

## Perth and Kinross Archaeological Research Framework

### Chapter 4. Chalcolithic and Bronze Age





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Written by Alison Sheridan and Matthew G. Knight  
with contributions by Richard Bradley, Kenny Brophy, Trevor Cowie,  
Mark Hall, Strat Halliday, Gavin Lindsay, Coralie Mills, Tessa Poller  
and David Strachan

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## 4.1 Introduction

The British Chalcolithic period is now widely recognised as beginning during the 25th century BC. It is marked by the appearance of the first metal artefacts, produced from copper and gold and the introduction of new material culture and other practices from the European Continent (Allen et al [2012](#); Parker Pearson et al [2019](#)). True bronze metallurgy – bronze objects produced from alloying copper and tin and later, lead – emerged around 2200/2150 BC, and its appearance denotes the start of the Bronze Age. It is more problematic to define the subsequent transition to the Iron Age across Scotland but it is generally understood to occur around 800 BC (cf. Needham [2012](#)). For the purposes of this Framework, the Chalcolithic and Bronze Age are defined as 2450–800 BC.

The Chalcolithic and Bronze Age period in Perth and Kinross exhibits many of the major practices, monument types and artefact forms that define the significant technological and societal changes brought about in the 3rd millennium BC with the advent of metallurgy and its subsequent development through the 2nd and 1st millennia BC. Continental burial practices and the Beaker pottery tradition of the Chalcolithic have been found in Perth and Kinross. There is evidence of connections with the Lower Rhine or neighbouring areas, for example, from the ring-ditched grave and associated Beaker excavated at [Newmill](#) near Bankfoot (MPK2317; Sheridan [2008a](#); see also Fokkens [2012](#)).

Artefact recovery has generally been poor in upland areas, especially in terms of chance finds, in contrast to far greater numbers recovered in the lowland areas. This is largely due to patterns of land use (Stevenson [1975](#)). While contextual information on historical discoveries is often lacking, such information is increasingly forthcoming in the case of modern finds. This is the result both of the excavation of sites to modern standards and also of the majority of metal detectorists and other finders now working closely with the Treasure Trove Unit to record and report discoveries – as is clear from entries in *Discovery and Excavation Scotland*.

In contrast to earlier periods, evidence for settlement during the Bronze Age – from the later stages of the Early Bronze Age onwards – is both extensive and exceptional (Strachan [2011](#), 4). This is especially the case across upland areas where non-intrusive survey work has revealed a diverse range of roundhouse forms including single and double-skinned types plus regionally distinctive tangential pairs (see RCAHMS [1990](#)). Sites and monuments associated with ceremonies and burials are abundant; they include Scotland's second largest

Early Bronze Age cemetery which features deposits of cremated remains at [Kilmagadwood](#) near Loch Leven (MPK18535; MPK3013; Sheridan et al [2018a](#)). Cairns of various forms are present; there is a notable concentration of Bronze Age 'Four-Poster' stone 'circles', more accurately described as 'Four-Poster settings', which are discussed elsewhere in this chapter. Excavation of a Four-Poster setting at [Na Clachan Aoraidh](#) near Blair Atholl revealed cremated human remains and associated charcoal dating to the Late Bronze Age (MPK1245; Ellis and Ritchie [2018](#)). It adds considerably our understanding of Late Bronze Age funerary rites. The reuse of earlier monuments and ceremonial complexes as places of Bronze Age burial, such as at [Forteviot Henge 1](#) (MPK1888), offers valuable insights into the changing uses of monuments as well as prehistoric concepts of identity, ritual, sense of the past (including memory) and cosmology. The general sparsity of Late Bronze Age burial evidence in Scotland limits the extent to which we can understand many aspects of the human dimension. The region's rich artefact assemblage from the Late Bronze Age, which includes bronze, gold and amber artefacts, provides evidence of long-distance connections. It is of considerable importance for understanding the lives and deaths of the inhabitants of Perth and Kinross in this period. External contacts are also apparent for other periods of the Bronze Age and the Chalcolithic.

The watercourses of the region were clearly of great importance throughout the Chalcolithic and Bronze Age, given the lowland patterns of deposition of single finds and metalwork hoards which are concentrated around rivers, especially the Tay. Evidence of rivers' role as travel corridors has also been revealed through studying exceptional artefacts and their contexts such as the [Carpow logboat](#) from the Tay estuary near Abernethy (MPK12214; Strachan [2010a](#); [2010b](#)). Travel by boat was not, of course, the only means of transport; in Blairdrummond Moss, in the former county of Perthshire (now Stirling), three wooden disc-wheels were found, probably for a cart, of which only one survives. The survivor, made of ash, has proved to be the earliest evidence for wheeled transport in Britain and Ireland, since it has been radiocarbon dated to 1206–809 cal BC (OxA-3538, 2810±85 BP: Sheridan and Saville [1993](#); see also Piggott [1957](#) and [1983](#) on the discovery and significance of the wheels). Several sub-peat wooden trackways are also known from the historical county of Perthshire, including a corduroy roadway 12 feet (about 3.6m) wide in [Blairdrummond Moss](#). However, none have been dated, and so it is currently impossible to tell whether the Late Bronze Age Blairdrummond vehicle had been driven along any of them.



In a break from the structure of the previous chapters, the Chalcolithic and Bronze Age Regional Overview is divided into chronological spans with each summarising and assessing the current state of knowledge, highlighting regionally distinctive features where they exist. The breakdown is as follows:

- Chalcolithic (around 2450–2200/2150 BC)
- Early Bronze Age (2200/2150–1600/1500 BC)
- Middle Bronze Age (1600/1500–1150 BC)
- Late Bronze Age (1150–800 BC)

These divisions are presented according to the latest chronological understandings in relation to funerary and artefactual traditions. However, they do not capture the complex nuances of different simultaneous developments – for instance, they do not necessarily align with changes in the settlement record.

Contextualisation is provided with reference to other areas of Scotland where appropriate, reflecting the way in which past activity did not occur in isolation, nor was it restricted by modern administrative boundaries. The overview concludes with a summary review of the palaeoenvironmental evidence for the Chalcolithic and Bronze Age, and a brief history of archaeological research undertaken in the region.

## 4.2 History of Research

Perthshire and Kinross-shire were an early focus of antiquarian activity, especially through the Perth Literary and Antiquarian Society which was founded in 1784 and was active through the 19th century. The Perthshire Society for Natural Science was established in 1867 while the Kinross-shire Society for Antiquarian and Historical Research was set up in the 20<sup>th</sup> century. In 1824 the Perth Literary and Antiquarian Society created one of the earliest purpose-built museums in Britain to house the global collections of the Society. Many artefacts have been and continue to be acquired by what is now the Perth Museum and Art Gallery, forming a rich collection of Chalcolithic and Bronze Age artefacts in Perth (Anderson and Black [1888](#), 337–41; Callander [1929a](#); [1929b](#); Cowie and Reid [1986](#); Lyddieth [1965](#)). Other Chalcolithic and Bronze Age artefacts from Perth and Kinross have been acquired by National Museums Scotland and its predecessor institutions. Continued work by curators from both NMS and Perth Museum on these collections is doing much to improve our understanding of the Chalcolithic and Bronze Age material culture from the region (Cowie and Hall [2001](#); Cowie et al [2011](#)).

By the later 19th century, prehistoric sites and monuments such as the [Balnabroich](#) funerary complex and settlement (MPK4027; MPK4032; Stuart [1866](#)), [Shanwell](#) cremation cemetery (MPK1816; Anderson [1885](#)) and various stone monuments (Allen [1881](#); MacMillan [1884](#); Stewart [1884](#); Gow [1885](#)) were increasingly surveyed and investigated. Sherriff ([2000](#)) presents a particularly useful summary of excavations that took place within the boundary of the pre-1975 county of Perthshire during the second half of the 19 century. The surveys of Perthshire and Kinross-shire stone circles by Coles in the early 1900s built on this earlier work and emphasise the richness of the region (Coles [1906](#); [1908](#); [1909](#); [1910](#); [1911](#)).

During the 20th century the Bronze Age sites and monuments of Perth and Kinross repeatedly attracted the attention of scholars working in Scotland, resulting in excavations and surveys that contribute to our picture of Bronze Age Scotland and, indeed, Britain overall (eg Anderson [1902](#); Abercromby [1905](#); Callander [1918](#); [1929a](#); [1929b](#); Simpson and Coles [1990](#)). Margaret Stewart’s contribution to understanding the Bronze Age in Perth and Kinross deserves particular mention, with her numerous surveys and excavations of stone circles, standing stones and cists (eg Stewart [1965](#); [1966](#); [1985](#); Stewart and Barclay [1997](#); see also Hall [2018](#), 414 for an assessment of her role). Derek Simpson’s excavation of Four-Poster monuments and a stone circle at [Fortingall](#) (MPK8) – due to be published by Murphy et al ([forthcoming](#)) – and Aubrey Burl’s nationwide survey of Four-Poster monuments ([1988](#); see also Burl [2000](#)) shed important light on this class of monument. The comprehensive sites and monuments surveys of the Royal Commission on Ancient and Historical Monuments for Scotland (RCAHMS) carried out for Kinross-shire (RCAHMS [1933](#)) and north-east and south-east Perthshire (RCAHMS [1990](#); [1994](#)) have added significantly to our understanding of the monument landscapes of these respective areas. Although not extending across all of Perth and Kinross, these surveys have established the density of occupation and interaction with the prehistoric landscape for a large extent of the region upon which future studies can build.

Notable research excavations between 1970 and 2000, in addition to those undertaken by Stewart, include Barclay’s of the North Mains [henge](#) and [barrow](#) (MPK1359; MPK1538; Barclay [1983](#)), Piggott and Simpson’s excavation of the [Croftmoraig](#) multi-phase monument (MPK363; Piggott and Simpson [1971](#)), the then-named Central Excavation Unit’s survey and excavation of the Carn Dubh landscape (Rideout [1995](#)) and Mercer

and Midgley's excavation of the massive mound at [Sketewan](#) (MPK53808; Mercer and Midgley 1997). Details of others can be found in [Discovery and Excavation in Scotland](#), the [Proceedings of the Society of Antiquaries of Scotland](#) and the [Tayside and Fife Archaeological Journal](#).

Important research excavations have continued to take place since 2000, enhancing our understanding of the Chalcolithic and Bronze Age periods in Perth and Kinross. Perth and Kinross Heritage Trust (PKHT) has made a major contribution in the recovery, conservation and analysis of the [Carpow](#) logboat (MPK12214) and in the subsequent application of a multi-faceted approach to its contextualisation that included studies of settlement, metalwork and the wider Tayside environment (Strachan 2010a). The subsequent experimental archaeology project, undertaken in partnership with the Scottish Crannog Centre, to build a replica on Loch Tay has added further to our applied understanding of logboat design, construction and performance (Strachan 2010b).

The major SERF research project, led by the Universities of Glasgow and Aberdeen (Brophy and Noble 2020), has shed important new light on the Forteviot prehistoric ceremonial complex, its landscape and its settlements (Poller forthcoming; see also <http://www.seriousanimation.com/hillforts/>). The comprehensive research undertaken on the [Forteviot](#) dagger-grave (MPK1888; Brophy and Noble 2020, chapter 5) is of national significance.

Bradley's reassessment and re-excavation of the Croftmoraig multi-phase site (Bradley and Sheridan 2005; Bradley and Nimura 2016: chapters 4 and 10) has not only clarified the sequence of activities at that important monument, overturning Piggott and Simpson's construction sequence, but it has also elucidated the Middle Bronze Age date of oval stone settings in this part of Scotland.

More recently, the excavation of, and research into, the Four-Poster monument at [Na Clachan Aoraidh](#) (MPK1245) by Ellis and Ritchie (2018) has provided important evidence which suggests that this class of monument was constructed during the Late Bronze Age. The archaeoastronomical research carried out as part of this project has shed additional light on this important aspect of Four-Poster design (Ellis and Ritchie 2018; Scott and McHardy 2020).

Over the last quarter century, the increasing number of developer-funded excavations in Perth and Kinross have also helped to clarify the chronology of Chalcolithic and Bronze Age activities in this part of Scotland, with the extensive excavations around Blackford (O'Connell et al 2021) being particularly informative in this respect. The rescue

excavation of the large Early Bronze Age cemetery at [Kilmagadwood](#) (MPK18535) by Hall (Sheridan et al 2018a) has provided the potential to refine the dating of Early Bronze Age funerary practices in the region. The foundations of this work have been laid by Sheridan and colleagues, but the absence of resources for further post-excavation work means that this potential remains unrealised. Rectifying this by a fully-funded post-excavation programme has to be a research priority.

Allied to this, the National Museums Scotland's long-term and ongoing programme of radiocarbon dating initiated by Sheridan has provided many useful dates pertaining to the Chalcolithic and Bronze Age in the region.

These include those for the Blairdrummond wheel, the [Dumglow](#) log-coffin and for various Bronze Age funerary material including the [Pitnacree](#) standing stone grave (MPK1714) and the child with a miniature battle-axehead at [Doune](#) (Sheridan 2006; 2007a; 2007b; 2008b; 2010a; Sheridan and Saville 1993; Sheridan et al 2013).

Despite past and ongoing research into the Bronze Age of Perth and Kinross, a comprehensive region-wide synthesis of the Chalcolithic and Bronze Age periods has not hitherto been carried out.

Although regional summaries by Stevenson (1999) and Stewart (1973), as well as Tayside studies by Coutts (1970; 1971) and Winlow (2010) provide a strong baseline, a comprehensive synthesis is required for underpinning future archaeological research.

## 4.3 The Resource

### 4.3.1 Chalcolithic

In addition to the appearance of the first copper and gold artefacts in the 25th century BC, the British Chalcolithic is defined by the presence of other Continental novelties in the archaeological record. Beaker pottery marks a striking change from the indigenous Grooved Ware that was probably still in use at the time (Copper et al 2021). New funerary practices also appear; these feature individual inhumation, with bodies laid on their side in a contracted position according to Continental norms. Other artefact types and styles such as barbed-and-tanged arrowheads (Needham 2012; Parker Pearson et al 2019) are also Continental novelties. These new Chalcolithic artefacts appeared over much of Great Britain, including Scotland (Sheridan 2012a), and within a few generations they seem to have been widely adopted (Needham 2005; 2012). The Beaker ceramic tradition in Britain lasted for several centuries until around the 18th century BC (Jay

et al [2019](#)). Recent ancient DNA (aDNA) analysis of Beaker-associated human remains elsewhere in Britain has shown that the earliest users of this Continental pottery style were immigrants. They came from a variety of places on the near Continent to different parts of Britain and Ireland (Olalde et al [2018](#); Booth et al [2021](#); Patterson et al [2022](#)).

With the predominant diagnostic evidence for Chalcolithic activity centring around Continental-style material culture and funerary practices, these elements feature highly in the resource assessment of this chronological period.

#### 4.3.1.1 Beaker Use and Funerary Practices

Although relatively sparse, the evidence for Chalcolithic to Early Bronze Age Beaker use and for Chalcolithic funerary practices thus far recovered from Perth and Kinross is important because it underlines the Continental background and the novel nature (in a British context) of both traditions. The earliest Beakers can all be paralleled closely with their Continental counterparts, as can the practice of burying the dead individually, on their sides, in a contracted position.

##### *Chalcolithic funerary practices: an introduction*

The earliest Beaker graves, such as the one at Newmill (MPK2317), feature roughly east-west orientated grave pits within which the unburnt bodies of the deceased were placed. In the case of Newmill, some kind of organic coffin or plank-built rectangular chamber was used (see Bradley et al 2016 on timber-lined Beaker graves in north-west Europe). The Newmill grave was surrounded by a ring-ditch and covered by a low pebble mound. Later, within a few generations, Beaker-associated graves consist of short rectangular stone cists, which were not covered by mounds. While such cists tend to be found singly, some are likely to have formed part of 'flat' cemeteries.

While inhumation appears to have been the norm that was introduced from the Continent, calcined bones were found in a Beaker-associated cist of Late Chalcolithic or, more likely, Early Bronze Age date at Balnaguard (MPK1705; Mercer and Midgley 1997). At Pitnacree, a deposit of cremated remains was found – without any artefactual associations – at the base of a standing stone erected on the summit of an Early Neolithic round barrow (MPK1714; Coles and Simpson 1965). One of the cremated bone fragments was radiocarbon dated, as part of National Museums Scotland radiocarbon dating programme, to 2340–1960 cal BC (at 95.4% probability [GrA-21744]; 3740±60 BP; Sheridan 2010a, 44–7). This date places the Pitnacree grave either in the Late Chalcolithic or

the Early Bronze Age. However, given that the grave was prominently positioned on top of the mound with an imposing standing stone, it is most likely that Pitnacree belongs to the Early Bronze Age, when several ostentatious funerary monuments were constructed in Perth and Kinross.

The extreme paucity of extant, well-preserved human remains from Perth and Kinross has precluded the possibility of undertaking aDNA analysis. Nevertheless, the results obtained from Chalcolithic remains elsewhere in Scotland (and in Britain more widely: Olalde et al 2018; Booth et al 2021; Patterson et al 2022) has confirmed that Beaker users were indeed arriving from the Continent. They brought with them a distinctive range of Continental genetic signatures. The aDNA studies have also shown that, over several generations, these Continental signatures became dominant in Britain. It is strongly suspected that, had the human remains from Newmill and other early Beaker graves in the region survived, these, too, would indicate that the occupants, or their forebears, had been Continental immigrants.

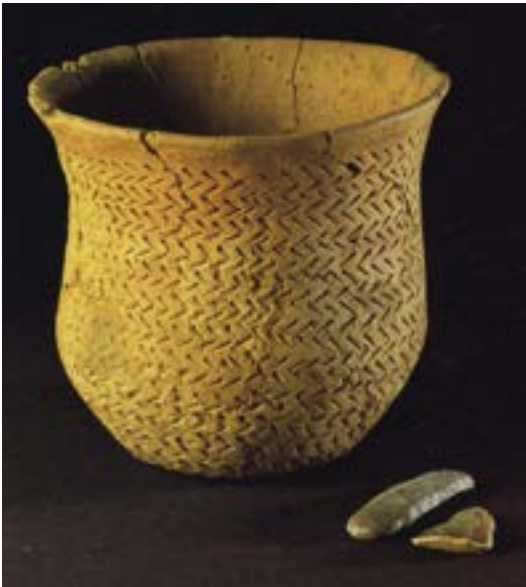
The currency of Beaker use in Perth and Kinross extends from the 25th to the 20th or 19th century BC, thereby spanning the Chalcolithic and the early part of the Early Bronze Age. Most finds have come from funerary contexts, with a few from non-funerary monuments; to date, no settlement featuring Beaker pottery has yet been found in this part of Scotland.

##### 4.3.1.1.1 Newmill and other Early Chalcolithic Beakers

An All-Over-Ornamented Beaker with stab-and-drag herringbone decoration excavated from a grave pit surrounded by a ring-ditch at [Newmill](#) (MPK3217), near Bankfoot sits early in the Beaker typological sequence. It can be most closely paralleled with Bell Beakers from the Netherlands and other parts of the Lower and Middle Rhine (Sheridan [2008a](#), 253; see Watkins and Shepherd [1980](#), 37–8 and Fokkens [2012](#) for Dutch and Continental comparanda). In terms of Clarke's Beaker typology ([1970](#)), the Newmill vessel would fall within his 'E' (for 'European') category. According to Needham's scheme ([2005](#)), it could be classified as an 'S'-profile Beaker, or else a sinuous version of a Low-Carinated Beaker. Although the human remains from this site had fully decayed, the presence of a flint strike-a-light among the grave goods – arguably another Continental novelty – suggests that the occupant of the grave was male. For a discussion of the sex associations of Chalcolithic and Bronze Age fire-making equipment, see Teather and Chamberlain [2016](#). The other grave good was a flint knife. The excavators concluded



that the body had been deposited in an organic structure, perhaps a bark coffin or a plank-built cist-like chamber (Watkins and Shepherd [1980](#)). The form of the grave, with its surrounding ring-ditch and low mound of pebbles over the grave pit, has parallels in the Lower Rhine and northern France. For a discussion of comparanda, see Fokkens [2012](#) and Salanova and Tchérémissinoff [2011](#). Beaker-associated graves featuring organic chambers, as opposed to stone cists, are characteristic of the earliest Beaker funerary practices in Great Britain, and are also typical of north-west European Beaker practice (Bradley et al [2016](#)). However, they are rare in Scotland, where the slightly later rectangular short-stone cists, which constitute a translation into stone of their wooden forerunners, predominate. The closest parallel for the Newmill grave in Scotland is that at [Upper Largie](#) in Kilmartin Glen, Argyll and Bute (Cook et al [2010](#); Sheridan [2008a](#), 253). There, the enclosing ring-ditch had timber uprights, which is another Continental feature. The Beakers from the Upper Largie cist are of early Continental types. The presence of more than one Beaker in the grave is also characteristic of early Beaker graves in Britain, one such example is the grave of the 'Amesbury Archer' (Fitzpatrick [2011](#)).



Newmill Beaker and flint tools ©NMS

While the Newmill Beaker remains unparalleled in Perth and Kinross, a closely comparable example was discovered in a small cist at [Battle Moss](#) in Caithness (Sheridan [2010b](#)). In Perth and Kinross a further example of a Clarke 'E' Beaker (sinuous Low-Carinated) is known from [Fingask](#) (MPK5363; Anon 1952, 208–9, pl XLI, 2). It was reportedly found on the Fingask Estate 'many years' before 1952; given that it is intact, it is very likely to have come from a grave. Both the Newmill and Fingask Beakers could theoretically date as early as the 25th century BC.

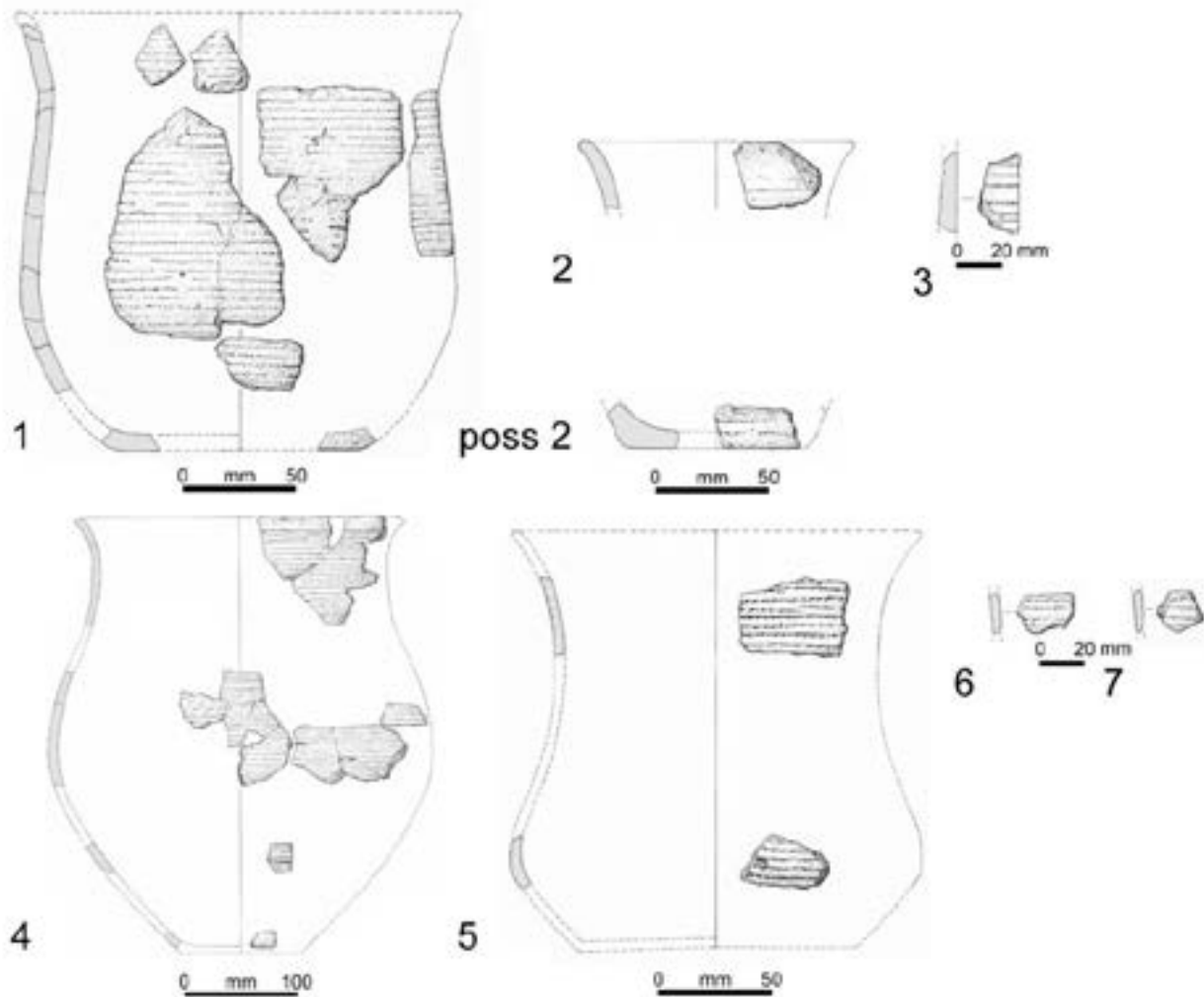


Fingask Beaker (Clarke [1970](#), 289, no 74)

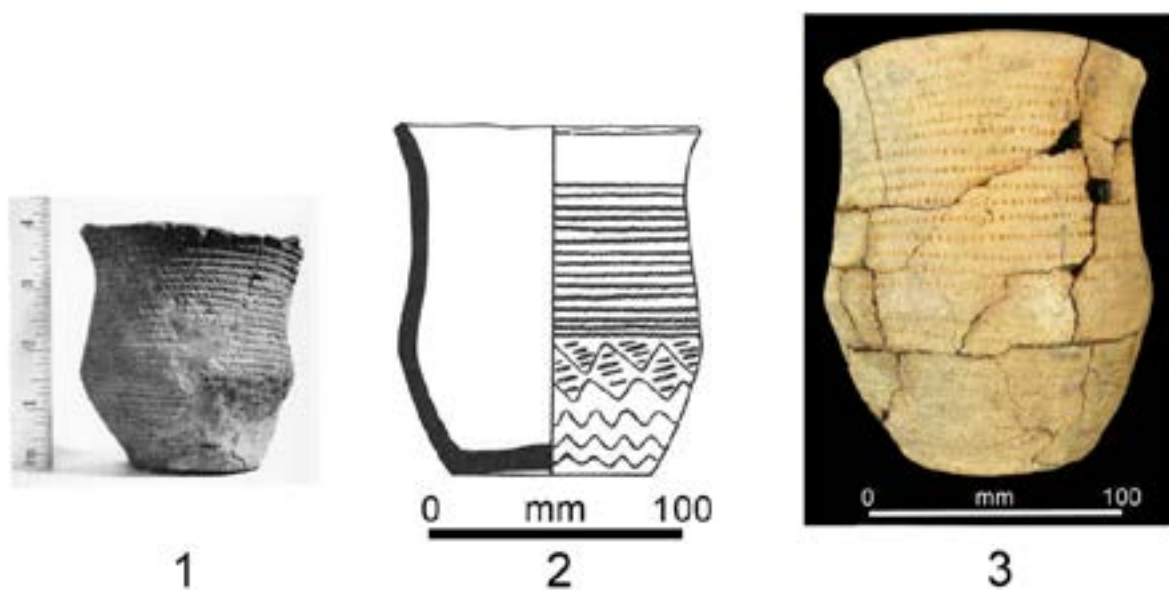
Elsewhere, an important assemblage of six early Continental-style Beakers with All-Over-Cord (AOC) and All-Over-Comb decoration was discovered in association with Henge 2 at [Forteviot](#) (MPK1185). Their constituent sherds were mostly found in the basal fill of the ditch, particularly in the entrance area, and in the upper fill of two postholes in the area enclosed by the henge ditch. Wilkin and Jorge (2020) describe five Beakers, but there were possibly seven with not all the sherds being correctly attributed. Willow charcoal in the basal fill of the ditch, likely to be contemporary with the Beaker pottery, produced a radiocarbon date of 2496–2299 BC (at 87.7% probability [SUERC-37867]; 3935±35 BP; Brophy and Noble [2020](#), table 2.4). These Beakers are not from a funerary context, but instead must be connected with the ceremonies that took place in the henge.

A further find of an early Beaker comes from the fill of the ditch of Henge 1, in its terminal area. Here, the pot may be of Needham's Tall Mid-Carinated type, with rows of horizontal comb impressions over most of the surface. There is a narrow band of a comb-impressed 'ermine' design on the lower belly. The modelled radiocarbon dates relating to the Henge 1 ditch indicate that it was probably created 2460–2230 *cal* BC (95% probability, Hamilton with Brophy [2020](#), 147). This is in line with the date for the Henge 2 ditch.

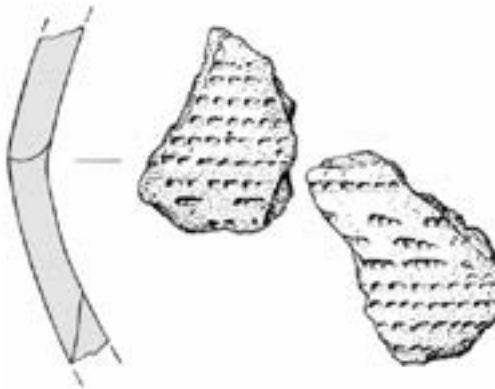
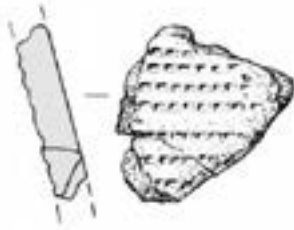




Beakers from Henge 2, Forteviot (by Marion O'Neil)



All-Over-Cord decorated Beakers from 1. Lundin Farm, Aberfeldy (Stewart 1966); 2. Bailielands, Auchterarder (Clarke 1970); and 3. Balnahanaid, Ben Lawers (Sheridan 2016)



Beaker from Henge 1, Forteviot (by Marion O'Neil)

As for the other early Beakers from Perth and Kinross, the Low-Carinated AOC beakers include examples from [Lundin Farm](#), near Aberfeldy (MPK1108; Stewart 1966), [Bailelands](#), Auchterarder (MPK1346; Reid 1898) and there is one Low-Carinated All-Over Comb Beaker from [Balnahanaid](#), Ben Lawers (MPK162; Sheridan 2016). They are all likely to be early examples within this British ceramic tradition (cf Sheridan 2007a). Moreover, it is likely that the four Beakers (including two AOC Beakers) that were found in a pit (Pit 022) along with abraded calcined bone at [Brookfield House, Blackford](#) (MPK15812) are contemporary with the burnt hazelnut shell and charred barley grain in the pit. These were radiocarbon dated to 2466±236 cal BC (3876±26 BP, UBA-15211) and 2343–2153 cal BC (3820±21 BP, UBA-15212) respectively (O'Connell et al [2021](#), 10–12).

The Lundin Farm example was found within a Four-Poster stone monument, but it clearly pre-dates that monument. It was discovered under the closely-set stones of a cairn, 24 inches (60cm) below ground surface (Stewart [1966](#), fig 5). Sherds of a Collared Urn were found in the vicinity, but at a lesser depth (18–21 inches, 46–53cm). It is unclear whether the Beaker had been associated with funerary activity, although this is possible.

The sinuous, Low-Carinated Auchterarder example was found in a stone cist, and had accompanied a contracted skeleton, whose 'bones crumbled on being exposed to the air' (Reid [1898](#)). Its decoration is unusual as the upper part of the body has roughly parallel lines of twisted cord impressions, whereas the lower part has rows of relatively crudely incised zig-zag lines. The term 'All-Over-Cord' is therefore a slight misnomer.

The small, Low-Carinated, All-Over-Comb decorated Beaker from [Balnahanaid](#), Ben Lawers was found in a pit that, which although small, would have been large enough to accommodate a tightly-contracted body (MPK163; Atkinson [2016](#)). Sheridan ([2016](#)) has argued that this is likely to have been a grave, even though no human remains were found. At just 123mm in height, this Beaker is comparable to the diminutive AOC Beaker from a grave at [Sorisdale](#) on Coll, which survives to a height of 77mm and was probably around 90mm tall when complete (Ritchie and Crawford [1978](#), 75–84). The comparison is instructive since isotopic and aDNA analysis of the young female buried with the Sorisdale Beaker has revealed that she was not raised locally, and may have been a first-generation immigrant, probably from the Upper Rhine (Sheridan [2008a](#), 253ff; Montgomery et al [2019](#), 395; Olalde et al [2018](#), fig 2). It is quite possible that the Balnahanaid grave, like that of Newmill, had held the body of a Continental Beaker-using immigrant. The form of the putative grave at Balnahanaid, as with Newmill and other similar graves in Scotland such as Upper Largie (Cook et al [2010](#); Sheridan [2008a](#), 253) is characteristic of the earliest Beaker graves in Scotland and in Britain more widely. It was only subsequently that the use of stone cists became the 'standard' form of grave structure in Scotland, and north Britain more generally.

#### 4.3.1.1.2 Late Chalcolithic and Early Bronze Age Beakers

The few other Beakers found in Perth and Kinross are likely to be of Late Chalcolithic to Early Bronze Age date, while others, probably belong to the Early Bronze Age.

A small (about 147mm tall), Short-Necked Beaker was found in a probable grave pit, orientated east-west, with traces of what could have been a wooden coffin or chamber, inside a double ring-ditch monument at [Forteviot](#) (MPK1887; Wilkin [2020](#)). Wilkin concluded that the likely date of this Beaker was either Chalcolithic or Early Bronze Age, between around 2400 BC and about 2000 BC (Wilkin [2020](#), 259). This concurs with Needham's observation (in Parker Pearson et al [2019](#), 174) that the currency of Short-Necked Beakers in Britain more widely extends

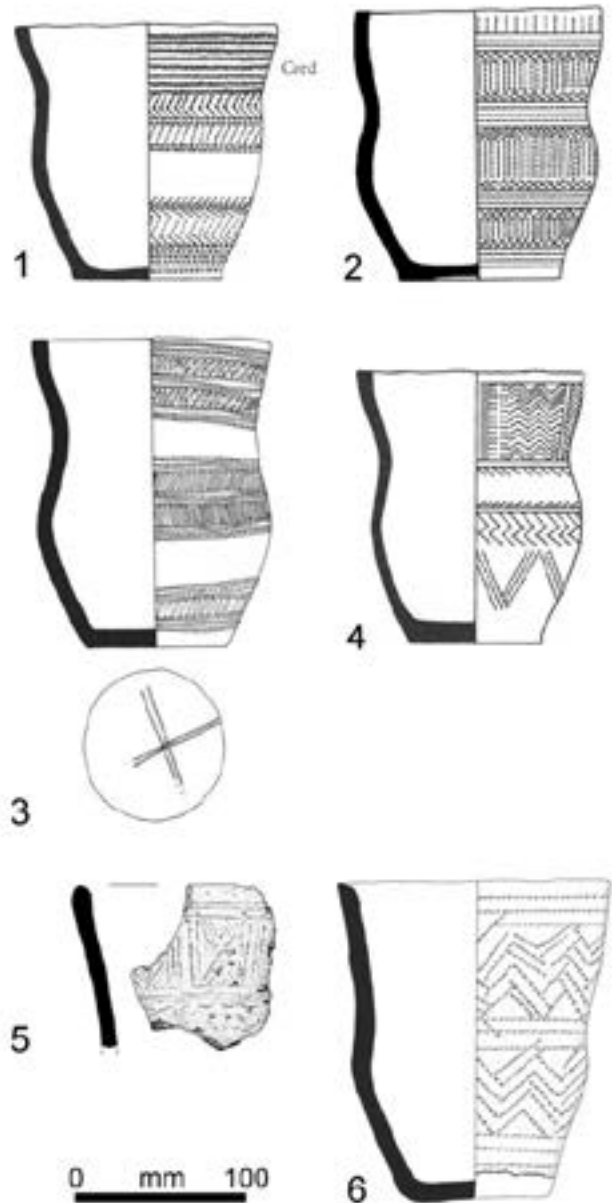
from the Middle Chalcolithic to the Early Bronze Age. Given that the form of the grave was an organic coffin or chamber rather than a stone cist – a Chalcolithic date around 2300 BC seems likely (Brophy and Noble [2020](#), 250).

A further Short-Necked Beaker (of Clarke’s ‘N2’ Developed Northern type) was found in 1876, in a short-stone cist near [Kincardine Castle](#) (MPK1450; Reid [1878](#); Clarke [1970](#), 342, fig 514, and 520). It had accompanied the remains of a contracted skeleton, with a further skeleton buried beneath the floor of the cist. Unfortunately, Reid’s attempts to keep the skull that had accompanied the Beaker safe until it could be removed safely backfired. He recorded that ‘The place was covered up, and endeavours were used to prevent people disturbing the remains, but in the meantime the story of the discovery got abroad, and some of the Auchterarder youths went up and disturbed the cist, breaking the skull and removing the teeth’ (Reid [1878](#), 683). Two other Short-Necked Beakers, both Clarke’s ‘N3’ Late Northern type, have been found in Perth and Kinross: one at [Tillyochie](#), under a cairn (MPK1837; Clarke [1970](#), 518) and another in a cist at [Upper Muirhall](#) (Reid et al [1986](#)).

Long-Necked Beakers are known from short cists at [Tippermallo](#), Methven (Anon [1899](#); Clarke [1970](#), 354, fig 609, and 520); [White Cairn](#), Glen Cochill, under a cairn containing numerous pieces of white quartz (MPK1593; Clarke [1970](#), 520; Stewart and Barclay [1997](#)); and [Balnaguard](#) (MPK1705; Mercer and Midgley [1997](#)). The first two must have contained unburnt contracted skeletons, of which traces were found at Tippermallo, while calcined bones were found at Balnaguard. By analogy with dated examples elsewhere (as discussed in Parker Pearson et al [2019](#), Chapter 4), these Beakers are most likely to date to between 2300 BC and 2000 BC (the Late Chalcolithic and early part of the Early Bronze Age). At Tippermallo, the Beaker was accompanied by two flint scrapers and a flint knife.

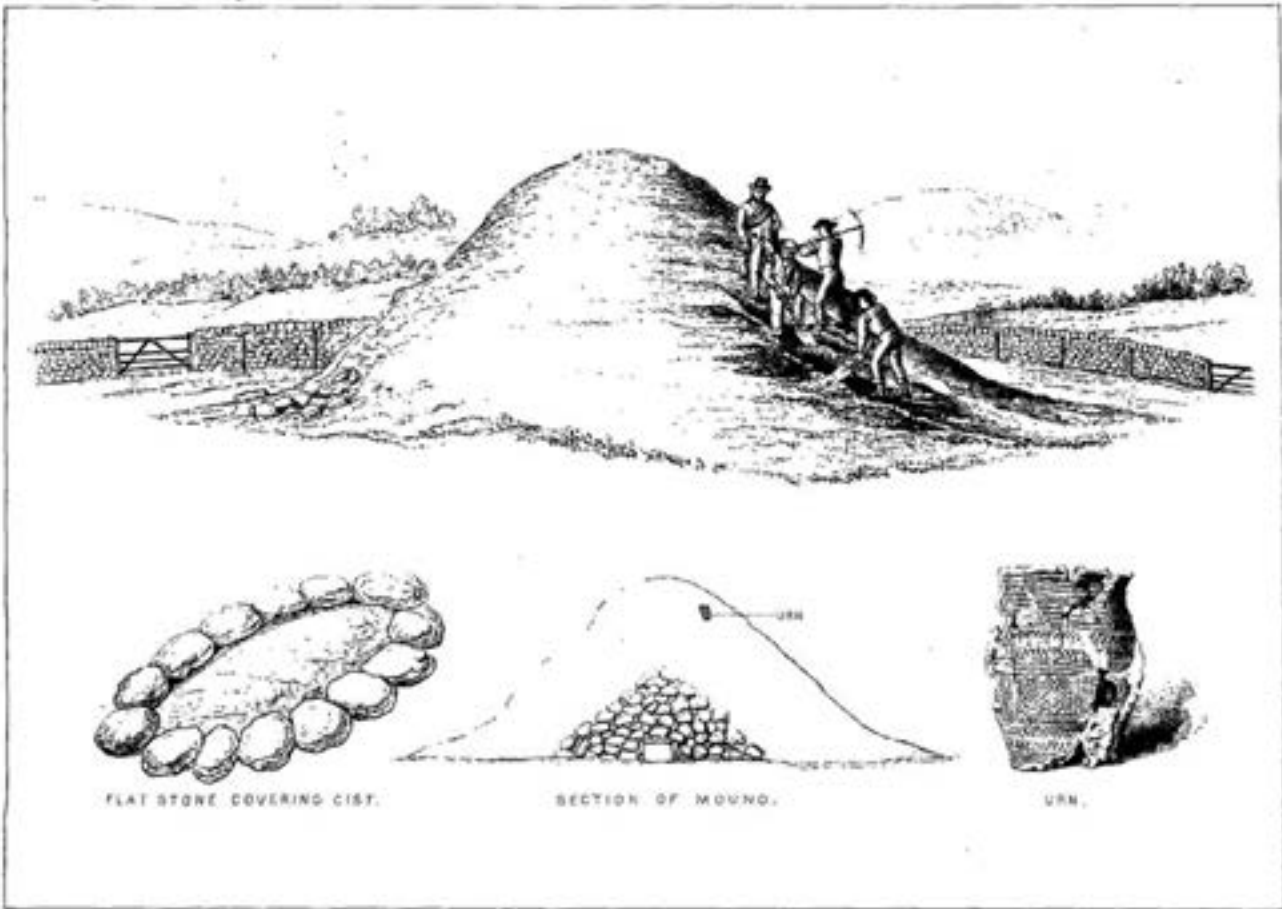
Clarke’s *corpus* of British Beaker pottery lists sherds of two Beakers found near the top of a large, imposing, earth-capped cairn, the [Fairy Knowe](#), at Pendriech, Bridge of Allan (Alexander [1868](#); Clarke [1970](#), 520). The cairn is located on a spur of the Ochil Hills and commands extensive views of the landscape. Sherds of one of the Beakers could not be attributed to a specific style. The less incomplete of the two pots, which is sadly lost, is a Mid-Carinated Beaker of Clarke’s ‘N/NR’ (Northern British/Northern Rhine) type. The currency of such Beakers is known to have begun during the later part of the Chalcolithic, and continued into the early part of the Early Bronze Age. The pot’s association with an ostentatious cairn is consistent with an Early Bronze Age date, probably between the 22nd and 20th century BC. The grave

that lay under the Fairy Knowe cairn is a short, stone-lined grave covered with a capstone; its size suggests the former presence of a contracted skeleton (but note that Alexander records that some of the bone fragments found in the grave showed signs of heat damage).



Other Beakers from Perth and Kinross: 1. Near Kincardine Castle (Clarke 1970); 2. Tillyochie (Clarke 1970); 3. Upper Muirhall (Reid et al 1986); 4. Tippermallo, Methven (Clarke 1970); 5. White Cairn, Glen Cochill (Stewart and Barclay 1997); 6. Balnaguard (Mercer and Midgley 1997)





W&A.F. Thoms, Edinburgh.

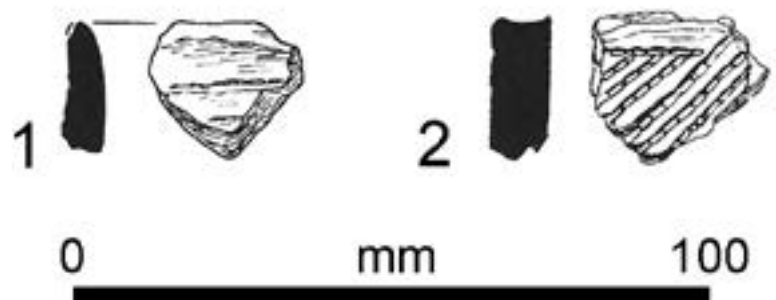
J. E. ALEXANDER, COLL. BELT

### OPENING OF THE FAIRY KNOWE, PENDRICH.

Other Beakers from Perth and Kinross: 1. Near Kincardine Castle (Clarke 1970); 2. Tillyochie (Clarke 1970); 3. Upper Muirhall (Reid et al 1986); 4. Tippermallo, Methven (Clarke 1970); 5. White Cairn, Glen Cochill (Stewart and Barclay 1997); 6. Balnaguard (Mercer and Midgley 1997)

Five other finds of Beaker pottery in Perth and Kinross are known. These include i) the small, single-entrance 'mini-henge' at Moncreiffe ([Moncreiffe House](#), MPK3163; Stewart 1985) and ii) a pit in a row outside the 'mini-henge' at [Belhie](#) (MPK1318; Ralston 1988). Further examples are iii) the Class II, two-entrance henge and the large Early Bronze Age barrow at [North Mains](#) (MPK1358; Barclay 1983); iv) a short cist at [Balmuick](#) (MPK288; Boston 1884); and v) [Brookfield House](#), Blackford, in a residual context (MPK17956; Johnson in O'Connell et al 2021, 26).

At Moncreiffe, a sherd with diagonal comb-impressed lines bounded by a horizontal line was found in the henge ditch fill, while sherds of what are probably a cord-impressed Beaker were found within the area enclosed by the henge ditch. Despite the sherds' small size and the incompleteness of the two vessels represented, it is possible that these Beakers date to the Late Chalcolithic or Early Bronze Age, possibly between 2300 BC and 2000 BC.



Beaker sherds from Moncreiffe: 1. Rimsherd with probable horizontal lines of twisted cord impressions; 2. Sherd with diagonal comb-impressed lines bounded by a horizontal comb-impressed line (Stewart 1985)

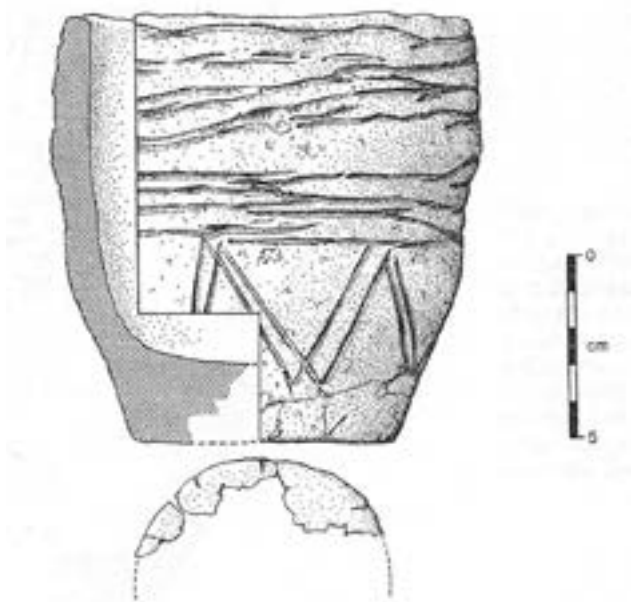
If the cord-impressed Beaker has All-Over-Cord decoration, this need not necessarily mean that it dates to the Early Chalcolithic. As Needham (2005) and Sheridan (2007a) have shown, the currency of



this decorative scheme extended into the late third millennium BC (eg at Eweford, East Lothian).

As for the Beaker sherds found at Belhie, no details have yet been published and their relationship with the ‘mini-henge’ (which was artefactually sterile, Ian Ralston pers comm) is one of proximity – they were in a pit row outside the ‘mini-henge’ – rather than close association.

The Beaker pottery associated with funerary and associated ‘ritual’ activity at [North Mains](#) henge (MPK1359; Barclay [1983](#), figs 28.6,9,10; fig 30) and with the massive [round barrow at North Mains](#) (Barclay [1983](#), 217; MPK1358) can be attributed confidently to the Early Bronze Age. One complete Beaker of late style was found in a cist (‘Burial F’), accompanying a deposit of cremated human remains, inside the henge. Sherds of similar Beakers were associated with ‘domestic/ritual’, but much more likely to be ritual than domestic, activity elsewhere in the henge, and a single, possibly residual, Beaker sherd was found near the top of the Early Bronze Age barrow. A fragment of the calcined human bone from ‘Burial F’ produced a radiocarbon date, for National Museums Scotland’s radiocarbon dating programme, of 2191–1947 cal BC (at 95.4%; 3670±35 BP, GrA-24863), confirming its Early Bronze Age date.



Late-style Early Bronze Age Beaker from North Mains henge (Barclay 1983)

At [Balmuick](#) (MPK288; Boston [1884](#)), sherds of what is likely to have been a Beaker decorated with cord impressions were found in a short cist under a round cairn. A nearby cist was contained a handled vessel that has been described by some as a handled Beaker, and by others as a handled Food Vessel. It

will be dealt with in the Early Bronze Age section.

At [Brookfield House](#), Blackford, a fine, thin Beaker rimsherd decorated with two rows of closely-spaced impressions, made by a reed or bird bone, and with two horizontal grooves below, was found in a residual context in Middle Bronze Age Structure 3C (MPK17956; Johnson in O’Connell et al [2021](#), 26). It is unclear where, in the typochronology of Scottish Beaker pottery, this sherd belongs.

Overall, Beakers of any kind are considerably rarer in Perth and Kinross than in north-east and south-east Scotland as seen on the distribution map below.

#### 4.3.1.2 Ceremonial Monuments

The construction of ceremonial monuments not explicitly associated with funerary practices – even though some commemoration of the dead may well have been involved in the rituals undertaken there – during the Chalcolithic period is attested in Perth and Kinross, in the form of henge monuments.

Brophy and Noble’s recent excavations at [Forteviot](#) (Brophy and Noble [2020](#); see also Brophy and Noble 2012) have revealed that two Class I, single-entrance henges (Henges 1 and 2) were constructed during this period, within a landscape already marked by important Middle and Late Neolithic monuments. [Henge 1](#) (MPK1888; Brophy and Noble [2020](#), chapter 4) is a single-entrance henge with a wide, deep ditch and with ephemeral traces of an external bank. A timber circle some 45m in diameter, associated with two radiocarbon dates calibrating to 2620–2475 cal BC (Brophy and Noble [2020](#), 135), had decayed before the henge was constructed. It has been suggested that the henge bank may have been built on the remains of the circle, with some posts possibly even projecting through the bank (Brophy and Noble [2020](#), 136 and fig 4.34). Modelling of the radiocarbon dates associated with Henge 1 has concluded that it was probably constructed 2460–2230 cal BC (95% probability: Hamilton with Brophy [2020](#)). This dating is consistent with the early, Continental-style Beakers found in the ditch and in posthole fills.

[Henge 2](#) (MPK1885; Brophy and Noble [2020](#), Chapter 6) also has a wide ditch (1.7m wide), around 29m in diameter at its outer edge; no trace of a bank was found, however. Within the area enclosed by the ditch, eight large oak posts had stood, which were erected before the ditch was dug. These do not seem to have been arranged into a circle, though. The radiocarbon dating evidence for two of these posts suggests that they were not all erected at the same time, with one dating to 2885–2675 BC and the other to 2475–2310 BC (Brophy and Noble [2020](#), 217). Dating of a fragment of willow charcoal from the

lower part of the henge ditch fill suggests that the henge ditch was created around or just before 2496–2299 BC (Brophy and Noble [2020](#), 223), possibly around the same time as the later of the two dated posts was erected. This date also accords with the style of the six Continental-style Beaker pots whose sherds were found in the ditch fill and in the upper fill of two other postholes.

Both of the Forteviot henges were subsequently reused and modified during the Early Bronze Age (and later).

The question of how many (if any) other henges were constructed during the Chalcolithic period in Perth and Kinross remains one of the outstanding research challenges. It is known that some henges were constructed during the Early Bronze Age. This is demonstrated by the evidence from [North Mains](#) (MPK1358; MPK1359) and elsewhere in Scotland such as [Broomend of Crichtie](#), Aberdeenshire (Barclay [1983](#)) and the [Balfarg](#) henge in Fife (Gibson [2010](#)) as well as more widely in Britain (Cummings [2019](#)). Sometimes they enclosed earlier, Late Neolithic timber or stone circles.



Artist's reconstruction of henges and other monuments at Forteviot (Brophy and Noble 2020, fig 4.34)



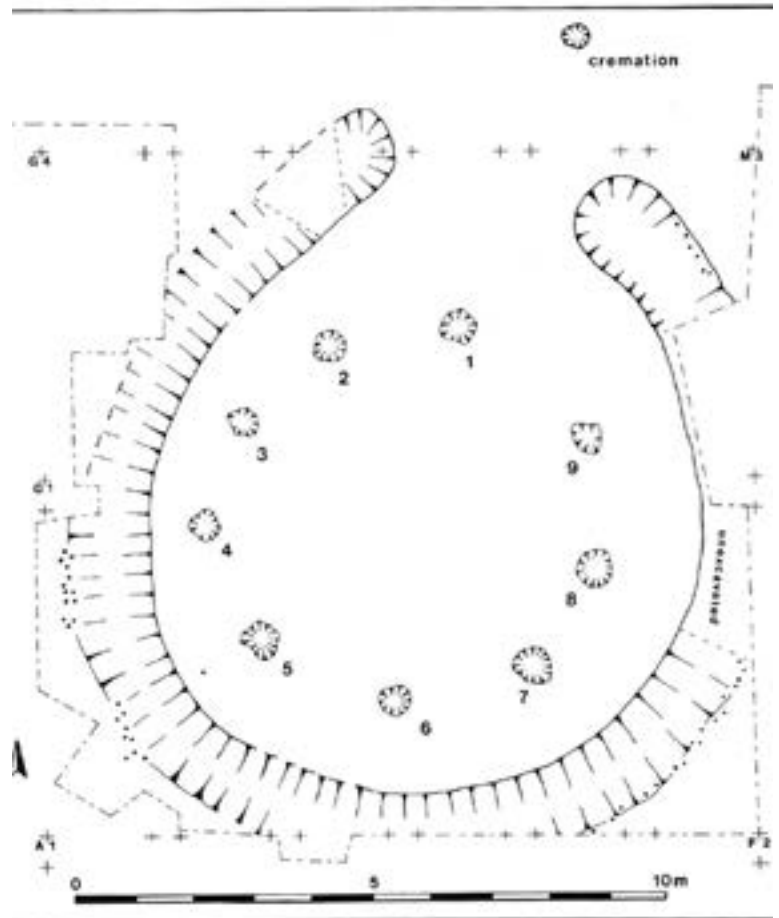
Moreover, Bradley's excavations of small 'hengeshengiform monuments' at [Pullyhour](#), Highland (Bradley 2011) and the [Hill of Tuach](#), Aberdeenshire (Bradley and Nimura 2016) have revealed that small 'hengiform' monuments were built during the Middle and Late Bronze Ages respectively. Indeed, Gibson argued in his review of the chronology of 'henge' and 'hengiform' monuments that the term 'henge' has outlived its usefulness, given the long period of time over which superficially similar-looking penannular bank-and-ditch monuments were constructed (Gibson 2012). He therefore proposed that the term be retired. Barclay has also called for the abandonment of both terms 'henge' and 'hengiform' (Barclay 2005). Despite Gibson's and Barclay's reasoned objections, the terms have remained in widespread use; they will be used with all due caution here.

It is impossible to tell whether the small, single-entrance henge at [Moncreiffe House](#) with its Beaker pottery was constructed during the Chalcolithic, as opposed to the Early Bronze Age (MPK3163). This monument, which had a long history of subsequent use and modification, consisted in its first phase of an oval penannular ditch, around 12 x 13m in extent, with an exterior bank (of which only traces survived), and a timber circle within the enclosed area. Sherds of a Beaker with probable twisted cord-impressed horizontal lines were found within the enclosed area, while a [sherd of another Beaker](#) with diagonal comb-impressed lines bounded by a horizontal line was discovered in the ditch fill. These Beakers are likely to post-date those from Forteviot henges 1 and 2. If the cord-impressed vessel is of All-Over-Cord type, then that need not imply that it is of Early Chalcolithic date, since the currency of this style of decoration extends into the Early Bronze Age. It is impossible to say whether the Moncreiffe Beakers date to the Late Chalcolithic or to the Early Bronze Age, although they pre-dated 2000 BC.

The discussion of the date of Moncreiffe is relevant to the dating of several other similar-looking, single entrance monuments – termed by Millican and others 'mini-henges' – in Strathearn (Brophy and Noble 2020, Chapter 4.6). One such 'mini-henge' is located just 12m to the south of Forteviot Henge 1, and is surrounded by a timber circle 12m in diameter. Other examples are at [Leadketty](#) (MPK1956), [Millhaugh](#) (MPK2024), [Belhie](#) (MPK1318) and [Bennybeg](#) (MPK751), and all except the cropmark site at Bennybeg have been excavated.

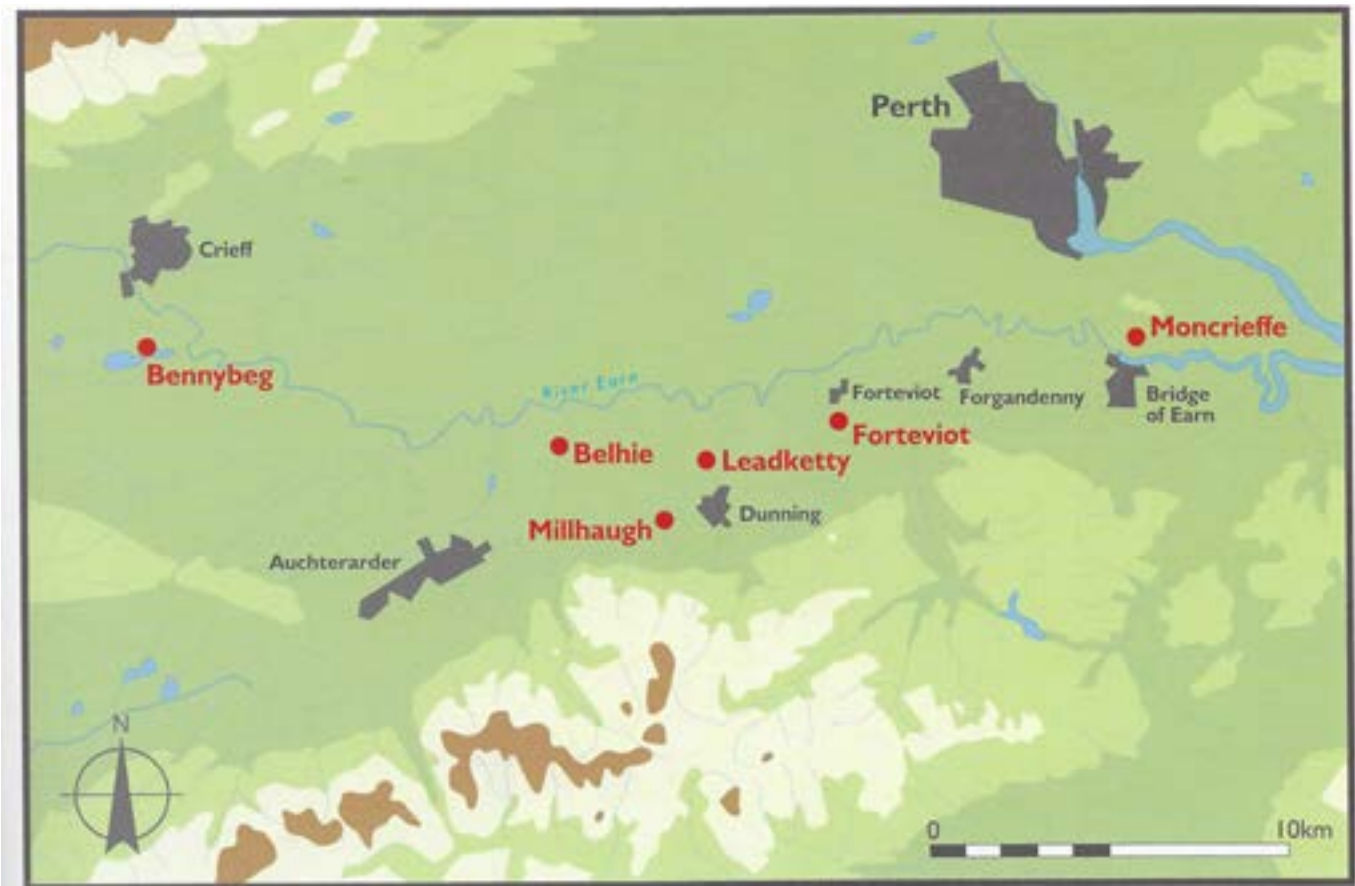
As argued by Brophy and Noble, with Millican (2020, Chapter 4.6), the Forteviot 'mini-henge' is highly likely to have post-dated the larger Henge 1 nearby, respecting its location. It is unfortunate that the only radiocarbon date obtained for this

monument relates to residual charcoal of seventh-millennium date (Brophy and Noble 2020, 151). The Leadketty monument had a single massive posthole in its interior, and charred oak from this produced a date of 2351–2196 cal BC (SUERC-65637, 3824±30 BP: Brophy and Noble 2020, 155 and see Wright and Brophy forthcoming), which is reasonably interpreted as a *terminus post quem* for the creation of the ditch. No artefacts or datable material were found at Millhaugh (Brophy and Noble 2020, 155).



Plan of the small, single-entrance henge at Moncreiffe (Stewart 1985)

While the style of the Beaker pottery from Belhie remains to be identified, it is unlikely to post-date the 19th century BC. One outstanding research question, therefore, is to narrow down the date range for 'mini-henges' in Perth and Kinross, if possible. Apropos their distribution, Ford (2017, 131–2) has commented that they are located along the River Earn or its tributaries, in rich agricultural land; she has suggested that their locations indicate the spiritual and logistical importance of the river to the builders and users of these monuments.



Distribution of single-entrance ‘mini-henges’ in Strathearn (Brophy and Noble 2020)

It is unclear whether any other type of non-funerary monument apart from henges, possibly including the aforementioned ‘mini-henges’, was constructed in Perth and Kinross during the Chalcolithic period.

#### 4.3.1.3 Settlement

Across Scotland, there is relatively limited evidence for settlement that can be directly dated to the Chalcolithic period. In Perth and Kinross there is currently no securely dated evidence that can inform us about settlement practices.

#### 4.3.1.4 Material Culture: Metalwork

Whilst there are sources of copper ore in Perth and Kinross, there is no evidence for their prehistoric exploitation. The very earliest metalwork would have been imported, either as raw material or as objects that were recycled and turned into insular forms. The earliest known metalwork is concentrated around historic Kinross-shire. A flat axehead, believed to be of copper and possibly typologically early (Buchanan 1980; O’Connor 2004, 205), was found at [Bishop Hill](#) (MPK3027) near Portmoak. Three copper halberds were discovered: one from [Portmoak Moss](#) (MPK11652) and two from [Backside of Aldie](#) (MPK5580).

The halberds date to the Late Chalcolithic or beginning of the Early Bronze Age (around 2300–2100 BC; Needham et al 2015). One of the Backside of Aldie halberds is possibly an early type (Pistell Dewy), occurring between 2300–2200 BC (Needham et al 2015, Appendix 2). The distribution of the three halberds is important as they conform to other halberd discoveries from along the Firth of Forth, particularly in south-west Fife (eg one from [Falkland](#)).



Portmoak halberd

Based on compositional analysis, it is likely that throughout the Chalcolithic and the beginning of the Early Bronze Age, the copper ore was imported from the mine at Ross Island in County Kerry, south-west Ireland (Needham 2004). The compositional



data for the Backside of Aldie halberds presents a more complicated picture. One was produced from 'A-metal', characteristic of Ross Island and consistent with other Scottish halberds such as one from a hoard of six found at Largizean, Argyll and Bute (Sheridan [2013](#)). In contrast, the other one is made from 'BB-metal' (Bell Beaker) which indicates a Continental origin (see data in Needham et al [2015](#), Appendix 2.) The known evidence therefore suggests that the prehistoric communities of Perth and Kinross had access to metal originating in Ireland and the Continent.

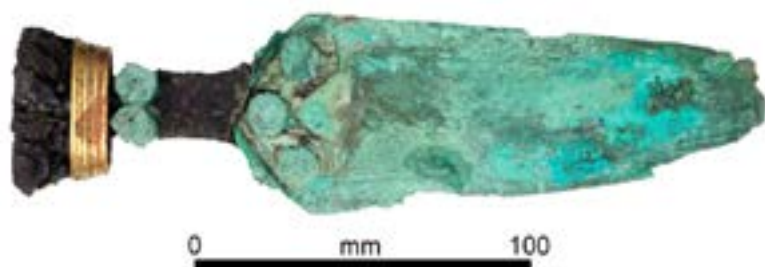
The proximity of these findspots to the Forth estuary is indicative of how rivers and waterways served as transport routes for the movement of people and metal in and out of the region. It also highlights a potential geographically induced divide between the prehistoric communities of Perth and Kinross living south of the Ochils in Kinross-shire and those to the north. The southern communities looked towards the Firth of Forth and maintained closer associations with other communities along its shores, while those north of the Ochils utilised the River Tay and its estuary as their main conduit (see Needham [2004](#) for comparative work on metal flow pathways).

#### 4.3.2 Early Bronze Age

The beginning of the Early Bronze Age is marked and defined in Perth and Kinross, as elsewhere in Britain, by the appearance of artefacts made of bronze – an alloy of copper and tin – during the 22nd century BC. There are two main consequences of the appearance of bronze. Firstly, it was a novel medium that was used to express wealth, status and power, since bronze, like copper before it, will have been precious and not necessarily in large supply. Secondly, anyone who was able to control the flow of bronze, and/or its constituent materials, into and around Perth and Kinross was afforded the possibility of enhancing their power and authority.

It may be, then, that the other changes that are witnessed between the 22nd century and the 20th century BC relate, at least in part, to this introduction of a new metal. What we see during these centuries is a diversification of funerary practices and material culture, but above all a series of expressions of conspicuous consumption. This is demonstrated by the creation of new, ostentatious monuments such as the enormous funerary mounds at [Sketewan](#) (MPK5380; Mercer and Midgley [1997](#)) and [North Mains](#) (MPK1358) and the Class II, two-entrance [henge at North Mains](#) (MPK1359; Barclay [1983](#)). It is also seen in symbols of power, buried as the grave goods of important individuals. The latter are exemplified by the dagger found in an imposing cist grave set inside [Forteviot Henge](#)

[1](#) (MPK1888), with its bronze blade, gold pommel-mount and hide scabbard. It is also represented by the jewellery of jet and jet-like materials found in graves at [Easter Essendy](#) (MPK5487; Thoms [1980](#)), [Abercairny](#) (MPK1519; Rideout et al [1987](#)), and [Almondbank](#) (MPK2064; Stewart and Barclay [1997](#), 24–33) and [Craigiehall](#) (Callander [1926](#), 261). The reuse of ancient monuments and sacred material (in the form of by-then ancient rock art) at this time constitutes an appropriation of ancient locales and symbols as part of the Early Bronze Age power play. The fertility of lowland Perth and Kinross (Cowie and Shepherd [2003](#), 153) will no doubt have contributed to the flourishing of a society in which unequal power was expressed through monuments, funerary practices and symbols of power. This, rather than control over the flow of metal, may have been the actual basis for wealth and power. Perth and Kinross was indeed a wealthy region during the Early Bronze Age.



The Forteviot dagger © Andy Holland

Developments after about 2000 BC are most clearly seen in the evolution of various styles of ceramic cinerary urn, and the appearance of novel artefact types including bronze razors. Evidence for habitation structures appears towards the end of the Early Bronze Age.

Although lost through later land use in lowland areas, Early Bronze Age agricultural activity is extensively evidenced in the uplands where field systems and clearance cairns demonstrate a well-managed and productive landscape supporting a mixed subsistence economy (Cowie and Shepherd [2003](#), 162–5). There is also evidence for tillage under both the massive barrow and henge bank at North Mains, with the former suggesting the use of a spade or hoe (Barclay [1983](#), eg 273). Although a much earlier, Neolithic, date for this cultivation activity is a clear possibility, given the presence of Neolithic sherds in the contexts in question.

A summary of the palaeoenvironmental evidence for the Early Bronze Age is found in section 4.4.5. Suffice it to note here that Tipping has observed, apropos a study of the Carn Dubh area in the Perth and Kinross uplands, that the first substantial evidence for forest

clearance since the beginning of the Neolithic in that area appears to have occurred around 2050 BC (Tipping [1995](#)). He suggested that an intensification of grazing, albeit without evidence for permanent settlement in the area, is the reason for this. Whether this in turn relates to population expansion or to some other factor remains to be established, however.

#### 4.3.2.1 Funerary Practices

In contrast to the relatively few Chalcolithic graves in this part of Scotland, the funerary record for the Early Bronze Age is more substantial and varied, and some clear patterns and trends in funerary practice can be seen.

The Middle to Late Chalcolithic practice of individual interment in a short-stone cist, with the body laid on its side in a contracted position, continued down to the 19th century BC, if not later. From the 22nd century BC, however, the following changes in funerary practice can be discerned:

##### 1. Interment in both cemeteries and graves

While no demonstrably Chalcolithic example of a cemetery has yet been found in Perth and Kinross, there are several Early Bronze Age examples of graves grouped together in cemeteries. These are either in 'flat', ie unrounded, cemeteries such as at [Almondbank](#) (MPK2064; Stewart and Barclay [1997](#), 24–33) or under round mounds such as at [Beech Hill House](#), near Coupar Angus (MPK5042; Stevenson [1995](#)) and in the massive, final-stage monument at [Sketewan](#) (MPK5380; Mercer and Midgley [1997](#)). There are also examples of apparently isolated graves, as at [Abercairny](#) (MPK1519; Rideout et al [1987](#)). The Almondbank 'flat' cemetery, overlooking Methven Loch, comprised 11 short-stone cists; unburnt human remains, in varying degrees of incompleteness, were found in at least six of them and had probably been present in all 11.

Other Early Bronze Age 'flat' cemeteries containing cist graves in the region include [Loanleven](#) (MPK2114), less than half a kilometre to the west-south-west of Almondbank, and established within a pre-existing ring-ditch (Russell-White et al [1992](#)). Other examples are [Gairneybank](#), near Loch Leven (MPK5639; Cowie and Ritchie [1991](#)) and [Westhaugh of Tulliemet](#), in Strathtay (MPK1654; Stewart and Barclay [1997](#), 34–41). A 'flat' cemetery including cist graves was also found at [North Mains](#) (MPK1359; Barclay [1983](#)). Here, part of the cemetery lay under the Class II (double-entrance) henge monument (Barclay [1983](#), fig 3). Calcined bone from 'burial A', a cist underlying the henge bank, produced a radiocarbon date, for the National Museums Scotland's radiocarbon

dating programme, of 2196–1920 cal BC (at 95.4% probability [GrA-24007]; 3665±45 BP). This provides a *terminus post quem* for the construction of the henge.

##### 2. Round Barrows and Cairns

Round barrows or cairns of varying sizes, including massive examples, with some kerbed, and some not, started to be constructed to cover individual graves or groups of graves. Round barrows or cairns covering individual graves include [White Cairn](#), Glen Cochill (MPK1593; Stewart and Barclay [1997](#)) [Beech Hill House](#), near Coupar Angus features a group of graves (MPK5042; Stevenson [1995](#)). Often such mounds were situated in prominent locations in the landscape, such as the [Fairy Knowe](#) at Pendriech, near Bridge of Allan (Alexander [1868](#)). It is assumed that they were designed to draw attention to, and monumentalise, the individuals buried underneath.

The massive and imposing mounds at Sketewan (MPK5380; Mercer and Midgley [1997](#)) and [North Mains](#) (MPK1358; Barclay [1983](#)) have diameters of 20m and 40m respectively and heights of 1.3m and 5.5m (Barclay [1983](#), 189). Each have a complex sequence of construction that includes a phase when the mound was ring-shaped, before the central area was filled in to form a solid mound. It may be that the builders of these ring-mounds were aware of the Clava ring-cairns in and around Inverness (Bradley [2000](#)); the relative chronology of these monuments is consistent with such a possibility.

The kerbed ring-cairn at Sketewan, some 19.5m in diameter, enclosed and partly covered a cemetery of seven polygonal cists in which the cremated remains of at least 21 individuals were buried. It was set around the remains of a funerary pyre on which some of the individuals are likely to have been cremated (Mercer and Midgley [1997](#)). A massive rectangular short cist (cist 1), probably housing an unburnt body and containing a Food Vessel, plano-convex flint knife and large amounts of meadowsweet, was then added to the centre of the area enclosed by the ring-cairn (Mercer and Midgley [1997](#), 295–7, phases VII and VIII). It was covered by a cairn of its own, before both it and the ring-cairn were subsumed in the final-stage, large cairn. Subsequent funerary activity included the construction of three ring-groove palisades outside the massive cairn, each enclosing a deposit of cremated human remains.

Full details of the sequence, and of the associated radiocarbon dates, are presented in the report (Mercer and Midgley [1997](#)). At North Mains, a *terminus post quem* for the construction of the barrow is provided by sherds of a Food Vessel (Barclay [1983](#), 217). Further Food Vessels from

graves cut into the barrow provide *termini ante quos*, thereby placing the barrow's period of construction between the 22nd and the 20th centuries BC.



Huntingtower Bronze Age barrow © Perth and Kinross Heritage Trust

### 3. Food Vessels

Food Vessels started to replace Beakers as the vessel of choice to be deposited in cists alongside unburnt bodies. However, Beakers also continued to be used as grave goods for several generations after Food Vessels appeared (as, for example, at [North Mains Burial F](#): MPK1359; Barclay [1983](#)). Food Vessels and Beakers would have contained sustenance for the deceased's journey into the Afterlife. Pollen analysis of organic residue inside one of the North Mains Food Vessels suggested the former presence of a cereal-based ale, perhaps flavoured with meadowsweet (Bohncke in Barclay [1983](#), 178–80). However, it should be noted that not all cists or other graves with unburnt human remains contain a pot.

### 4. Cremation

Cremation started to be used as a funerary rite, then gained in popularity so that by the 19th century BC it seems to have been the dominant rite.

The use of associated pottery also changed, from an accompaniment to the cremated remains such as at North Mains Burial F to a cinerary urn. These were used to contain the remains. Examples include the large cemetery at [Kilmagadwood](#) (MPK18535; MPK3013; Sheridan et al [2018a](#)); [Shanwell](#) (MPK1816; Anderson [1885](#)) which like Kilmagadwood, was close to Loch Leven; [Haugh of Grandtully](#) (MPK6035; Simpson and Coles [1990](#)). Cremated remains were deposited in various ways:

- unaccompanied, in a pit dug to receive a standing stone on top of the Neolithic round barrow at [Pitnacree](#) (MPK1714); calcined bone dated to 2340–1960 cal BC

(at 95.4% probability [GrA-21744]; 3740±60 BP; Sheridan [2010a](#), 44–7). Note that the association of this grave with a prominent mound makes it more likely that the interment took place during the Early Bronze Age, rather than the Chalcolithic period;

- unaccompanied, in a short-stone cist – as in the 'triple cist' that was probably an addition to a pre-existing Chalcolithic monument, consisting of concentric segmented ring-ditches, at [Forteviot](#) (MPK1888; Brophy and Noble [2020](#), 252–6). A fragment of calcined human bone from the southernmost compartment of the cist has been dated to 2030–1885 cal BC (at 95.4% probability [SUERC-45557]; 3600±29 BP; Brophy and Noble [2020](#), 256);
- accompanying a late Beaker or Food Vessel in a short-stone cist, such as, for example, at North Mains Burial F, with a late-style Beaker (Barclay [1983](#)), or at Westhaugh of Tulliemet cist 2, with a Food Vessel (Stewart and Barclay [1997](#), 35); at Forteviot Henge 2, the cremated remains were accompanied by a Food Vessel in a stone-lined pit
- inside a cinerary urn, buried in a simple pit or a stone-lined polygonal cist, as at Kilmagadwood, for example (Sheridan et al [2018a](#));
- unaccompanied, in a simple pit, as in Deposit 115 in the Kilmagadwood cemetery (Sheridan et al [2018a](#), 5).

Graves with cremated remains can be found individually, as at Pitnacree, but are more often found in cemeteries, either flat or mounded. In some cases, such as the Forteviot double-ditched monument and the Moncreiffe 'mini-henge' ([Moncreiffe House](#); MPK3163; Stewart [1985](#)), such graves were added to pre-existing monuments. The large 'flat' cemetery at Kilmagadwood (Sheridan et al [2018a](#)) is one of the biggest in Scotland; it is only smaller than [Southfield](#) in Fife. It contained 23 urned deposits of cremated human remains, plus three deposits of pyre debris, which also included cremated human remains. Overall, at least 29 individuals are represented. Its span of use is bracketed by the radiocarbon dates for a Vase Urn (Encrusted Urn) found in 1946 (2028–1889 cal BC at 95.4% probability [SUERC-79487]; 3600±26 BP) and for a Bipartite Urn (Urn 18), discovered during Hall's excavation in 2013 (1737–1542 cal BC at 95.4% probability [SUERC-76278]; 3357±24 BP).





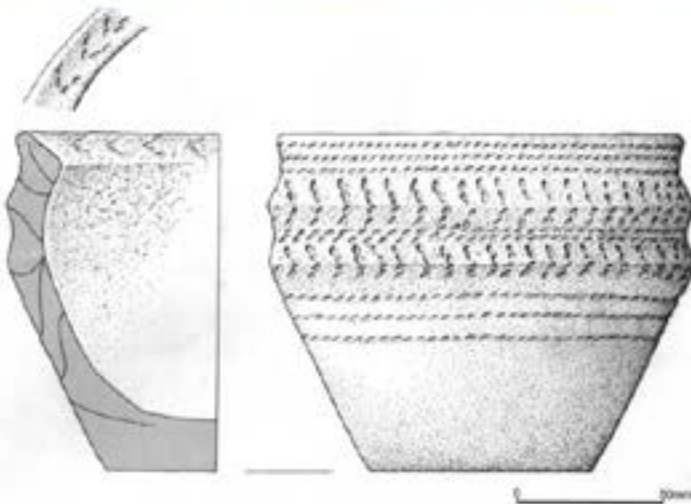
## 6. Graves associated with Standing Stones

Some Early Bronze Age graves were marked by, or otherwise associated with, standing stones. This is the case, for example, at Pitnacree where a deposit of cremated human remains dating to 2340–1960 BC was buried in the pit dug to take a standing stone, on top of the pre-existing Neolithic round barrow (Sheridan [2010a](#), 44–7). Elsewhere, at North Mains, a large, and presumably ancient by the time of its deployment, cupmarked slab was found at the summit of the massive Early Bronze Age round barrow covering graves. It may well originally have stood upright, although 19th century disturbance to the mound made it impossible to judge whether this was the case (Barclay [1983](#), 199). At [Balnaguard](#) (MPK1705), just 100m from the massive mound at Sketewan, a cist containing a Food Vessel was discovered around 1887 near a single standing stone (Mercer and Midgley [1997](#), 285–6). In 1969 a further cist, containing a long-necked Beaker, was found 12m from the stone and was excavated by Stewart (Mercer and Midgley [1997](#), 287–8). Further excavations by Stewart around the stone uncovered cremated remains, pyre debris and the rimsherd of a possible Food Vessel, along with two prostrate stones that may have formed a three-stone alignment with the standing stone.

## 7. Social Differentiation in funerary practices

Variability in the size of Early Bronze Age cists, of covering mounds and of grave goods (as well as in the location of graves) suggests that social differentiation was marked in funerary practices, particularly between the 22nd and 20th centuries BC. Moreover, for the first time, high status appears to be signalled for certain females. It may be that social differentiation had already existed during the Chalcolithic, with only a minority of the community accorded funerary rites that are visible archaeologically. This may well be the case, for example, with the probably male occupant of the Early Chalcolithic, Continental-style grave at [Newmill](#) (MPK2317). Nevertheless, the marked variability in the Early Bronze Age funerary record – particularly for the period between the 22nd and 20th centuries BC – indicates that funerary practices were very much the arena for underlining individuals' status and power at that time.

This is most clearly shown in the 'dagger-grave' cist at Forteviot Henge 1. The location of the grave shows the appropriation, and change in use, of a pre-existing sacred monument (Brophy and Noble [2020](#), chapter 5; see also Younger [2016](#)). Here, at some time between 2285–2090 cal BC, it appears that the vegetation in the interior of the henge was burnt (Brophy and Noble [2020](#), 188). The burnt turves were cut and placed into the henge ditch, in preparation



Forteviot Henge 2 Top: photo of stone-lined pit with funerary deposit (Brophy and Noble 2020, fig 6.20); bottom: drawing of the Food Vessel © Marion O'Neil

## 5. Log Coffins

A new and prestigious type of funerary structure, the log-coffin, is attested at Dumglow, Cleish (Abercromby [1905](#)). This log-coffin, made from a hollowed-out oak trunk – one of nearly 70 Early Bronze Age log-coffins found in Britain (Parker Pearson et al [2013](#)) – was found under a cairn on the summit of [Dumglow](#) (MPK5596), in a prominent location. The remains of the coffin, which is part of the National Museums Scotland collections (NMS X.EQ 519), have been radiocarbon dated to 2197–1961 cal BC (at 95.4% probability; SUERC-49755 [3688±33 BP]; Sheridan et al [2013](#)). Even allowing for an 'old wood' effect, this places the coffin firmly within the Early Bronze Age, and it is likely that it had contained the unburnt body of an individual.



for the construction of a large stone cist with a massive, four-tonne capstone in the henge interior. The pit dug to receive the cist cut part of the ditch of the henge. This cist was constructed to house the unburnt body of an individual, who is almost certain to have been male, judging by the grave goods. They were accorded a special status in society, given the significant amount of labour and resources involved in the cist's construction and the wealth of the grave goods. The underside of the capstone was adorned with an unusual design that is likely to have been pecked when the cist was constructed. Careful excavation and painstaking forensic examination of the cist and its contents has enabled a remarkably detailed account of this high-status grave to be produced. The floor of the cist was partly cobbled with river pebbles, leaving a 'halo' for the head, and plant material may have been strewn on the floor. The deceased was deposited in the cist, on the left side and with the limbs contracted, resting on a bier or mat of woven birch bark, with the head possibly resting on a 'pillow' of heather and meadowsweet. The body was probably wrapped in an animal hide. The grave goods consisted of a deliberately broken and bent bronze-bladed dagger, with whale-tooth pommel, gold pommel-mount, cattle horn hilt and sheath probably of calf skin, which was placed on the chest with the tip facing towards the chest. Behind the head a bronze-bladed knife, a net bag containing fire-making equipment, and a wooden bowl were deposited. A second wooden bowl found beside a small heap of sand in the stomach area may have been used to scoop the sand into the grave as the body started to decompose, releasing bodily fluids. Plentiful meadowsweet was placed into the grave, and the body was probably covered with birch-bark matting. Then the massive capstone was lowered over the cist, and covered over by a round cairn that overlapped the henge ditch as well as occupying part of the interior of the by-now transformed henge. Henge 2 at Forteviot was also restructured during the Early Bronze Age, probably when it, too, was appropriated for funerary use around 2000 BC (Brophy and Noble [2020](#), 219–223; 232).

Much still needs to be done to improve our understanding of Early Bronze Age funerary practices and traditions. A comprehensive round-up of the available information, including radiocarbon dates, needs to be undertaken, along with further radiocarbon dating – especially of the remains from Kilmagadwood cemetery – to refine our chronological picture (cf Sheridan [2007b](#); Stevenson [1999](#)). Far too few human remains from this part of Scotland have been subjected to aDNA or isotopic analysis; just one individual, from [Doune](#) (now in Stirling), has so far been analysed for aDNA (Olalde et al [2018](#); Sheridan et al [2018b](#)). Only one individual, from Gairneybank

cist 3 (Cowie and Ritchie [1991](#)) has been subjected to dietary carbon and nitrogen isotope analysis and to strontium, oxygen and sulphur isotope analysis, as part of the *Beaker People Project* (Jay et al [2019](#)). The young male from Doune, in common with other Early Bronze Age and Chalcolithic individuals from Scotland and other parts of Britain, was found to have Continental steppe ancestry. This is a genetic signature associated with a 92% genetic turnover in the population of Britain between 2500 BC and 1500 BC, the mechanisms of which continue to be discussed (eg by Booth [2019](#) and Booth et al [2021](#)). This does not mean that the boy from Doune was a Continental immigrant, however; just that his ancestors, several generations back, had been. The Gairneybank individual – an adult, possibly male, dated to 2140–1920 cal BC (OxA-V-2168-43; Parker Pearson et al [2019](#), table 2.1) – was interestingly found to be an immigrant to Perth and Kinross, probably from the Antrim Plateau in Northern Ireland (Jay et al [2019](#), 397). The *Beaker People Project* identified two other immigrants to Scotland from the Antrim Plateau: a Late Chalcolithic or Early Bronze Age man from Culduthel near Inverness and Late Chalcolithic man or woman from Kinaldie, Aberdeenshire (Parker Pearson et al [2019](#), 448). The Gairneybank person's link with Ireland resonates with the fact that one of the Food Vessels found at Beech Hill House, Coupar Angus, was of Irish Bowl type (MacSween in Stevenson [1995](#), illus 11). Ireland was, of course, the source of the copper used in the Early Bronze Age bronze artefacts in this part of Scotland. The carbon and nitrogen isotope results for the Gairneybank individual show that, as with other Early Bronze Age and Chalcolithic individuals, their diet was terrestrial, with no evidence for the consumption of fish. Clearly there is scope for finding out a lot more about the diet and mobility patterns of Perth and Kinross's Early Bronze Age inhabitants.

#### 4.3.2.2 Grave Goods

The [Forteviot](#) dagger-grave – one of 28 such graves in Scotland (Baker et al [2004](#), table 4; Brophy and Noble [2020](#), 191) – remains the richest-appointed Early Bronze Age grave in Perth and Kinross, and one of the richest in Scotland. It may well be the grave of a local leader, whose body was carried ceremoniously to its prestigious resting place. It is not the only high-status grave from the 2200–2000/1950 BC period, however. The Dumglow log-coffin would have underlined the importance of its occupant, for example, and there are other cists with rare, socially-valued grave goods, as follows:

Findspot; MOK and Canmore ID	Grave goods	Human remains	Comment; date cal BC at 95.4% probability	Key refer- ences
<a href="#">Drumlanrick</a> (formerly in Perthshire)	bronze-bladed flat dagger	No info	Found 1870	Ander- son <a href="#">1878</a> , 456; Hen- shall <a href="#">1968</a> ; Baker et al <a href="#">2003</a> , table 4
<a href="#">Glenallan Cottages</a> , Doune Road, Keir	bronze-bladed flat dagger	Unburnt, no details	Found before 1878; one of four short cists in a gravel mound	Croall <a href="#">1879</a> ; Baker et al <a href="#">2003</a> , table 4
<a href="#">Gairney- bank</a> , cist 1 (MPK5639)	bronze knife/ knife-dagger; unusual small Food Vessel,	Unburnt, adult, sex not de- terminable	Cist in small 'flat' cemetery on a low gravel ridge. Bone: 3470±80 BP (GU-1118, 2019– 1544) but most likely to date to 20th or 19th century BC on archaeological grounds	Cowie and Ritchie <a href="#">1991</a> ; Baker et al <a href="#">2003</a> , table 4
<a href="#">Letham Quarry</a> , Tibbermuir (MPK2169)	bronze knife/ knife-dagger	Poorly-preserved inhumed remains	cist capstone is a reused slab of cupmarked rock	Coles <a href="#">1897</a> ; Baker et al <a href="#">2003</a> , table 4
<a href="#">Beech Hill House</a> , Coupar Angus, cist 1 (MPK5042)	bone pom- mel of a (probably bronze) knife/ knife-dagger	Two deposits of cremated human remains, one a young male adult and the other, a sub-adult of indeterminate sex. Metal staining suggests that the knife/knife-dagger had been associated with that individual.	sub-rectangular cist. A frag- ment of calcined bone dated to 3665±45 BP (GrA-19426: 2197–1924)	Steven- son <a href="#">1995</a> ; Baker et al <a href="#">2003</a> , table 4
Near Craigie- hall '(Perth- shire?)'; (No MPK/Can- more entry)	V-perforated 'pulley' belt ring of cancell coal, plus a V-perforated button of wood (which perished)	Unburnt remains: bones 'were in a state of perfect powder' but, by analogy with sexed individuals associated with pulley belt rings else- where had probably been a man.	Old discovery (1805); Some doubt as to whether Craigie- hall is actually in Perthshire	Calland- er <a href="#">1926</a> , 261
<a href="#">Abercairny</a> (MPK1519)	parts of a jet spacer-plate necklace and flint knife	Unburnt remains of a mature adult female (tentative sex ID)	Cist set into a natural knoll	Rideout et al <a href="#">1987</a>
<a href="#">Easter Es- sandy</a> cist 1 (MPK5487)	jet spac- er-plate neck- lace; lugged Vase Food Vessel	Artefacts associated with the cremated remains of one of two adults of indeterminate sex	Both individuals were ra- diocarbon dated, as part of the NMS radiocarbon dating programme: 3710±35 BP (GrA-32131, 2204–1979) and 3630±35 BP (GrA-32133, 2133–1892)	Thoms <a href="#">1980</a> ; Sheri- dan <a href="#">2006</a> , 205

Findspot; MOK and Canmore ID	Grave goods	Human remains	Comment; date cal BC at 95.4% probability	Key references
<a href="#">Almondbank</a> , cist VII (MPK2064)	Disc-and-fu-siform bead necklace of jet and cannel coal; two flint flakes	unburnt remains of an adult (unsexed)	Bone: 3517±50 BP (SRR-591, 2014–1693); most likely to be 20th or 19th century	Stewart and Barclay <a href="#">1997</a> , 24–33
<a href="#">Almondbank</a> , cist IX (MPK2064)	Disc-and-fu-siform bead necklace of jet and cannel coal; fine flint knife	None present in cist; assumed to have been unburnt body		Stewart and Barclay <a href="#">1997</a> , 24–33
<a href="#">Doune</a> (formerly in Perthshire, now Stirling)	Miniature stone battle-axehead and two Food Vessels, on small, one normal-sized	Unburnt remains of child, 5–9, sex ID'd (through aDNA) as male	Bone: 3400±35 BP (SU-ERC-2869, 1872–1547)	Hamilton <a href="#">1957</a> ; McLaren 2004; Olalde et al 2018; Sheridan et al 2018b
<a href="#">Glenhead</a> , Doune (formerly in Perthshire, now Stirling)	Miniature stone macehead and Food Vessel	Unburnt remains of female 15–21	Attempts to date the bone frustrated by contamination from consolidant	Anderson <a href="#">1883</a> ; Koon and McCulloch <a href="#">2003</a> ; McLaren <a href="#">2004</a>
<a href="#">Williamston</a> , St Martins (MPK3676)	Ribbed bronze bangle/armlet	Unburnt remains		Callander <a href="#">1919</a>

Cists, probably all dating to between 2200 BC and 1900/1800 BC, containing artefacts that could be described as high-status grave goods

These Early Bronze Age assemblages stand out from their 2200–1900/1800 BC contemporaries. Usually, the only grave good present is a pot (unless perished organic artefacts had been present) or one or two flint artefacts, and often no artefacts have been found in Early Bronze Age graves. The association of high-status grave goods – a miniature battle-axehead and a miniature macehead, respectively – with a child and a teenager or young adult at Doune suggests that high status was ascribed, rather than or as well as achieved, in Early Bronze Age society.



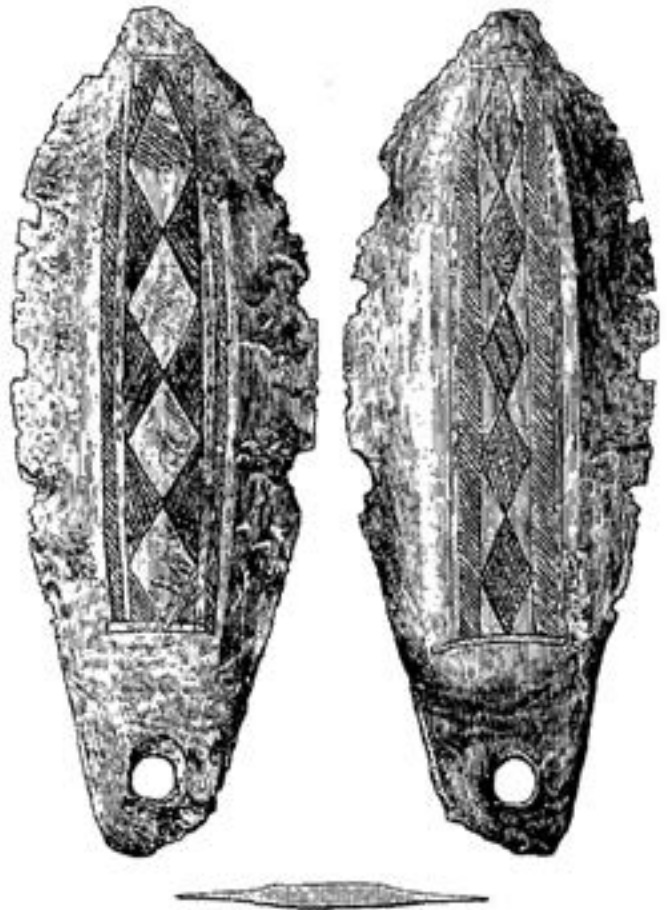
The miniature battle-axehead and small Food Vessel from child's grave at Doune (McLaren 2004) © Marion O'Neil

There are two cases in Perth and Kinross where pig bones representing joints of pork have been found in Early Bronze Age cists, as a food offering for the deceased on their journey to the Afterlife. These are from [Gairneybank](#) cist 3 (MPK5639; Cowie and Ritchie 1991) and [Muirhall Farm](#) (Stewart and Barclay 1997, 43–4). Also present in the Muirhall Farm cist were a fine flint knife and, intriguingly (given the inland location of the site) spines of a sea urchin, which may have been deposited as an amulet.

When cremation became the norm, around the 19th century BC, there are fewer expressions of social differentiation in grave form or grave goods. The most common objects found with deposits of calcined bone (other than cinerary urns or accessory vessels) are burnt bone pins and toggles, probably used to fasten a funerary garment or shroud.

The items that were, exceptionally, deposited along with cremated remains between 1900 BC and 1600/1500 BC include bronze razors, flint barbed-and-tanged arrowheads, bronze awls and beads of faience and bone. Table 4.2 lists some of these, but does not claim to be exhaustive. While bone beads may appear to be relatively humble objects, the fact that they are not more commonly encountered may mean that they, like the other artefacts, were used as a form of social differentiation, perhaps with an implication of special status. At Kilmagadwood,

the association of some of these grave goods with children suggests that, just as earlier in the Early Bronze Age, status was ascribed, rather than (or as well as) achieved.



Engraving of decorated tanged razor from Shanwell (Anderson 1885)



Findspot and Canmore ID	Grave goods	Context; associated pottery? Burnt bone pin or toggle present?	ID of calcined bones; date cal BC at 95.4% probability; comment	Reference
<a href="#">Kilmagadwood</a> , Urn 12 (MPK18535)	Two fragments of one or two burnt bone beads; copper staining on human bone (from former presence of small metal artefact, probably bronze)	In inverted Collared Urn, in pit; no pin or toggle	Adult, possibly male, and juvenile, 6–10 years, indeterminate sex	Sheridan et al <a href="#">2018a</a>
<a href="#">Kilmagadwood</a> , Urn 8 (MPK18535)	Fragment of burnt, 'corrugated' antler object of indeterminate form and function, plus metal staining on human bone and burnt bone and horn core fragment of young sheep – possibly a food offering	In inverted Collared Urn, in pit; no pin or toggle	Child, 3–6 years, indeterminate sex	Sheridan et al <a href="#">2018a</a>
<a href="#">Kilmagadwood</a> , Urn 3 (MPK18535)	two fragments of one or two tubular sheet bronze bead/s (Fig [36])	In inverted Cordoned Urn, in pit; no pin or toggle	Young adult female	Sheridan et al <a href="#">2018a</a>
<a href="#">Kilmagadwood</a> , Urn 15 (MPK18535)	Bronze tanged razor, burnt; burnt sheep bone fragments	In inverted Cordoned Urn, in pit; no pin or toggle	Adult, possibly male	Sheridan et al <a href="#">2018a</a>
<a href="#">Kilmagadwood</a> , Urn 20 (MPK18535)	Bronze tanged razor and bronze awl, both burnt	In inverted Cordoned Urn, in pit; no pin or toggle	Adult, possibly female; infant around 18 months	Sheridan et al <a href="#">2018a</a>
<a href="#">Kilmagadwood</a> , Urn 18 (MPK18535)	Burnt segmented faience bead	In Bipartite Urn	Sub-adult, 7–9 years, indeterminate sex	Sheridan et al <a href="#">2018a</a>
<a href="#">Broich Road</a> , Crieff, pit 043 (MPK18471)	Bronze tanged razor, unburnt	In Cordoned Urn, inverted, in pit. No pin or toggle	Mature adult male 3352±30 BP (SU-ERC-46244, 1740–1530)	Sheridan <a href="#">2014a</a>
<a href="#">Broich Road</a> , Crieff, pit 003 (MPK18471)	Bronze tanged razor, decorated, unburnt	Un-urned deposit in pit. No pin or toggle	3400±27 BP (SU-ERC-46237, 1760–1620)	Sheridan <a href="#">2014a</a>

Findspot and Canmore ID	Grave goods	Context; associated pottery? Burnt bone pin or toggle present?	ID of calcined bones; date cal BC at 95.4% probability; comment	Reference
<a href="#">Broich Road</a> , Crieff, pit 031 (MPK18471)	Bronze tanged razor, unburnt, deposited in a sheath	Un-urned deposit in pit. No pin or toggle	3293±28 BP (SU-ERC-46239, 1640–1490)	Sheridan <a href="#">2014a</a>
<a href="#">Broich Road</a> , Crieff, pit 10 (MPK18471)	Set of seven fine flint barbed-and-tanged arrowheads, unburnt	Human remains probably deposited in a bag, in a pit. No pin or toggle		Clarke <a href="#">2013</a>
<a href="#">Broich Road</a> , Crieff, oval deposit <18> (MPK18471)	Burnt bone bead, oblate	Oval deposit of cremated remains, not in pit. No pin or toggle		Sheridan <a href="#">2014b</a>
<a href="#">Shanwell</a> (MPK1816)	Tanged bronze razor, decorated, unburnt	From deposit of calcined human bones in a pit in a small cemetery that also contained deposits in Cordoned Urns. No pin or toggle		Anderson <a href="#">1885</a>
<a href="#">Haugh of Grandtully</a> , pit 1 (MPK6035)	Fine leaf-shaped, bifacially-flaked flint point, burnt	In inverted Collared Urn in a pit. Heat-affected (but not calcined) bone pin present	Remains of three sub-adults, 5–12. Date of 3220±100 BP obtained in 1980s, but is from Gakusan laboratory and is suspect. Material dated is not specified	Simpson and Coles <a href="#">1990</a>
<a href="#">Haugh of Grandtully</a> , pit 33 (MPK6035)	Set of five flint barbed-and-tanged arrowheads, burnt	Un-urned deposit in pit, its upper part stone-lined	Adult, 'possibly female' (but would need to be re-assessed osteologically, as arrowheads are normally a male association)	Simpson and Coles <a href="#">1990</a>

Examples of artefacts (other than cinerary urns, accessory vessels, burnt pins and toggles of bone or antler and flint flakes) found with deposits of cremated human remains dating to between 1900 BC and 1500 BC in Perth and Kinross. For more details, see Sheridan et al [2018a](#)

### 4.3.2.3 Ceremonial Monuments

In addition to monuments that were expressly constructed for funerary purposes, Perth and Kinross has a number of earthen, timber and stone monuments. These include henges, timber circles, stone circles, single standing stones and other stone settings – notably ‘Four-Poster’ settings, at least one stone row and several paired stones – with distinctive clusters evident. In Glen Shee, for example, there is a particularly dense concentration of six stone circles of various forms within four miles of each other. However, disentangling which monuments were constructed during the Early Bronze Age, and which were constructed before and after that period, is a challenge. This is made harder by the fact that some monuments have long and complex use-lives, with various remodellings and re-uses, including for funerary purposes – eg at [Forteviot](#) (MPK1888; Brophy and Noble [2020](#)) and [Moncreiffe](#) (MPK3163; Stewart [1985](#)).

Radiocarbon dating, including the National Museums Scotland’s dating programme whose results are reported annually in *Discovery and Excavation in Scotland*, has helped to provide some clues. Bradley’s reassessment and re-excavation of the multi-period monument at [Croftmoraig](#), east of Loch Tay, has clarified not only the complex sequence of that site, but also the chronology of stone circle construction in this part of Scotland more generally (MPK363; Bradley and Sheridan [2005](#); Bradley and Nimura [2016](#), chapter 4). One of Bradley’s key conclusions is that small, oval stone ‘circles’, orientated south-west, less than 10m in their greatest diameter, and with no more than eight stones (cf Burl [2000](#), 243–51), are likely to be of Middle Bronze Age date in this part of Scotland. The Croftmoraig example dates to 1410–1220 BC. These will therefore be discussed in the Middle Bronze Age section along with the stone row at Sketewan, on the grounds that two short-stone rows in the west of Scotland have been dated to the Middle to Late Bronze Age. The date of the region’s paired stones is unknown, but these, too, will be considered in the Middle Bronze Age section.

‘Four-Poster’ settings, which are numerous in this part of Scotland, will be covered in the Late Bronze Age section. The recent excavation by Ellis and Ritchie ([2018](#)) at [Na Clachan Aoraidh](#) (MGK1245), above Loch Tummel, and the dating of cremated human bone from Simpson’s excavation at [Fortingall North West](#) (MPK8) point to a Late Bronze Age date for this class of monument. This in spite of finds of earlier material, such as Early Bronze Age types of cinerary urn, at other ‘Four-Posters’: [Lundin Farm](#), Aberfeldy (MPK1108; Stewart [1966](#)); [Carse Farm 1](#) (MPK1036; Stewart and Barclay [1997](#)) and [Kynballoch](#), Glenballoch Farm (MPK3726; Cowie [1978](#); Burl [1988](#),

[177–8](#)). The arguments for an Early vs Late Bronze Age construction date of this kind of monument will be set out in the Late Bronze Age section.

The following is a summary of Early Bronze Age monuments:

#### Single-Entrance Mini Henges

As noted in the Chalcolithic section of this chapter, single-entrance ‘*mini-henges*’, such as the first-phase structure at [Moncreiffe House](#) (MPK3163; Stewart [1985](#)), with its internal timber circle, are associated with the later part of the currency of Beaker pottery. They are either of Late Chalcolithic or Early Bronze Age date, probably within the 2300–2000 BC span. Examples of this type of site are listed in the Chalcolithic section.

#### Oval Double-Entrance Henges

Oval, double-entrance **Class II henges** are likely to have been constructed during the Early Bronze Age. The example at [North Mains](#) (MPK1359; Barclay [1983](#)) has a *terminus post quem* date of 2196–1920 cal BC (at 95.4% probability; GrA-24007 [3665±45 BP]) from calcined bone in a cist (‘burial A’) located under the bank of the henge. A similar date was obtained for a sub-bank context at the similar henge at [Broomend of Crichtie](#), Aberdeenshire (Bradley [2011](#)). Further Early Bronze Age funerary activity provides *termini ante quos* for the construction of the North Mains henge (Barclay [1983](#), 133ff). The complex of ceremonial monuments at [Forteviot](#) includes two unexcavated Class II henges, Henges 3 and 4 (MPK1886; MPK19205; Brophy and Noble [2020](#), fig 2.5). The distribution of other examples in Perth and Kinross as well as elsewhere in Scotland, is shown in Fig 25. The question of how such monuments were used has been discussed elsewhere (eg Barclay [1983](#); [2005](#); Bradley [2011](#)), so will not be repeated here.

#### Timber Circles

At least one **timber circle** may well have been erected during the Early Bronze Age: this is the one inside the ‘mini-henge’ at Moncreiffe ([Moncreiffe House](#); Stewart [1985](#)). Unlike the Late Neolithic timber circle that preceded the construction of Henge 1 at Forteviot – discussed in the Chalcolithic part of this chapter – the Moncreiffe circle appears to be integral to the design of the ‘mini-henge’. As discussed in the Chalcolithic section of this chapter, this monument is associated with the use of Beaker pottery, and it is currently impossible to tell whether it dates to the Late Chalcolithic or the Early Bronze Age, but a date bracket of 2300–2000 BC seems likely. It remains to be seen whether any other timber circles in Perth and Kinross (as listed by Millican [2007](#)) were constructed

around the same time, or during the Early Bronze Age more generally. As opposed to timber circles built in the Late or Middle/Late Neolithic, such as at [Haughs of Pittentian](#) (MPK18545; Becket [2014](#); Becket et al [forthcoming](#)) and [Carsie Mains](#) (MPK6980; Brophy and Barclay [2004](#)).

### Single Standing Stones

As for **single standing stones**, the evidence from [Pitnacree](#) (MPK1714) indicates that at least one such stone was erected during the Early Bronze Age, or Late Chalcolithic. There, cremated human remains dating to 2340–1960 cal BC (GrA-21744, 3740±60 BP at 95.4% probability) were deposited in the pit of a standing stone on the summit of an Early Neolithic round barrow. The slab bearing by-then ancient cupmarks that probably stood erect at the summit of the massive round barrow at [North Mains](#) (MPK1358; Barclay [1983](#), 199) is highly likely to have been erected during the Early Bronze Age – or, at least, the creation of the barrow in that era provides a *terminus post quem* for its erection. The evidence from elsewhere is more equivocal. At [Balnaguard](#) (MPK1705), the proximity of cists and other funerary deposits to a standing stone that may actually have been part of a row does not prove that the stone/s was/were erected during the Early Bronze Age. One of the outstanding research questions is: how many single standing stones were erected in this part of Scotland during the Early Bronze Age?

### Stone Circles

Regarding stone circles, Bradley's re-evaluation of [Croftmoraig](#) (MPK363) concluded that the 11–12m wide circle of nine stones that formed the outermost stone setting was probably erected around or shortly before 2000 BC. This stone setting included a 'porch' facing south-east, close to two possible grave pits. It was the earliest monumental structure at the site (Bradley and Nimura [2016](#), 118). The stones are graded in size, being taller towards the south and south-west, and those taller stones are also of a stone type that glitters in the sunlight. A gradation of stone heights which emphasised the south-west was also noted for the kerb of the ring-cairn at [Sketewan](#) (MPK5380; Bradley and Nimura [2016](#), 118). Moreover, the natural mound upon which the circle was erected had been shaped so that it was highest at the south and south-west (Bradley and Nimura [2016](#), 150). This emphasis on the south and south-west is shared with the recumbent stone circles of north-east Scotland (Bradley [2005](#); Welfare [2011](#)) and the Clava Cairns around Inverness (Bradley [2000](#)). These are monument types that were constructed during the Late Chalcolithic or Early Bronze Age, probably between 2300 BC and 2000 BC, and which may well have been contemporary with

the first stone circle at Croftmoraig. This orientation indicates an interest in the position of the midwinter setting sun as it travelled down the side of a nearby hill (Bradley and Nimura [2016](#), 146). Scott has also noted that this also marks the position of the setting full moon near its southern standstill position (Sheridan [2021](#)). A further orientation for the circle, indicated by the outlying stones forming the 'porch', is that towards the north-west, where the midsummer sun sets into the side of Schiehallion, a prominent mountain in the distance.

As for how many of the other stone circles in Perth and Kinross are likely to be of Early Bronze Age date, this remains to be established by excavation. The grading of stone heights towards the south and south-west is a feature shared with the Middle Bronze Age oval setting at Croftmoraig.

### Rock Art

A further key outstanding research question is the issue of whether any cupmarks, or indeed cup-and-ring marks, may have been created here during this period, as opposed to during the Late Neolithic. Both the Neolithic chapter and the Scotland's Rock Art Project website provide information on the chronology of Scottish rock art in Perth and Kinross and elsewhere in Scotland (ScARF Neolithic section; [Scotland's Rock Art Project](#)). Elsewhere, Bradley has reasonably argued that cupmarks may have been added to Clava Cairns (Bradley [2000](#)) and recumbent stone circles (Bradley [2005](#)) during the Late Chalcolithic or Early Bronze Age. In a recent study of the rock art site at [Urlar](#) (MPK1011), Bradley has argued that the depth of the cupmarks there point towards an Early Bronze Age date, although there is no corroborative dating evidence at that site (Bradley and Watson [2019](#)). Currently, the only firm candidate for any kind of 'rock art' dating to the Early Bronze Age in Perth and Kinross is the unusual, and non-cupmarked, design on the underside of the Forteviot 'dagger-grave' cist capstone. This has nothing to do with the Atlantic rock art repertoire of cup- and cup-and-ring marks etc. One other potential candidate for Early Bronze Age 'rock art' is the apparent 'ring with handle' design found alongside cup-and-ring motifs on a cist slab at [Loanleven](#) (MPK2114; Russell-White et al [1992](#), illus 10). It is reasonable to suggest that the slab represents the reuse of an ancient piece of Atlantic cup-and-ring rock art (Russell-White et al [1992](#), 304). However, the 'ring with handle' design does not sit comfortably within that tradition and nor does it sit comfortably within the Irish passage tomb art repertoire, despite the excavators' claims (Russell-White et al [1992](#), 311). It may be that that particular design was added when the slab was inserted into the cist. Human remains from that cist have been radiocarbon dated to 2140–1783 cal BC



(GU-2543 [3620±50 BP]; Russell-White et al [1992](#), 304).

#### 4.3.2.4 Settlement

Settlement evidence pre-2000 BC is currently lacking from Perth and Kinross. Recent excavations beyond the region's boundaries would suggest that settlement activity in the early second millennium BC could well exist among Perth and Kinross's rich upland record of hut circles, as documented in its aerial photography record (RCAHMS [1990](#); [1994](#)). In Clackmannanshire at [Meadowend Farm](#), an Early Bronze Age ring-groove roundhouse was excavated, which dates to 2115–1880 BC with associated pits that were subsequently succeeded by four Early-Middle Bronze Age roundhouses around 1750–1300 BC (Jones et al [2018](#)). Other examples include the Early Bronze Age dated roundhouses excavated at [Auchrennie](#) in Angus (Cameron et al [2007](#), 48–57) and [Kintore](#), Aberdeenshire (Cook and Dunbar [2008](#)).

#### 4.3.2.5 Material Culture

##### 4.3.2.5.1 Pottery

The Early Bronze Age saw a diversification and an evolution in the styles of pottery in use. Our evidence comes solely from funerary contexts, so we may not be seeing the full ceramic repertoire.



Distribution of Food Vessels in Scotland © Marta Innes (from Brophy and Noble 2020)

The use of Beaker pottery continued from the preceding Chalcolithic period, but a novelty that joined it, and far outnumbered Beaker pots, from the 22nd century BC was Food Vessel pottery (Sheridan [2004a](#); Innes [2020](#)). This tradition may well have originated outside Scotland – with Ireland and Yorkshire being the most likely areas of origin – and it was initially used in the same way as Beaker pottery. In other words, Food Vessels containing some form of sustenance for the deceased's journey into the Afterlife were placed in graves. The decision to use a Food Vessel, rather than a Beaker, may have related to the desire to identify with the fashionable new style. It was perhaps also intended to underline connections with Ireland – as shown, for example, by the Irish Bowl Food Vessel from cist 3 at [Beech Hill House](#), Coupar Angus (Stevenson [1995](#)) – or Yorkshire, eg the 1891 find at [Westhaugh of Tulliemet](#) (Stewart and Barclay [1997](#)). The latest Beakers show design influence from Food Vessels; indeed, a vessel such as SF 20 from the henge at [North Mains](#) (Barclay [1983](#), fig 30b) could be described as a Beaker/Food Vessel hybrid pot.

Most Food Vessels in Perth and Kinross are variants on a vase shape, usually bipartite (eg [Almond-bank](#) cist XI (MPK2064) or tripartite, eg Westhaugh of Tulliemet 1891 find, [Gairneybank](#) cist 2 (MPK5639); Westhaugh of Tulliemet cist 1. Bowl Food Vessels are much rarer; in addition to the Beech Hill House example, a simple bowl was found in Westhaugh of Tulliemet cist 2, and an unusual, small, squat bowl with perforated lugs for suspension was found in cist 1 at Gairneybank. One very rare type of Food Vessel, or Food Vessel/Beaker hybrid, – one of only five such vessels found in Scotland – is the handled pot from a short cist at [Balmuick](#) (MPK288; Boston [1884](#)).

This has variously been described as a handled Beaker (Manby [2004](#)) and a handled Food Vessel (Clarke [1970](#), 245) but is perhaps best described as a handled Food Vessel/Beaker hybrid. The wider distribution of handled vessels, and their comparative frequency in Yorkshire and other parts of east England down to East Anglia, has been discussed by Manby ([2004](#), fig 72). One comparable example from [Balfarg henge](#) – a handled Beaker – has been radiocarbon dated (from associated unburnt bone) to 2127–1829 BC (OxA-13215, 3605±37 BP; Sheridan [2004b](#)), placing it firmly within the Early Bronze Age. It may well be that the Balmuick vessel is broadly contemporary.

A rare example of where the dispersed products of an individual potter could be identified was discovered at North Mains, where Cowie noted a marked similarity between a bipartite Vase Food Vessel from henge burial B and another, found 36km away at [Cowdenhill](#), Bo'ness, West Lothian (Cowie [1983](#), 255).

While most Food Vessels have been found with unburnt human remains, or in graves where the former presence of such remains can be deduced, some have accompanied cremated remains, such as at Westhaugh of Tulliemet cist 2 (Stewart and Barclay 1997). From the 21st or 20th century BC, cinerary urns in the Food Vessel tradition – formerly called ‘Food Vessel Urns’ (Cowie 1978), now called Vase Urns, with an Encrusted variant – began to be used. With these, the cremated remains were buried inside these large pots. An Encrusted Urn from [Kilmagadwood](#) that was found in 1946 (MPK3013; **Fig 18**) has recently been dated, from a fragment of calcined human bone, to 2028–1889 BC (SUERC-79487, 3600±26 BP: Sheridan et al 2018a). Other Vase Urns from Perth and Kinross are from the recent excavations at [Kilmagadwood](#) (MPK18535; Sheridan et al 2018a); [Mawmill](#) (MPK5583; Encrusted type; Cowie 1978, 125); [Muir of Blairgowrie](#) (MPK3918; found with an Accessory Vessel: Cowie 1978, 131); [Cal-lum’s Hill](#), Crieff (MPK860; Cowie 1978, 131); [Doune](#) (Cowie 1978, 131); [Glenballoch](#) (Kynballoch) Farm (MPK3726; Cowie 1978, 132; of Encrusted type); [Woodhead of Garvock](#) (Cowie 1978, 132) and [North Mains](#) henge (Cowie 1983, 161, fig 32b). Radiocarbon dating of Vase Urns from Perth and Kinross and elsewhere in Scotland (Sheridan 2007b) indicates a currency between the 21st and 19th century BC for this style of cinerary urn, indicating that it was in contemporary use with late Beakers and with non-cinerary urn Food Vessels.

Collared Urns joined the repertoire of cinerary urns, possibly as early as the 20th or 19th century BC, to judge from the date of 2132–1749 BC (GrA-21743, 3580±60 BP) obtained from a fragment of calcined human bone from [Haugh of Grandtully](#) (MPK6035; Sheridan 2007b, fig 14.1). The *floruit* of this style of urn in Scotland, and indeed throughout its distribution, appears to fall within the period 1900–1600 BC (Sheridan 2007b). This style of urn may have emerged in England – quite possibly Yorkshire – and its distribution in Scotland is markedly thinner than in Yorkshire and parts of eastern and south-east England (Longworth 1984, fig 42). Examples from Perth and Kinross are listed in the table below.

Findspot	Reference
<a href="#">Kilmagadwood</a> (MPK18535): Urns 1, 7, 8, 10–13 and 16	Sheridan et al 2018a
<a href="#">Haugh of Grandtully</a> (MPK6035): pits 1 and 16	Simpson and Coles 1990
<a href="#">Lundin Farm</a> (MPK1108)	Stewart 1966; Longworth 1984, no 1986
<a href="#">Inchtuthil</a> , Caputh (MPK3643)	Longworth 1984, no 1988
Mont Alt Farm, <a href="#">Path of Condie</a> , Forgandenny	Longworth 1984, no 1992
<a href="#">Easter Gellybank Farm</a> (MPK5211)	Longworth 1984, no 1995
<a href="#">Sketewan</a> (MPK5380), cremations F89 and F90	Mercer and Midgley 1997
<a href="#">North Mains Henge</a> (MPK1359), burial H	Cowie 1983, fig 31
<a href="#">Carse Farm 1</a> (MPK25651)	Stewart and Barclay 1997

Findspots of Collared Urns in Perth and Kinross (Note: this does not claim to be exhaustive). Examples of Collared Urns, from 1. [Kilmagadwood](#) (Sheridan et al 2018a) and 2. [Grandtully](#) (Simpson and Coles 1990)

The most informative findspot for this, and for other types of Early Bronze Age cinerary urn, is the cemetery at [Kilmagadwood](#) near Loch Leven (Sheridan et al 2018a). The stratigraphic and spatial relationships at this site allow the following sequence to be proposed:

- Vase Urn (including Encrusted Urn)
- Collared Urn
- Cordoned Urn
- Bipartite Urn
- (possibly) Bucket Urn.

The dating of this cemetery is currently ‘book-ended’ by the dates 2028–1889 BC for an Encrusted Urn and 1737–1542 BC for a Bipartite Urn associated with a segmented faience bead (Sheridan et al 2018a). However, many more radiocarbon dates are required to create a more detailed chronological narrative for this cemetery.

The sequence of cinerary urn types seen at Kilmagadwood accords with the overall picture for Scotland – and elsewhere in Britain and Ireland. The impression gained from the existing Scottish radiocarbon dates suggests some chronological overlap between the different styles (Sheridan [2007b](#)). The currency of Cordoned Urns – which appear to constitute a northern and western stylistic ‘evolution’ of Collared Urns – appears to extend from around 1900/1800 BC to 1600/1500 BC (Waddell [1995](#); Table 4). The connection between Cordoned and Collared Urns can be seen in the example from Moncreiffe.

Findspot	Reference
<a href="#">Moncreiffe</a> (MPK3163)	Stewart <a href="#">1985</a>
<a href="#">Kilmagadwood</a> (MPK18535): urns 2, 3, 9, 15, 20, 23	Sheridan et al <a href="#">2018a</a>
<a href="#">Broich Road</a> (MPK18471)	Savory <a href="#">2012</a>
<a href="#">Shanwell</a> (MPK1816)	Anderson <a href="#">1885</a>

Cordoned Urns in Perth and Kinross. Note: this does not claim to be exhaustive.

Bipartite Urns – a style of urn that has not hitherto received much attention – are likely to belong to the second quarter of the second millennium BC, to judge from the dated example from Kilmagadwood. The urn from North Mains henge that was hard to classify in 1983 (Cowie [1983](#)) can be described as a Bipartite Urn.

The possible Bucket Urns from Kilmagadwood belong to a style of cinerary urn whose currency mostly lies in the Middle to Late Bronze Age, as exemplified by the example dated to the Late Bronze Age from [Sandy Road](#), Scone (MPK3285; Sheridan [2007b](#), fig 14.6). This type of urn will be covered in the Late Bronze Age section of this chapter. They are all small and associated with child remains. Like a similar small, undecorated urn with bevelled rim found in Pit 24 at [Haugh of Grandtully](#) (MPK6035; Simpson and Coles [1990](#), illus 10, middle), it is unclear whether these should be regarded as early examples of Bucket Urns, or else as an unusual kind of Early Bronze Age urn used for some young people.

One other type of pottery has been found alongside Early Bronze Age cinerary urns: this is the accessory vessel, as found at [Muir \(Moor\) of Blairgowrie](#) alongside a Vase Urn (MPK3918; Cowie [1978](#), 131 and fig 3). These small pots would have performed a specific role within the cremation cemetery, and some, at least, may have been used as chafing vessels, used to transport burning embers for

lighting the pyre.

Accessory vessel from Muir of Blairgowrie (Cowie 1978)

Finally, there are other finds of cinerary urn from Perth and Kinross that may date to the Early Bronze Age, but sadly the urns are lost. This is the case, for example, with a cemetery at [Meet Hillock](#), Blairgowrie (MPK3732) and a single find at [Thorn Knowe](#), Easter Coldrain (MPK1840). Elsewhere, at [Brookfield House](#) (MPK17957), there is a vague reference to a ‘possible cinerary urn’, but no further details are available and the site remains unpublished.

#### 4.3.2.5.2 Metal Artefacts

By the Early Bronze Age, metalwork such as the Migdale-Marnoch axeheads was being produced in north-east Scotland (Cowie [1988](#); Needham [2004](#)). However, evidence for bronze artefact production in Perth and Kinross is minimal; it is confined to the mould from [Easter Clunie](#) on the Perth and Kinross-Fife border (Cowie and O’Connor [2009](#), 317–9). This part of Scotland lies on the fringes of north-east Scotland where numerous stone moulds for Early Bronze Age axeheads are known (Cowie [1988](#)). Perth and Kinross’s river valleys could have acted as routeways for metal coming in and out of this region, though historically relatively few deposits of metal objects have been encountered along them. Indeed, Stuart Needham’s observation that classic Migdale-type flat axeheads tend to occur north of the River Tay, and particularly in the east including Perth and Kinross, Angus, Fife and Aberdeenshire (Needham [2004](#), 222–3), raises the possibility that the River Tay played an important role as a natural boundary in the circulation of metalwork.

The range of bronze artefacts used during the Early Bronze Age in Perth and Kinross comprises flat axeheads, which were initially similar in shape to those made of copper that had been used during the Chalcolithic period, then evolving to early flanged forms. There are also daggers and knife-daggers (as listed in Table 1); one or two tubular sheet bronze beads like found in urn 3 at [Kilmagadwood](#) (MPK18535) A ribbed bangle or armlet was discovered at [Williamston](#) (MPK3676; Callander [1919](#)); while awls have been found at [Almondbank](#), [Beech Hill House](#) and Kilmagadwood; Razors are also listed in Table 2, one of which is depicted below, and an additional example comes found close to the Kilmagadwood cemetery (Sheridan et al [2018a](#), illus 5). Excepting the axeheads, all these types of artefact have been found in funerary contexts. As noted in the Chalcolithic section, it is possible that the copper halberds found at [Backside of Aldie](#) and in [Portmoak Moss](#) date to the earliest part of the Bronze Age,



although a Chalcolithic date is equally plausible or more likely. Whether the short-socketed spearhead from 'Perthshire' (Coles [1969](#), fig 34.4) belongs within the Early Bronze Age or the beginning of the Middle Bronze Age is also unknown. Coles' [1969](#) review of Scottish Early Bronze Age metal artefacts lists the objects known to be of that date (Coles [1969](#); Cowie and Reid [1986](#) for one update).

Fragments of one or more tubular sheet bronze bead from Kilmagadwood, urn 3 (Sheridan et al 2018a)

Bronze axeheads are the most common artefact type; Coles lists 25 examples from Perthshire and Kinross, and further examples have been found since then, including one discovered at [Kinnesswood](#) (MPK15631/MPK17664), not far from Loch Leven (Cowie and Hall [2009](#)). They have been found singly and in hoards, with the latter including the decorated axeheads from [Bunrannoch](#) near Kinloch Rannoch (Cowie [2004](#)). The latter, like some of the single axeheads, had been deposited in a significant location in the landscape; this conforms to wider practices across Scotland. Moreover, the location of the Bunrannoch hoard, between Loch Rannoch and Loch Tummel, may indicate an east-west route enabling communications and connections.

Hoard of decorated flat axeheads from Bunrannoch (Cowie 2004)

Of the daggers, the example from a large cist at [Forteviot](#) (MPK1888) is both the most elaborate and the most extensively researched, with a full description and discussion provided in Brophy and Noble ([2020](#), chapter 5). Among the many fascinating insights is Standish's finding that the gold used for the pommel-mount had most likely originated in Cornwall – the same area which was the source for gold to make lunulae. While the sparse and poorly-preserved human remains in the Forteviot cist could not be sexed, they are likely to have been male: elsewhere, where found in graves with well-sexed remains, daggers are consistently associated with males. Smaller knife-daggers, by contrast, can be found with both males and females; one such object was found in the Forteviot cist.

The tubular sheet bronze bead/s discovered at Kilmagadwood are a very rare type of artefact in Britain, whose only Scottish parallels come from a hoard at [Migdale](#), Highland. Likewise, the ribbed bronze bangle/armlet found at Williamston is a rare find within Britain. Awls are slightly less rare, and tend to be associated with females. As they are small, they corrode easily; it may be that the metal staining seen on some calcined human bones from the Kilmagadwood cemetery relates to their former presence.

The use of bronze razors may have started during the 18th century BC, continuing through the second quarter of the second millennium. Here, as elsewhere in Scotland, they are associated with Cordoned Urns and appear to be a male-associated artefact. There are very occasional exceptions, in Kilmagadwood urn 20, for example, the adult occupant was probably female.

#### 4.3.2.5.3 Stone

Most of the knowledge about Early Bronze Age artefacts of flint and other stone in Perth and Kinross comes from funerary contexts, although a thorough review of stray finds and lithic scatters would no doubt produce additional information. A *corpus* of all the funerary finds would also be useful; the examples mentioned below do not provide an exhaustive list.

The range of flaked lithic artefacts includes arrowheads and knives of flint. Most arrowheads are of the barbed-and-tanged type, such as the set of seven found in a grave at [Broich Road](#), Crieff (MPK18471; Clarke [2013](#)), or the set of five found at [Haugh of Grandtully](#) (MPK6035). However, one, found at [Beech Hill House](#) (MPK5042), is of a rare, hollow-based form. Like barbed-and-tanged arrowheads, hollow-based arrowheads were among the novelties that had been introduced from the Continent by Beaker users several centuries before the Early Bronze Age, but the tradition of making them persisted. While most Early Bronze Age arrowheads found in graves in Britain, where the sex of the deceased can be determined, are associated with males, the cremated remains associated with the set of five arrowheads at Haugh of Grandtully are thought to be those of a young adult female. Re-examination of the remains to check this identification is desirable.

Flint knives may be of simple form, as at [Muirhall Farm](#) (MPK3542; Stewart and Barclay [1997](#), illus14), but fine examples of plano-convex 'slug' knives are known from [Sketewan](#) (MPK5380), [Loanleven](#) (MPK2114; Russell-White et al [1992](#), fig 12) and [North Mains](#) barrow, burial B (MPK1358; Barclay [1983](#), fig 50). This last example was accompanied by a simpler form of knife. Where found accompanying cremated remains, the knives had passed through the funeral pyre.

At Haugh of Grandtully an unusual, large (86mm long), leaf-shaped, bifacially-retouched projectile head, possibly a spearhead, of flint was found in a Collared Urn, accompanying the remains of three children (**Fig 39.4**). It had passed through the funeral pyre.

Other Early Bronze Age flaked lithics from Perth and Kinross comprise simple flakes and blades of flint and

chips of chert; a half-moon flint scraper was found in cist VII at [Almondbank](#) (MPK2064; Stewart and Barclay [1997](#), illus 5).

The most remarkable Early Bronze Age stone artefacts are the miniature battle-axehead and miniature pestle-shaped macehead found in two short-stone cists in [Doune](#) (McLaren [2004](#); Hamilton [1957](#); Anderson [1883](#)). The battle-axehead (Table 1), made from quartz-rich sandstone, was associated with the remains of a male aged 5–9 and a small and a normal-sized Food Vessel. The remains have been dated to 1872–1547 cal BC (at 95.4% probability [SUERC-2869]; 3400±35 BP). The macehead, of veined quartzite, was found with the remains of a female aged 15–19 and a Food Vessel at Glenhead, [Doune](#). Both are exceptionally rare artefacts, and they would have been prestigious, signalling the special status of the young people with whom they were buried. The question of the origin of the sandstone and quartzite has not been resolved, and it would be useful to find out whether these artefacts had been imported from elsewhere or made locally.

As for other stone artefacts, it is not known whether any stone axeheads were still in use in this part of Scotland during the Early Bronze Age. Elsewhere in Scotland there is evidence suggesting an overlap period of several centuries between the use of stone and metal axeheads.

Items of chalcedony, agate and quartz were among the grave goods found in a short-stone cist (cist 1) at Beech Hill House, Coupar Angus. These may represent locally-available materials selected for their aesthetic properties, or in some cases possibly through a belief in their special powers. This may well be the case for the burnt dimpled pebble, probably of agate, and a shattered agate pebble (Stevenson [1995](#), illus 10), which could have been amulets. Flakes, a scraper and a chunk of chalcedony were found along with quartz flakes in that cist.

Regarding patterns of lithic resource exploitation, there is no evidence that the calc-silicate hornfels of [Creag na Caillich](#) were still being exploited during this period, or at all after the Late Neolithic. Some flint – such as the speckled flint used to make the small blade found in Almondbank cist IX (Stewart and Barclay [1997](#), illus 5) – could probably have been obtained from local drift or riverine deposits. However, it remains to be seen whether the good-quality flint used for the largest and finest flint artefacts – ie plano-convex knives and the leaf-shaped projectile mentioned above – had been imported from elsewhere, as seems likely. Unfortunately, the fact that several of these items had been burnt in the funeral pyre makes it hard to comment further on the possible provenance of the flint. The chert

chips found at Haugh of Grandtully (Simpson and Coles [1990](#), 43) could well have been obtained locally.

#### 4.3.2.5.4 Faience

Faience, a glass-like substance made by firing a paste of sand plus a copper-based colourant, was a novelty during the Early Bronze Age. The long and complicated story of how the technological know-how to make this material spread from an ultimate origin in the Middle East to Britain has been set out elsewhere (Sheridan and Shortland [2004](#)). Beads and pendants of faience would have been highly prestigious and rare possessions. Two have been found in Perth and Kinross. One, a segmented bead, was found in a Bipartite Urn in the [Kilmagadwood](#) cemetery (MPK18535), and was associated with the cremated remains of a child aged 7 to 9 years, the latter dated to 1737–1542 BC (SUERC-76278, 3357±24 BP; Sheridan et al [2018a](#)). The other, a star-shaped bead, was a stray find in [Blairdrummond Moss](#), under a considerable depth of peat (Callander [1906](#), 37–8; Beck and Stone [1936](#), 247).

1. Segmented faience bead from Kilmagadwood (Sheridan et al. 2018a); 2. Bone pommel for knife or knife-dagger from cist 1, Beech Hill House, Coupar Angus (Stevenson 1995)

#### 4.3.3 Middle Bronze Age

In contrast to the Early Bronze Age, human activity that can categorically be dated to the Middle Bronze Age (1600/1500–1150 BC) is limited in Perth and Kinross. This reflects the picture of this period more generally across central Scotland, and to a large extent is to a large extent is a result of the paucity of radiocarbon-dated sites and finds. This is a classic case of the absence of evidence not constituting evidence for absence. Useful dating evidence, pertaining both to stone circles and to roundhouses, has however been obtained from Bradley's re-excavation and re-interpretation of the complex, multi-phase monument at [Croftmoraig](#), east of Loch Tay (MPK363; Bradley and Sheridan [2005](#); Bradley and Nimura [2016](#)). The National Museums' Scotland radiocarbon dating programme has provided comparative dating evidence allowing the few kerb-cairns in Perth and Kinross to be attributed (at least provisionally) to the Middle Bronze Age.

An interest in orientating monuments on celestial phenomena such as midwinter solstice sunset or the position of the moon at its major standstill is evident from kerb-cairns and oval stone 'circles'. This awareness of the celestial is also clear from the re-use of ancient rock art, and possibly the creation of new rock art – chiefly cupmarks – and the deposition of quartz, a symbolically-significant material whose

triboluminescence would form a dramatic element in night-time ceremonies (Bradley [2005](#), 112; Jones et al [2011](#), 198).

As regards material culture, the pottery in use during this period belongs to what has loosely been called the 'Flat-rimmed ware/ Bucket Urn' tradition (as discussed in Bradley and Sheridan [2005](#) and Sheridan [2007b](#)). Metal artefacts are relatively sparse, especially in contrast to southern Britain where metalwork deposition is particularly well attested for the period around 1400–1100 BC.

### 4.3.3.1 Funerary Practices and Ceremonial Monuments

The only Middle Bronze Age funerary rite attested in Perth and Kinross is cremation. It may have been the dominant, or only, funerary practice during this period, although the paucity of evidence makes it impossible to corroborate such a statement.

By analogy with Argyll and Bute, where several examples have been dated to around 1400–1200 BC (Sheridan [2008b](#)), the few kerb-cairns found in Perth and Kinross are likely to date to the Middle Bronze Age. Although a Late Bronze Age/Early Iron Age example is known from [Sands of Forvie](#), Aberdeenshire (Bradley and Nimura [2016](#), 119). These should not be confused with Early Bronze Age cairns with kerbs, such as [Beech Hill House](#), Coupar Angus, which is incorrectly labelled as a 'kerb-cairn' by Canmore (MPK5042). The kerb-cairns are small, low, flat-topped drum-shaped cairns which are edged by a well-defined, continuous, boulder- or slab-built kerb. They are often associated with the deposition of quartz and cremated human remains. (Ritchie and MacLaren [1972](#); Lynch and Ritchie [1975](#)). The late Graham Ritchie memorably compared them to a dessert known as a 'Charlotte russe' (Lynch and Ritchie [1975](#), 30), although this culinary reference is increasingly unlikely to be understood nowadays. No definitive list of examples from this part of Scotland exists; in [1972](#), Ritchie and MacLaren declared 'It is too soon to offer a complete catalogue of this type of cairn in Perthshire' ([1972](#), 8). Now is the time to investigate the matter afresh – and to obtain dating evidence – so this needs to be identified as a research priority. The examples in the region known to the authors are those at [Monzie](#) (MPK848; Young and Mitchell [1939](#); Burl [2000](#), 247, 248, fig 28, plate 50; about 5.5m in kerb diameter); [Fowlis Wester](#) (MPK1514; *ibid.*, 247, fig 28); possibly [Machuim/Machuinn](#) (MPK206; Ritchie and MacLaren [1972](#), 8); [Ninewells](#) (MPK2414); and, perhaps less convincingly, two sites at Strath-head on [Tullybeagles Moor](#) (MPK5230). Burl described the Tullybeagles examples as 'dishevelled kerb-cairns', but they are as likely, or more likely, to be stone circles (Burl [2000](#), 246).

Excavation at Monzie kerb-cairn in 1938 (Young and Mitchell [1939](#)) revealed the presence, off-centre, of a small cist containing the cremated remains of an adult and child. These remains were reported on by Professor Waterston of St Andrews University; their current whereabouts are unknown, and they may have been discarded. Also present within the monument, and contemporary with the cist, were sherds of a Bucket Urn, found in a black, charcoal-rich layer that may consist of pyre debris. This black layer is distinct from a lower black layer that either relates to the burning of surface vegetation, or to the location of the cremation pyre. Further cremated remains were found outside the kerb-cairn. Considerable quantities of unrolled quartz were also present. One of the kerbstones has cupmarks linked by channels, and a short distance (3m) from the kerb-cairn to the south-west, and linked to it by a paved 'causeway', is a fallen, low, standing stone covered on one face with Atlantic rock art. Other rock art is known in the area, as recorded in the ScRAP database, and it may be that this decorated slab had been prised from a pre-existing, ancient rock art-marked outcrop. Whether the cupmarked and channelled kerbstone also constitutes a reuse of ancient rock art, or whether its design was added when the kerb was being constructed, is unclear, but the latter is possible. Burl has remarked ([2000](#), 248–9) that the kerb-cairn at Fowlis Wester shares many features in common with that at Monzie, since there is evidence for burning, cremated remains, plentiful quartz, a cupmarked stone in the kerb at its SSW point, and an outlying stone to the NNE, 11.3m away. A SSE–NNW alignment between the cupmarked kerbstone and the outlier at Fowlis Wester points downhill to the position of moonrise at the moon's northern standstill. At Monzie, the cupmarked kerbstone aligns E–W with the tallest of the kerbstones, and Burl implies that the SW alignment with the outlying decorated stone may have had a solar solstitial orientation (midwinter sunset). An interest in marking the movements of the celestial bodies seems to be associated with these monuments built for the dead.

As for the other types of monument constructed during the Middle Bronze Age in Perth and Kinross, Bradley's work on [Croftmoraig](#) (MPK363) concluded that the oval stone 'circle' – more aptly named 'oval setting' – in the centre of this multi-phase monument is of Middle Bronze Age date, dating to 1410–1220 BC (Bradley and Nimura [2016](#), 69–70, 118, fig 4.21b). This post-dates a timber roundhouse-like structure dating to 1370–1120 BC, which in turn post-dates a stone circle with outliers that was constructed around a remarkable erratic boulder, probably around 2000 BC. The oval setting, with its long axis to the SSW, is believed to be contemporary with a discontinuous perimeter wall and with the placing of a large slab



with cup-and-ring markings to the SSW of the oval setting, probably in a gap in the perimeter wall (Bradley and Nimura [2016](#), 150–1 and fig 4.21b). The slab with the Atlantic rock art could have been prised from a decorated outcrop in the area: in other words, the rock art could well have been over a millennium old when it was deployed in this way. The SSW orientation of the oval setting is further emphasised by the grading of the stones so that the tallest ones are at the SSW. Furthermore, the slab with Atlantic rock art is directly opposite Monolith 3 of the Early Bronze Age stone circle, which has cupmarks. These could conceivably have been added to the monolith during the Middle Bronze Age. It appears that the oval setting was orientated on the position of the setting midwinter solstice sun and possibly also on the position of the setting moon near its major southern standstill, according to Scott (Scott and McHardy [2020](#); Sheridan [2021](#)). Inside the oval setting, numerous water-worn and angular lumps of white quartz were found; their deposition may be contemporary with the construction of the oval setting, or perhaps more probably with a subsequent, Late Bronze Age phase of funerary activity dated to 1258–976 BC (Bradley and Nimura [2016](#), 69, 70).

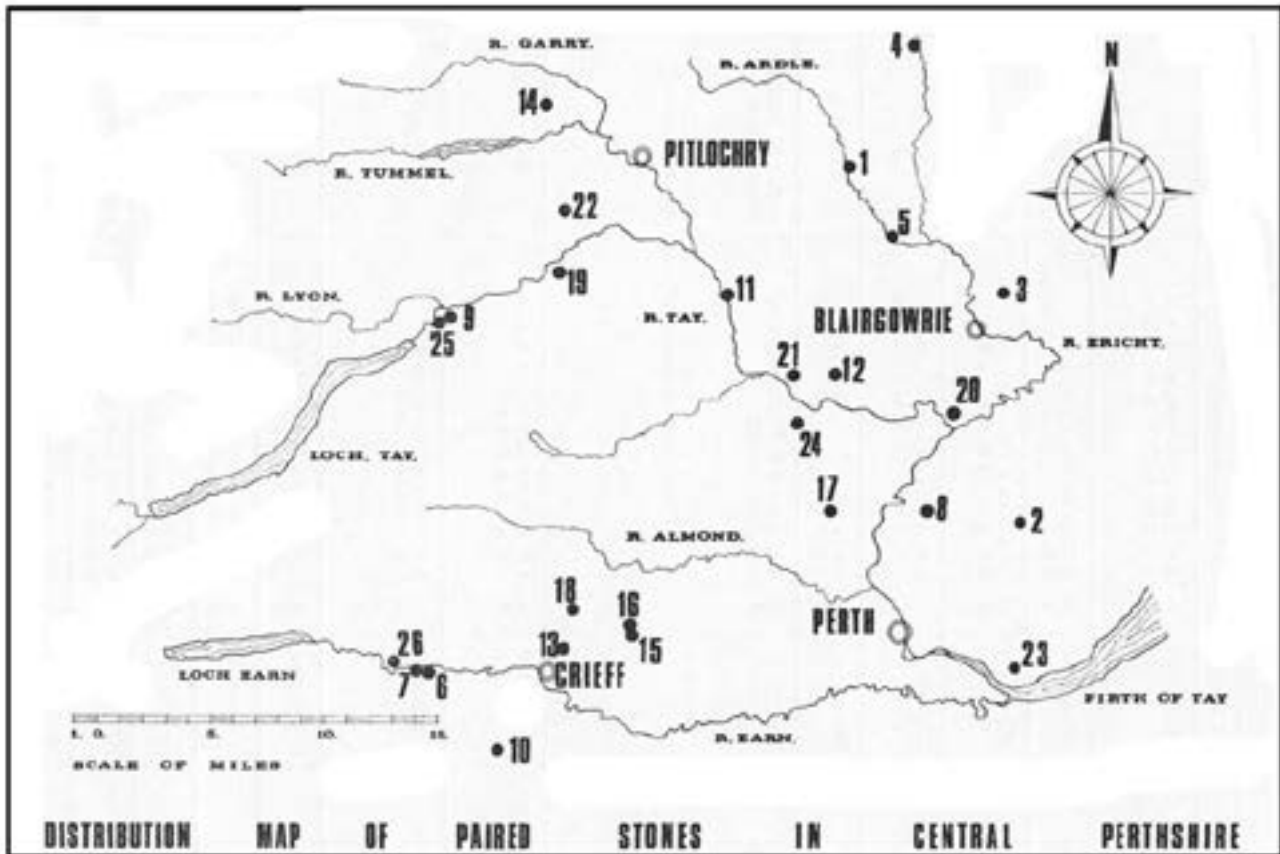
Bradley has argued that other small oval stone ‘circles’, with no more than eight stones, are likely to be contemporary with the Croftmoraig example. These include one near [Killin](#), at the other end of Loch Tay (Bradley and Nimura [2016](#), fig 10.2). Another at Machuinn, mid-way along Loch Tay, this is the same site which is referred to as a kerb-cairn by Ritchie and MacLaren ([1972](#)). There are others at Tigh-na-Ruaich; [Wester Torrie](#); Ardblair ([Leys of Marlee](#)) (MPK3896; Fowlis Wester; [Sandy Road](#), Scone (MPK3285; Stewart [1965](#)); and [Moncreiffe](#) (MPK3163; Stewart [1985](#)). Further examples, discussion and analysis of the distribution of these and other stone ‘circles’ are available (RCAHMS [1990](#); [1994](#); Burl [2000](#), 243–4). Stewart ([1985](#)) refers to an additional example at Ninewells, near the Loch of the Lowes, but it is uncertain whether the site in question is that which Canmore describes, with some justification, as a kerb-cairn. There is a discrepancy between Stewart’s NGR of NO 076 455 for the Ninewells ‘circle’, and that of NO 07571 43600 for the kerb-cairn. There is no Canmore entry for a stone ‘circle’ at NO 076 455 and it could be that Stewart’s NGR, and her classification of the site as a stone circle, is erroneous.

A recurrent feature of these oval stone settings – and one held in common with the kerb-cairns – is a NE–SW orientation, emphasised by the grading of orthostat heights. Moreover, as with kerb-cairns, several of the settings are associated with cupmarks (Bradley and Nimura 2016, 144) and/or with outliers with more

complex Atlantic rock art designs. This is the case with the example at Moncreiffe (Stewart [1985](#)) – a multi-phase monument that started out, several centuries earlier, as a ‘mini-henge’ (Phase 1) and went on to be a round cairn surrounded by a stone circle (Phase 2) before the oval setting (Phase 3) was constructed. A cupmarked slab, now within the oval setting, is believed to have been moved into the monument in the relatively recent past but it may originally have been an outlier. A further slab with a more complex Atlantic rock art design was found further away. Stewart argued that the Phase 2 cairn was converted into a ring-cairn during Phase 3, with large amounts of quartz added at this point. The deposition of cremated human remains may have occurred at this time. It is unclear whether the single pot of the flat-rimmed ware/Bucket Urn tradition was deposited at this time, or during the Late Bronze Age.

It may be that the stone row at [Balnaguard](#) (MPK1705; Mercer and Midgley [1997](#), 285, 288) and the paired stones of Perth and Kinross were erected during the Middle, or Middle to Late, Bronze Age, although none of these sites has been dated. The reason for suggesting this dating is admittedly tenuous, as it is based on the dates of 1370–1050 BC and 1370–1120 BC relating to the construction of short-stone rows at Ballymeanoch and Ardnacross in the west of Scotland (Sheridan [2012b](#), 180). West Scottish short-stone rows are a different kind of monument from the Balnaguard row and the paired stones.

The existence of 26 sets of paired stones, mostly located in Strathtay and Strathearn, was pointed out by Stewart ([1966](#)), who listed and mapped them. They are aligned E–W, NE–SW and ENE–WSW, and some have cupmarks, eg Fowlis Wester 1. This is a class of monument that requires further investigation and dating.



Distribution of paired stones in Perth and Kinross (Stewart 1966)

### 4.3.3.2 Settlement

A number of securely dated settlements south of the Firth of Forth attest to a marked increase in the visibility of domestic sites from around 1800 BC (Pope 2015); however, there is limited dating evidence for the numerous hut circles recorded across the uplands and lowlands to the east of the River Tay in Perth and Kinross (Harris 1984; RCAHMS 1990; 1994). Very few excavations have taken place, whereas elsewhere in Scotland, since the 1990s, increasing numbers of settlements dating to the Middle and Late Bronze Age and Iron Age have been excavated (as reviewed in Halliday 1999; 2007; forthcoming; Pope 2015). By analogy with these dated settlements, the examples in Perth and Kinross are likely to date to that same time range. The challenge is to obtain the necessary dating evidence, and to untangle which of the settlements belong to the Middle Bronze Age, which to the Late Bronze Age and which to the Iron Age.

The distribution of hut circles is uneven, and this may well relate to the variable amount of survey work that has been undertaken. Little has been done in the uplands to the west of the River Tay, with Cowley's work (1997) in Strathbraan providing

a rare exception that has demonstrated the great potential for settlement evidence to be found in that part of Perth and Kinross. A variety of structural forms have been recorded, including predominantly unenclosed building platforms, ring-ditch and post-ring structures, and single- and double-walled stone hut circles. The latter are heavily concentrated in the upland glens and straths to the north-east of Perth and Kinross and into Angus (Halliday forthcoming; Pope 2015; RCAHMS 1990, 2–3). Concentrations of hut circles, and therefore settlement by implication, are also known along Strathearn, the Tay valley and Strathbraan. The excellent preservation of structures in the north-east, especially in Strathardle and Glen Shee, where hut circles are situated at altitudes of 300–400m above sea level, has long been a focus of archaeological interest. This began with the *Statistical Accounts* in the 1790s (Thoms and Halliday 2014, 13; see also RCAHMS 1990), and this area continues to promise great research potential for the future. In contrast, a lack of settlement evidence in the Ochil and Sidlaw hills has been attributed to disturbance from medieval and later agricultural activity as well as fewer surveys having been undertaken in these areas (RCAHMS 1994, 9–10).

Within this context, it is perhaps unsurprising that the majority of excavations of hut circles and enclosures in Perth and Kinross have taken place in the uplands. Although comprehensive excavation of an upland Bronze Age settlement is still lacking, investigations at [Carn Dubh](#) (Badyo) (MPK1752; Rideout [1995](#)), [Dalrulzion](#) (MPK4038; Thorneycroft [1933](#); 1946), [Dalnaglar](#) (MPK4338; Stewart [1962](#)), [Craighead](#) (MPK4114; McLellan in Rideout [1995](#)) and [Tulloch Field](#) (MPK2854; Thoms and Halliday [2014](#)) have provided some valuable chronological evidence, as well as other evidence whose dating remains to be established.

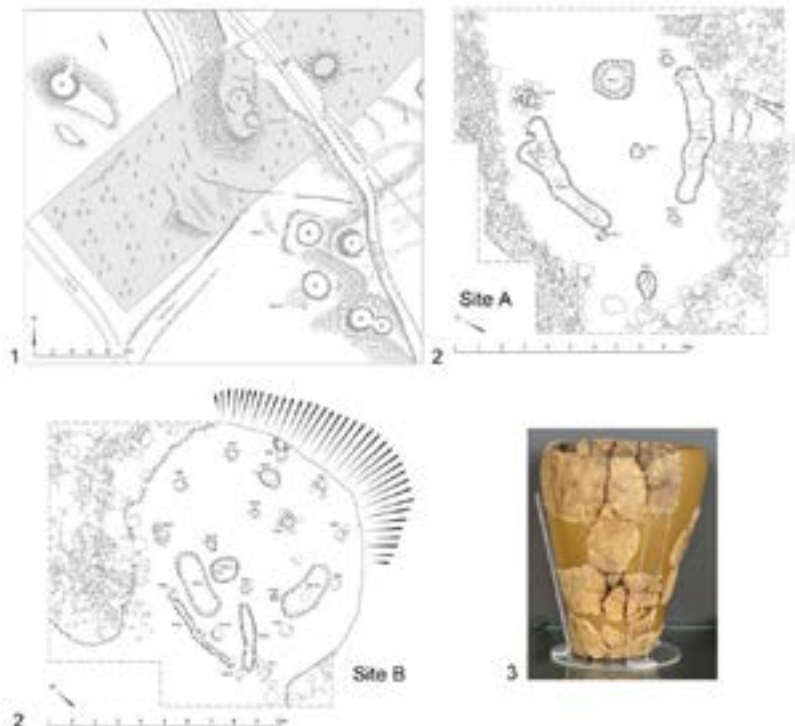
At Carn Dubh, Rideout concluded that the earliest structural evidence for settlement was probably of Late Bronze Age date ([1995](#), 184), despite evidence for earlier agricultural activity in the area. The area was clearly returned to in later periods, including the medieval period.

The settlements at Dalrulzion and Dalnaglar have produced two different styles of undecorated pottery (as discussed by Coles in Stewart [1962](#)). Direct radiocarbon dating of encrusted organic residue on the sherds, and/or of absorbed lipids in the sherds, would be necessary to tease out their chronology. It could be, as Coles argued, that the Dalnaglar pottery is of Late Bronze Age date. Whereas Thoms and Halliday ([2014](#), 14) argue that it is most likely to be of late second millennium date. The Craighead settlement produced one shouldered pot that McLellan (in Rideout [1995](#)) compared to vessels from Dalrulzion and Dalnaglar; once again, direct dating would be required to clarify its date.

At Tulloch Field in Strathardle, a group of at least six hut circles and circular platforms were surveyed and excavated. Possible structural timbers from one of the hut circles (Site A) produced two Middle Bronze Age radiocarbon dates, from birch charcoal – namely 1411–1116 BC (GU-1147) and 1416–1130 cal BC (GU-1148) respectively (Thoms and Halliday [2014](#), 4), along with pottery that includes a tall, flat-based jar (Thoms and Halliday [2014](#), 7 and illus 8). Moreover, the neighbouring hut circle (Site B) produced a fragment of what is thought to be a Middle Bronze Age rapier fragment (Thoms and Halliday [2014](#), 8–9), suggesting that Sites A and B were in contemporary use. Site B also produced oak charcoal dating to the Iron Age – which may relate to much later activity at the site (Halliday [2007](#); [forthcoming](#)).

Middle Bronze Age settlement activity in the lowland areas of Perth and Kinross remains relatively limited. However, settlements comprising at least 14 roundhouses and activity dating from the Middle Bronze Age to Early Iron Age were recently excavated around [Brookfield House](#) and [Kirkton Farm](#) near

Blackford (O’Connell et al [2021](#)). The extensive remains of enclosed and unenclosed settlements were investigated across ten areas on well-drained knolls near Blackford. The Middle Bronze Age is the best represented period from the excavations, with single and closely grouped roundhouses with ring-ditches and south-east orientated entrances with ring-ditches and south-east orientated entrances recorded (O’Connell et al [2021](#), 112). The first regional suggestion of palisade enclosures of Middle Bronze Age date is notable (O’Connell et al [2021](#), chapter 5). A range of interpretations for their function have been offered: stock enclosures; defence around roundhouses; protection against the weather; display of status. Evidence for barley and emmer wheat demonstrated the presence of a mixed farming economy, and craft production through cannel coal jewellery (O’Connell et al [2021](#), chapter 5). The Blackford discoveries, coupled with those of other lowland Middle Bronze Age roundhouses at [Hatton Farm](#) (Gray and Suddaby [2010](#)) and [Cliffbarn Road](#) (Dunbar [2012](#)), both in Angus, and at [Pitlithie Road](#), Fife (Cook [2007](#)) demonstrate that the picture of lowland settlement will become clearer as more work is undertaken and reported.



1. Plan of the settlement at Tulloch Field; 2. Plans of Sites A and B; 3. Jar from Site A (Thoms and Halliday [2014](#))



Before leaving this review of settlement, the evidence from the ‘roundhouse’ at Croftmoraig needs to be reviewed (Bradley and Sheridan 2005; Bradley and Nimura 2016, chapters 4 and 10; particularly 148–50). This ESE-facing structure, built inside the stone circle of putative Early Bronze Age date and radiocarbon dated to 1370–1120 BC, shares many features in common with Middle Bronze Age roundhouses elsewhere in Scotland. However, as Bradley has pointed out, its porched entrance is much narrower than equivalents in other roundhouses, making the interior harder to access. Moreover, the building’s orientation means that its interior would have been exceptionally dark. Given its position in the middle of a pre-existing sacred space, it may be that this building was not designed for everyday inhabitation, but had a special function associated with ceremonies.

The many outstanding issues for the study of Middle, and Later, Bronze Age settlement in Perth and Kinross include the need for many more radiocarbon dates; these would allow the clarification of the chronology, especially with those sites with multi-phase occupation. There also need to be more studies of occupation duration and frequency, such as has recently been undertaken by MacDonald for Bronze Age settlements around Lairg (2020).

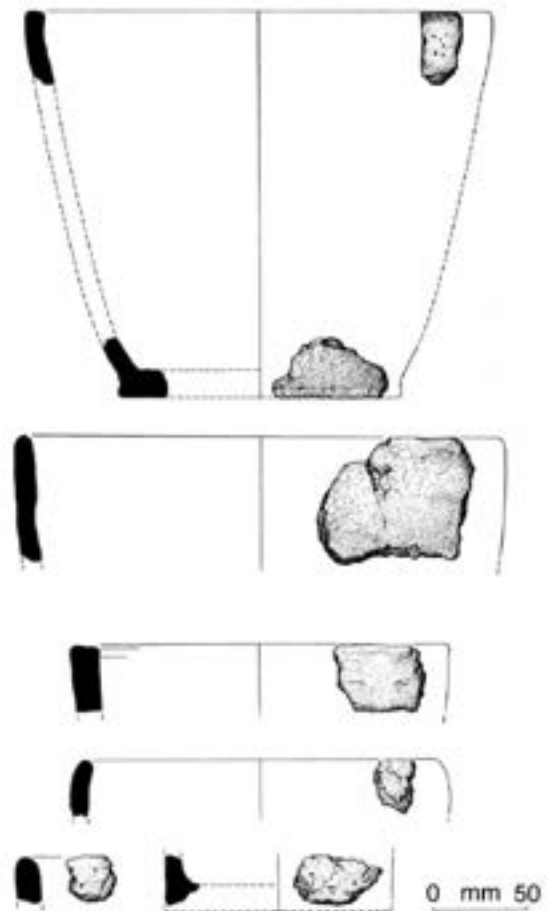
### 4.3.3.3 Material Culture

#### 4.3.3.3.1 Pottery

The inadequacy of the term ‘Flat-rimmed ware’ to describe the non-funerary pottery of the Middle and Late Bronze Ages has long been acknowledged (Sheridan in Bradley 2005). The time is ripe to re-evaluate, re-characterise and properly date all of the pottery known and suspected to be of Middle and Late Bronze Age date in Perth and Kinross, and systematically compare it with contemporary pottery elsewhere in Scotland: this should be high on the list of research priorities.

The relatively well-dated and recently excavated assemblages from the settlements at [Tulloch Field](#) (MPK2954; Thoms and Halliday 2014) and [Blackford](#) (Johnson in O’Connell et al 2021) are informative as to the repertoire of Middle Bronze Age forms, designs and fabrics. The tall, undecorated narrow-based jar from Tulloch Field is of a form known elsewhere in Scotland (eg at Lairg, Dyke 1: MacSween 1998, fig 90, V154). At Blackford, a range of tub- and bucket-shaped vessels, undecorated except for occasional horizontal corrugations or ribbing and with straight or convex walls, are represented. From the palisaded enclosures come a vessel with an applied horizontal cordon (P216) and others with a shoulder a short way below the rim (P218 and 249).

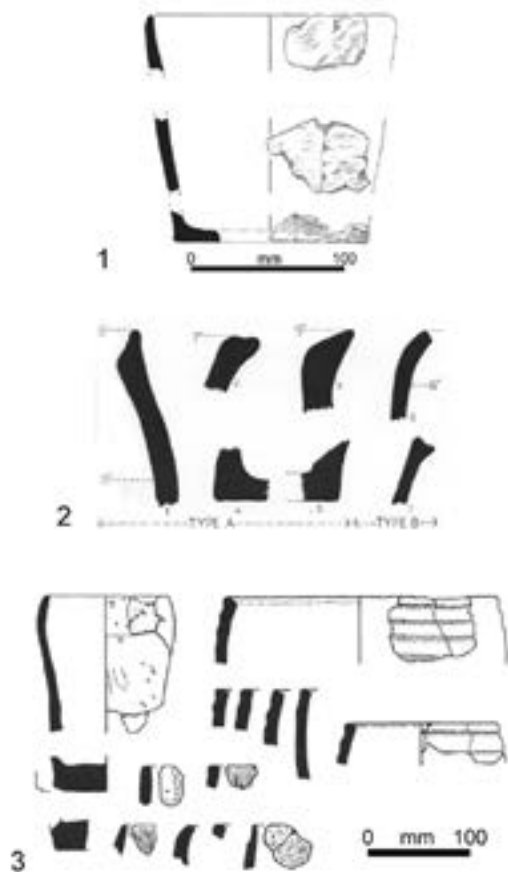
As for the so-called ‘flat-rimmed’ pottery from [Croftmoraig](#) (MPK363), the fact that sherds with relatively fresh fracture surfaces were found low in the fill of the ring-ditch associated with the ‘roundhouse’ could be taken to indicate that they are contemporary with the use of that structure, and therefore datable to 1370–1120 BC (Bradley and Sheridan 2005; Bradley and Nimura 2016, chapters 4, 10). However, Bradley has noted that ‘the filling of the ring ditch was not as securely sealed as Piggott and Simpson reported’ (Bradley and Nimura 2016, 70). The discovery of a piece of calcined human bone in the ditch fill, dated to 1258–976 cal BC (SUERC-47157), raises the question of whether the pottery might instead be of Late Bronze Age date. This matter could be resolved by dating absorbed lipids in the sherds, if such lipids exist.



‘Flat-rimmed ware’ from Croftmoraig (Bradley and Sheridan 2005)

The flat-rimmed, flat-based undecorated pot from [Moncreiffe](#) (MPK3163), which is similar to some of the Croftmoraig pots, could either date to the Middle Bronze Age, contemporary with the oval setting, or to the Late Bronze Age episode of activity, associated with metalworking.

It is hard to judge how closely the ‘flat-rimmed ware’ from the settlement at [Dalrulzion](#) (MPK4038) compares with the Middle/Late Bronze Age pottery from elsewhere in Perth and Kinross, and once again, direct dating of the pottery is needed to resolve the question of its date. The slightly different pottery from [Dalnaglar](#) (MPK4338) needs to be dated to see whether it might belong to the Iron Age, rather than to the Middle or Late Bronze Age. Finally, the Bucket Urn from [Monzie](#) (MPK848) is assumed to be of Middle Bronze Age date.



‘Flat-rimmed ware’ from 1. Moncreiffe (Stewart 1985); 2. Dalrulzion (Thorneycroft 1933); and 3. Dalnaglar (Stewart 1962)

#### 4.3.3.3.2 Metalwork

As in the Chalcolithic and Early Bronze Age, evidence for the production of metalwork is largely unknown in the Middle Bronze Age and there has yet to be a dedicated study of Bronze Age metallurgy in Scotland. Around 1600 BC dirks and rapiers appear in the archaeological record and represent the first metal blades to be produced for no function other than as weapons. This introduction presents a powerful indicator of a society in which conflict was growing, requiring a dedicated means of inflicting harm and defending oneself (Harding 2007), though little skeletal evidence exists of trauma and violence.

The emergence of weapons is coupled with the development of looped spearheads and a range of axeheads which dominate the archaeological record and reflect a variety of craftworking functions. Perth and Kinross’s Middle Bronze Age metalworking assemblage is modest, with no hoards or associated finds known, apart from the rapier fragment from [Tulloch Field](#) (MPK2854), and this conforms with the general picture across Scotland (Coles 1964). It is during this period that the earliest evidence of metalwork deposition in the River Tay appears, a practice that continued to the end of the Late Bronze Age (Cowie and Hall 2001; 2010).

A Middle Bronze Age dirk recovered from the shore of the River Tay at [Friarton](#) near Perth (MPK18072) represents the earliest deposit of metalwork from the river, although Neolithic and Early Bronze Age stone objects are known (Cowie and Hall 2010; Cowie et al 2011). A replica of the Friarton copper-alloy dirk was subjected to experimentation and wear analysis. It represents the first and only experimental use of a dirk in Britain and Ireland. The experiments revealed the weapon to be highly effective against synthetic skeletal material as well as provided key clues into how such objects may be damaged through use (Faulkner-Jones 2016). Compositional analyses of the Friarton dirk and another stylistically similar dirk from [Pitcaithly](#) (MPK5156) has indicated that both were produced from Irish metal or were Irish in origin (Cowie et al 2011, 15–17).

#### 4.3.3.3.3 Stone

Excavations at [Tulloch Field](#) (MPK2854) and [Blackford](#) (MPK17956) have produced a range of flaked lithic artefacts and coarse stone tools that include sandstone flakes, quartz flakes, flint flakes, a perforated stone, an anvil stone, a whetstone and two saddle querns (Thoms and Halliday 2014; O’Connell et al 2021).

Of particular note is a fragment of a cannel coal ‘napkin ring’ dress accessory in Middle Bronze Age Structure 2B at Blackford (Hunter 2021).

Such objects are thought to have been used in pairs, as large ornamental ‘eyelets’ for thong or cord fasteners for cloaks. Hunter’s review of such items (1998) has made clear that they are a feature of the Early to Middle Bronze Age of southern Scotland and northern England. He notes that the Blackford example sits at the northern edge of the distribution. Its discovery in a structure that has produced dates ranging from 1370–1123 BC to 1309–1091 BC (O’Connell et al 2021, 35) provides valuable dating evidence for this artefact type; it is the latest dated example. An unfinished bead, which is also of cannel coal, was found in a Middle Bronze Age palisaded

enclosure at Blackford (MPK18619; Hunter in O’Connell et al [2021](#), 51 and illus 28); this suggests the working of locally-available cannel coal on the site.

Fragment of ‘napkin ring’, Blackford (Hunter 2021)

#### 4.3.3.3.4 Organic material

In 1994, during construction of the Scottish Crannog Centre’s replica crannog on Loch Tay, the Scottish Trust for Underwater Archaeology found the remains of a logboat over 10m long at [Croft-na-Caber](#) (MPK7026). It was made of oak, with moss caulking, and has provided a radiocarbon date of 1614–1416 cal BC (GU-10558). Even though no crannog dating to earlier than the Iron Age has been found in Perth and Kinross, this logboat demonstrates that people were travelling along Loch Tay during the Middle Bronze Age.

#### 4.3.4 Late Bronze Age

Developments that began in the Middle Bronze Age largely continue into the Late Bronze Age. The character and nature of settlement remain largely unchanged (Pope [2015](#)) although it has been argued (Strachan [2010b](#), 49) that a climatic downturn around 1000 BC resulted in the abandonment of many upland settlements. This remains to be checked, however, through fine-grained interrogation of the available palaeoclimatic and settlement data, allied with targeted radiocarbon dating. Cremation, with the remains sometimes deposited in Bucket Urns, continued as the funerary rite. A continuing concern with marking astronomical phenomena is shown in the Four-Poster monuments that appear as a novel monument type. There is evidence for the reuse of pre-existing monuments, both for the deposition of the dead and for other purposes such as working with bronze, at [Moncreiffe](#) (MPK3163). More bronze artefacts have been found, singly or as hoards, than is the case with the Middle Bronze Age (Coles [1960](#)). These include the spectacular ladle from the [Corrymuckloch](#) hoard (MPK9219; Cowie et al [1996](#)) – an object connected with the Late Bronze Age practice of elite feasting which reminds us that here, as elsewhere in Scotland, we are dealing with a ranked society (see [Corrymuckloch Case Study](#)). The bronze swords that have been found, especially in and around Loch Tay (Cowie and Hall [2001](#); [2010](#)), attest to combat forming an element of inter-group relations during this period. Also from this period come the spectacular organic finds of the [Carpow](#) logboat (MPK12214; Strachan [2010a](#)) and the Blairdrummond disc wheel, both of wood. It may be that some of the wooden trackways that have been found in the region were constructed during this period, but none has been dated.

The Corrymuckloch ladle ©NMS

Archaeological evidence for the Late Bronze Age (and other parts of the Bronze Age) in Perth and Kinross was first assessed as part of a wider Tayside area review by Coutts ([1970](#); [1971](#)). He noted a scarcity of Late Bronze Age settlement and funerary monuments in comparison to earlier parts of the Bronze Age. Archaeological work had significantly enhanced the picture by the time Winlow ([2010](#)) undertook the next, and most recent, comprehensive assessment of the region’s Late Bronze Age archaeological resource as part of the Carpow logboat investigation. Although limited to the environs of the lower rivers Earn, Almond, Tay and the latter’s estuary, Winlow’s study outlines the Late Bronze Age landscape below the Highland boundary fault. It also includes valuable palaeoenvironmental contributions (Tipping and Milburn in Winlow [2010](#)). Site density has increased further since Winlow’s assessment and her conclusions remain relevant to the current resource, where understanding of regional settlement and burial chronologies is limited but future research potential is extensive (Winlow [2010](#), 149–50).

As in the Middle Bronze Age, cremation is the only funerary practice attested for the Late Bronze Age in Perth and Kinross. Calcined human bones that have been dated to this period are listed below.



Findspot (Canmore ID)	Radiocarbon date, cal BC at 95.4%	References	Comment
<a href="#">Sandy Road</a> , Scone (MPK3285)	1196–898 (GrA-23985)	Stewart <a href="#">1965</a> ; Sheridan <a href="#">2007b</a> , 184	In upright Bucket Urn in pit in centre of oval stone setting
<a href="#">Fortingall North East</a> , Site 1 (MPK8)	1107–901 (SU-ERC-18874)	Burl <a href="#">1988</a> , 166–75; Sheridan <a href="#">2008b</a> ; Murphy et al <a href="#">forthcoming</a>	In shallow pit, un-urned, with pyre charcoal, inside Four-Poster monument
<a href="#">Na Clachan Ao-raidh</a> (MPK1245)	Calcined human bone (female): 903–803 (SUERC-73565); Associated alder charcoal from pyre: 1117–923 (SU-ERC-73595)	Ellis and Ritchie <a href="#">2018</a>	From pit in centre of Four-Poster monument
<a href="#">Croftmoraig</a> (MPK363)	1218–939 (SU-ERC-47157)	Bradley and Nimura <a href="#">2016</a> , 68, 70	In fill of ring-ditch associated with the 'roundhouse', but clearly post-dating that structure; calcined bone fragment too small to be ID'd to species, but likely to be human
<a href="#">North Mains</a> henge, burial Q in F5 and burial O in F6 (MPK1359)	F5: Charcoal (species unidentified) 1206–839 (GU-1437) F6: charcoal (species unidentified), 1261–827 (GU-1350), and 1439–1055 (GU-1351)	Barclay <a href="#">1983</a> , 136 (table 2), 145, 187	From pits in the tops of two of four pits to the N of the henge enclosure, Phase IV; cremation is thought to have occurred there, with deposition of cremated remains and pyre debris <i>in situ</i> . The calcined bone from F5 could not be ID'd to species but is believed to be human; that from F6 is definitely human. The lack of charcoal species ID means that there may be an old wood effect with GU-1351. The calcined bone needs to be dated
<a href="#">Blackford</a> , Area X, pit 1/001 (MPK15812)	1055–914 (UBA-15227)	O'Connell et al <a href="#">2021</a> , 9, 12	In oval pit; un-urned deposit of calcined human remains, with charcoal from pyre; contemporary with LBA occupation in the area. Some other calcined bone from the excavations at Blackford could not be ID'd as to species
<a href="#">Blackford</a> , Area H, pit 149 (MPK17957)	1209–998 (UBA-13439)	O'Connell et al <a href="#">2021</a> , 75, 78, 79, 81	In upright Bucket Urn in pit, in area of LBA settlement. NB: a nearby pit (329) contained calcined bone of indeterminate species plus a fragment of a cancell coal bangle

Cremated human remains (and/or associated material) radiocarbon dated to the Late Bronze Age. Dates calibrated using OxCal v.4.4.4

The proximity of the graves at Blackford to areas of contemporary settlement is noteworthy, indicating that not all funerary activity was associated with monuments.

Also noteworthy is the fact that, where cremated remains were buried in a cinerary urn, the urns were buried upright, not inverted, as had been the case with Early Bronze Age cinerary urns.

There are other finds of cremated human remains that are likely to be of Late Bronze Age date in Perth and Kinross. At the multi-phase monument at [Lundin Farm](#) (MPK1108; Stewart [1966](#)), whose final-stage structure was a Four-Poster, the deposits of calcined bone marked 'I' and 'II' on Stewart's site plan (Stewart [1966](#), fig 5) – the least deeply-buried deposits – are arguably the most likely candidates. Although, without a radiocarbon dating programme targeting the whole assemblage of calcined bone from this monument, it may be hard to disentangle Late Bronze Age from Early Bronze Age remains, with the latter relating to a Collared Urn. There may well have been Late Bronze Age deposition of human remains at the multi-phase monument at [Moncreiffe](#) (MPK3163; Stewart [1985](#)); again, radiocarbon dating is needed to clarify this.

As regards Late Bronze Age monuments in Perth and Kinross, the evidence from the Four-Poster setting at [Na Clachan Aoraidh](#) (also known as Na Carraigean Edintian; MPK1245) has been interpreted as indicating its construction during the Late Bronze Age (Ellis and Ritchie [2018](#)). Ellis and Ritchie have argued that the fact that the monument was constructed around a tree-throw hollow into which calcined human remains and pyre debris dating to the Late Bronze Age were deposited points towards the monument being contemporary with the funerary deposition. A similar date was obtained for calcined human remains from the Four-Poster at [Fortingall North East](#) (Table 5; MPK8). Together these dates challenge the previously-held view that Four-Posters were constructed during the Early Bronze Age – a view based on the presence of Early Bronze Age cinerary urns at several monuments. A critical reappraisal of the evidence shows that several Four-Posters are located on pre-existing monuments (eg Lundin Farm), with the Early Bronze Age urns relating to funerary activity that pre-dates the construction of the Four-Posters by several centuries. This may well be the case even at [Carse Farm 1](#), where a Collared Urn and cremated human remains were found in a pit adjacent to the foot of one of the uprights (MPK1036; Stewart and Barclay [1997](#)).



View of Na Clachan Aoraidh (Ellis and Ritchie 2018)  
© D Scott 2017

The construction, distribution and archaeoastronomical orientation of Four-Posters were discussed by Ellis and Ritchie ([2018](#); cf Burl [1988](#)). The key features are as follows.

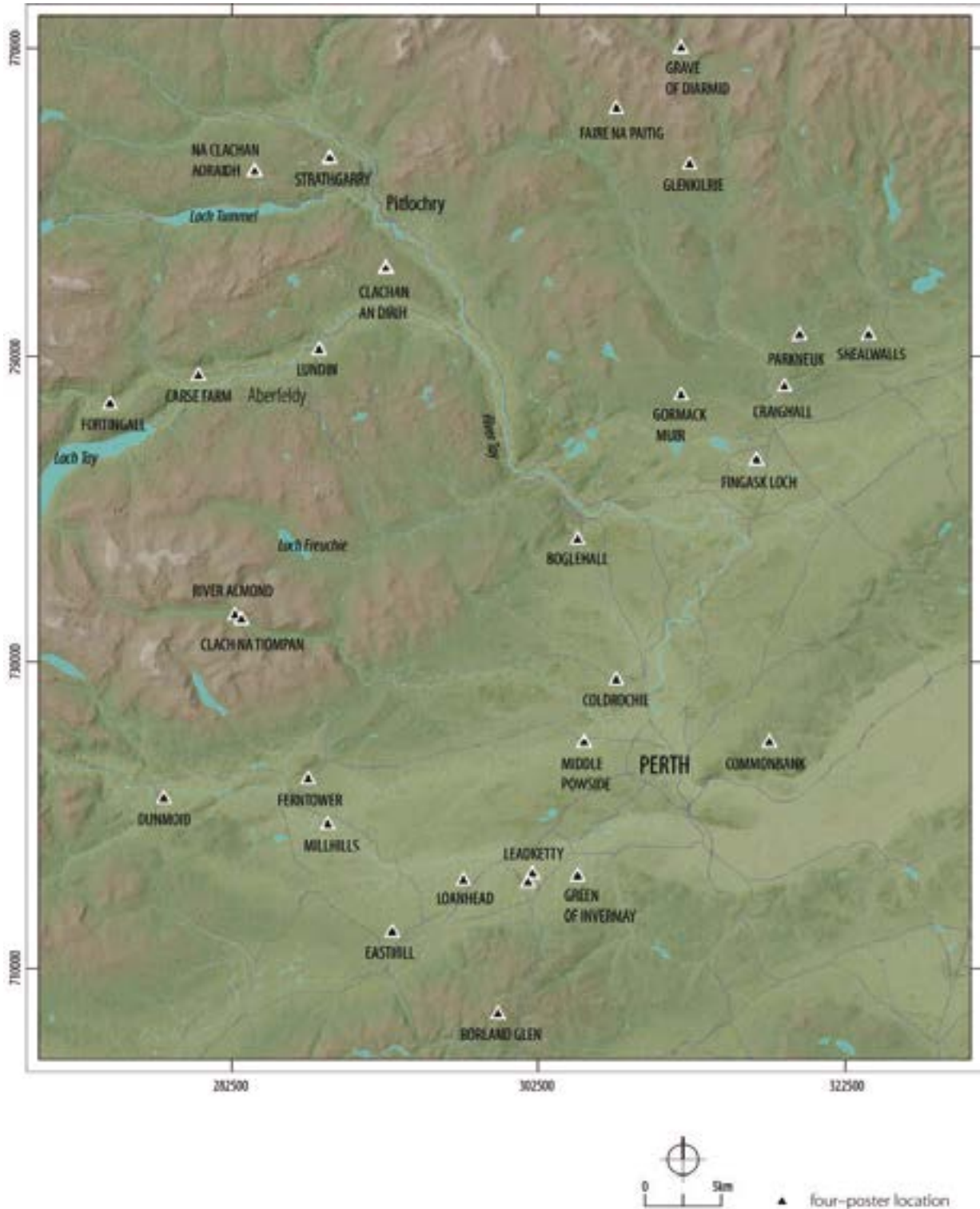
1. They tend to be constructed on flat-topped circular platforms, sometimes in areas commanding extensive views;
2. They are small, often around 6 m across.
3. Some have stones that are graded in height.
4. Their placement – sometimes marking the cardinal points – suggests a concern with marking the movements of the sun and moon, with the evidence from Na Clachan Aoraidh suggesting alignments with the rising moon during (and around) its southern major standstill, once every 18.6 years, and with the rising and setting of the equinoctial sun.
5. Quartz is frequently associated with these monuments (and at Na Clachan Aoraidh, the uprights are of quartziferous schist, which glints in the sun and moonlight).
6. Several are associated with cupmarks, which could have been created when the monuments were erected.

Characteristics 4–6 are held in common with some Middle Bronze Age monuments such as kerb-cairns and oval settings, and suggest a continuation of Middle Bronze Age concerns and traditions – something that accords with the Late Bronze Age date of Four-Posters proposed above.

Perth and Kinross contains the densest concentration of Four-Poster monuments in Scotland, with around 30 known (Ellis and Ritchie [2018](#)). Burl's argument that they derive from the recumbent stone circles

of north-east Scotland (Burl [1988](#)) – which she also applied to stone circles of graded heights, including one at Fortingall South (Burl [1988](#), 174–5) – has rightly been criticised by Ellis and Ritchie ([2018](#), 24) and by Welfare, who described it as ‘naïve architectural derivation’ ([2011](#), 259).

As for other Late Bronze Age monuments in Perth and Kinross, it is possible that the paired stones that cluster in Strathtay and Strathearn (Stewart [1966](#), appendix II) were constructed during this period, rather than during the Middle Bronze Age.



Distribution of Four-Posters (Ellis and Ritchie 2018)



Obtaining dates for their construction should be a research objective. It is not known whether oval settings continued to be constructed after the Middle Bronze Age. The discovery of an upright Bucket Urn in the centre of the oval setting at [Sandy Road](#), Scone (MPK3285), its cremated remains dated to 1196–898 BC, need not indicate that its deposition was contemporary with the erection of the stones – although one cannot rule out that possibility.

#### 4.3.4.2 Settlement

Several Late Bronze Age settlements have been excavated and there is evidence, from [Blackford](#), for settlement continuity extending from the Middle Bronze Age to the Late Bronze Age (MPK15814; O’Connell et al [2021](#), chapters 6–9 and 112–3) and indeed into the Iron Age too. Here, changes in house structure over time were discerned, with the Late Bronze Age roundhouses lacking the ring-ditches seen in the Middle Bronze Age houses. The construction of palisaded enclosures – a feature of the Middle Bronze Age settlement – seems not to have continued into the Late Bronze Age, although it was resumed during the Early Iron Age. A novel Late Bronze Age feature is the four-post timber structure, Structure 2F (O’Connell et al [2021](#), 84). While such structures have been suggested to be raised granaries in southern England, the excavators found no concentration of cereal grain that might confirm such an identification at Blackford (O’Connell et al [2021](#), 87).

Three of the excavated roundhouses at the [Carn Dubh](#) upland settlement produced Late Bronze Age radiocarbon dates. Alder charcoal from House 1 was dated to 1256–905 cal BC (GU-2427), and alder charcoal from House 5 was dated to 979–796 cal BC (GU-2430). While mixed charcoal (species not listed) from House 6 produced a less precise date of 1199–406 cal BC (GU-2431: Rideout [1995](#), 175, dates re-calibrated using OxCal v.4.4.4). Other dates for Carn Dubh indicate subsequent occupation during the Early–Middle Iron Age and a reoccupation in the early medieval period (Rideout [1995](#), 175).

Although narratives for the Late Bronze Age elsewhere in Britain suggest a move to enclosed settlement during this period, the evidence from Perth and Kinross generally does not support this. At Blackford, the Middle Bronze Age practice of enclosing roundhouses within palisaded enclosures does not seem to have extended into the Late Bronze Age. It remains to be seen whether the cropmark evidence for an enclosed settlement at [Middlebank](#) by Inchtute (MPK6680) relates to Late Bronze Age activity or earlier or later activity.

As for the more substantial forms of enclosed

sites that are referred to as forts, excavations at the lowland forts at [North Mains](#), Strathallan (MPK1353; Barclay and Tolan-Smith [1990](#)), and [Dun Knock](#) (MPK2004; Poller with Campbell [2015](#)) near Dunning have returned Late Bronze Age dates. Although it should be noted that the taphonomy of the North Mains sample has been queried and an Iron Age date is preferred for this site (Lock and Ralston [2017](#)). Likewise, although there has likely been some form of Late Bronze activity at Dun Knock, the radiocarbon dates originate from large ditch fills and therefore cannot be confidently used to securely date the enclosure’s construction (Poller pers comm). Further excavations by [Strathearn Environs and Royal Forteviot](#) (SERF; Poller [forthcoming](#)) on the lowland forts of [Rossie Law](#) (MPK1397; Poller and James [2012](#)) and [Ogle Hill](#) (MPK1419; Poller [2015](#)), in the Ochil Hills east of Auchterarder have produced evidence of higher elevation activity during the Late Bronze Age. On Rossie Law, radiocarbon dates ranging from 1200–800 BC have come from timber and ash lenses within the enclosure and residue from pottery located within the stone quarry behind the main visible bank (Poller pers comm). Although Bayesian analyses is yet to be completed, the data suggest that a large timber and stone enclosure was constructed during this period prior to later Iron Age reuse (Poller pers comm). Burnt occupation evidence dating to the Late Bronze Age was recovered from beneath a, presumably later, Iron Age stone bank on the summit of Ogle Hill (Poller pers comm). The full results for Dun Knock, Rossie Law and Ogle Hill are yet to be published (Poller [forthcoming](#)) but the dates obtained are promising for significantly increasing understanding settlement enclosure and defensive structures in the Late Bronze Age to Early Iron Age period.

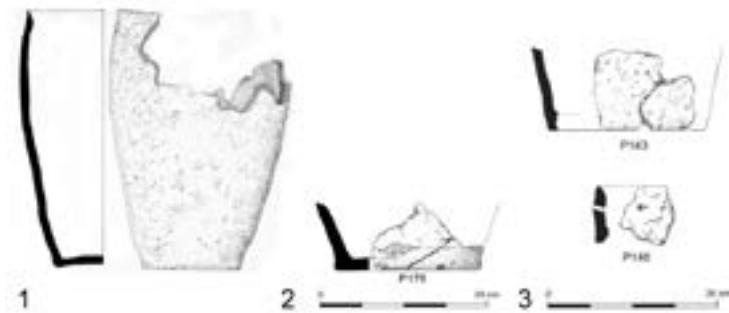
As for the question of whether any crannogs were being constructed or used during the Late Bronze Age, the results of the [Glasgow University Living on the Water project](#), focusing on the Loch Tay crannogs, has not found any evidence for pre-Iron Age examples of this specific type of habitation structure.

Finally, as for the suggestion that a climatic downturn around 1000 BC resulted in the abandonment of many upland settlements (Strachan [2010b](#), 49), there is currently insufficient evidence to corroborate or challenge that claim. What is needed is fine-grained chronological, palaeoenvironmental and settlement evidence.

#### 4.3.4.3 Material Culture

##### 4.3.4.3.1 Pottery

The radiocarbon-dated pottery finds from [Sandy Road](#), Scone and from [Blackford](#) shed light on the so-called ‘flat-rimmed ware/Bucket Urns’ in use during the Late Bronze Age in Perth and Kinross. These were undecorated, flat-based, mostly bucket-shaped vessels with rounded, gently-pointed or internally-bevelled rims. One pot from Blackford Area G (MPK15836) had at least one perforation below its rim. It may be that the ‘flat-rimmed ware’ found at [Croftmoraig](#) (MPK363) and [Moncreiffe](#) (MPK3163) dates to this period, rather than to the Middle Bronze Age; only direct dating of the sherds can resolve this question.



1. ‘Bucket urn’ from Sandy Road, Scone; 2. ‘Bucket urn’ from Blackford, pit 149, Area H; 3. Other Late Bronze Age pottery from Blackford, Area G. 1 from Stewart 1965; 2 and 3 from Johnson in O’Connell and Anderson 2021

##### 4.3.4.3.2 Metalwork

With the exception of Moncreiffe ([Moncreiffe House](#); MPK3163; Stewart [1985](#)), sites of later Bronze Age metalworking in Perth and Kinross are currently unknown.

The artefactual evidence – which includes the [Corrymuckloch](#) ladle (MPK9219; Cowie et al [1996](#); see [Corrymuckloch Case Study](#)) and the ‘bucket’ from Cardross in [Flanders Moss](#) (Anderson [1888](#)) – attests to advanced bronzeworking skills at the time, irrespective of whether the artefacts were made locally or imported from elsewhere. The range of bronze objects used during this period in this region also includes socketed axeheads (as seen, for example, in the Corrymuckloch hoard), leaf-shaped swords (such as examples associated with the River Tay, including from [Seggieden](#); MPK3316), socketed spearheads and a ferrule which protected the end of a spear-shaft, a rare socketed sickle, knives, socketed gouges, a chisel, a bronze ring, plus jewellery and

dress accessories, namely a swan’s neck sunflower pin and several penannular armlets/bracelets (Coles [1960](#); Cowie and Reid [1986](#) and Cowie and Hall [2001](#); [2009](#) and [2010](#)).



Late Bronze Age leaf-shaped swords from the River Tay: from L to R: Elcho/Rhynd; Tay near Perth; Mugdrum Island/Newburgh © NMS

In addition to items of bronze, a few Late Bronze Age gold objects are known from the region. Coles lists Irish-style gold penannular armlets from [Shieldhill](#) (x2; MPK5613), ‘near [Fingask?](#)’ (MPK4659) and ‘[Perthshire?](#)’ (MPK3353; Coles [1960](#), 90), along with a small penannular item formerly described as ‘ring-money’ from [Crieff](#) (MPK856; Coles [1960](#), 91). It should be noted that the gold ‘ring-money’, ‘lock-ring’ and ‘dress-fastener’ listed by Coles as coming from [Monzie](#) (MPK854), along with an Early Bronze Age gold lunula from ‘Monzie’, were subsequently discovered to have come from an Irish findspot (see Wallace 1986 for an explanation of how doubt on the Scottish provenance first came about).

The proximity of the region to the Firth of Forth, and the concentration of metalwork deposited in and around the Tay (Cowie and Hall [2001](#); [2010](#)), suggest the importance of the waterways. Finds from around the Tay of metalwork dating from the Middle Bronze Age onwards, together with the Late Bronze Age [Carpow](#) logboat (MPK12214), certainly indicate that this river was utilised throughout much of the Bronze Age and is likely to have been a major transport route (Cowie and Hall [2010](#)). Indeed, it may have been an important medium for international connectivity, providing a routeway from the North Sea in the east to Argyll and Ireland in the west by way of Rannoch Moor (Cowie and Hall [2001](#); [2010](#)). The sources of the Perth and Kinross metal in the Late Bronze Age are largely unknown, but the copper used in the bronze probably derived from Continental sources, as was the case in much of Britain at this time. It remains to be seen whether the gold was from Ireland.

To a certain degree, the pattern of metalwork deposition echoes that seen elsewhere in Scotland, with a large number of items being found in watery locations, including in the peat of [Blairdrummond Moss](#). Hoards of metalwork pose interesting questions about the connections between different areas at this time and about certain landscapes which appear to be focal points for deposition. As part of the Carpow logboat investigations, Cowie and Hall ([2010](#)) conducted a comprehensive evaluation of the Late Bronze Age metalwork deposited in the lower River Tay, and also considered Neolithic, Early Bronze Age and post-Bronze Age deposits. Their assessment demonstrates how the River Tay became a focal point for metalwork depositions from the Late Bronze Age onwards and notes that, although a small assemblage, it is third only to those from the much larger River Thames and River Trent (Cowie and Hall [2010](#)). The River Tay deposits are also the only significant source of river finds in Scotland and, as a result, have much to contribute to the wider discussion. Swords, spearheads and socketed axeheads represent the main groups of metalwork found in the Tay, with other tools including a rare bronze socketed sickle and a gouge also recovered. The condition of these artefacts suggests minimal disturbance over time, so the interpretation of the distribution of the deposits can be made with confidence. The swords in particular suggest a community exercising a deliberate and repeated pattern of deposition in the same stretch of the river over time (Cowie and Hall [2010](#), 156).

On land, hoards such as [Clockmaden](#) contain objects including socketed axeheads and bracelets that are typical of assemblages dating between 1000 BC and 800 BC (MPK3652; Cowie and

Reid [1986](#), 80ff.). Likewise, a group of metalwork was recently discovered through metal detecting at [Kinnesswood](#) (MPK17664; Cowie and Hall [2009](#)); it includes axeheads, socketed gouges, a knife fragment and a deliberately fragmented sword. These finds could indicate a dispersed hoard or a depositional landscape during the Late Bronze Age (Hall pers comm). This latter material, which has been acquired by Perth Museum and Art Gallery, and its broader context warrants further investigation. Other depositions indicate affinities with Continental metalworking traditions. The Corrymuckloch hoard, for instance, includes a decorated ladle that is so far unparalleled though it certainly has closer connections with Continental vessel forms than Scottish ones (Cowie et al [1996](#)). Continental connections are strengthened through comparison with other north-east Scottish hoards such as [Balmashanner](#) (Angus), [Braes of Gight](#) and [Glentanar](#) (both in Aberdeenshire) which include Late Bronze Age weapons, vessels and horse gear that suggests links to the Late Bronze Age elites of Europe. The continental Gündlingen-type swords, found amongst the River Tay deposits, are typical of the Llyn Fawr metalworking assemblage from south Wales (around 800–600 BC); they reinforce how connected P&K was to the Continent during this period.

#### 4.3.4.3.3 Stone

The evidence from [Carn Dubh](#) (MPK1752; Rideout [1995](#)) and [Blackford](#) (MPK17957) is generally unremarkable, consisting mostly of a few flint and quartz flakes and a fragment of a saddle quern. However, Pit 329, Blackford produced a fragment of a cannel coal bangle (Hunter in O’Connell et al [2021](#), 78–9 and fig 42). While the bangle itself is not diagnostically Late Bronze Age, the fact that it was found not far from a Late Bronze Age grave and that cereal grain from Pit 329 was dated to 971–813 BC (UBA-15224) and 895–806 BC (UBA-15225) strongly point towards an Late Bronze Age date for this artefact.

#### 4.3.4.3.4 Organic Material

##### *The Carpow Log Boat*

The importance of rivers and estuaries as arteries of travel, transport and trade throughout prehistory was highlighted in 2006 through the recovery of a large, around 10m-long Late Bronze Age logboat at [Carpow](#) (MPK12214), at the head of the Tay estuary near Abernethy. Multi-disciplinary research on this remarkable discovery has demonstrated the potential for collaborative interdisciplinary projects which focus on one iconic find to advance our understanding of the people who made and used



that logboat. It has resulted in a comprehensive review of the Late Bronze Age around the Tay estuary (Strachan [2010a](#)).



Carpow logboat © Perth and Kinross Heritage Trust

The logboat, of oak, was radiocarbon dated to 1260–910 cal BC (AA-45634). Detailed study of the vessel provided considerable insight into various aspects of Late Bronze Age life in the area. For example, the remarkably tall and straight nature of the parent log, the tree-trunk from which the boat was formed, with its first branch over 7m above ground (Strachan [2010a](#), 110), sheds light upon the densely packed, oak-dominated woodland which survived around much of the estuary at that time (Strachan [2010a](#), 139). This fact reinforces the importance of water transport in prehistory. Analysis of the surviving tool marks revealed how tools such as socketed axeheads, gouges and chisels were actually used, and also showed the techniques used in creating, and repairing, the vessel (Strachan [2010a](#), 97–113). The rare survival of foot-rests suggests predominantly punting (rather than paddling) as a way of moving along the river and in the shallower littoral waters of the estuary (Strachan [2010a](#), 121–2). The use of the foot-rests in this fashion was subsequently tested through experiment on a logboat created with replica tools on Loch Tay in 2009 (Strachan [2010b](#)). Finally, the study of the hydrological and geographical context of the find suggested how tides could be used to transport goods across back and forth between the food-rich estuary and riverine environments. It also highlighted the potential for medium-sized, estuarine boats such as Carpow to connect to wider Bronze Age trading networks over which larger, sewn-plank vessels may have plied. Developed in the Middle Bronze Age, sewn-plank boats are currently only known from the east coast of England, such as those from Ferriby on the Humber estuary (Wright [1991](#)) and from Dover (Clark [2004](#)), with the latter dating to around 1500

BC. They were suited to coastal travel, and arguably to channel crossings.

The Carpow logboat is by no means the only one to have been found in Perth and Kinross (Mowat [1996](#)), although it is the only one reliably dated to the Late Bronze Age. An earlier, Middle Bronze Age example is known from [Croft-na-Caber](#) on Loch Tay (MPK7026), and radiocarbon dated to 1530–1430 cal BC. While the majority of logboats in Perth and Kinross are known from the Tay estuary, they are also known from the River Tay above Dunkeld, and from Loch Tay, a waterbody to which logboats are well-suited and which has a significant concentration of crannogs (Strachan [2010a](#), 129–30). The survival of robust oak logboats, such as at Carpow, are therefore informative windows into a wide spectrum of activities across much of prehistory until the early medieval period at least. They were probably not the only type of water craft in use during the Late Bronze Age: there may also have been skin-covered canoes and currachs (Strachan [2010a](#), 170), and larger craft which were such a key feature of estuaries and rivers until modern times.

#### *The Blairdrummond Disc Wheels*

The discovery, during peat digging in [Blairdrummond Moss](#) around 1830, of three solid wooden disc-wheels, was to prove to be of national and international significance over 150 years later when the one surviving wheel, of ash, was dated for the NMS dating programme in 1991 to 1206–809 cal BC (OxA-3538: Sheridan and Saville [1993](#)). It was thereby found to be the earliest direct evidence for wheeled transport in Britain and Ireland. The surviving wheel (NMS X.IP 1) is made from three pieces of ash bound together with cross-pieces. It is likely that it and its counterparts was from a heavy vehicle such as a cart. Piggott discussed it in his review of the early wheeled vehicles of Europe ([1957](#); [1983](#)) but had expressed frustration at the difficulty of knowing its age, commenting that it could be of any date from the 18th century BC to the 18th century AD. The question of its date has now been resolved.



The surviving Blairdrummond disc wheel, in the National Museum of Scotland © NMS

What remains to be determined now is whether any of the wooden track- and roadways that have been found in the peatlands of the old county of Perthshire (and listed in the [Scottish Wetland Archaeology Database](#), SWAD) are also of Late Bronze Age date. Several are known, including in Blairdrummond Moss where a corduroy road some 12 feet (about 3.6m) wide was found. The others include another roadway of the same width found in 1903 in [Flanders Moss](#), and a trackway running SW to NE near Pallabay Pow, again in Flanders Moss. Others had been found in the vicinity, along with a logboat, buried oak trees and artefacts, during 18th century AD drainage operations.

None of these track- and roadways has been dated, and so it is currently impossible to tell whether the Late Bronze Age Blairdrummond vehicle had been driven along the Blairdrummond Moss corduroy road. Obtaining dates from surviving stretches of trackway, and checking for and inspecting modern exposures in peat, should be a research objective.

#### 4.3.5 Palaeoenvironmental Evidence

As with the Neolithic, palaeoenvironmental evidence for the Chalcolithic and Bronze Age is patchy across Perth and Kinross. It mostly relies on site-based approaches to scientific analysis and environmental reconstruction. Landscape-scale investigations and major developer-led projects covering multiple sites across a common landscape offer some of the best sources of palaeoenvironmental data. The results of such investigations are dealt with in more detail in the 'Science and Environment' chapter, so only a few comments will be offered here.

The multi-period submerged woodland remains at [Craggantoul](#) in Loch Tay included three oaks radiocarbon dated to various spans between about 2500 and 2100 BC (MPK 17641; Dixon [2007](#)). It is an as-yet unassessed resource for potential contribution to the development of long tree-ring chronologies in Perth and Kinross (Mills [2021](#)). The suite of radiocarbon-dated tree remains also include Late Mesolithic and Early Neolithic dates, with a large gap after the Chalcolithic dates until the Early Historic period. However, other phases may have gone undetected and there may be as-yet undiscovered sub-fossil woodland remains elsewhere in Perth and Kinross which could contribute tree-ring data.

Drawing from the pollen records of Black Loch near Grange of Lindores in the Ochils (Whittington et al [1991](#)) and Methven Moss near Perth, the Late Bronze Age environment of the River Tay Valley was considered as part of the [Carpow](#) logboat investigations (MPK12214; Tipping and Milburn in Winlow [2010](#), 141–3). It was concluded that oak-

dominated deciduous woodland remained extensive into the Late Bronze Age, with a fluctuating but steady increase in open land and arable agriculture within small forest clearings (Winlow [2010](#), 141–3). The use of fire as a method of land management and clearance was inferred from the high levels of charcoal observed in samples (Winlow [2010](#), 141–3). Despite difficulties in securing pollen samples from its study area, the work of the Strathearn Environs and Royal Forteviot (SERF) project nonetheless extends the coverage of Tipping and Milburn's palaeoenvironmental reconstruction work further west, enhancing the picture of both the site and setting for the Forteviot prehistoric ceremonial complex. The extensive analysis of the organic material recovered from the [Forteviot](#) dagger-grave is of particular relevance for this chapter (MPK1888; Brophy and Noble [2020](#)). Excavations of prehistoric settlement landscapes around Blackford (O'Connell et al [2021](#)) and [Carn Dubh](#) (MPK1752; Rideout [1995](#)) offer noteworthy upland examples where extensive environmental sampling and analysis inform our understanding of the region's Bronze Age environment and offer insight into the land management and cultivation regimes employed.

One key outstanding research question is whether there was a climatic downturn around 1000 BC and a concomitant abandonment of upland settlement, as has been claimed (Strachan [2010b](#), 49). To address that question, fine-grained palaeoenvironmental and palaeoclimatic data, and more dating evidence relating to Middle and Late Bronze Age settlement patterns, are needed.

## 4.4 Research Agenda

This section presents the agenda themes for the Chalcolithic and Bronze Age in Perth and Kinross. Some are nested under the **overarching PKARF theme headings** aimed at addressing wider multi-period priorities and others are **period-based** and specific to the scope of this chapter. Where appropriate, a short explanatory note is provided detailing underlying **period-based** thematic priorities which is then followed by the research questions generated to address them.

### Environment and climate, and its relationship to human activity

#### Priorities

PKARF Agenda 4.1: Develop a fine-grained narrative of the past environment and climate in Chalcolithic and Bronze Age Perth and Kinross, and assess whether and how any observed changes may relate to changes in human activities

#### Questions



PKARF Qu 4.1: Is there evidence for a climatic downturn around 1000 BC, or at any other time between 2500 BC and 800 BC, as has been claimed (Strachan 2010b, 49), and if there is, is this associated with any cessation of upland settlement or any other changes in human activity?

PKARF Qu 4.2: What potential is there to develop prehistoric tree-ring chronologies for Perth and Kinross for archaeological dating, climate record and other environmental applications?

### **Upland and Lowland relationships and the nature of settlement and land use**

#### **Priorities**

PKARF Agenda 4.2: Ascertain the nature, organisation and distribution of Chalcolithic and Early Bronze Age settlements and land use – for which evidence is currently lacking.

PKARF Agenda 4.3: Determine whether the gaps and inconsistencies in the record for Middle and Late Bronze Age settlement between upland and lowland areas and between the areas to the east, west and south of the Ochils reflects the genuine prehistoric picture or is a function of historic research priorities.

PKARF Agenda 4.4: More generally, compare site types and distributions, and patterns of artefact deposition and recovery, between upland and lowland areas of the Region.

PKARF Agenda 4.5: Improve our understanding of the nature of upland settlement in north-east Perth and Kinross

PKARF Agenda 4.6: Undertake more remote surveys utilising technologies such as LiDAR throughout Perth and Kinross, particularly in the west, and follow up with targeted excavation.

PKARF Agenda 4.7: Develop our understanding of subsistence strategies and practices 2500–800 BC across the Region from its current, limited state, making better use of the palaeoenvironmental data at our disposal and obtaining more such data.

#### **Questions**

PKARF Qu 4.3: What is the nature and organisation of Chalcolithic and Early Bronze Age settlement and land use and where were people living?

PKARF Qu 4.4: Were there genuine differences in settlement and land use patterns between the upland and lowland parts of the region, and if so, what were they?

PKARF Qu 4.5: Can any trends in the pattern or nature of settlement and land use be discerned in the region

over time?

PKARF Qu 4.6: Are any the fortified sites (ie those with substantial ditches and ramparts) in the region of Bronze Age date?

PKARF Qu 4.7: Are there any pre-Iron Age crannogs in the region?

PKARF Qu 4.8: Can we better date the many sites that have produced evidence for settlement activity of putative Bronze Age date, eg at Gleneagles West (MPK#/Canmore ID 293621)?

### **Periods of Transition**

#### **Priorities**

PKARF Agenda 4.8: Understand better the social dynamics of the observed changes between what we call the Late Neolithic and Chalcolithic periods.

PKARF Agenda 4.9: How, if at all, did society change around 800 BC – the conventional date given to the beginning of the ‘Iron Age’?

#### **Questions**

PKARF Qu 4.9: When immigrants arrived from the Continent, bringing novel technologies, practices and concerns, how many were there, and how did they interact with the indigenous population?

PKARF Qu 4.10: Are Chalcolithic henges an expression of an indigenous reaction to the appearance of all the novelties?

PKARF Qu 4.11: For how long did Late Neolithic practices such as the use of Grooved Ware survive after the appearance of Beaker pottery?

PKARF Qu 4.12: Are there geographical differences between Late Neolithic and Chalcolithic areas of activity, and what can sites and areas with activities spanning these periods tell us about social dynamics?

PKARF Qu 4.13: What, precisely, changed around 800 BC?

### **Routeways**

#### **Priorities**

PKARF Agenda 4.10: Use what has already been learned from the multi-disciplinary research carried out in conjunction with the recovery of the Carpow logboat (Strachan 2010a) as the basis for a broader Loch Tay environs project as recommended by Cowie and Hall (2001; 2010), to explore lifeways, ritual deposition, trade, exchange and migration.

PKARF Agenda 4.11: Roll out this approach to other parts of Perth and Kinross, such as Strathearn and

Glen Lyon, which also offer strong research potential.

PKARF Agenda 4.12: Explore the evidence for terrestrial routeways as revealed by the finds of sub-peat wooden roads and trackways.

### Questions

PKARF Qu 4.14: What role did the rivers and lochs play in the transmission of people, ideas, technologies and materials to, through and from the region?

PKARF Qu 4.15: Can any differences be discerned between the uses of the different rivers and lochs in the region, and did the uses of these rivers and lochs change over time?

PKARF Qu 4.16: What was the significance of rivers and lochs in the belief systems and traditions of practice of the Chalcolithic and Bronze Age inhabitants of the region?

PKARF Qu 4.17: How many of the wooden track-and roadways that have been found in the region date to the Chalcolithic and Bronze Age periods, and how might they have compared to the rivers as routeways?

### Investigative disparity, and issues of data accessibility

#### Priorities

PKARF Agenda 4.13: Examine why so few Chalcolithic and Bronze Age sites and monuments are known in areas west of the River Tay and in the north-west uplands around Rannoch Moor in comparison with other parts of the region.

PKARF Agenda 4.14: Re-evaluate the results of old excavations, such as Dalrulzion, Balnabrouch, Moncreiffe and Lundin Farm, to see whether fresh information – especially chronological data – can be obtained from the finds.

PKARF Agenda 4.15: Critically re-evaluate the aerial photography record and other remote sensing data to assess how many sites and landscapes that may be of Chalcolithic and Bronze Age date are present, and follow these up with targeted excavation.

PKARF Agenda 4.16: Undertake programmes of radiocarbon dating, DNA and isotopic analysis to enhance the information that can be obtained from what has already been found in the region, and integrate it within the broader national and international picture.

PKARF Agenda 4.17: Publish fully the results of developer-funded excavations that have not yet been published fully, and undertake the necessary outstanding post-excavation work, especially

radiocarbon dating, that is required to realise the full potential of the finds.

PKARF Agenda 4.18: Make existing data more accessible: improve the integration and searchability of national and regional databases.

### Questions

PKARF Qu 4.18: To what extent is the eastern geographical bias of the region's distribution of known Chalcolithic and Bronze Age sites a reflection of past human activity?

PKARF Qu 4.19: What details are we missing from historic archaeological excavations (both published and unpublished) that could refine our understanding of the Chalcolithic and Bronze Age?

### Dating and characterising Chalcolithic and Bronze Age monuments and funerary practices

#### Priorities

PKARF Agenda 4.19: Develop a comprehensive synthesis of the existing evidence, using this chapter, and Winlow's 2010 resource assessment of Late Bronze Age Tayside, as a foundation.

PKARF Agenda 4.20: Improve the dating evidence for specific types of monument, especially kerb-cairns, stone circles and oval settings, single standing stones, paired stones and the apparent stone row at Sketewan;

PKARF Agenda 4.21: Explore other monuments of potential Chalcolithic and Bronze Age date that have been discovered through aerial photography or other remote sensing techniques, using targeted excavation programmes.

PKARF Agenda 4.22: Critically re-evaluate the evidence that has already been proposed for the astronomical orientation of certain monuments in the region, and explore whether other monuments were also astronomically orientated.

### Questions

PKARF Qu 4.20: How do the Chalcolithic and Bronze Age monuments and funerary traditions in Perth and Kinross compare with those of elsewhere in Scotland, and what can we learn from them about external connections and social organisation?

PKARF Qu 4.21: When were specific monument types constructed, and how were they used?

PKARF Qu 4.22: How many kerb-cairns survive in the region?

PKARF Qu 4.23: Did people create new 'rock art' (in addition to the designs at Forteviot and Loanleven) during the Bronze Age?

PKARF Qu 4.24: Was cremation the only funerary practice used during the Middle and Late Bronze Age in the region, and what happened to the remains of the bulk of the population – given that our record for human remains for these periods is so sparse?

### **Understanding Metalwork**

#### **Priorities**

PKARF Agenda 4.23: A systematic metallurgical analysis of the metalwork from Perth and Kinross, supported by lead isotope analysis, is required to identify the sources of the metal in different areas and at different times; this needs to be set within a nationwide agenda to understand the movement of metal into and out of different areas.

PKARF Agenda 4.24: Carry out an investigation into the compositional data available from Middle and Late Bronze Age metalwork.

#### **Questions**

PKARF Qu 4.25: From where did the raw materials for the copper, bronze and gold objects found in the region come, and how did the metal arrive in the region – as ingots or as finished artefacts?

PKARF Qu 4.26: What routes were used in the circulation of metalwork, and how important were rivers, lochs and trackways/roads in this movement?

PKARF Qu 4.27: How much metalworking went on in the region?

PKARF Qu 4.28: How does the artefactual use of metalwork relate to artefacts made in other media?

### **Material Culture and Society**

#### **Priorities**

PKARF Agenda 4.25: The overall typochronology of Chalcolithic and Bronze Age pottery in the region needs to be clarified and set within its broader geographical context.

PKARF Agenda 4.26: There is still much to learn about the nature, scale and organisation of production of different kinds of artefact.

PKARF Agenda 4.27: More needs to be understood about the nature of stone resource exploitation and the range of flaked, coarse and fine stone artefacts in use between 2500 BC and 800 BC in the region.

PKARF Agenda 4.28: More needs to be understood about how, and for how long, artefacts were used.

PKARF Agenda 4.29: More needs to be understood about the social and cultural context of artefact deposition practices.

PKARF Agenda 4.30: The changing nature of social organisation, and of external contacts, in the region is poorly understood.

#### **Questions**

PKARF Qu 4.29: How was the production of different kinds of artefact – ceramic, metal, stone, organic – organised, and on what scale and by whom? How did this change over time?

PKARF Qu 4.30: How, and for how long, were artefacts used?

PKARF Qu 4.31: What was the social and ideological context for artefact deposition, and how did this change over 2500–800 BC?

PKARF Qu 4.32: What was the nature of social organisation, and how did it change over 2500–800 BC?



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