle were known to have been home to a booming whisky manufacture trade from 1690 or earlier, thanks to the ‘Ferintosh Privilege’. We also know from objections to the Ferintosh Privilege that other landlords produced whisky on their own estates (Mowat 1981, 58ff). One possible distillery site survives at Mulchaich on the Black Isle, and was surveyed by NoSAS (Marshall 2011a, Case study X), providing opportunities for further work to identify the characteristics of a small scale distilling site, with dating and environmental evidence.

Large distilleries were established throughout the Highlands, many preserving remains today while others have completely disappeared. The Highland HER lists over 100. The earliest known is from the 18th century. Before 1786 legislation meant it was impossible for most Highland distillers to meet the minimum scale of operations due to costs of grain and limited markets. In recent decades dozens of new distilleries have been built and mothballed distilleries have been brought back into service (Bratt forthcoming). The traditional process required a number of specialised areas/buildings many of which can be identified in older distilleries, and a location close to supplies of peat (or other fuel), barley and water (Hume 1977, 28ff).

**Commercial Fishing**

While fishing was a major source of local food (see 10.4), in many areas large-scale commercial fishing became an important Highland industry on both east and west coasts, particularly to take advantage of the herring (Smylie 2011). Information about commercial fishing in the Highlands is scattered in a number of sources including Gray 1978; Munro 1978; 1986; Maudlin 2007 and Smylie 2011 with regional studies including Mowat 1981, Munro, J 1994; Alston 1999; Coull 1996; 2002; Poole 2010. Newspapers, government reports, fishery officer correspondence and estate papers all provide detailed sources for this important industry.

Various initiatives were fostered by local landlords from at least the 17th century (Mowat 1981, 47ff; Alston 1999, 74ff), though often dominated by merchants (Bangor-Jones 2000, 68). The British Fisheries Society, formed and backed by Highland landowners in 1786, helped to promote the industry, building harbours, piers and even towns to take advantage of fishing (Munro 1978; Maudlin 2007; Case study X).

Commercial scale fishing required ways to preserve the fish. This was usually foreign salt (Harris 2000), but the Brora saltworks (see above) were also used. In some areas kilns were also used for smoking, eg Thurso (MHG1473) and Lybster (MHG36602). In recent years more attention has been focussed on some Highland fishing stations, with well-preserved remains of fishing towns at Pultneytown, Wick, Ullapool and Helmsdale and fishing stations such as at Torridon, Isle Martin, Tanera in Wester Ross and Lochinver, northwest Sutherland.

A project by NoSAS investigated the station at Torridon. In 1785 the Torridon Fishery Company was set up by the local landowner Kenneth Mackenzie of Torridon who erected a curing house modelled on North American structures, said to have been the first of its kind in Scotland (Knox 1787). The Company was beset by difficulty but herring catches continued in Loch Torridon and are mentioned in the 1840s, the buildings being in use until the end of the 19th century. A limited number of sites connected with the fishing industry were identified including the footings of a stone built curing house (MHG49629) and a possible salt pan (MHG28569), several cleared beaches, jetties and shoreline bothies (NoSAS nd). NoSAS also surveyed sites on Loch Hourn, uncovering a large number of sites related to fishing (Case study X).

The fishing industry required barrels and baskets, which in turn created specialised work. Interestingly, when Isabell Burton MacKenzie, organiser for Highland Home Industries, went to Skye in 1912, she visited a local industry making baskets for the herring industry, but they could not source enough local willow, and were importing willow from Holland and Germany (Jones 2020, 77-78).

A community project involving historical research and excavation is investigating the fishing station on Isle Martin, Wester Ross (established in the 1770s), and when combined with research into nearby Tanera Mor (established in the 1780s) provide insights into the set up and running of these structures (Cathy Dagg pers comm). Research is now showing that herring caught in the Highlands, including Wester Ross, was part of a large scale trade exporting ‘white’ salt-cured herring and ‘red’ smoked herring to overseas markets including West Indian slave plantations (Alston 1999, 225).

Herring was unpredictable, but immensely profitable and important to many coastal communities (Case Study X [Sarclett]). Wick in particular was the major centre on the east coast but other ports such as Helmsdale had periods marked by intense activity. Catches were reported in local newspapers, even into the 20th century. In the 19th century there was a short but economically important seasonal migration of fishermen and women from the west coast to participate in the east coast herring fishing. Women and girls were employed to gut and salt fish, and in due course they came to follow the catches from Scotland to eastern England. In Cromarty alone in 1826 there were at least 200 women involved (Alston 1999, 75).

On the east coast, various fishing villages have been identified, both from documentary evidence and remains (see eg Alston 1999, 76-77). Some such as Avoch on the Black Isle still retain their closeknit identity and maritime focus (Mowat 1981, 48ff). The old fishertoun at Nairn is well preserved, with the local museum providing much detailed evidence of its local importance (Dennison and Coleman 1999). More work and indeed excavation of abandoned fishertouns could provide more information about this type of settlement in the Highlands.

Tidal fish traps (yairs) can be seen along much of Highland’s coastline. These simple structures were remarkably effective, used for salmon and other inshore fish, though the traps caught fry as well as mature fish. Constructed of foundations with wooden stakes and branches or wattle superstructure, the curved outline of many yairs can still be seen outlined in seaweed. Documentary sources show some date from at least the 17th century. A large number of yairs were erected. Most remains on the west coast would appear to date from the 1820s and 30s (M Bangor-Jones pers comm). In a study area of the Inner Moray Firth (the Beauly and Cromarty Firths) 62 fish traps were recorded (ScARF Marine & Maritime case study: Intertidal fish-traps in the inner Moray Firth’). A PhD in progress by Alistair Stenhouse is investigating the archaeological remains of fish traps in the Highlands.

Stake nets were also employed from the first half of the 19th century, and again caught young fish, impacting on river fishing. As a result such fixed practices were banned in legislation by the mid 19th century, and effectively prohibited within the estuary limits set under authority of the Salmon Fisheries (Scotland) Act of 1862 (Alston 1999, 71ff). Fishing on Scotland’s rivers also provided a source of food, though salmon was generally controlled by local landowners and often for commercial purposes rather than local food (Martin 1995; Bangor-Jones 2000, 67).

Landowners wishing to export the salmon relied initially on salt, but George Dempster of Skibo Castle began using ice to export locally caught salmon to London (Alston 1999, 73), some parboiled first in boiling houses, such as at Invershin, Sutherland (MHG12890; Hume1977, 36). A kiln recorded on a 1788 map of Tarradale, Easter Ross, may have been for smoking salmon (Eric Grant, pers comm). A number of icehouses survive on the shore, used for the fishing industry.

The archaeology of salmon fishing merits further investigation. Remains of stone dykes into which cruive traps were inserted may be found. From about the 1820s salmon bag-net fishing took off. It was eventually banned from estuaries and located on the open coasts where salmon bothies may be found, sometimes in association with icehouses.

**Power**

The legacy of power industry is visible throughout the Highlands. Water power has been used for centuries to power a variety of machinery. A number of landowners were early experimenters in the late 19th century with hydro power for electricity (for example at Strathpeffer (MHG55845) and Fairburn in Easter Ross (case study X), and St Benedict Abbey, Fort Augustus (Close-Brooks 1995, 59). However, the scale of the 20th century hydro developments is in another league. Whole straths were flooded to create holding lochs, river systems were redirected, burns tapped to feed the process and countless tunnels bored in an industry which employed thousands of construction workers at its peak (Miller 2002; Wood 2004; Historic Scotland nd). Most are still functioning, and present a major monument type for the future in the Highlands.

The wind power industry is increasingly visible as well. Like hydro, small scale wind power turbines are known in some areas of the Highlands, especially those atypical areas with few burns. Some appear on farms (eg Mill-o-Hill, Nairnshire (MHG23784) where it pumped water), but there are also examples of some used for industrial purposes, such as the windmill at the iron mine at Achvarasdal, Reay, Caithness (MHG51713) and Castlehill flagstone works (MHG13636). Since many windfarms and individual turbines are generally more recent developments, they have in fact contributed to archaeological knowledge as most have required investigation before construction. The infrastructure network, particularly roads also have had an impact. Few remains are likely to survive testifying to this industry in the future.

Large fabrication yards supplying the oil industry were also built in the later 20th century in several Highland locations including Nigg, Easter Ross (MHG31300), Ardersier, Inverness-shire (MHG45951) and Kishorn (MHG51795). The Ardersier yard is a good example of how even a large industrial site can disappear almost entirely after closure.

The nuclear site of Dounreay in Caithness, however, will have a more enduring presence. The buildings may disappear during decommissioning, but the landscape, including its prehistoric remains, will be off limits for many centuries to come.

**Other industries**

Caithness Glass is Highland now only in its name, but in the second half of the 20th century was a major producer and employer. Like a number of crafts, its origin was due to local landowner entrepreneurship, in this case designed to provide employment in an area affected by farming and fishing downturns (<http://www.theglassmuseum.com/Caithness.htm> accessed October 2020).

**10.6 Post-Medieval Religion and Ritual**

The Reformation of c.1560- marked a major change for Scotland and the Highlands, leading to changes in architecture and new material culture (Modern panel 2.2; 7.4). The situation was complex and changing, with Catholicism and Episcopalianism persisting in some places or in due course reviving and new Presbyterian churches forming and reforming in various religious upheavals, some following national concerns, others more local.

The language of the church was Scots, but a great deal of the population was Gaelic speaking in the Highlands. This created problems especially in the early years after the Reformation, though attempts were made to recruit Gaelic-speaking ministers (Kirk 1985, 29, 42). In some English-speaking areas such as Cromarty Gaelic chapels were formed.

The disruption of 1843 had a profound impact on Highland religious life and society, resulting in the formation of new denominations, and the need for places of worship, sometimes temporary but later often substantial churches. The situation is undeniably complicated, with divisions and re-unifications over the years (see Alston 1999, 56).

General overviews for the period can be found in Ansdell (1998) and Cameron (1993), while overviews, with a Highland angle appearing in MacInnes (1975); Mowat (1981); (Kirk 1986, especially for the early Post-Reformation period), Munro, R (1994), Alston (1999) and Bangor-Jones (2000). Kirk session and presbytery records provide valuable insights, with several commencing in the 17th century. They provide evidence of local society and concerns, but also the physical buildings. The Old Statistical and New Statistical Accounts, generally written by local ministers in the late 1700s and early-mid 1800s respectively, often provide evidence on churches, manses as well as local religious matters. Various local studies of Highland churches have been undertaken, most published on websites or small pamphlets. For example, a community project organised by the Evanton Community Trust investigated Kiltearn Old Kirk, with historical research, a standing building survey, and gravemarker recording of the gravemarkers (Case study X).

The parish system was retained, though in some cases parishes were joined, created or the boundaries redefined (see National Case study: ‘Re-drawing the Religious Landscape’). Nevertheless many Highland parishes remained large, causing problems for people to attend churches regularly.

The chief beneficiaries of the Reformation, particularly in terms of benefiting from the redistribution of church land, were the clan chiefs and gentry, who forged links with the Crown and reformed bishops for church organisation. Recreating the church organisation in the early years was difficult in places (Kirk 1986, 31ff). Ministers were appointed by the Crown or local landowners, an increasing area of contention as time went on.

**Churches**

Church architecture in the Highlands and Islands is considered by National ScARF Modern panel (7.4 with references), with information about Highland examples in Hay (1957) and Gifford (1992). The Protestant religion required a new way of preaching, and new layout for churches, where the pulpit was available to be seen. St Duthus Collegiate Church, Tain (MHG8689) preserves one of the earliest pulpits, with parts dating to the 16th century, possibly re-using Pre-Reformation panels (Gifford 1992, 41; Sheila Munro pers comm).

This usually resulted in churches built before the Reformation moving the pulpit to the middle of the nave, though sometimes with galleries constructed. Some churches had a new wing added, or were built to create the familiar T-shaped outline found in a number of Post-Reformation churches. Lofts were often built in these churches too, sometimes with heating and external steps, to allow lairds to attend in comfort. Roofing was sometimes slate, but often heather, and kirk session and presbytery records can show frequent reroofings (and arrangements for obtaining the materials). Most pre 19th century churches are without architectural ornament, although bellcotes were often added, legally required after 1642. Few earlier churches had towers (Gifford 1992, 35ff).

Some classic Post-Reformation churches in the Highlands, such as Cromarty East Church (MHG8828) and Old Kiltearn Church (MHG8130; Case study X) in Easter Ross, have been shown to be Medieval structures converted to T-shaped plans. Alness Old Parish Church, Easter Ross (MHG8124), now unroofed and a building at risk, is also probably a remodelled Medieval Church, and unusually preserves a possible extension for a carriage house for the local laird. St Andrews, Golspie, Sutherland (MHG10901) is a fine early 18th century T-plan church, later extended to be cruciform in plan. The loft built for the Earls of Sutherland in 1738 offered elaborate architectural flourishes and comfort (Gifford 1992, 579-580).

Most surviving Highland churches are from the 19th century or later, and include not only Church of Scotland but also other denominations (although quite a few parish churches retain their medieval alignment). In the 1820s and 1830s Thomas Telford was commissioned by Parliament to build churches in the Highlands and Islands, most in large parishes where access to the parish church was a problem. A number survive, though few in use as churches, and are recognisable, being built to a set design (Hackett and Livingston 1984; Maclean 1989; see Case study X; datasheet X). Some free churches are quite grand, such as Rosskenn Free Church, Auchnagarron, Easter Ross (MHG8031).

Cast iron churches or mission halls (so-called tin churches) survive at Syre, Sutherland (MHG17008), , Tomatin, Inverness-shire (MHG49449), Ardaneaskan, Wester Ross (MHG60639), Flashader, Skye (MHG52700), and demolished examples are known from Oykell Bridge, Sutherland (MHG51110), Brabsterdorran, Caithness (MHG37092), Achiltibuie, Wester Ross (MHG24786), and Elphin, northwest Sutherland (MHG32212) Churches and other buildings of corrugated iron spread throughout the Highlands in the late 19th and early 20th centuries, as components were ordered by catalogue and sent up in flat packs, mainly from the central belt (see 10.3). They were primarily erected by non-Church of Scotland denominations as relatively inexpensive options, though some like Tomatin church became Church of Scotland after the United Free Church merged in 1929.

In the 17th century communion became less frequent, but was an elaborate ceremony. Long communion tables were set up and later replaced by communion pews (Alston 1999, 51). Some survive, for example at Clachan Church Lochbroom (MHG7829) and the Telford church at Croick (MHG7435).

Outdoor pulpits, known as preaching arks or preaching tents, were used in some cases in annual open air communion services, which often attracted large numbers of people. Preaching sites were also used during some of the religious disputes, when congregations left the official church. Little traces remain of these preaching sites, but their locations in the Highlands are preserved in local memories, and sometimes even in photographs or sketches. Over 20 are recorded in the Highland HER, and others are illustrated (see eg Jones 1994). In some cases, caves also appear to have been used, for example Uamh na Polacher (MHG32058) and Uamh Mor (MHG7958) Wester Ross. In the case of Uamh Mor, the cave was said to have contained a wooden pulpit and benches in 1930, none of which survive now.

A few Highland preaching arks survive, notably in Edderton Church (MHG21928), Gairloch Museum (used in Shieldaig, Loch Torridon) and the Highland Folk Museum. At Edderton, two folding communion tables and benches as well as a precentor’s table and bench also survive, dated 1822. Together these would have been heavy to transport, requiring horse and cart (<http://www.spanglefish.com/eddertonoldkirk/index.asp?pageid=369838>, accessed October 2020). A wooden pulpit was recorded on the 1st edition OS map for Ouchnoire, Badenoch and Strathspey (MHG33656). Other illustrations suggest canvas tents were used in the Highlands (Jones 1994), confirmed by kirk session records.

In order to attend communion, people in the 18th and 19th century needed to obtain a token from a church official. Tokens were made of pewter or lead, with the name or abbreviation of the church and often a date. A large number of Highland examples survive in museums and collections, though few have provenance information, and this information has not been brought together. Metal detecting finds in recent years are providing find contexts, and in some cases are not local; for example, a token for Croick church, Sutherland, in 1842 was found in Dornoch Wood (and is currently in Historylinks Museum). Nairn museum has a rare survival of a press for making tokens, in this case for Ardclach Church, dated 1791.

Other historic communion wares are held in museums and with some churches, but there has been little work on these objects in Scotland and the Highlands, and what they can tell us about craftsmanship and patronage (Modern panel 4.5, 7.4). Kirk session records can supply information on sources in some cases (see Case study X).

Churches also had fittings to ensure offenders were shamed in public. Documentary sources refer to stools of repentance and jougs (iron rings fastened by a chain to a church wall or other support, with the other end to go round the neck of the offender); jougs survive at Cawdor church, Nairnshire (MHG44935). The kirk session and presbytery records provide vivid accounts of these punishments at work. The evidence of surviving objects, as well as documentary records, for the Highlands remains to be gathered.

Manses

The provision of a manse was much-prized, making up to a small extent for the low stipends ministers received, at least in the early days. Without a manse or glebe, ministers were hesitant to reside in the parish, and indeed even when available some ministers resided elsewhere for a variety of reasons (Kirk 1986, 40). Manses were often quite large, as parish business was conducted within the manse. A number of former manses survive in the Highlands, though most like the churches are 19th century rebuildings. The manses constructed by Thomas Telford are easily recognised like the Parliamentary churches, constructed to either a two-storey or one-storey pattern (Maclean 1989).

Burial evidence

With the Reformation came in theory a major change in burial customs, with people no longer permitted to be buried in the church after 1581. In practice this still seems to have occurred. In some churches, disused parts became mausoleums (Alston 1999, 52). Other documentary sources hint of continued burial in the church even after; for example, the kirk session records for Kiltearn carry a reminder in 1700 that the Act of the General assembly against burying in the kirk be heeded (record for 22-7-1700). The implication is that burials found within a church cannot automatically be assumed to be Pre-Reformation in date, although some of the burials may have been in structures accessed from outside the kirk.

Most Post-Reformation cemeteries are still active, and therefore there has been little work on Post-Medieval human remains in the Highlands. Several burials excavated from Tarbat Old church were radiocarbon dated to the AD early 15th to mid 17th century, spanning late Medieval/early Post-Medieval periods. They were buried in shrouds and in some cases with evidence of coffins, and provide evidence of disease (Carver et al 2016). The churchyard associated with the Medieval chapel at Cille Bhrea (Lemlair), Easter Ross (MHG8942) is eroding into the sea, and some of the human remains were dated, but with a wide range covering most of the period; these remains were reburied at Kiltearn cemetery due to local lobbying. Work at Kirkmichael old kirk and mausolea on the Black Isle recovered caches of disarticulated human bone, sometimes carefully grouped but in other cases jumbled, as well as disarticulated remains outside the structures. No dating was undertaken, and therefore some of the bones may have be Medieval in date and cleared and reburied at a later date. Evidence of age, sex, and health was obtained however. These remains were also reinterred (McKeggie, Lynne 2017).

Human remains, most disarticulated, of at least 28 individuals were found in small scale excavation at St Columba’s Friary, Kingussie (MHG4413) dating between the end of the 15th century to mid 17th century. Preservation was poor, but some osteological analysis has been undertaken, but in the absence of other studies cannot be placed in any context. Limited excavation at the Hilton of Cadboll, Easter Ross chapel site (MHG42384) revealed seven articulated skeletons (two adults and five aged three months to three years of old) as well as a range of disarticulated bone in all phases. Two of the skeletons dated to late Medieval / early Post-Medieval period, while one was definitely Post-Medieval. The infant burials were not dated, but are in a late Medieval/early Post-Medieval context (James et al 2008, 358; Roberts 2008).

Occasionally dated human remains have been found outwith the church, some such as at John o’Groats, Caithness (MHG39354) suggesting an earlier unrecorded cemetery, but others such as two or more burials at Lothbeg, Sutherland (MHG29194), one radiocarbon dated to 1481-1786, less clear. A skull found at Meikle Ferry, Sutherland, a long-active crossing of the Dornoch Firth, was given by Hugh Miller to the NMS, and was recently dated to 1493-1810 (Matt Knight pers comm).

Infants’ burial grounds for stillborn unbaptised children are known from some areas in the Highland including several sites in Wester Ross and ruinous chapel sites, eg Clow Chapel, Watten, Caithness (MHG42454) (McCabe 2010; 2016, 200ff). The Shandwick, Easter Ross Pictish stone is reputedly a burial site for infants and suicides (McCabe 2016, 213), but limited excavations at the site did not encounter any bodies (MHG8539).

**Burial Architecture and Protection**

Gravemarkers in many Highland churches and chapel sites have been recorded with varying degrees of accuracy, with the Highland Family History Society active in publishing and archiving their own and others’ work. From the mid 17th century it became more common for gravemarkers to be erected (Alston 1999, 52). Some graveyards preserve splendid monuments with symbols of mortality; the Kirkmichael Trust is a good example of a community project to renovate ruinous mausolea on the Black Isle, recording Medieval and Post-Medieval gravemarkers ([www.kirkmichael.info](http://www.kirkmichael.info)). There is scope to pull together details on gravemarker traditions in the Highlands, looking for links between styles and attention to raw materials. Were the Highland memorials similar or different than elsewhere in Scotland? Hugh Miller was an active stonemason early in his career and some of his products have been identified in Highland graveyards; further work on other carvings may also provide further insights into production centres.

Post-Reformation reactions against Medieval Catholicism and iconography has resulted in destruction of earlier fabric and tombstones. The best known is the Pictish Hilton of Cadboll, Easter Ross cross slab (MHG8546) where the cross face was razed, and then reused in the 17th century in order to make a gravemarker for Alexander Duff and his three wives; there may have been a gap between the defacement and reuse (James et al 2008; Sanderson and Murray 2008, 356). Other 17th century examples modifying Pictish stones, though fortunately not as comprehensively, are known from Golspie, Sutherland (MHG10890; Close-Brooks, 1989) and Logiebride, Easter Ross (MHG60000). At Kiltearn, Easter Ross (MHG31395) a medieval gravemarker was reused, but with only carved initials surviving it is not possible to date its reuse.

Documentary sources, particularly kirk session records, record in detail mortcloths, including dues owed for hiring them. These could be expensive items, sometimes imported from abroad (Case Study X). Few if any survive, as is the case for the communal coffins, used to bury those too poor to afford their own, with the coffin then reused.

Body snatching was a real fear, especially in the early 19th century (Nat’l ScARF case study; Echoes of the Resurrection Men website [www.abdn.ac.uk/bodysnatchers](http://www.abdn.ac.uk/bodysnatchers) accessed October 2020) even in the Highlands where surreptitiously transporting corpses to anatomists would have been a difficult undertaking.

Mortstones, heavy stones placed on graves to deter grave robbers have been identified at Rogart, Sutherland and Dores, Inverness-shire (https://www.abdn.ac.uk/bodysnatchers/mortstones.php); as these were meant to be temporary measures and were eminently reusable, it is not surprising more have not been reported. More of a deterrent was a mortsafe, an iron cage which enclosed the coffin. In the Highlands examples are known from Kincardine, Badenoch and Strathspey (MHG4476) and one was said in 1938 to have been at the small burial ground at Tom-eas-an-t-slinnean, Lochaber (MHG4344) but could not be located by the 1960s.

Watch houses survive at a number of Highland cemeteries including some in fairly remote locations: Latheron, Caithness (MHG31350); Lothmore (MHG24086), Clynekirkton (MHG44946) and Rogart, Sutherland; Boleskine (MHG23975), Drumnadrochit (MHG45229), Dores (MHG31418), Dunlichity (MHG25365), Moy (MHG31461), Dalarossie, Petty (MHG24175), Croy (MHG31417), and Ardersier (MHG45453), Inverness-shire; Auldearn and Ardclach (MJG31376), Nairn-shire; and Advie (MHG44923; destroyed) and Cromdale (MHG31374), Badenoch and Strathspey.

The Anatomy Act published in 1832 gave doctors, teachers of anatomy and medical students the right to dissect donated bodies, effectively ending bodysnatching (Echoes of the Resurrection Men website www.abdn.ac.uk/bodysnatchers). As a result, all surviving remains are pre 1832.

**Holy Wells and ritual sites**

The possibility that some Highland holy wells go back to Medieval times or even earlier has been discussed in Chapters 8.6 and 9.6. Their use in the Post-Medieval period is clearly documented, some into living memory, for example St Mary’s well, Culloden (MHG2941; Morris and Morris 1982). Documentary accounts show that different wells were used for different ailments or purposes, despite attempts by the church and government to discourage their use from early Post-Reformation period (Burnett 1997, 25ff). Holy wells in Scotland have been the subject of a number of works including Walker (1882-1883) and Morris and Morris (1982), with a more Highland focus in Fraser (1878). Some wells are only known from map or documentary references, but others have remains to be seen (Map X). None aside from Ashaig on Skye (MHG42227) has been excavated, and further investigation of holy wells would be useful.

The lingering of traditions at odds with Post-Reformation teachings can be seen in the example of Isle Maree in Wester Ross (MHG13217; Munro, R 1994, 125ff). The holy well on Isle Maree, dedicated to St Maelrubha, was reputed to cure insanity, and was visited even into the 19th century. According to Fraser (1878, 28) ‘The patient was first made to drink of the water of the fountain, then to kneel at the foot of a huge oak partly covered with ivy, present an offering, and thereafter to bathe thrice in the loch. This ceremony had to repeated until a cure was effected. The patient, when refractory, was tied to the tail of a boat and towed found the island.’ The tree next to the site of the well, now dry, is dead, probably from copper poisoning due to visitors pushing coins into it.

While the church appears to have tolerated these practices, other activities on Isle Maree were not. The Presbytery of Dingwall objected in 1656 to the practice where bulls were sacrificed on 25th August. Sacrifices of cattle and cockerels were also recorded in the Highlands (Dixon 1886, 150ff; Munro, R 1994, 125).

**Charms/Charmstones**

Folk healers, particularly women were active in the Highlands. Herbs, other plants, seaweeds and charms were widely used (Beith 2000). The belief in charms persisted a long time in Scotland. Some charms were written down, for example a charm to cure toothache purchased from a woman at Kishorn, Wester Ross, now in the NMS (SCRAN 000-100-002-717-C). Others were related to stones or artefacts whose efficacy depending on where they were placed or how they were used (Cheape 2008, McCabe 2016, 217ff). Identification of objects depends mainly on oral tradition. A number of charms are associated with Highland sites, including a set of three stones belonging to a Bonar Bridge witch (McCabe 2016, 220). White quartz/rock crystal was often used, for example a quartz stone encased in copper mounting for a dipping stone from Culbin Sands (McCabe 2016, 222), and a silver mounted charmstone associated with the Mackenzies of Arloch, Ross-shire (ScRAN 000-100-002-755-C).

**Witchcraft**

Witches were actively persecuted in the early Post-Medieval period, with witchcraft outlawed in 1563, active until repealed in 1736 (Henderson 2016). While cases occurred in the Highlands, there is some thought that they were less in the Highlands than other areas of Scotland (Beith 2000, 108; but see McCabe 2016, 114ff). The line between benevolent charms operating within Christianity and malevolent objects associated with witchcraft is impossible to discern from the archaeological record alone. McCabe has explored these issues in her thesis (2016), but from a Scotland-wide perspective, with case studies for Tain, Easter Ross and Cawdor, Nairnshire, and evidence from Duirinish, Wester Ross and Watten and Wick in Caithness. Some sites are remembered or commemorated such as the stone incorrectly dated commemorating where the last witch was burnt in Dornoch (MHG11675) or the hill where a supposed witch was buried after she was murdered in Assynt in 1769.

**10.7 Transport and Movement**

**Movement of people**

For the first time thanks to documentary references we are able to get a better idea of movements of people, and from the 19th centuries in detail. Although the traditional view is that people stayed in the area they were brought up in, this was certainly not true for much of the population. We can begin by distinguishing between a change of residence and movement in general.

The turnover of tenants in the pre-Clearance era was probably greater than is often assumed although most tenants probably remained within the parish of their birth (especially given that upland Highland parishes could be very large). There was also emigration in the pre-Clearance period and the beginnings of seasonal migration to the Lowlands for work (Richards 2007, 33). Military service took significant numbers away from their home surroundings. Many children and young people in the pre-Clearance period served time as servants in other households. Some became agricultural labourers or household servants subject to the annual contracts but not necessarily moving to a new employer every year.

The clearances saw thousands of people often forcibly moved from their homes to make way for large arable or sheep farms. The social and historical consequences have been explored by a number of authors (eg Richards 2007; 2008). In some cases they were resettled on the same estate, but sometimes chose to relocate to another estate or county (Richards 2007, 40ff). Some relocated to planned villages and urban settlements. Such movement was not voluntary although it could involve an element of agency on the part of those cleared. Many of the dispossessed emigrated, resulting in Highland culture transported to North America, Australia and elsewhere, and in some cases material goods sent back to the Highlands. On the other hand, those resettled tended to hold their tenancies over several generations, a fact confirmed by the location of marriage partners.

The archaeological evidence of clearances has received less attention. Not many rural homesteads have been excavated (see 10.3) despite large numbers still ruinous in the countryside, providing little detail of the day-to-day lives of people before or after.

The Improvement movement and reorganisation of farms saw the movement north of farm tenants, farm managers and agricultural workers, including Border shepherds, but also skilled tradesmen from counties such as Morayshire. Professionals such as estate managers could also be from outwith the region as could even be minor estate officials.

Short-term movement ranged from the performance of daily tasks to seasonal migration. Inevitably, the lairds, at the upper end of the spectrum were highly mobile, with many having properties elsewhere. Some migrated between summer and winter quarters. They might also travel to Edinburgh, Aberdeen or Inverness where they might have a town house. However, many people shared to a greater or lesser extent in the need to travel. Ministers travelled to preaching places or presbytery meetings, tenants travelled to buy meal or attend regional markets, while cattle and sheep drovers became accustomed to travelling long distances sometime going deep into England.

Recent research, for example by David Alston, has shown that participation in the slave trade salvaged the fortunes of many Highland landowners in the second half of the 18th century. Plantations established in Central America still bear Easter Ross placenames. Some slaves were even brought back to the Highlands; there were more mixed-race children in 19th century Inverness than at present. This legacy is all but invisible (<https://www.spanglefish.com/slavesandhighlanders/>). To some extent the relatively recent focus on slavery has drawn attention away from the undoubted contribution to Highland development of wealth generated on other continents, especially India (Grant & Mutch 2015).

Also difficult to trace in material culture are the Travelling people who have had a long presence in the Highlands. Among these groups are Highland Travellers, who long moved about the Highlands on traditional routes, preserving a shared culture and self-image, not to mention their own language. A campaign group has been formed to focus on the identity of Indigenous Highland Travellers ([www.travellerstimes.org.uk](http://www.travellerstimes.org.uk), accessed October 2020). Gypsy/Travellers from elsewhere in Scotland and the British Isles also travelled into the Highlands seasonally, some staying and intermarrying (Grant 2007, 127; Neat 1996, 20, 22). Some Highland Travellers also would travel into the lowlands of Scotland or into other parts of the British Isles to live, work, attend fairs, take part in trade of horses etc., and some brought items, usually china or glassware, back for trade into Highland homes (Neat 1996, 4; Grant 2007, 116; Ramsay 2021 forthcoming; Case study x).

Although some Travelling families continued to build traditional bow tents, these largely went out of use in the Highlands in the late 1970s (Neat 1996, 230). Photographs (including the Shennan collection in the Highland Photographic Archive), memories (Neat 1996) and a reconstructed tent at the Highland Folk Museum (Ramsay 2015) offer an idea of the traditional bow tents. Archaeologically evidence of accommodation in tents and caves is largely limited to occasionally midden material, heaps of stones left at campsites (Neat 1996, 230) and the odd walls sometimes built for shelter in caves where Travellers were known to have resided (Anderson-Whymark 2011). The parallels with Mesolithic settlement evidence (3.3) are striking. While some families wintered in larger tents with a taller central barricade, others overwintered in houses (Neat 1996, 5).

Metalworking was long a central part of Traveller lifestyle, but it is difficult to determine how far back we can put this self-identify and the itinerant metalworking lifestyle. Many of the other crafts made and sold by Travellers were organic, for example wooden flowers, baskets, clothes pegs, heather pot scrubbers, horn spoons and further back powder horns and leather/wooden targes); few have survived, or been identified as Traveller material culture (Case study X). The Highland Folk Museum archive contains the catalogue of its founder I F Grant, which sometimes notes provenance where objects were bought from or made by Travellers (R Ramsay, pers comm). The material culture of the Travelling Folk, and visibility of Traveller culture in museums, is currently the subject of a PhD thesis by Rhona Ramsay (Ramsay forthcoming 2021). More work identifying Traveller workmanship, mapping the remains of campsites and routes across the Highlands, and their place in Highland culture is needed.

**Transport routes**

In 1828 Thomas Telford wrote about a journey in Sutherland undertaken in 1808: ‘It was with difficulty that I could scramble along rugged, broken, sandy short or narrow tracks on the edge of precipices frequently interrupted by rude and inconvenient ferries and having for lodgings only miserable huts...’ (quoted in Haldane 1962, 189). Although he was biased and exaggerating, wanting to highlight the changes his building activity in the early 19th century had affected, the description is echoed by other accounts (Haldane 1962, 12ff) and reflects the difficulties of transport in the Highlands.

Telford’s work in the early 19th century arguably transformed the Highlands. The work of the Commissioners of Highland Roads and Bridges was a partnership with the county authorities in the Highlands. Telford’s work established standards for the county roads committees who employed their own county ‘surveyors’ or road engineers to expand the basic network in the following decades (although minor roads were still being made into the early 20th century.) Destitution roads constructed as relief work during the famines of the late 1840s and early 1850s form a special category.

There is little evidence for 16th and 17th centuries routeways, although estate documents from the 17th century describe dues and arrangements for repairs (Nelson 1990, xxiii). Trackways must have existed, but are difficult to locate and date. With few roads, the emphasis was on wheelless transport (Fenton 1984). More work using maps, memories, aerial photography and exploring on the ground can provide data, which then needs to be dated.

So called ‘coffin roads’ would have fanned out from the parish churches, enabling people to attend services as well as burials to be taken to the parish church; these are identified mainly from oral tradition, and occasional recording and survivals of coffin rests (eg MHG29800).

The raising of surplus cattle was a mainstay of Highland economy, with an organised droving system from as far back as at least the 16th century (Donnachie 1986, 56-57; Baldwin 1986; Haldane 1997; Adamson 2014; Taylor 2016, 92ff). The identification of the routes used by drovers depends on documentary evidence, and in some cases oral tradition, with a number proposed for the Highlands. In any event the routes taken would have changed as modern roads were built, as alternative forms of transport became available, and as sheep came to outnumber cattle. Few have been investigated in detail on the ground, an exception being routes in east Sutherland (Adamson 2014, 106ff). Many were not roads in the sense used today, but broad areas where the cattle could spread out as they travelled. A number of stances have been identified from oral tradition, and others can be identified from newspapers, and other structures related to the trade including a cattle creep at Kyle station where cattle were swum across the Minch from Skye to continue their journey by rail (MHG43261). A number of small cattle fairs, trysts, are recorded (Haldane 1952; Baldwin 1986). Beauly and then Muir of Ord was a major tryst location for horses, cattle and sheep in the Highlands (Mowat 1981, 45), with some older buildings reputed to be related to the trade, although future work is needed to bring together this information.

The first major road building activity relates to General Wade in the first half of the 18th century, covering areas in the southeastern Highlands and Great Glen. Many roads popularly credited to Wade were in fact built by his successor Edward Caulfield in the second half of the18th century, who extended the reach to Wester Ross. These roads, however, were for troops, not carriages, and were poorly maintained. Telford in fact had to repair many of these military roads as part of his road building activity (Haldane 1962, 4ff; Taylor 1996).

A few landowners had also been active road builders, but in general the Parliamentary plan which required landowners to pay half of the costs of Telford’s roads was seized upon by a large number, who saw economic and social benefits. The legacy of Telford’s road building can still be traced in the Highlands, including routeways and bridges, but also toll houses, milestones (most replacements), and proliferation of coaching inns (see Case study X).

Inns are noted on maps and documents before Telford, but his work led to renovations and new buildings for the increased travellers. An inn at Wilkhouse, Sutherland was operating at the beginning of Telford’s work, but was bypassed by the new road; the site was excavated, providing an insight into inns of the times (Adamson and Bailie 2019; Case study X). Telford’s friend, the poet Robert Southey, travelled in 1819 along some of the new Telford’s roads. His interest in inns and the food they serve is readily apparent from his accounts (Southey 1929). Inns or changehouses were essential to the development of coaching services and the Royal Mail but also enabled the steady increase in tourists heading for the Highlands.

A range of Highland bridges survive from these road building activities, with the occasionally older example, and later examples in a range of techniques and materials (Hume 1977; Nelson 1990). One of the earliest is a bridge for a ‘coffin’ route at Carrbridge (MHG4627) built in 1717. However, many rivers were forded until a late date. Wade, for example, did not include bridges over the Spey, Findhorn or Dunain Rivers in the Highlands. In some cases rope bridges (known locally as a pulley-hauley) were used for people and goods (eg MHG55423, MHG32184), though leave few or no traces.

Ferries were also extensively used, many dating back to the Medieval period, and many continuing into to the 20th century and indeed today. Remains can include piers and slipways, but in many cases no traces remain.

In addition to roads, Telford was responsible for the Caledonian Canal. While providing good east-west links, it did not lead to the desired economic prosperity proposed to justify the high costs (Cameron 1983). Workshops, swing bridges, lockkeeper’s houses and lighthouses survive from this mammoth endeavour (Hume 1977, 75f). Smaller canals were also dug in this period, some by Telford, others by estate owners (eg Rosehall; MHG32673 and Culmally, Sutherland MHG32943), with some still surviving such as Dingwall canal, intended to improve the prosperity of the burgh (MHG9093).

The railway network from the second half of the 19th century provided additional connectivity, especially in the southeast. A number of companies and local landowners were involved. The main company, the Highland Railway, in part due to mergers, is discussed in Ross (2005), with other sources signposted from the Friends of the Far North Line ([www.fofnl.org.uk](http://www.fofnl.org.uk)) and Highland Railway Society (ww.hrsoc.org.uk) websites, both of which have archive photographs and resources.

At its height, Badenoch and Strathspey, Easter Ross and the east coast were well served by railway connections, much better than today due to 20th century closures. There had also been plans to extend further west, with connections to Poolewe, Ullapool and even on Skye (Ross 2005; Drummond 2020). The first bits of track laid for the northern Black Isle railway were pulled up and redeployed when World War I resulted in the materials needed for the war effort (Alston 2006, 296).

Railway remains in the landscape include a range of bridges, including a rare survival of a wooden example at Aultnaslanach, Inverness-shire (MHG2871) and the impressive viaduct at Culloden (MHG3007), a variety of little-studied P-Way railway bothies, original fencing (for example on the Strathpeffer branch line), obsolete signal boxes, water tanks for steam engine refilling, a variety of historic stations and footbridges, sidings and turntables, engine sheds, and at Inverness, the original railway works (Hume 1977, 76ff). In some locations so-called sleeper houses survive, built to take advantage of obsolete sleepers (see eg reports attached to MHG32788 for sleeper houses around Boat of Garten, Strathspey).

In addition to the commercial railways, small railways were built at a number of industrial businesses from the late 19th century, including forestry and quarrying (see 10.5). Some businesses were sited in order to be close to the railway, for example a rock crusher still surviving next to the Kyle line in Easter Ross, used to transport crushed stone for local council road building (MHG56040).

The railway also resulted in the ability to send and receive large goods in the Highlands. For example, the expansion of corrugated iron buildings in the Highlands was due to the ability to transport flat pack materials ordered by mail order from Glasgow on either the railway or steamer. Many of these buildings are in a poor state of preservation, with few having listing protection (Thomson and Banfill 2005).

Transport by sea has a much longer history in the Highlands. In the Post-Medieval period the construction of harbours and piers, with some by Telford, resulted in larger ships able to access the Highlands, and were essential to the fishing trade and the import/export of raw materials and goods (Hume 1977 56ff; Graham and Gordon 1987; Gifford 1992, 61-62). Many of these required cranes, a few surviving in recent times (eg Iselornsay, Skye; MHG5415), with others marked on maps. A number of harbours preserve the warehouses used for grain or fish (Beaton 1986; Adamson 2014).

Sea transport also required lighthouses, especially given the treacherous waters of the coastal Highlands. The earliest in Scotland date from the 17th century, but examples in the Highlands are later, some as elsewhere in Scotland, built by the Stevenson family (Hume 1977; Paxton 2011). Lights were also needed on the Caledonian canal, and some of the ‘pepper pot’ lighthouses still survive (eg MHG36025).

Taken together, a great deal survives to study Highland transport links. Many sites, particularly those related to Telford’s work are unrecorded. For example, a community project surveyed in 2014 a probable Telford bridge just south of Lairg (MHG58209) which was previously not recorded (Case study X). Information on many of the remains discussed above has not been gathered together for the Highlands, and represent a significant resource which could be combined with documentary sources.

**Movement of raw materials and objects**

Objects made elsewhere show movement of goods, but whether legal or illegal is difficult to document in the archaeological record alone; some merchants were active in both (Bangor-Jones 2000, 71). Until the late 17th century, foreign trade could only take place in royal burghs. In 1700 there were only seven: Inverness, Dingwall, Nairn, Wick, Tain, Fortrose and Dornoch (Gifford 1992, 63). Travelling pedlars and Highland Travellers provided an essential conduit for the introduction of manufactured goods into the remotest corners of the Highlands (Leitch 1990).

With increasingly good transport links, it became possible for objects to be imported throughout the Highlands, and for raw materials and products to be exported. Documentary evidence provides details of many objects imported and exported. By the early 18th century Inverness merchants were importing luxury and other items direct from London. Even before Telford’s new roads, London porter was being exported to Thurso, to the dismay of the local minister (OSA; Case study X). The cloth industry at Cromarty illustrates both large scale import and export of raw materials and goods (Case study X). At the 19th century aluminium smelter at Foyers on Loch Ness, the bauxite was initially local, though processed in Northern Ireland, with supplies later from Ghana, processed in the central belt (Close-Brooks 1995, 58).

Archaeological finds corroborate but also provide evidence of less exotic movements, such as clay pipes, a topic which deserves further work in the Highlands (see 10.4). National ScARF discussed movement of objects, with references, in its section on Consumption (6.3). Most excavations in the Highlands and elsewhere encounter a range of Post-Medieval ceramics. Imports to the Highlands include mass produced wares from the lowlands even on rural Sutherland crofts in the late 18th/early 19th century (Fairhurst 1967-1968, 153), but this information has not been brought together. Links to the Low Countries are evidenced by objects including nested weight sets from Nuremburg, a number of which continue to be found by metal detectorists in various Highland locations. There is great potential to link archaeological and documentary evidence to produce a detailed picture of local and regional movements of goods and objects, and to provide insights into the abilities of people even at lower economic scale with the ability to afford imports.

**10.8 Post-Medieval Evidence of Conflict**

Evidence of conflict in Post-Medieval period Highlands is diverse and plentiful. Highlands have so many sites, some of which are nationally important, yet most have seen little or no work. There is real potential for important work on these remains.

Good source materials exist for the study in this period, especially for the 20th century wartime remains, where maps, military documents, aerial photographs and oral history projects can contribute (see Chapter 2). The National Collection of Aerial Photography (ncap.org.uk) has far more undigitised photographs than those available online, providing a wealth of potential data from a number of sorties during and after WWII. Similarly, the National Archives in London hold extensive source material for Highland military installations and serving units, again most not digitised, requiring a visit, but they allow free photography of most resources. Various military archives have been examined for Highland remains (eg Guy 2000), but recent community projects (see Case Study X), have shown that far more information exists to be integrated.

Our earliest military activities for the period are the clan battles that were fought across the Highlands. These are poorly recorded, often just folklore. Even the larger battles have left no trace in the landscape. These events lasted only a few hours, and perhaps just a few minutes. Little remains of these battles in the archaeological record, although recent work by the Centre for Battlefield Archaeology has shown that musket shot can demonstrate the scope and scale of battle (Modern Panel, Case study ‘Objects on the Battlefield’).

Of all the battlefield sites designated by HES only Glenshiel, Lochalsh (MHG7457) and Culloden, Inverness-shire (MHG3047) have what could be described as tangible remains. But these are the exception and the evidence for the other battlefields remains elusive. Culloden has seen the most work, including survey, geophysical work, extensive metal detecting and limited excavation (see MHG3047). This has resulted in some insights into the exact location of the battle on the field, and has informed some reconstruction of features shown on 18th century plans. The metal detecting has resulted in a range of artillery and personal possessions (Pollard 2009). Over the years a number of objects, including daggers and spurs, have been found in the vicinity, some of which are probably associated with the battle. Culloden also demonstrates the importance of such sites for later generations, including the building of monument and memorials for the graves in the late 1840s and early 1850s (following the centenary).

Given the nature of battlefields the expected artefactual remains are bullets and weaponry. The lack of mass graves for almost every major battle in the U.K., including the Highlands (Culloden excluded), is an interesting point. Looting of corpses also resulted in few personal objects recovered in situ. Battlefields also bear in most cases no relationship with the landscape today, as improvement period agricultural and 20th century urban expansion and forestry have radically changed the landscape. Despite the scarcity of remains, the importance of these sites in people’s sense of place can be seen by recent opposition to planning applications in the vicinity (not on the battlefield) at Culloden.

The first fortified structures in the period were towerhouse castles which were built from the mid 16th and into the 17th centuries. Although sophisticated country dwellings for the elite (see 10.3), they often had extensive gunloops and defensive features. Towerhouses thus had military capability, albeit not for resisting a frontal artillery assault.

The 17th century was a period of widespread unrest in the Highlands as the area was drawn into the complex civil wars. Battles were fought in many Highland areas, and some coinage finds may relate to soldiers deployed and quartered at various locations (Oram et al 2009, 44ff). The first major purpose-built fortifications in the period relate to the Cromwellian forts, distinctive citadels at Inverness (MHG4367) and Fort William (MHG4196) to control the Great Glen (Gifford 1992, 55). Materials for the fort at Inverness were obtained by demolishing parts of local monasteries and the Bishop’s palace and cathedral at Fortrose. Only the clock tower remains. Nothing survives of the structure at Fort William, although the building of the 18th century fort may use the same foundations. Further investigation of Cromwellian citadels might provide further information on these little understood fortifications in the Highlands.

The Jacobite conflicts in the Highlands had a profound effect socially and physically, splitting neighbours and even families. The reprisals after the ’45 were long felt in the Highlands (Richards 1007, 39). A number of estates were annexed and some were managed for varying periods on behalf of the crown (Smith 1982; Taylor 2016; Scottish Record Office 1973). From a material culture point of view, objects were produced and circulated to show Jacobite affiliation (Pittock 2011; Guthrie 2013), with many preserved by families and in museums purporting to have been used by key Jacobites. Some are undoubtedly wishful thinking, but a few stand out, such as the silver gilt travelling canteen set owned by Prince Charles Edward Stewart, captured after the battle of Culloden (ScRAN 000-100-001-186-C). IMAGE - SCRAN

The massive 18th century military road building remains visible in many areas of the Highlands (see 10.7), pointing to a perceived period of loss of control and the state’s attempt to wrestle it back, combined with the building of forts, adapted castles and barracks to support the control of the Highlands. Any distribution map of these known sites demonstrates that we lack information about extensive patrol outposts and buildings used for them. The massive fort building program included the original Fort George in Inverness (MHG3693), Fort Augustus (MHG25629) and Fort William (MHG4196) on the Great Glen, Ruthven Barracks near Kingussie (MHG4510) and Bernera Barracks at Glenelg facing Skye (MHG5353). The current Fort George, situated near Ardersier (MHG15618), built between 1747 and 1769, is the finest surviving 18th century forts in Britain (scheduling document: <http://portal.historicenvironment.scot/designation/SM6692> accessed November 2020 ). It cost a fortune for the time, and is arguably as much a symbol of power as a defensive structure (Gifford 1992, 174ff).

The 19th century is a period of calm in the Highlands in some ways, and much military activity was based on recruitment and training. The forts had all but been abandoned and the roads began to be replaced. The Highlands were still a valuable resource for men, and Highland regiments appear in every conflict in the British Empire, though after 1815 there was a falling off in army services by Highlands (source needed). These men needed to be recruited, housed and trained, be it full time or the part time militia/volunteer soldier. These volunteer soldiers required training in the use of weapons and drill, horsemanship and artillery. The social importance of the volunteer should not be overlooked in the archaeological record. The coast communities across the Highlands often had artillery practice batteries (for example, Cromarty, Helmsdale Wick, Castletown). There and elsewhere we have drill halls and associated firing ranges, some merely recorded on maps, others with surviving remains.

Service in the Royal Naval Reserve became very important in coastal communities in the Highlands (Thomas 2018). For example, in World War I large numbers of fisherman at Avoch were early pulled into the war as they were also reservists.

Nevertheless the 19th century saw conflict in the forms of local riots, against clearances and responses to widespread famine (Richards 2008; Hunter 2019). However, these have left few physical traces, although their impact has lingered in local memory.

It is of course the 20th century in which, like other areas of the U.K., the industrial-scale wars resulted in the creation of military landscapes, with massive training areas, extensive airfields, naval bases, anti-invasion defences, AA defences, supply and victual systems. These all had a huge effect on the landscape of the Highlands and thus the archaeological record (see Case study X). We have now reached a point where only a few people active during WWII can educate and inform us. They also provide insights into the impact of far away conflicts on local Highland communities.

It is too easy to look at the odd pillbox or anti-tank block without placing these sites into a regional strategic picture, a point which will be returned to below. There are various challenges to research of military remains. Local variations result in differences to the standard buildings seen elsewhere; for example, one can’t assume that the buildings at an airfield always confirm to the standard RAF type number. Local or later adaptations to a building can often change the role and function of the building depending of the local environmental considerations or changes to the operation and organisation of a base.

The Highlands is rich in potential sites to study. Of the big sites the Cromarty Firth area and Loch Ewe especially require more work. Only basic recording has been done at Loch Ewe (Chadwick 2014) and more detailed study is required. The role of Inverness in the WWI is also of some importance, with supplies and post for the fleet at Cromarty and Scapa Flow channelled through the town. The role of the U.S. Navy and the remains of the massive mining workshops and its own supply systems could also be further explored archaeologically especially at Dalmore (Harvey and Kruse 2020). Wartime remains in Caithness are common and would repay further work.

The role of U.K. troops, foreign troops, seamen and foresters are of great social interest but also archaeologically. Little survives at a range of camp sites and almost none have been investigated. Foreign forestry workers came from the U.S., Honduras, Canada and Newfoundland (Bird and Davies 1919; Ford 1985; Curran 1987; Wonders 1991; Forbes 2015). Detailed survey work at a WWII Canadian Forestry Corp camp in Sutherland has provided insights on how to identify these sites in the landscape (see case Study X).

The bunkers from the Cold War of the second half of the 20th century are scattered throughout the Highlands. Most are locked or flooded, but many are still intact, and there is still time to collect the memories which go with these sites. The Subterranea Britannica website provides details of all known sites (<https://www.subbrit.org.uk/locations/highland/>, accessed October 2020). In addition, Evanton in Easter Ross was one of only four sites in Western Europe where the U.S. Air Force released spy balloons designed to drift over the Soviet Union. The programme was a failure, but some remains at the site may date to this period (Kruse 2013, 15).

In addition to structures, there is also material culture evidence of activities in the Highlands. Metal detecting in the Highlands, particularly around Fort George and Fort William, has uncovered a large array of dress objects including buttons, fittings and shoulder straps, together with items reflecting daily life and activity including toy soldiers. This material shows in some cases movements of people, as the regiments of the soldiers stationed in the Highlands can be identified from their buttons. Middens in camps might also provide further information on life in camps. Gunflints indicate use of firearms (see 10.4). Local museums hold a range of items.

War memorials abound in the Highlands ([www.warmemorialsonline.org.uk](http://www.warmemorialsonline.org.uk); www.iwm.org.uk/memorials), with a number of community projects investigating those commemorated. Some memorials have listed protection, and many are cared for. Each has a story to tell, not only of the conflicts but also the local commissioning, design and building. The memorials were generally erected by local committees, and represent early examples of civic sculpture. An unusual wooden World War I memorial built of work from the battlefield at Cambrai in France was removed from France after the war and re-erected at Dingwall Station (MHG21590). The wood inevitably rotted, but has been replaced. Some memorials, particularly plaques in buildings, have disappeared over the years. There is also the material culture of commemoration including medals, memorial plaques known as death pennies, photos and letters.

[image from HER of Dingwall memorial]

Ways forward

There is large public interest in military-related matters, attracting a more diverse audience than traditional archaeological periods do. It’s also an area covered by schools (primary and secondary), local history societies and single issue groups, with specialist websites on various aspects of conflict archaeology. It has opened up the importance of archaeology to a very different audience and this is something that should be built on in the Highlands.

Our goal should be to increase our knowledge and understanding of the military remains in the Highlands, to put it in context with the rest of the U.K., understanding the processes and decisions which the military used and what that means in the broad range of sites that come from those conclusions.

To do this we need data. We need to discover and research as many sites as we can in the Highlands, and ensure that this information gets into the public domain. Lots of structures are disappearing and it is vital that these are recorded before they are lost. Equally we cannot just focus on the military remains without addressing the civilian aspects. These are interrelated: for example the railways, the pubs, harbours, farming, hotels, billets and hospitals.

Below are a number of themes to look at which could be divided further into regional groups, thematic or on an individual site level.

Camps

Almost all military sites have a camp, often overlooked for more interesting parts of the complex but they are the important sites to understanding what actually went on. Most leave an archaeological trace, something tangible to examine and record. These camps became social gathering places, where locals could come visiting for events such as the cinema and dances, and often feature in local memories and photographs. The camps introduced many Highland civilian populations to electricity and telephones for the first time. In some cases these military camps were closed off communities where the public was not welcome.

WWI camps are rare and virtually none has been studied archaeologically in depth in Scotland (but see <http://www.stobscamp.org/>; accessed December 2020). Camps involved extensive training systems and while some of these survive, we are often left with no idea on camp layout and size. A number survive across the Highlands from the three army depots from the WWI sites on the Cromarty firth (Case study X), two of which may survive archaeologically, to the WWII Commando training camps in the area centred on Fort William; the Achnacarry centre (MHG62195) was also investigated by Lochaber Archaeological Society (<https://lochaberas.co.uk/2019/01/26/achnacarry/>, accessed October 2020). In addition we have camps for foreign troops including the WWI U.S. naval sites (Harvey and Kruse 2020) and the WWII foreign troops of the allied nations such as Norwegians and Poles. The camps of the foreign forestry workers as well as those spread around the airfields are all worthy of interest, to understand the layout and operation of the camps with potential to recover material culture.

The prisoner of war (PoW) camps built for both wars have never received the attention they deserve. A number were set up in the Highlands, and the survival of PoW camps at Kinlochleven (MHG27947) and Brahan (MHG24899) from both wars presents opportunities for detailed work. Parallel examples can be examined, both within the U.K. and overseas, with possible international collaboration. Many of these Highland camps continued for displaced persons after the war. Local memories often speak about the objects prisoners made for children or families, and some survive, such as wooden paintings from Strathpeffer (see Figure X).

Figure X: picture of paining with caption: Painting by WWII POWs. Source: ‘Remembering Strathpeffer Area wartime remains’ archived on <http://www.archhighland.org.uk/library.asp>, accessed October 2020).

Fixed defences

Pillboxes are the one site type everybody knows about but they were almost obsolete as a defensive position before they were finished. Although often seen as a single feature, standing alone, this is not the case, and greater study into understanding other elements of defensive positions are required. Multiple trenches and foxholes are associated with pillboxes to defend a location. The Home Guard often built many of these positions overlooking roads and railways, and they are unrecorded in the records, but local knowledge can assist. The fixed defences around vulnerable points and key towns are worthy of note: Wick, Invergordon, Bonar Bridge and Inverness all had systems of pillboxes, trenches and barbed wire laid out to defend these sites which were deemed to be especially important. In particular the rather unique Inverness pillbox design could be researched (currently known distribution is limited to Beauly and Inverness only; see Canmore 345198, 202260 and 137492). Road and rail blocks are found across the Highlands, some in rather unusual places, and military plans and aerial photos sometimes note locations. Further work on these could reveal information on how these would have worked, and throw light on the strategic role they played.

There is always a lack of information concerning the location of WWII auxiliary bunkers, since they were meant to be secret, and personnel sworn to secrecy. They were built in case of invasion, for a guerrilla force to conduct operations from. The British Resistance Archive (https://www.staybehinds.com/auxiliary-unit-sites, accessed October2020) provides a starting point but only local knowledge will uncover the sites, depending on people who talked about them after the war.

Loch Ewe remains perhaps the largest and most poorly studied military complex in the Highlands, with massive AA defences and all aspects of naval activity including shore bases, oil store, supplies and camps, boom defence and coastal batteries. Many of these were short lived and others lasted the entire war (Chadwick 2014). Such was the importance the location of the base ‘Port A’ (its codename), that it is seldom mentioned in the records. The site encompasses not only the Loch but much further over to Achnasheen. The Arctic Convoy Research Project is investigating one aspect of the Loch Ewe complex, where convoys were sent to protect ships to Russia (racmp.co.uk, accessed October 2020). A full research programme is required to map the surviving remains from the area as a whole to better understand the protection and operation of this important base, and not just in the WWII but also in the role the loch played in the WWI and Cold War; HES hopes to start a survey in 2021.

The ROC wartime posts for monitoring aircraft and the WWI and WWII coastwatch posts for monitoring ships, submarines and aircraft around the coasts existed all over the Highlands, but few are recorded and in particular the coastwatch posts of both wars are not recorded. They are mentioned in newspapers and these were manned by local people, volunteers assisting the military authorities.

Cold war sites are not uncommon, and include listening stations, training areas, radar stations, barracks and post War AA positions at Loch Ewe. Some are still extant but the building use has changed. However, there are many cold war sites which have long been abandoned and are either ruinous or have been redeveloped. During the Cold War the north of Scotland played a key role in controlling the access to the Atlantic as well as providing, key military training grounds, e.g. Cape Wrath, RAF Tain, Fort George and the Royal Navy underwater range BUTEC, all still active.

Training Remains

Training plays an important part in any military complex and the whole of the North of Scotland was designated as such. It is important that we record as many features as we can at all training sites, although the repeated bombing at Cape Wrath and Tain creates difficulties and implications of site preservation. A survey of Cape Wrath Training Centre has documented the impacts associated with a military training area which has been in use mainly as a range for bombing and off-shore gunnery since the early 1930s (RCAHMS 2009). There is scope to build on the work of Lochaber Archaeological Society investigating the former commando training sites around the Fort William area (see above).

Firing ranges in the Highlands were the subject of a study by Annette Jack, with the information incorporated in the Highland HER. These were the Volunteer forces, dating from the 18th century onwards. In some cases targets are still preserved.

Naval training also took place in Highland waters, for example the X craft that disabled the German battleship Tirpitz trained in West Coast lochs (Canmore 171486). Mines and booms to protect certain areas were installed, for example during WWI at the Sutors at the head of the Cromarty Firth, Easter Ross (MHG59145) and during WWII at Loch Ewe, Wester Ross, with anchor remains still to be seen at some locations (Chadwick 2014, 37ff; MHG59145). A number of beaches were used for WWII practice landings including at Nairn, the Dornoch Firth and Moray Firths (Scarfe 1947); an entire community at Inver near Tain was evacuated just for this purpose (<http://www.rossandcromartyheritage.org/Community/Inver/History/Inver-Evacuation-1943.aspx> accessed October 2020).

Looking to the future we must address the lack of knowledge, engage local communities where information exists and look at remains not just locally but regionally, nationally and even internationally to understand, document and record these remains before we lose them. The Highlands are well placed to focus research on the British military activity over the last 300 years, in all aspects of warfare.

**10.9 Post-Medieval Research Questions**

General

* The potential evidence provided by inter- and multidisciplinary approaches should increasingly be the norm, and built into research proposals.
* Greater use of dendrochronology which can provide information on climate, source of the timber (local or imported), boat building techniques and of course dating. Wood samples should be taken as a matter of course when renovating or demolishing structures, or investigating shipwrecks. Although at present samples may have insufficient rings for dating, new techniques will certainly be found, and it is important to preserve samples when found.
* Reforestation targets will result in large destruction, and all activities should be researched and investigated before planting.

Environmental

* More multi-proxy studies can provide local information about climate, crops grown and shieling activity.
* Environmental analysis should be undertaken to provide evidence of linen production, including evidence for flax growing and retting ponds.
* Further investigation of woodlands, looking at what is growing, when they were exploited, evidence of woodland management (eg coppicing) and use in various enterprises such as charcoal burning platforms. The Highlands is ideally suited to such study, with plentiful sites.

Settlement, buildings and daily life

* The need for systematic survey to understand wider distributions of settlement evidence, but combined with the targeting of:
	+ building types/features;
	+ undisturbed townships and field systems;
	+ townships and associated grazings including but not exclusively focussed on shielings;
	+ pre-improvement cultivation, with dating
	+ use and distribution of different building materials and constructional techniques, including corrugated iron buildings
* Investigation of the origins and diffusion of ‘improved’ houses in the 18th and early 19th centuries.
* Survey and dating of crofting landscapes, to provide further information on introduction of crofting.
* Styles and constructional techniques of vernacular buildings: this is of particular urgency as, in general, these are at significant risk.
* Investigation of hearths which can shed light on fuel choices, and if wood, what species in domestic contexts.
* Surveys and studies of icehouses which are often in ruinous condition and other buildings associated with the fishing industry such as salmon bothies, kilns or corf houses.
* Investigation of mills, with regional styles, uses, power sources and sourcing of millstones.
* Investigation of Highland corn kilns. Are there any regional patterns or dating changes? How do these compare with examples outwith the Highlands?
* Further investigation of mixed farming systems, looking at local and regional patterns, linking documentary, archaeological and palaeobotanical evidence.
* More detailed investigation of material evidence of sheep farming including shepherd’s houses, wool stores, enclosures, fanks and stells.
* Investigation of introduction of innovations in farm buildings such as covered cattle courts and construction of concrete buildings.
* Detailed investigation of material culture combined with documentary should be used to address questions on how unequal society was, how far down the social scale they were used, and issues of where they came from and how they were transported in the Highlands. Artefacts with good diagnostic dating which usefully could be focussed on included ceramics, clay pipes, snuff mills and snuff mulls, jaw harps, annular brooches, products of Highland silversmiths, communion tokens, beggars’ badges, gun flints, weight sets, trade tokens and coins, paying attention to provenance. Fieldwalking reports and excavation reports need to be combed, as often this information is an aside to prehistoric foci.
* Evidence of curling and other sports should be collected, including memories and survey of any remains.
* Investigation of field sports including shooting lodges, keeper’s residences, deer larders, kennel and grouse butts.
* More work identifying Traveller workmanship, mapping the remains of campsites and routes across the Highlands, and their place in Highland culture is needed.

Industrial

* Further work on Highland water management is needed. There are many lades which go for quite some distance, lochs which have been drained, and of course the hydro tapping of all burns.
* Further work on the role of the blacksmith, with special focus on pre-19th century works.
* Further investigation of foundries in the Highlands – where were they, when did they operate, what products can be traced?
* Further dating and investigation of lime kilns, both domestic and industrial, is needed, paying attention to architectural styles, and regional and chronological factors. Many appear on old OS maps, and could be checked on the ground for remains.
* Further work on Highland sawmills is desirable, given good documentary remains, memories and some remains on the ground. In particular, wartime saw mills have potential for further research.
* Further research into flax industry, including introduction of flax, importation, identification of retting ponds, and documentary evidence of local use and export.
* Identification via estate maps and investigation of legal distilling needed to complement growing body of evidence for illicit stills. Some may be in old inns.

Religion

* Further work needed on gravemarker architecture, and to compare to traditions elsewhere in Scotland. Can Highland styles and preferences be identified?

Transport and Movement

* Work on Thomas Telford’s impact should be pulled together for a Highland-wide perspective, including post-Telford bridges to examine his influence on bridge engineering and design
* Map the chronology of Highland road building.
* Further work needed on recording the structures associated with the railways, from fencing to bothies, as well as buildings constructed of sleepers. Good photographic archives exist to place these in context.

Conflict

* Discovery and recording of surviving military sites.
* Undertake targeted research at military and forestry camp sites taking the social aspects into account, such as their involvement, social and economic effects
* Discovery of and community involvement with Coast Watching posts and ROC posts (WWII and Cold War)
* Detailed survey and research of individual sites or complexes e.g PoW camps, Loch Ewe complex, Inverness fixed defences, radar stations
* Projects looking at the social and commercial interaction between the local communities and their new military neighbours
* Detailed investigations of First World War sites and their legacy
* Oral history projects should be undertaken as a matter of urgency for WWII and Cold War sites.

In National and Agyll ScARFs recommendations highlighted in yellow relate directly to the Highlands. Data compiled during the work of the Highland Regional ScARF can contribute towards other questions, and in particular, those highlighted in green. Recommendations highlighted in blue are particularly relevant to the Highlands, with possible data available to apply to the issue.

**National ScARF Medieval framework Research questions and recommendations**

Theme 1: Reformations

* Tackle the big questions
* Realise and promote the potential of a material perspective on these questions
* Localise, contextualise and, in doing so, problematise historical abstractions
* Develop a sound understanding of the ways in which change was achieved in practice
* Analyse the major re-formations of the modern era in long-term perspective
* Evidence and interpret contested and varied nature of social, environmental and economic change in the modern past
* Develop new collaborate research practices, leading to better and more powerful understandings of the big questions in the history of modern Scotland

Theme 2: Global Localities

* Consider the global connections of localities and adopt a critical perspective on local distinctiveness and global homogeneity
* Adopt a dialectical approach to local-global connections in the modern past
* Be ambitious and seek to contribute significantly to understandings of Scotland’s historical relationships with the wider world
* Develop new collaborate research practices, leading to better and more powerful understandings of the connections between Scottish localities and their wider worlds

Theme 3: The Modern Person

* Develop critical understandings of the modern ‘individual’.
* Produce micro-archaeologies which develop observations about cultural and social trends from individual life stories
* Further understanding of the modern person by researching changing perceptions of the body and the changing nature of embodied experience*.*
* Construct material histories of the social relationships through which people were formed
* Reveal and elucidate alternative histories which evidence the ways in which modern people have formed themselves and constructed relationships which diverge from the main stream.

Theme 4: Nation and State

* Develop critical understanding of the modern nation and state by researching their construction through the material environment and in practice
* Challenge simplistic, essentialist understandings of nation and state by producing alternative histories which evidence the multiple ways these terms took on meaning for people and the many different ways in which people have related to nation and state in the modern world
* Analyse the materialisation and effects of borders, the internal ordering of the state and actions relating to external defence
* Determine how the state has come to be embedded in everyday life.
* Provide insights into the historical character of Scottishness and into interactions between Scottish, British and other identities and ideologies.

Theme 5: People and Things

* Develop understandings of all stages in the life-history of modern artefacts.
* Pursue multi-scalar approaches to artefact and material culture studies.
* Explore ways to deal with the large quantity of material culture from this period
* Build on knowledge of the empirical characteristics of artefacts to develop deeper understandings of objects as embedded in social life

Theme 6: People and Place

* Develop understandings of all stages of the life history of modern places
* Explore the reciprocal relationship between people and place and the practices through which places were lived and inhabited.
* Build on empirical knowledge of places to interpret their character and significance in human terms
* Develop more collaborative modes of enquiry for the investigation of modern places

Theme 7: People and Landscape

* Conceptualise and research landscapes in relational terms
* Evidence the multiple nature of modern landscapes
* Investigate the full sweep of landscape types, across all periods of the modern past
* Develop and adopt integrated and integrative modes of practice.
* Connect past and present in terms of their landscape relationships

Theme 8: Modern Past, Modern Present

* Link past, present and future in an explicit and critical manner
* Develop a sound understanding of modern-period archaeology as a scholarly pursuit and as a social and political practice
* Provide insights into the ways in which the modern past is presented and represented in the present.
* Evidence and interpret popular understandings of and engagements with the modern past, particularly its material aspect
* Critically review public engagement practices in modern-world archaeology and develop new modes of public-professional collaboration
* Evidence and understand the politics of the recent past, particularly as related to the material aspects of that past.
* Advance knowledge and understanding of the moral and ethical views held by professionals and members of the public in relation to the archaeology of the recent past.
* Embed processes of ethical reflection and beneficial action into archaeological practice

**Argyll Regional ScARF Research Questions and Recommendations** (James and Horning 2017)

* Data collection has been and continues to be carried out on a few very particular aspects of recent heritage in Argyll, such as deserted settlements and railway signal boxes, but there have been few attempts to fill the gaps since the RCAHMS Argyll volumes. There is a need to identify new areas of research and attract funding.
* There has been no synthesis to put the above data collection work into context. A synthesis of this work needs to be put in place for Argyll.
* Interrogation of survey field notes for descriptions of Modern Period features and sites (for example Campbell and Sandeman's field survey notes)
* The extent of private archives is not well known so there is the potential for material to be currently unavailable to researchers. The value of archives could be better advertised and attract more attention and funding.
* The condition of private archives are also unknown. Private archives could contain items important and relevant to this period, which if left unprotected could suffer damage or loss.
* Encourage more collaborative and interdisciplinary research, for example, climate change involves geology, geomorphology, archaeology, history and archaeobotany.
* Attract funding by showing the relevance of research to modern society (for example, sustainable food production, traditional technology, history and politics, cultural connections with Ireland).
* Adopt more of a landscape approach to survey work
* Promote the application of modern digital techniques, for example GIS and LIDAR, to landscape studies.
* How was material culture used to display clan membership and loyalties?
* How was 'family' understood in the 17th and 18th century and how did this relate to the operation of joint tenancy farms and the clan system?
* How were women recognised during this period and what were their experiences?
* What factors led to the de-Industrialisation of Argyll.
* Explore the introduction of Industrial pottery to the west of Scotland.
* Pull together what we know of the marine and maritime evidence we have for this period and identify gaps for further research.