

Perth and Kinross Archaeological Research Framework

Chapter 3. Neolithic





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3.1 Introduction

The appearance, probably shortly after 4000 BC, of a new lifestyle that was more sedentary than that of Mesolithic hunter-fisher-foragers marks the beginning of the Neolithic period in Scotland. This lifestyle was based on the use of domesticated plants and animals and featured fresh technology (pottery) as well as notably different practices, traditions and beliefs. DNA evidence has shown that this farming lifestyle was introduced by immigrants from Continental Europe (Brace et al [2019](#)). As far as Perth and Kinross is concerned, the particular ‘strand’ of Neolithisation represented in this part of Scotland is the ‘Carinated Bowl Neolithic’, whose proximate Continental origin is the Nord-Pas de Calais region of northern France (Sheridan [2010a](#)). The end of the Neolithic period is conventionally defined as the point at which Beaker pottery and associated Continental novelties appeared, during the 25th century BC (ScARF Neolithic section [2012](#)); this too was associated with the arrival of incomers from the Continent. For the purposes of this framework, the Neolithic period is divided into the Early Neolithic, between about 4000 BC and around 3500 BC; the Middle Neolithic, between around 3500 BC and about 3000 BC, and the Late Neolithic, between around 3000 BC and 2500 to 2450 BC.

Our understanding of the Neolithic period in Perth and Kinross is perhaps the broadest (if not the deepest) of any local authority area in Scotland – including Orkney – with a wide range of aspects of Neolithic lifeways and material culture identified through a long tradition of sustained campaigns of research excavation and, from the 1970s onwards, intense aerial reconnaissance and detailed cropmark interpretation. This work has since been supplemented by a broad range of important discoveries made during developer-funded archaeological work. There is also a strong tradition of ‘amateur’ archaeology in Perth and Kinross, involving excavation campaigns, arable fieldwalking and the identification of rock art. This chapter provides a short regional overview for the Neolithic in Perth and Kinross as we currently understand it and includes a brief history of the archaeological research undertaken in the region as well as a more detailed assessment of the current resource. The research agenda provides recommendations for

further work in the form of research priorities and questions.

3.2 Regional Overview

The diverse natural environment of Perth and Kinross, with its distinctive Highland and Lowland landscape character types, has prompted an equally unique historic environment consisting of a broad range of Neolithic timber, earthwork and megalithic sites and monuments. These generally survive as upstanding archaeological sites in upland areas and as sub-surface remains, often made visible as cropmarks, found throughout the more agricultural broad valleys, basins and river corridors of the lowlands. Important natural routeways such as the east-west running straths and river corridors affording access to the Tay estuary and Firth coincide with good-quality agricultural land, especially in the eastern and southern parts of the region to make an attractive landscape for Scotland’s first farming communities.

Not surprisingly, since Perth and Kinross is a modern administrative construct, the Neolithic of this part of Scotland has seldom been synthesised in isolation. It has generally been considered as part of the ‘Tayside Region’ or ‘eastern lowland Scotland’ as demonstrated by many of Barclay’s publications (eg Barclay and Maxwell [1998](#); Barclay [1999](#); [2003](#)). Incorporation into a broader regional picture is also evident in the Scottish Archaeological Research Framework (ScARF) where Perth and Kinross features extensively in the Neolithic report as part of an ‘*East and Central Scotland between the Great Glen and the Forth*’ synthesis ([ScARF Neolithic section 3.3.1](#)). Valuable insights into various aspects of the region’s Neolithic past can also be found in edited volumes such as *Vessels for the Ancestors* (Sharples and Sheridan [1992](#)) and *The Neolithic of Mainland Scotland* (Brophy et al [2016](#)). Noble’s *Neolithic Scotland* ([2006](#)), Kinnes’ review of Scottish Neolithic studies ([1986](#)), and *Prehistoric Forteviot* (Brophy and Noble [2020](#)), the first monograph of the Strathearn Environs and Royal Forteviot (SERF), are all significant contributions. Bradley’s excavations at Croftmoraig/[Croft Moraig](#) (MPK363), Strathtay are invaluable; they revealed that some monuments, long considered to be of Neolithic date, are in fact much later (Bradley and Sheridan [2005](#); Bradley [2011](#); Bradley and Nimura [2016](#)) Neolithic material culture from Perth and Kinross is considered in individual publications;

the axeheads of Alpine jadeitite are discussed in relation to the French-led international Project JADE (Sheridan et al [2011](#); Sheridan and Pailier [2012](#); Gauthier and Pétrequin [2017](#)). The thin-sectioned axeheads of other kinds of stone are listed in *Stone Axe Studies II* (Clough and Cummins [1988](#); Ritchie and Scott [1988](#)). While the results of National Museums' Scotland excavations at the stone quarry at [Creag na Caillich](#) near Killin were published by Edmonds et al in [1993](#). A review of the Neolithic pottery from central and eastern Scotland was published by Cowie (Cowie [1992](#); [1994](#); see also Sheridan [2016](#)), while the pitchstone finds from Perth and Kinross are covered by Ballin's nationwide survey of the use and dating of pitchstone (Ballin [2009](#); [2015](#)). Maceheads are included in Roe's nationwide survey (Roe [1968](#); [1979](#)).

An 'Eastern Lowland' Scottish Neolithic

In a sense, the Neolithic of Perth and Kinross, as we currently understand it, forms part of an 'eastern lowland' Scottish Neolithic which has been defined by Sheridan and Brophy (ScARF Neolithic section [2012](#)) as consisting of:

- an extensive array of timber and earthwork monument types, notably cursus monuments, palisaded enclosures, timber circles and pre-henge activity;
- a burial record dominated by long barrows, mortuary enclosures and, to a lesser extent, round mounds/barrows;
- cropmark evidence for timber halls (eg [Claish](#)) and similar rectangular structures;
- a settlement record dominated by pits and pit clusters;
- a broad selection of material culture including Neolithic pottery traditions from Carinated Bowl to Grooved Ware.

To these can be added Late Neolithic timber structures which feature a central setting of four large posts, with one or more surrounding post ring. The dating of these structures has become a little clearer since 2012 thanks to the excavations at [Leadketty](#) (MPK5150; Wright and Brophy [forthcoming](#)), Dunning and [Haughs of Pittentian](#) (MPK18545; Becket et al [forthcoming](#)),

Crieff. Their function, however, remains a topic for debate.

An 'Upland' Neolithic?

The evidence for Neolithic activities is somewhat different across the upland areas of the region north of the Highland Boundary Fault. Here the Neolithic is characterised by the presence of different monuments and site types, namely chambered cairns, long cairns, stone circles, standing stones and other stone settings. Rock art appears to be more common in this part of Perth and Kinross than in the lowlands, although that may partly be due to more intensive prospection in this area, combined with greater destruction in intensively-farmed areas to the south. The stone quarry used for making axeheads and at least one cushion macehead at [Creag na Caillich](#) (Edmonds et al [1993](#)) is also located in this area above Killin. Standing stones are also present in the lowlands such as around Dunning, Strathearn and lower down the valley in the shadow of Moncreiffe Hill and around Mailer Hill (where there are also flint scatters) there are fewer surviving examples than in the uplands. Whether this reflects deliberate site construction decisions by Neolithic communities or is a consequence of site preservation, with more destruction occurring in the more intensively-farmed lowlands, remains a matter for further investigation. The patterns of the megalithic tradition (or megalithic construction?) across different landscape types (upland and lowland) requires more extensive research and analysis. However it is clear that the chambered tombs at [Cultoquhey](#) (MPK859), east of Gilmerton and [Kindrochat](#) (MPK348), near Comrie can be understood as easterly outliers of the Clyde cairn tradition of south-west Scotland. Careful consideration of chronology is also needed when dealing with standing stone monuments, since it is clear that some of these were erected during the Bronze Age. While rock art is assumed to date to the Late Neolithic, further investigation is required to allow the development of accurate chronologies for their creation.

3.3 History of Research

As with elsewhere in Scotland, Neolithic monuments were the focus of antiquarian inquiry from the 19th century onwards. The investigation and documentation of megalithic monuments and

burials was most common prior to the merger of the Perthshire and Kinross-shire Counties in 1975. In many instances, the sites are only known through the Ordnance Survey Name Book and Statistical Accounts; these sources make a limited contribution towards our contemporary understanding of Neolithic Perth and Kinross, in part due to the subsequent loss of recovered material remains. Nonetheless, valuable work by the likes of Coles at the turn of the 20th century have offered useful building blocks for analysis (eg Coles [1909](#)).

In the middle decades of the 20th century, a series of excavations were carried out at Neolithic monuments in the area by eminent archaeologists such as Childe, Piggott, Simpson and Coles. Childe, for instance, investigated a Clyde-type chambered cairn at [Kindrochat](#) (MPK348) with a team of students in 1929–30 (Childe [1930](#); [1931](#); Ralston [2009](#)). Between them, Coles, Piggott and Simpson carried out important excavations at a diverse range of sites in Strathtay including [Pitnacree](#) (MPK1714) round barrow in 1964 (Coles and Simpson [1965](#)) and a complex pit cluster at [Haugh of Grandtully](#) (MPK6035) in 1966–7 (Simpson et al [1991](#)). In 1965, Piggott and Simpson ([1971](#)) also excavated [Croft Moraig](#)/[Croft Moraig](#) (MPK363) stone circle. However, their Neolithic interpretation has been overturned by more recent excavations that produced an entirely Bronze Age sequence of dates (see chapters in Bradley and Nimura [2016](#)).

The early interventions were supplemented by the work of Stewart and Barclay who focused much of their attention on studying the Neolithic of Perth and Kinross. Both have made significant personal contributions to our current understanding of the Neolithic in the area through their sustained excavation campaigns.

Stewart (1907–86) was a student of Childe and a notable figure in the history of the archaeology department at the University of Edinburgh (Ralston [2009](#)). Her activities were centred around the pre-1975 County of Perthshire (Taylor [1989](#), 1) where she excavated a diverse range of Neolithic (and Bronze Age) sites and monuments between the 1930s and 1970s. These included stone settings at [Monzie, Crieff](#) (MPK848; Young and Crichton Mitchell [1939](#)), [Sandy Road, Scone](#) (MPK3285; Stewart [1965](#)), and a group of four-post stone settings in Strathtay (Stewart [1966](#); [1974](#);

Stewart and Barclay [1997](#)). Together with Henshall, Stewart investigated the chambered cairn at [Clach na Tiompan](#) (MPK955) in the Sma' Glen (Henshall and Stewart [1954](#)) and a site at [Dull](#) (MPK1027) near Aberfeldy, which she believed to have been a chambered cairn (Stewart [1959](#), 74; the identification was disputed and was not accepted by Henshall). She also excavated the complex multiphase 'mini' henge at [Moncreiffe House](#) (MPK3163) although most of this site was found to be post-Neolithic in date (Stewart [1986](#)). Additionally, she undertook an extensive survey of the prehistoric monuments of Perthshire (Stewart [1959](#)).

Barclay spent much of his career working with Historic Scotland; from 1977 onwards he was based in their Central Excavation Unit (Ralston [2016](#)). This position gave him the opportunity to direct important and large-scale excavations at a range of prehistoric sites and monuments across Scotland; some of his most important work was in Perth and Kinross. His excavations at [North Mains henge](#) and barrow (MPK1358 & 1359/Canmore IDs 26005/26006) in Strathearn during the late 1970s were amongst the most significant undertaken in modern archaeology in Scotland (Barclay [1983](#)). They inspired a great interest in cropmark sites of this period and region. In the early 1990s Barclay, together with Maxwell, excavated a Neolithic mortuary enclosure at [Inchtuthil](#) (MPK6939), the [Cleaven Dyke](#) (MPK6611/Canmore IDs 28473/73146) cursus, and the timber structure at [Littleour](#) (MPK6955) amongst many other sites (Barclay and Maxwell [1992](#); [1998](#)). His First Farmers project, funded by the Arts and Humanities Research Council, endeavoured to identify Neolithic settlement sites in Perth and Kinross. It included excavations of the [Claish](#) timber hall (now Stirling although historically in Perthshire) in 2001 (Barclay et al [2003](#)), the timber structures at [Carsie Mains](#) (MPK6977 & 6980) in 2002 (Brophy and Barclay [2004](#)), and other assorted cropmark enclosures, pit clusters and lithic scatters with mixed results. His contribution to our understanding of the region's Neolithic also encompassed important synthesising studies on settlement, enclosures, cursus monuments and henges (eg Barclay [1999](#); [2001a](#); [2003](#); for full bibliography, see Ralston [2016](#)).

Both Stewart and Barclay were strong supporters

of the 'amateur scene' in the County of Perthshire. Stewart had a leading role in the Perthshire Society of Natural Science, founding its Archaeological and Historical Section in 1948 (see ['Archaeology and History – Perthshire Society of Natural Science'](#)). She was a strong supporter of community excavations (Taylor [1989](#); Hall [2018](#)). Barclay was a patron of the 'Stones and Bones' fieldwalking group who were active during his excavations of the 1990s and 2000s (eg Hallyburton and Brown [2000](#)).

Following from the work of Barclay, the SERF Project delivered a significant, decade-long research-based fieldwork programme (2006–17) through the University of Glasgow (and Aberdeen in its initial phase). This landscape-scale, multiphase approach has added considerably to our understanding of Neolithic monumentality around the Forteviot-Leadketty complexes in Strathearn (Driscoll et al [2010](#); Noble and Brophy [2011a](#); [2011b](#); Brophy and Noble [2020](#); Wright and Brophy [forthcoming](#)) as well as Neolithic cremation practices (Noble and Brophy [2020](#); Noble et al [2017](#)). SERF has also contributed towards research priorities such as the transition between the Neolithic and Chalcolithic periods, the chronology of henge monuments, and the general lack of environmental contextualisation for Neolithic sites. PhD research has emanated from the SERF project has included Kirsty Millican's work on timber monuments ([2009](#); [2016a](#); [2016b](#)) and Rebecca Younger's thesis on henge monuments ([2015](#); [2016](#)). The wider project results relating to the Neolithic are published in *Prehistoric Forteviot* (Brophy and Noble [2020](#)), the first of four SERF monographs.

Cropmarks are one of the most significant characteristics of the Neolithic archaeological record in Perth and Kinross and, as previously mentioned, were the focus of most of Barclay's work and part of the SERF Project's prehistoric excavations (Brophy and Noble [2020](#)). Early aerial reconnaissance in the area where Neolithic sites were documented began with the Cambridge University Aerial Photograph Collection (CUCAP) as a tertiary output from flights by St Joseph that largely focused on suspected Roman period targets (Jones [2005](#)). A notable example is the palisaded enclosure complex at *Forteviot* (MPK1882/Canmore ID 26559/296263; St Joseph [1976](#)). The identification and interpretation

of cropmarks through broader aerial reconnaissance work by the Royal Commission on the Ancient and Historic Monuments of Scotland (RCAHMS, now Historic Environment Scotland) (Maxwell [1979](#)) has radically influenced the way that the Neolithic is viewed across large swathes of lowland Scotland (Barclay [1993](#); Brophy [2007a](#)). This is especially the case in Perth and Kinross where large numbers of Neolithic sites and types such as possible timber halls, four-post structures, cursus monuments, mortuary enclosures, timber circles, palisaded enclosures and henges were unknown prior to the sorties commencing in 1976. Crucially, a large number of these cropmarks have been subject to detailed and innovative interpretation and synthesis by the RCAHMS, published in their volume *South-east Perth: an archaeological landscape* (RCAHMS [1994](#)).

Where surveys have taken place in the uplands, the mixed results have played a lesser role in our understanding of this period. It is likely that Neolithic sites remain undiscovered across much of the region's uplands. Possible Neolithic sites were found in Strathtay in the 1950s (Stewart [1959](#)) but none were identified by RCAHMS surveys in Strathardle or Glen Shee in the late 1980s (RCAHMS [1990](#)). Between 1996 and 2005, much attention was focused on the environs of Ben Lawers as part of the Ben Lawers Historic Landscape Project which included an RCAHMS survey in addition to the GUARD excavations (see Atkinson et al [2016](#)). Possible and probable Neolithic sites identified during the RCAHMS survey work included chambered cairns and standing stones with the excavations revealing lithics such as leaf-shaped arrowheads and pitchstone blades. Submerged woodland remains at *Craggantoul* (MPK17641) in Loch Tay returned wide-ranging radiocarbon dates including those for three Neolithic oaks calibrated to various spans between about 3500 cal BC and 3000 cal BC (Dixon [2007](#); Dixon [2016](#)). Over 100 outcrops and boulders with rock art were also identified (although their chronology remains unclear) (Hale [2003](#)). These discoveries were followed up by excavations of several rock art sites in 2007–10 (Bradley et al [2013](#)). Further identifications have since been made by amateur rock art investigator Currie (regularly reported in *Discovery and Excavation in Scotland*). Research into Perth and Kinross's extensive rock art record continues through Historic Environment Scotland's [Scotland's Rock Art](#)

[Project](#) (ScRAP). Considering these different projects together, it is clear that the use of multiple analysis techniques to investigate the sites and monuments around Ben Lawers and its wider Loch Tay environs have successfully identified Neolithic activity away from lowland arable areas.

Other fieldwork carried out in the uplands above the Highland Boundary Fault was the research excavation of the stone quarry, or so-called ‘axe factory’, at [Creag na Caillich](#) above Killin in 1989. This was funded by National Museums Scotland (NMS) and led by Edmonds, with Sheridan; palaeoenvironmental analysis was undertaken by Tipping (Edmonds et al [1993](#)). This work followed on from much earlier fieldwork carried out by Ritchie and MacKie, as described by Edmonds et al ([1993](#)). It clarified the nature of the activities that had taken place, their date (namely intermittent, small-scale exploitation during the third millennium BC and probably also the late fourth millennium BC) and the environment around the time of the quarrying. Petrological research by NMS also confirmed Ritchie’s suspicion that a cushion macehead found at Knock on the Outer Hebridean Isle of Lewis is of Creag na Caillich calc-silicate hornfels (Edmonds et al [1993](#)).

A notable emergent theme in regional Neolithic studies is developer-funded archaeological work which has contributed significantly to Scotland’s archaeology sector since the latter half of the 1980s (Carter [2002](#)). Perth and Kinross features in Scotland-wide reviews of commercially delivered fieldwork contributions (Phillips and Bradley [2005](#); Brophy [2007a](#)). Brophy’s assessment ([2007a](#)) highlights that, between 1985 and 2014, 50% of the archaeological excavations which found material dated to the Neolithic were undertaken in advance of development. Work by commercial sector organisations is clearly of great importance and continues to be inform our understanding of the period, complementing the result of research-based excavations. The excavations at [Haughs of Pittentian](#) (MPK18545) between 2011 and 2014, undertaken as part of preparations for the Beaully to Denny overhead electricity cable (Becket et al [forthcoming](#)), are a good example of this, as is the recent archaeological work associated with Transport Scotland’s A9 Dualling programme (Paton and Wilson [2019](#)).

Major UK-wide and international research projects have also illuminated the Neolithic period in Perth and Kinross. The *Gathering Time* chronology project, led by Whittle with Bayliss and Healy and funded by the Arts and Humanities Research Council and English Heritage, has used Bayesian-models to analyse the available radiocarbon dates for Neolithic ‘things and practices’ in Scotland south of the Great Glen (Whittle et al [2011](#), chapter 14). Whittle et al concluded that ‘the Neolithic’ in this part of Scotland began either 3950–3765 *cal BC* (95.4% probability) or 3835–3760 *cal BC* (95.4% probability). The different estimates are due to the fact that Perth and Kinross straddles their ‘south Scotland’ and ‘north-east Scotland’ regions (See Sheridan [2012](#) for a review of their findings, also Sheridan and Schulting [2020](#) for new Bayesian modelling of Scottish funerary monuments). Whittle et al are revisiting their chronological models in the light of the new IntCal20 radiocarbon calibration which may alter the conclusions thus far drawn. *Projet JADE*, a major international research project funded by the Agence Nationale de la Recherche, France and led by Pétrequin, has transformed our understanding of the small number of Alpine axeheads found in Perth and Kinross. It has located the source of the rock and situating their arrival in Scotland within a Europe-wide picture of Alpine rock exploitation and circulation (Pétrequin et al [2012a/b](#); [2017a/b](#)). This work follows on from an earlier tradition of research into the stone axeheads of this part of Scotland (and the rest of Britain), undertaken by the Implement Petrology Committee (now Group) mostly in the 1970s and 1980s; it involved petrological thin-sectioning of selected axeheads (Ritchie and Scott [1988](#)). Other research that has provided information on Neolithic Perth and Kinross is the long-standing radiocarbon dating programme of National Museums Scotland which has produced a date for secondary activity at the Early Neolithic round barrow at [Pitnacree](#) (MPK1714; Sheridan [2010b](#)). In collaboration with Schulting, it has also produced a date relating to the use of Cultoquhey chambered tomb (Sheridan and Schulting [2020](#)).

3.4 The Resource

3.4.1 Funerary and Allied Monuments and Funerary Practices

3.4.1.1 Early Neolithic

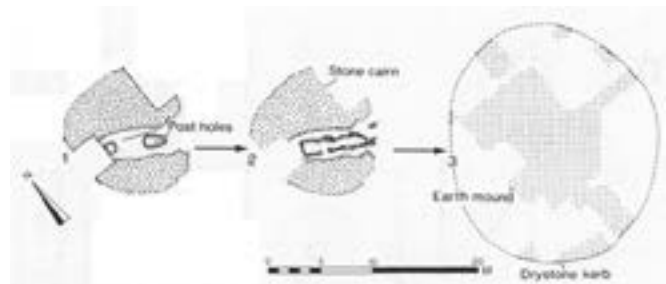
The region hosts a variety of Neolithic funerary and allied monuments: the non-megalithic round barrow at [Pitnacree](#) (MPK1714), several long mounds some of which have chambers, the chambered tomb at [Cultoquhey](#) (MPK859) whose cairn may have been round, and rare rectangular ‘mortuary enclosures’ such as at [Inchtuthil](#) (MPK6939). The enormously long (342m) ‘bank barrow’ at [Auchenlaich](#) (now in Stirling), the 1.8km long bank barrow-cum-cursus monument the [Cleaven Dyke](#) (MPK6611; Canmore IDs 28473/73146) and the cursus monuments of Perth and Kinross may represent aggrandised versions of the long mound and mortuary enclosure monument types respectively. They were probably built during the second quarter of the fourth millennium BC. These sites may have used for the commemoration of the dead even if they did not house human remains.

may be that this had initially stood as a free-standing mortuary structure, allowing the decomposition of the small number of people placed on or in it. Similar rectangular timber mortuary structures are known from early Carinated Bowl Neolithic contexts elsewhere in Britain. A subsequent phase of construction involved the erection of a horseshoe-shaped, low stone cairn around the mortuary structure and the deposition of the cremated remains of an adult male plus a second adult, probably female, and a child on the old ground surface in the area of the mortuary structure. The whole was then covered by a turf mound (Coles and Simpson 1965; Kinnes 1992a). [Pitnacree](#) is one of only six definite and probable Neolithic round barrows in Scotland (Sheridan 2010b). There are other large round mounds located in Strathtay and beyond, several are represented in the cropmark record, which might prove to be of Neolithic date if excavated (Barclay 1999; Brophy 2010). However, an Early Bronze Age date is equally, or arguably, more likely.



Pitnacree barrow © Perth and Kinross Heritage Trust

The non-megalithic round barrow at [Pitnacree](#) (MPK1714), which is associated with Carinated Bowl Neolithic pottery, could date as early as the 37th or possibly late 38th century BC. Sadly, attempts to locate and date the cremated human remains from its initial period of use have so far been unsuccessful (Sheridan 2010b). Excavations here in the 1960s (Coles and Simpson 1965) showed that this earth and stone mound covered a rectangular mortuary structure which, in its earliest phase, was constructed using two massive split-trunk posts. It



Stages in the construction of the Early Neolithic round barrow at Pitnacree, as envisaged by the late Ian Kinnes (From Sheridan 2010a, reproduced with permission of the Kinnes estate)

It is unclear whether any non-megalithic long mounds were constructed in Perth and Kinross, even though Kinnes listed two long cairns at [Cairn Wochel](#) (MPK807) and [Fortingall](#) (MPK460) in his review of the non-megalithic long mounds of Britain (Kinnes 1992a, 18; 1992b). Two candidates for earthen long barrows are known from cropmarks: at [Thorn](#) (MPK7175) near Auchterarder and [Haugh of Grandtully](#) (MPK7851). While another two are largely known through antiquarian accounts. [Herald Hill](#) (MPK5460) near Blairgowrie is an example of a possible Neolithic long barrow or cairn augmenting a natural mound. Trapezoidal in plan and around

70–80m long and 15–20m across, test-pitting, during the Cleaven Dyke project, confirmed that it was at least partly constructed by humans (Barclay and Maxwell [1997](#)). It is located just over one kilometre east-south-east of the visible traces of the Cleaven Dyke. It has also been suggested that the north-west end of the Cleaven Dyke itself is a long barrow, possibly adjacent to an oval barrow (Barclay and Maxwell [1998](#), 20). One of the two long cairns listed by Kinnes in his corpus of non-megalithic long mounds in Britain, that at Fortingall, is almost 40m long and is located on the valley floor. It was proposed to be a possible Neolithic monument by Henshall ([1972](#), 478). The example at [Cairn Wochel](#) (MPK807), north of Braco, was destroyed and is only known from an antiquarian account of 1726 which reported that it was around 55m long (Henshall [1972](#), 478). Neither has been excavated but an 18th century account notes the discovery of a ‘stone coffin, in which there was a skeleton 7 feet long’ at Cairn Wochel.

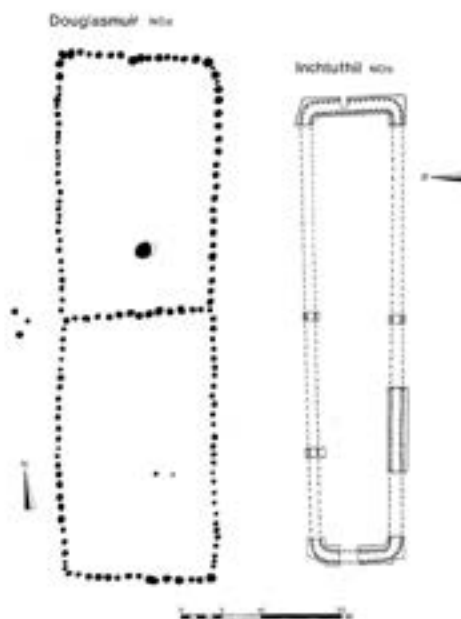
Richard Bradley (pers. comm.) has raised the intriguing question of whether the monument excavated at [Castle Menzies Home Farm](#) (MPK1044; Halliday [2002](#)) in Strathtay, normally described as a post-defined cursus (eg in Millican [2016a](#), Fig. 8.2), is actually a large, ploughed-out non-megalithic long barrow that has been converted into a cursus monument by the addition of an unknown length of post-lines. Such an interpretation would account for the concave façade at one end, which contrasts with the straight ends characteristic of cursus monuments, and the multiple phases of construction that are evident (Halliday [2002](#)). The dimensions (c 130x36m to the end of the first stretch of roughly parallel posts) and its early fourth millennium BC radiocarbon dates (albeit from oak charcoal, and thus with a possible ‘old wood’ effect) are also consistent with such a hypothesis. Some long mounds are apparently edged by ditches or post-lines, for example at [Dalladies](#), Aberdeenshire (Kinnes 1992a, Fig. 2.4.2) and [Eweford West](#) and [Pencraig Hill](#), East Lothian (Lelong and MacGregor [2007](#), 20, 34). These enclosing features may have defined pre-barrow mortuary enclosures surrounding non-megalithic mortuary structures.

Chambered long cairns are known at [Clach na Tiompan](#) (MPK955; Henshall [1972](#), 468–72), [Kindrochat](#) (MPK348; Henshall [1972](#),

472–5), [Rottenreoch](#) (MPK908; Henshall [1972](#), 475), [Middleton of Derculich](#) (MPK1081; Henshall [1972](#), 478) and [Carie](#) (MPK17072). All are located in the upper valleys of the rivers Almond, Earn and Tay and none have been excavated in the past 50 years.. The example of Carie, on the north side of Loch Tay, was recorded as recently as 2000 through a RCAHMS field survey undertaken during the Ben Lawers Historic Landscape Project (referred to as Kiltyrie in MacGregor and Toolis [2016](#), 9, 29). Like the monuments at Clach na Tiompan, Kindrochat and possibly also Rottenreoch, the chambered cairn at Carie can be related to the Clyde group of chambered cairns, whose distribution focuses on south-west and west Scotland. The chambered tomb at [Cultoquhey](#) (MPK859), which may have had a round cairn, has also been classified as a further eastern outlier of the Clyde group (Henshall [1972](#), 475–7). A fragment of an unburnt human bone from Cultoquhey was radiocarbon dated to 4680±40 BP (GrA-26922, 3628–3366 cal BC: Sheridan and Schulting [2020](#)). This is in accordance with the broader picture of Clyde cairn chronology in which this style of chambered tomb seems to have emerged between 3765–3645 BC (Sheridan and Schulting [2020](#), 203). Clyde cairns are a regional development that appears to represent a translation into stone of the earliest Neolithic non-megalithic funerary structures that are associated with the Carinated Bowl Neolithic. The presence of these eastern outliers of this monument tradition in Perth and Kinross shows that there were contact between the highland part of this area with the west and south-west of Scotland.. The first phase of the trapezoidal monument at [Auchenlaich](#), near Callander, can be added to this list of chambered cairns. This monument, with a chamber aligned on its shallow façade and a lateral chamber, was subsequently enlarged to be transformed into a massive 322 metre-long bank barrow.

The rectangular ‘mortuary enclosure’ at [Inchtuthil](#) (MPK6939), within the Roman legionary fortress, was found to be of Early Neolithic date when it was excavated (Barclay and Maxwell [1991](#)). It consists of a ditch enclosing a roughly rectangular area 53.9m long by 8.4m to 10m wide in which two fence-like structures supported by substantial upright timbers had been built, one after the other. The later of the two was subsequently burnt down. The continuous fence would have blocked visual

access to the interior although some kind of entrance presumably existed. Analysis of fragments of the burnt timbers at Inchtuthil revealed all samples to be of mature oak, including posts and radially-split planks (Mills 1992). This latter technology contrasts the tangentially-split oak planks that have been excavated at the part-waterlogged Early Neolithic long barrow at Haddenham in Cambridgeshire (Morgan 1990; Evans and Hodder 2006). It shows the potential for recovering information on Neolithic woodland use, character and technology even from burnt remains. While no human remains were found in the Inchtuthil enclosure, the resemblance of this structure to the post- or ditch- enclosures found surrounding mortuary structures and/or long mounds elsewhere for example at Dalladies, Aberdeenshire (Kinnes 1992a, Fig. 2.4.3) and Eweford West and Pencraig Hill, East Lothian (Lelong and MacGregor 2007, 20, 34) has led to the idea that Inchtuthil could have been used as an area for laying out the dead for exposure. Other candidates for Early Neolithic mortuary enclosures in Perth and Kinross are known from cropmarks, where they are generally defined by timber posts. A post-built rectangular mortuary enclosure is known at [Douglasmuir](#) in Angus (Kendrick 1980; note that Millican 2016, Fig. 8.2 classes this as a cursus), but in general these monuments are rare in Britain (Kinnes 1992a, 19).



Early Neolithic rectangular mortuary enclosure at Inchtuthil, and comparative site at Douglasmuir, Angus © Kinnes 1992

In Scotland, cursus monuments have mostly been found in Tayside and Fife, East Lothian and the eastern part of Dumfries and Galloway (Brophy 2015) but an example was also found on Arran in 2020. All but one of the region's cursus monuments are known only as cropmarks. They are broadly defined as long, rectangular monuments and although their function remains unclear, rituals involving procession would undoubtedly have taken place along their length. In the case of some post-built examples, deliberate fire setting to create a dramatic conflagration is also likely (Thomas 2007). They look like significantly elongated versions of the Early Neolithic rectangular mortuary enclosures discussed above and could have been associated with commemorating the dead at a societal, possibly 'tribal', level. It is unknown whether the dead would have been interred within them but there are sites in England where human remains have been found in cursus monuments (Bradley 2019, 74). As noted above, the likely conversion of an Early Neolithic long barrow into a cursus monument at [Castle Menzies Home Farm](#) (MPK1044) is consistent with the idea that there is some element of commemorating the dead at these sites. The dating of Scottish cursus monuments, and the style of Carinated Bowl pottery associated with the examples excavated at Holywood [North](#) and [South](#) in Dumfries and Galloway, suggest that they are likely to have been constructed during the second quarter of the fourth millennium BC (Thomas 2007).

Like the earthwork cursus at [Broich](#) in Strathearn (MPK893; Cachart and Perry 2009), the Castle Menzies Home Farm cursus/long barrow was excavated in advance of development. Other excavated cursus sites in the region show variety in monument form and context. [Milton of Rattray](#) cursus (MPK6975) near Blairgowrie was defined by pits instead of posts (Brophy 2000), while [Blairhall](#) by Scone (MPK5480) was an important hybrid timber-earthwork cursus (King 1992). Blairhall sits amidst a rich cropmark complex including a parallel linear barrow cemetery of presumably much later date. It is a good example of the potential for cropmarks to broaden our understanding of these sites (Brophy 2015).

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The unique monument known as the [Cleaven Dyke](#) (MPK6611/Canmore ID 28473/73146), near Blairgowrie (Barclay and Maxwell [1998](#)), appears to combine features of a cursus monument (a long pair of parallel ditches) with that of a bank barrow (a long mound, running centrally between the ditches). It survives to a length of 1.8km and may originally have been longer. It is one of the most spectacular Neolithic earthworks in Europe. It has been excavated at least four times during the 20th century. The latest and most conclusive work carried out in the 1990s demonstrated that the monument was Neolithic and not Roman as previously believed (Barclay and Maxwell [1998](#)). Barclay and Maxwell concluded that the monument was likely to have been built in the 4th millennium BC; its construction was not single-phase but involved successive additions and continually extended to the south-east (Barclay and Maxwell [1998](#)). As noted above, it may have been built onto a pre-existing Early Neolithic non-megalithic long barrow at its north-westerly end.

Another example of a bank barrow is the 322 metre-long rectangular mound at [Auchenlaich](#) (Foster and Stevenson [2002](#)). It started off as an up to 48m long trapezoidal chambered mound; the act of aggrandising the mound will have involved an enormous input of communal labour by a large number of people. It may well be, then, that as with cursus building and the Cleaven Dyke, this was a way for an entire community, or 'tribe', to commemorate its dead. Bank barrows are rare in Scotland and are scattered from Dumfries and Galloway to Moray (Brophy [2015](#)); a few have been found elsewhere in Britain (Bradley [2019](#), 71–6).

The longer ditch- or pit-defined cursus monuments found in Perth and Kinross, elsewhere in Scotland (Brophy [1998](#); [2015](#); Brophy and Millican [2015](#)) and indeed in the rest of Britain (Bradley [2019](#), 71–6)

may constitute aggrandised versions of rectangular mortuary enclosures. Similarly, bank barrows, and the hybrid bank barrow and cursus monument at the Cleaven Dyke, may be augmented versions of long mounds. The Cleaven Dyke may have been built onto a pre-existing Early Neolithic long barrow at its north-west end, while the Auchenlaich bank barrow seems to have been built on a pre-existing chambered long cairn. This points towards a function in commemorating the ancient dead. The communal effort required to construct funerary mounds, and the much more significant exertion involved in constructing cursus monuments and bank barrows, offers hints as to the nature of Early Neolithic social organisation (cf Sheridan and Schulting [2020](#)). Memorialising small numbers of individuals inside non-megalithic round and long barrows, effectively inaccessible for subsequent interments, may have portrayed them as 'founding ancestors' and the task of constructing the mound would have involved several households. By the time that cursus monuments and bank barrows were constructed, these acts of memorialising the ancestors seem to have involved the entirety of the broader community, or 'tribe', which strengthened the identity and cohesion of this larger social grouping.

3.4.1.2 Middle Neolithic

Middle Neolithic funerary practices are represented by structures which, at first sight, appear to resemble the large Early Neolithic houses or 'halls' of the initial farming groups. However, these are believed to be enclosed spaces for raised exposure platforms which would have allowed open-air decomposition of the dead. They consist of roughly rectangular post-built structures with rounded ends and with further postholes indicating the former existence of massive posts within the interior. They measure up to c 23m in length and c 9m in width. In some cases they appear to have been burnt down. Excavated examples include [Littleour](#) beside the [Cleaven Dyke](#) (MPK6955; Barclay and Maxwell [1998](#)) and [Carsie Mains](#), also near Blairgowrie (MPK6977; Brophy and Barclay [2004](#)). As with the Early Neolithic rectangular mortuary enclosures, no human remains have been found although no unburnt bones left in the open air can be expected to have survived in the soil conditions of this part of Scotland. A further example known from cropmarks at [Balrae](#)

[Cottage](#) near Blairgowrie (MPK7125) adds to this small cluster of sites. Another possible example was excavated in 2020 on the opposite side of the River Tay at the A9 Dualling Stanley Junction Borrow Pit (MPK20176; Airey [2020](#)). This structure consists of six large and four smaller adjacent post holes, some of which contained undiagnostic prehistoric pottery. Further afield, two examples of this kind of site were excavated at [Balfarg Riding School](#) in Fife (Barclay and Russell-White [1993](#)). No parallels for this type of monument can be found outside this part of Scotland and it appears to represent a regionally-specific phenomenon. The dating of these monuments relies on the apparent pre-dating of deposits of Grooved Ware at Littleour and Balfarg Riding School as well as a radiocarbon date of 4640 ± 60 BP (3629 – 3111 cal BC at 95.4%, GU-4379) obtained from oak charcoal from a massive axial post inside Littleour. An ‘old wood’ effect may apply to a further date (4435 ± 70 BP / 3341 – 2917 cal BC at 95.4%, AA-53270B) obtained from a charred hazel twig at Carsie Mains, which may have made its way into one of the small post holes after the post had rotted or been removed.

3.4.1.3 Late Neolithic

Late Neolithic funerary practices are in evidence at the [Forteviot](#) (MPK1888) cemetery which features deposits of cremated remains (Noble et al [2017](#); [2020](#)). Here, nine discrete deposits representing 18 individuals were found along with a small, undecorated hemispherical cup that could have been a chafing vessel for transporting burning embers to light the pyres (Sheridan [2020](#)). Fragments of long bone ‘skewer’ pins that had probably fastened funerary garments were also discovered (Leach et al [2020](#)). A single standing stone, of which only the stump survives, may have been a marker for the cemetery. Bayesian dating of radiocarbon dates for the calcined remains indicated a currency for this cemetery of between 3080 – 2900 cal BC and 2890 – 2650 cal BC (at 95%: Hamilton [2020a](#)). This is one of a small number of similar cemeteries in lowland Scotland. A slightly earlier example is [Cairnpapple](#), West Lothian and it has *comparanda* in northern and southern England for example at Duggleby Howe, Yorkshire, and Dorchester upon Thames, Oxfordshire (Noble et al [2017](#)).



Plan of the timber enclosure at Forteviot © Brophy and Noble 2020

The Forteviot cemetery doesn't appear to have an association with Grooved Ware pottery and it may be that it pre-dated the use of this kind of pottery in Perth and Kinross. Elsewhere in mainland Scotland, in contrast to Orkney, there are indications that cremation was the funerary rite associated with this ceramic tradition (Sheridan and Schulting [2020](#)). However, to date there have been no finds of human remains associated with Grooved Ware in this region. That said, at [Haughs of Pittentian](#) (MPK18545) there is a deposit of cremated human remains which have been radiocarbon dated to the 30th century BC (Becket et al [forthcoming](#)). Stratigraphically, this deposit appears to post-date the construction of the timber ‘square-in-circle’ structure excavated there (Becket et al [forthcoming](#)). Also present, and loosely associated with the monument, was the base of a single Grooved Ware pot.

3.4.2 Ceremonial Monuments and Neolithic Enclosures

The question of whether any Early Neolithic causewayed enclosures exist in Perth and Kinross, and indeed anywhere else in Scotland, has long been debated (eg Oswald et al [2001](#)). Putative candidates have been excavated at [Loanleven](#) near Blairgowrie in 2002 (MPK2056; Barclay pers. comm.) and [Leadketty](#) Strathearn in 2013 (MPK5150; Barclay [2001a](#); Wright and Brophy [forthcoming](#)). In terms of clarifying chronology and function, however, neither excavation produced any conclusive evidence. Barclay also conducted excavations at another possible causewayed enclosure identified through the cropmark record at [Upper Gothens](#) near Blairgowrie (MPK5496). It was hoped that the site would be similar to a cropmark enclosure at [Collessie](#) in Fife (Barclay pers. comm.) where excavation in the 1980s produced a date of 3800–3100 cal BC for charcoal from the fill of the inner ditch and also revealed some Neolithic pottery (Barber [1983](#); Cowie [1994](#)). A pit containing Late Neolithic Grooved Ware was subsequently found here during fieldwork in 2011. Ultimately, Upper Gothens has proved to be early medieval in origin (Barclay [2001b](#)) and the Collessie enclosure could equally be of Late Bronze Age date with residual Neolithic material in the ditch (see Cowie in Barber [1983](#)). Despite these results, large circular to oval cropmark enclosures continue to hold potential as Neolithic sites and should not be discounted from future investigation. Indeed, the hilltop enclosure at [Dun Knock](#) in Strathearn (MPK2004) demonstrates this, where the outer ditch (a cropmark) of this supposedly Iron Age site contained a complete Carinated Bowl pot and was found to date to the Early Neolithic (Wright and Brophy [forthcoming](#); Poller [forthcoming](#)).

During the Late Neolithic, more circular monument forms emerged; Perth and Kinross contains a fair proportion of the known timber circles in Scotland as well as cropmark sites categorised as pit-circles (as discussed by Millican [2008](#)). Excavation of some pit-circles has revealed that they occur either in relative isolation for example at [Carsie Mains](#) (MPK11208; Brophy and Barclay [2004](#)); within henge monuments as at [North Mains](#) (MPK1353; Barclay [1983](#)); or surrounding henge monuments for example [Forteviot Henge 1](#) (MPK1888; Brophy and

Noble [2012](#)). Where timber circles and henges are found together, the timber circles are almost always earlier in date than the henges (Barclay [2005](#)), and the excavated examples from Perth and Kinross conform to this pattern. At Forteviot, for example, the timber circle was dated to 2620–2475 cal BC (from oak charcoal: Brophy and Noble [2020](#), 135) while the henge it surrounded was probably constructed 2460–2230 cal BC at 95% probability (Hamilton [2020b](#)). That said, given that the timber circle date is from old charcoal, the possibility remains that the timber circle, like the henge that succeeded it, was constructed during the Chalcolithic period. There are a wide range of henge types known in the region, from ‘mini’ henges to massive earthworks (cf Harding and Lee [1987](#); Younger [2015](#)). However, where excavated for example at [Moncreiffe House](#), North Mains, Forteviot Henge 1, the earthworks have dated from the Chalcolithic period or later and are therefore discussed in the Chalcolithic and Bronze Age chapter of the framework.

At no more than 50m in diameter, timber circles are dwarfed by palisaded enclosures which were enormous timber-defined arenas that emerged after 2800 cal BC (Noble and Brophy [2011a](#)). Of the five currently known in Scotland, two are located in Perth and Kinross, just 4km apart on the south terrace of the River Earn at [Forteviot](#) (MPK1882; Canmore ID 26559/296263) and at [Leadketty](#) (MPK1961). These massive monuments would have consumed huge amounts of oak, labour, time and resources to build and maintain, and although superficially similar in plan when compared as cropmarks, the excavations have revealed them to be contrasting structures. Forteviot appears to have been a gathering place for ceremonial activities, while Leadketty is believed by the excavator to be a fenced enclosure that more likely contained settlement and perhaps farm animals (see Brophy and Noble [2020](#); Noble and Brophy [2014](#)).

Standing stones, stone settings and stone circles are relatively common in the region, with over 50 known stone circles. However, it remains unclear whether any of the stone circles were erected during the Neolithic period since excavated sites have consistently yielded Chalcolithic or Bronze Age dates. The only exception is the stump of a standing stone at Forteviot associated with a Late Neolithic cemetery

featuring cremated remains. (Noble et al [2017](#); Brophy and Noble [2020](#)). [Pitnacree](#) (MPK1714) is a good example where the cremated human remains found in the pit of a standing stone erected on the top of the Early Neolithic round barrow produced a date of 3740±60 BP, 2340–1960 cal BC (Sheridan [2010b](#)). Bradley has convincingly argued, in relation to the structural sequence at [Croftmoraig/Croft Moraig](#) (MPK363), that the earliest stone circle is no earlier than the Early Bronze Age, with the final oval stone circle having been erected during the Late Bronze Age (Bradley and Nimura [2016](#); cf Bradley and Sheridan [2005](#)). Further, excavated evidence for ‘four-poster’ stone ‘circles’, of which over 30 have been recorded in Perth and Kinross (Burl [1988](#)), indicated they were erected and used during the Bronze Age. The most recently published example is at [Na Clachan Aoraidh](#) (MPK1245) above Loch Tummel (see Ellis and Ritchie [2018](#)). The site excavated by Simpson at [Fortingall Church](#) Site A (MPK8) has produced a radiocarbon date of 1108–901 cal BC (2825±30 BP, SUERC-18874: Sheridan [2008](#)). Further discussion on these monument types can be found in the Chalcolithic and Bronze Age chapter of the framework.

Finally, the question of the nature and function of Late Neolithic structures featuring a central square setting of four massive posts surrounded by one or more post rings, such as at [Leadketty](#) (MPK5150; MPK1977; Wright and Brophy forthcoming), remains a topic for debate. While the evidence is presented in the section on ‘Settlement Evidence and Timber ‘Square-in-circle’ Structures’, it could be argued that these structures were anything but domestic in nature. Resolving the issue of their function must be one of the key outstanding research questions.

3.4.3 Rock Art

Over 700 rock art sites are currently known to exist in Perth and Kinross, with notable concentrations in the upland valleys of Strathbraan and Strathtay. Through a combination of antiquarian, amateur and professional endeavour, an extensive rock art landscape has been recorded and partly excavated on the northern side of Loch Tay. The group of prehistoric rock carvings found within the Ben Lawers Estate is considered to be one of the most extensive and best recorded in Britain (Bradley and Watson [2012](#), 29). Bradley and Watson’s investigations of four of the

decorated rocks in this group, plus two undecorated outcrops for comparison, represents a significant contribution to our understanding of prehistoric rock carving, the rock selection process, the rock art’s wider environmental landscape setting, and the activities associated with its production (see Bradley et al [2013](#); Bradley and Watson [2012](#)). Analysis of the recovered lithics, mainly hammerstones, large quantities of worked and flaked quartz plus two broad blades of Arran pitchstone has enabled the interpretation to consider the more performative aspects of rock art production and maintenance. These include the visual effect of triboluminescence as quartz glowed after deliberate smashing across a rock’s surface. (Bradley and Watson [2012](#), 59–60).



Cup and Ring Marked stone from Gallowhill © HES

Apart from the two pitchstone broad blades, dated to the Middle or Late Neolithic by cross-assemblage comparison (Bradley and Watson [2012](#), 49), this project did not produce any datable material. It therefore also serves as an illustration of the challenge to date the region’s rock art. That said, the fact that the pitchstone blades have signs of wear that may indicate that they were used, in some way, to create the designs, accords with the idea that Atlantic rock art was created between around 2900 BC and about 2500 BC. Nationally, rock art is subject to ongoing research by the [ScRAP](#) project with future investigation underpinned by a thematic national research framework, [Future Thinking on Carved Stones in Scotland](#), which provides information on past, present and future carved stone research initiatives.

3.4.4 Settlement Evidence and Timber ‘Square-in-circle’ Structures

Dating to the Early Neolithic, Scotland’s large rectangular timber ‘halls’ are associated with the first few generations of incoming farmers. They may well have served as communal houses for several family groups who had moved into an area, until such time as they felt sufficiently well established to separate into individual farming groups (Sheridan [2013](#); for a discussion of other interpretations of these structures, see Brophy [2007b](#)). Now located in the Stirling local authority area, the timber hall at [Claish](#) near Callander was excavated in 2001 (Barclay et al [2003](#)). It was revealed to be a large rectangular timber building with bowed ends and internal divisions, of a similar scale to [Balbridie](#), Aberdeenshire. It measures c 25m by c 9.5m and Bayesian-modelled radiocarbon dates suggest that it was built and used between around 3700 and 3650 cal BC (Whittle et al [2011](#), 810, Fig. 14.174). A large assemblage of traditional Carinated Bowl pottery, cereal grains and hearths exhibiting repeating episodes of burning was found. Despite its superficial similarities with the Middle Neolithic mortuary enclosures of Tayside and Fife such as [Littleour](#) (MPK6955), Claish was clearly a roofed structure of Early Neolithic date (Barclay et al [2002](#); Brophy [2007b](#)).

Several other timber hall sites have been identified across Perth and Kinross from the cropmark record, with notable examples at [Westerton](#) in Strathearn (MPK6491) and [Fortingall](#) in Glen Lyon (MPK459). Like Claish, these rectangular examples appear to have morphological similarities to the excavated, more widely spaced Middle Neolithic post-built mortuary enclosures at Littleour and [Carsie Mains](#) (MPK6977). However, excavation will be required to determine whether these sites are roofed timber halls from the Early Neolithic, unroofed structures from the Middle Neolithic or indeed early medieval halls (as discussed in Millican [2009](#); Brophy [2007b](#)).

Early Neolithic settlement evidence in the form of small rectangular timber buildings is very rare across mainland Scotland (cf Brophy [2016](#)) and no example is currently known in Perth and Kinross. It has been suggested that the structure at [Carsie Mains](#) (MPK6977) was a possible house (Toolis [2011](#)). Nonetheless, it is far more likely to be a Middle Neolithic mortuary structure based on the date of

3341–2910 cal BC and the fact that the arrangement of posts does not represent a configuration capable of supporting a roof (Brophy and Barclay [2004](#)).

It has been argued that pits are an indicator of, or proxy for, Neolithic settlement (Brophy and Noble [2011](#)) and several instances of individual pits and clusters of pits have been recorded in the region. Examples that offer potential in this regard are at [Grandtully](#) in Strathtay (MPK6035; Simpson and Coles [1991](#)) which produced pottery of Middle Neolithic type, at Wellhill in Strathearn (MPK7184 & MPK7185; Canmore [84910](#) & [355298](#); Wright and Brophy [forthcoming](#)) and at [Bothy Wood](#) (MPK17919). The latter was excavated in advance of the Logierait Reinforcement pipeline construction in 2009 (Gray and Kirby [2009](#)). Pits were also found during excavations in 2018 as part of A9 Dualling between Luncarty and the Pass of Birnam (EPK1387; Paton and Wilson [2019](#)). Over 400 sherds of Neolithic pottery were found in these pits; they ranged from four sherds from at least two Early Neolithic Carinated Bowls, 12 sherds from two Middle Neolithic Impressed Ware vessels, and the vast majority of Late Neolithic Grooved Ware from at least 23 vessels (Milburn and McLaren [2021](#)). This material offers further proxy evidence for a richly settled Neolithic landscape with the potential for structures surviving and awaiting discovery beyond the limits of the development area. Late Neolithic pits are not common in Perth and Kinross, and so the discovery of several containing Grooved Ware at this site is noteworthy. In 2017 over 40 pits or postholes were excavated in advance of the construction of an agricultural shed at [Hallhole Farm](#) (MPK19100), a site situated 700m south of the [Cleaven Dyke](#) (MPK6611) which produced 830 sherds of pottery representing around 130 vessels (Fyles [2017](#)). The assemblage included Early Neolithic modified Carinated Bowl pottery, Middle Neolithic Impressed Ware and Late Neolithic Grooved Ware pottery as well as evidence of a knapping floor and some 300 lithics and stone tools (Fyles [2017](#)).

With more evidence emerging through archaeological investigations, the question arises whether a series of Late Neolithic timber ‘square-in-circle’ structures, characterised by a central square setting of four massive timbers surrounded by one or more circle and often associated with Grooved Ware pottery,

were places of habitation or solely of ceremony – and indeed whether all, or any, were roofed (cf Greaney et al [2020](#)). As indicated elsewhere in this chapter, opinions differ. [Leadketty](#) (MPK5150; MPK1977; Wright and Brophy [forthcoming](#)) and [Haughs of Pittentian](#), Crieff (MPK18545; Becket [2014](#); Becket et al [forthcoming](#)) are excavated examples in Perth and Kinross, and other potential examples are evident in the cropmark record for example at [Green of Invermay](#) near Forteviot (MPK1948). The Leadketty structure was associated with Grooved Ware and the flat base of a pot that is certain to be Grooved Ware was found at Pittentian. Similar-looking structures have been found elsewhere in Scotland, on [Machrie Moor](#), Arran (Haggarty [1992](#)) where one pre-dated a stone circle and at [Greenbogs](#), Aberdeenshire (Noble et al [2012](#)) where a domestic function was suggested. Examples found elsewhere in Britain and Ireland include one that formed part of a major timber ceremonial complex at Ballynahatty, Co. Down (Hartwell [2002](#)), another located outside the entrance to the Eastern passage tomb at Knowth in the Boyne Valley, Co. Meath (Eogan and Roche [1999](#)), and two inside the Durrington Walls ‘mega henge’, Wiltshire (Thomas [2010](#)). A discussion of the nature, significance and distribution of the almost 30 examples known from Britain and Ireland has recently been published by Greaney et al ([2020](#), 228, Fig. 17). Discussing the Durrington Walls examples, Thomas argued that these structures were possibly lineage shrines or cult houses – monumentalised versions of houses (Thomas [2010](#)). This idea of ‘Great Houses’ has also been expressed by others (Noble et al [2012](#); Brophy [2016](#)) but alternative interpretations as other kinds of ceremonial structure, not necessarily roofed, are equally plausible. Sixteen of these structures have been dated across Britain and Ireland (Greaney et al [2020](#)) and while most appear to date to the second quarter of the third millennium BC, the example from Haughs of Pittentian seems to date to the first quarter of that millennium (Becket et al [forthcoming](#)). The example from Machrie Moor, Arran, also dates to around this time, possibly a little earlier (Copper et al [2018](#)). The outward-flaring nature of the postpipes at this site is also of interest, since they are suggestive of a roof or the need to support some other heavy elevated structure (Becket [2014](#); Becket et al [forthcoming](#)). An unroofed, half-scale re-imagining of the structure has been constructed in the grounds of the Strathearn Community Campus.

3.4.5 Cultivation Remains

Evidence for farming and cultivation has been recovered in a range of forms; indeed there are more traces of Neolithic farming here than anywhere else in mainland Scotland (Brophy and Wright [2021](#)). Possible ard marks of Early Neolithic date were found adjacent to a Mesolithic pit-alignment and Neolithic pit cluster at [Wellhill](#), near Dunning (MPK7184). Possible field ditches were also found here as well as at nearby [Cranberry](#) (MPK2015; Brophy and Wright [2021](#)). Traces of cultivated soils or ridges of probable Neolithic date were identified during the excavation of cairns or barrows at [North Mains](#) (MPK1358; Barclay [1983](#)) and [Pitnacree](#) (MPK1714; Coles and Simpson [1965](#)).

Excavations at the later prehistoric upland settlement site at [Carn Dubh](#) (MPK1752) on Moulin Moor near Pitlochry, in the 1980s, produced ard mark evidence. However, this could not be dated and although Neolithic lithics were found, no associated settlement evidence was recovered (Rideout [1996](#)).

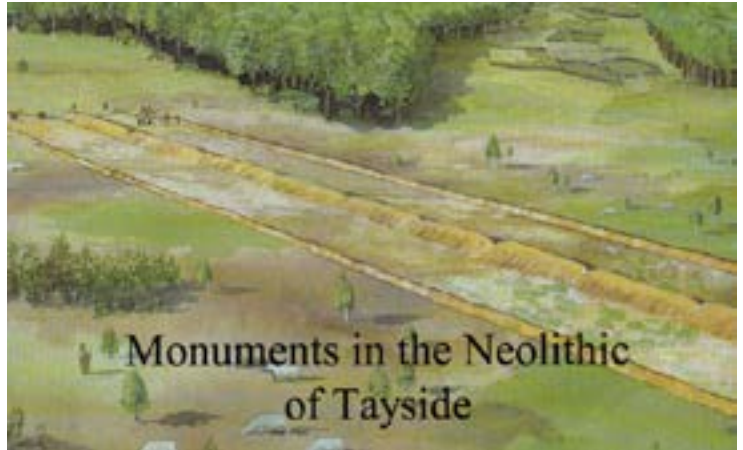
Archaeological excavation at [Hallhole Farm](#) (MPK19100) has provided macrobotanical evidence for crop types cultivated during the Neolithic. This multiphase site spanning the Neolithic to Early Bronze Age produced emmer wheat, barley, including naked barley, and flax seeds from bulk soil samples obtained predominantly from a pit which also contained Early Neolithic pottery (Fyles [2017](#)). Evidence of emmer wheat, bread wheat and barley have also been recovered from [Claish](#), and barley (including naked barley) from [Carsie Mains](#) (MPK6977; Bishop et al [2010](#)); this list is not exhaustive. Bread wheat is a rare find from Neolithic sites in Scotland, since it is only found in Early Neolithic contexts (Bishop et al [2010](#)). It is thought that its use declined as the farmers adapted their agricultural regime to the environments of Scotland.

3.4.6 Palaeoenvironmental Evidence

Palaeoenvironmental evidence for the Neolithic period is patchy across the region, with a summary of the broader context provided by Tipping as part of the [ScARF Neolithic Section](#). Site-based approaches remain the most common and although in the minority, larger scale landscape studies have made a notable contribution to our understanding of

the Neolithic environment and the contextualising of substantial monuments such as the [Cleaven Dyke](#) (MPK6611; Barclay and Maxwell 1998).

In the uplands, pollen analysis from the wider study around [Carn Dubh](#) (MPK1752) has provided evidence of Early Neolithic woodland clearance and pasture (Rideout 1996). While on [Creag na Caillich](#) above Killin, there is evidence that upland blanket peat started to form during the early fourth millennium BC. Then during the late fourth millennium BC, forest and scrub was cleared, including through burning, though apparently not for grazing (Tipping in Edmonds et al 1993). Palaeoenvironmental work over a broad timescale was undertaken as part of the Ben Lawers Historic Landscape Project and the discovery of waterlogged woodland remains in Loch Tay by that project was especially significant (Dixon 2007; Dixon 2016). The potential of [Craggantoul](#) (MPK17641) to contribute tree-ring data to the development of long native tree-ring chronologies in this region for dating, environmental and climate research applications remains unassessed (Mills 2021). Most recently, the SERF Project undertook extensive sampling and archaeobotanical analysis around Forteviot and in Strathearn more widely, furthering understanding of how local environmental resources were utilised across a broad time frame including the Neolithic (Brophy and Noble 2020, 20, 48).



The monument at Cleaven Dyke © Barclay and Maxwell 1988

3.4.7 Material Culture

3.4.7.1 Pottery

Finds of Neolithic pottery are not especially numerous in Perth and Kinross, although they span the whole of the period, from the Early Neolithic traditional Carinated Bowl pottery found at [Clash](#) (Sheridan in Barclay et al 2003) to the Late Neolithic Grooved Ware from, for example, [Littleour](#) (MPK6955; Sheridan 1998) and [Leadketty](#) (MPK9161; MPK5150). Cowie compiled a useful gazetteer of the Neolithic pottery found in central and eastern Scotland over a quarter of a century ago (Cowie 1992; 1994), listing 12 findspots. Although it should be noted that the 'plain Grooved Ware' found at [Croftmoraig/Croft Moraig](#) (MPK363) is now known to be of Late Bronze Age date, and a similar date is highly likely for the same kind of pottery from [Moncreiffe](#) (MPK3163; Bradley and Sheridan 2005; Bradley and Nimura 2016). Since Cowie's review there have been several new finds of Neolithic pottery, but the number of findspots is still lower than 25.



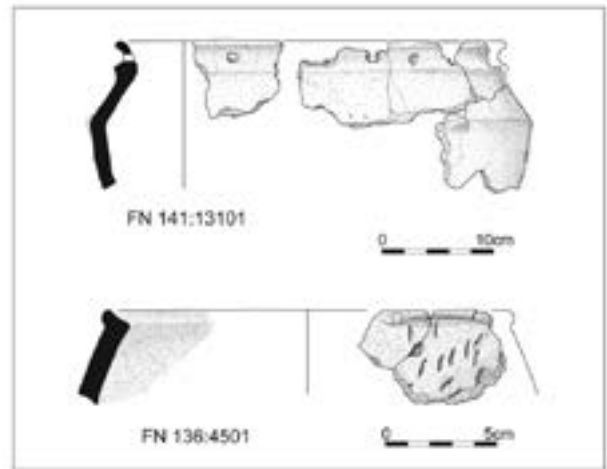
The Cleaven Dyke © Perth and Kinross Heritage Trust



Croftmoraig excavation, 2012 © Perth and Kinross Heritage Trust

As far as the Early Neolithic Carinated Bowl tradition is concerned, the assemblage from Claish and the single sherd from a pit from the A9 Dualling Project between Luncarty and Pass of Birnam land parcel 6.2 (MPK2332) belong to its earliest, ‘traditional’ form. The assemblage from [Pitnacree](#) (MPK1714) includes one lugged vessel; this suggests that this is an early example of ‘modified Carinated Bowl’ pottery (see Sheridan [2016](#) for an overview of Scottish Neolithic ceramic traditions). ‘Modified Carinated Bowl’ pottery is also represented in the fairly fine lugged Carinated Bowl with vertical ripple burnish from the Clyde-type chamber at [Cultoquhey](#) (MPK859; Henshall [1972](#), 306). However, it is unlikely to be as late as the human remains from the chamber that have been dated to 3628–3366 cal BC (see ‘Funerary Monuments and Practices’ for details of this date). The assemblage from [Barbush Quarry](#), Dunblane now in Stirling (Cowie [1992](#); [1994](#)) is further from the ‘traditional’ canon, with thick-walled, coarse vessels including one with a lug. The modified Carinated Bowl pottery found at [Hallhole Farm](#) (MPK19100) is similarly divergent from the ‘traditional’ canon, but in a different way, since the illustrated vessel appears to be a deep-bellied, closed bipartite bowl or jar (Fyles [2017](#), Illus 6; see also MacSween in Fyles [2017](#), 82–110). One of the contexts containing modified Carinated Bowl pottery at Hallhole Farm (Pit 29) is associated with a radiocarbon date of 3656–3526 cal BC (SUERC-74463, 4820+/-30 BP). This brief outline does not cover all of the examples of Carinated Bowl pottery that have been found in Perth and Kinross.

Middle Neolithic pottery is represented by the assemblage from [Grandtully](#) (MPK6035; Simpson and Coles [1991](#)) which appears to be an early version of Impressed Ware pottery with incised and impressed decoration. It includes a collared vessel with incised panelled decoration on its collar and rim bevel that relates, albeit distantly, to a tradition of pottery found in Orkney and the Outer Hebrides known as Unstan ware (Sheridan [2016](#)). A further Impressed Ware assemblage was found in pits at Hallhole Farm (MacSween in Fyles [2017](#), 82–110; Fyles [2017](#), Illus 6). Although none of the contexts in question yielded a radiocarbon date, a date within the second half of the fourth millennium BC is likely, ‘sandwiched’ between the modified Carinated Bowl and the Grooved Ware that was found in other contexts at the site. It remains to be seen whether the pottery found during the A9 Dualling Project between Luncarty and the Pass of Birnam (MPK2331) is of Impressed Ware or Grooved Ware. At the time of writing the post-excavation work is not sufficiently advanced to clarify the identifications (Paton and Wilson [2019](#)).



Modified carinated bowl from Hallhole (Fyles 2017, 15, Illus 6)

Within the region, Late Neolithic Grooved Ware has been found at [Littleour](#) (MPK6955), Leadketty (MPK9161; MPK5150), [Hallhole Farm](#) (MPK19100), [Pittentian](#) (MPK18545) and the aforementioned A9 Dualling site. The Littleour pottery is of particular interest. Here, parts of eight pots were found in a pit within, but post-dating, the Middle Neolithic mortuary enclosure and included burnt-on organic residue which has produced the latest date for Grooved Ware in Scotland when it was initially dated (Sheridan [1998](#)). Re-dating of

the pottery as part of Copper's [Tracing the Lines project](#) (Copper et al [2018](#); [2021](#)) has confirmed that there is a surprisingly wide date range for vessels from this single pit, with the latest dates within the third quarter of the third millennium BC while others appear to date to the first half of the third millennium BC. This assemblage is therefore relevant to addressing questions surrounding the transition from the Late Neolithic to the Chalcolithic and especially with regard to the chronological overlap in the use of Grooved Ware and Beaker pottery. The Hallhole Farm Grooved Ware (MacSween in Fyles [2017](#), 82–110) is similarly associated with a relatively wide date range. One context (Pit 65) produced a date of 2877–2635 cal BC (SUERC-74469, 4157+/-25 BP) and another (Pit 16), a date of 2575–2469 cal BC (SUERC-74467, 3997+/-29 BP) which is one of the latest dates for Grooved Ware in Scotland (cf Copper et al 2018). Some of the vessels resemble Grooved Ware examples from Littleour, and elements of the assemblage (including those found in Pit 16) are comparable with Longworth's 'Durrington Walls style' Grooved Ware which is known from elsewhere in mainland Scotland (eg at [Powmyre Quarry](#) by Glamis, Angus) and in many parts of England.

There has been a degree of investigation into the contents of some Neolithic pottery from Perth and Kinross. Pollen analysis of burnt-on organic residues from four of the Grooved Ware pots from Littleour (Long [1998](#)) detected pollen from hazel, ling, nettle, ribwort plantain, dandelion, meadowsweet and crucifers, all of which are potentially edible plants. Pollen from birch, sedges, buttercup, common vetch, fern, bracken and sphagnum moss were also detected and are likely to reflect the environment around the site, although the sphagnum moss may have been collected for a specific purpose. Lipid analysis of two Early Neolithic sherds from Claish found abundant evidence for saturated animal fat plus possibly some epicuticular wax from a plant (Cramp and Evershed [2010](#); cf Cramp et al [2014](#)). The animal fat was ruminant dairy fat in one sherd and adipose in another (Lucy Cramp pers. comm.), and while the species of ruminant cannot be determined from the lipids, it is arguably likely to have been cattle. Lipid analysis is a valuable source of information on the animals that were consumed since unburnt bone tends not to survive in the acid soils of Perth and Kinross. Although over the local

authority boundary, burnt fragments of pig, cattle and red deer bone excavated from the 'hall' at Claish indicate the potential for recovery from similar environmental conditions to Perth and Kinross (Barclay et al [2003](#)). Lipid analysis is also important because it has confirmed that the earliest Neolithic husbandry practices involved the use of dairy cattle, a point that has been established at a number of sites across Britain (Cramp et al [2014](#)).

3.4.7.2 Lithics

Axeheads

The stone axeheads found in Perth and Kinross and the quarry site on [Creag na Caillich](#) have received considerable research attention. Axeheads of jadeitite from the Alps in north Italy have been found in antiquity at [Monzievauid](#) (MPK914; Sharples and Sheridan [1992](#)), from the bank of the [River Ericht](#) at Rattray (MPK3783), and at [Comrie Cottage, Comrie](#) (MPK371). One from [Lochearnhead](#) is also relevant as the findspot was formerly in the County of Perthshire. Thanks to the international research project, *Project JADE*, we can now say that the jadeitite used for the Monzievauid axehead came from the western massif of Monte Beigua, above Genoa, while that used for the other three came from Monte Viso, south-west of Turin (Pétrequin et al [2017](#)). The jadeitite for the Rattray example came from the southern part of that massif, while the material for the Fortingall axehead probably came from Bulè (Pétrequin et al [2017](#)). These axeheads most likely came to Scotland around 3900 BC as treasured possessions by the immigrant farmers from northern France and would have been centuries old by the time they were deposited (Sheridan et al [2011](#); Sheridan and Pailler [2012](#)). The Rattray example was deposited vertically with its blade pointing down in the bank of the River Ericht and the Monzievauid axehead was burnt before it was deposited. Both of these acts are consistent with Continental depositional practices involved with returning sacred and special objects to the world of the gods whence they were believed to have originated (Pétrequin et al [2012a](#); [2012b](#); [2017a](#); [2017b](#)).

There is no precedent in Britain or Ireland which confirms that the people who deposited these axeheads were indeed Continental immigrants (or descendants thereof). The Lochearnhead axehead is reputed to have been found in a 'cist', but there is no independent confirmation of this. As for the Monzievaired axehead, investigations by the Archaeological and Historical Section of the Perthshire Society of Natural Science have uncovered an intriguing reference in the Statistical Account of 1793 to the discovery of two axeheads in a barrow:

'about 200 yards west of the church of Monievaired [sic], a barrow was opened some years ago, in which two urns were found, each containing a stone of bluish colour, very hard, about 4 inches long, and of triangular shape, somewhat resembling the shape of an ax [sic]. One of them is in the possession of Peter Murray esq, younger, of Ochtertyre. I am told they are of the same kind of stone and shape, with those which the inhabitants of the South Sea Islands fasten to a shaft, and use as a weapon of war'

The reference to 'bluish' may be a mis-translation of the Gàidhlig adjective 'glas', which can also mean green. This description, and the mention of Peter Murray of Auchtertyre, fits what we know about the Monzievaired axehead and the reference to South Sea Islanders must have been informed by Captain Cook's voyages during which he would have seen New Zealand nephrite axe- and adze-heads. Sadly, nothing is known of the barrow or the pots and the whereabouts of the second axehead are unknown.

Other stone axeheads found in Perth and Kinross have been studied by Ritchie and Scott for the formerly-named Implement Petrology Group (Ritchie and Scott [1988](#)) with thin-sectioned examples listed in *Stone Axe Studies 2* (Clough and Cummins [1988](#), 239). Ritchie and Scott petrologically identified 20 axeheads, roughouts and axehead flakes from the pre-1975 County of Perthshire and concluded that nine of these, including the roughout and flake from Creag na Caillich, were of the calc-silicate hornfels from the Creag na Caillich quarry. This rock type has been given the IPG Group number XXIV. One other, labelled 'banded hornfels', might also come from that quarry. Of the other axeheads, five are of porcellanite (Gp IX) from Tievebulliagh or Rathlin Island, Co. Antrim; three are of Langdale tuff (Gp VI) from the Lake District (with a possible fourth

example); and one is of a cherty slate. To these can be added a further Langdale tuff (Gp VI) axehead found at [Wellhill](#) (MPK7185). A review of all the axeheads found in Perth and Kinross since 1988 would be necessary to establish whether any other exotic axeheads have been found. The presence of imported axeheads, like the evidence for exportation of Creag na Caillich Group XXIV axeheads to elsewhere in Scotland and England (Clough and Cummins [1988](#), map 19; Edmonds et al [1993](#), Illus. 3), exemplifies the interconnected nature of Neolithic farming groups with networks, over which objects, ideas and people moved, having being established upon the initial arrival of Continental farmers (Sheridan [2017](#)).



View of Creag na Caillich, near Killin, from the south side of Loch Tay. The quarried areas are below the snowline at the left of the image © NMS

The excavation in 1989, funded by the National Museum of Scotland, shed light on the exploitation of the [Creag na Caillich](#) Group XXIV calc-silicate hornfels (Edmonds et al [1992](#)). This study concluded that axehead production started late in comparison to the exploitation of porcellanite and Langdale tuff and was on a much smaller scale. Exploitation seems to have been intermittent and to have taken place during the Middle and Late Neolithic, probably from the late fourth and into the third millennium BC. The relatively small number of axeheads identified as belonging to Group XXIV are, however, scattered widely; they are found as far afield as Bedfordshire, although most have been discovered in north-east Scotland. It is clear that Late Neolithic cushion maceheads were also made from Group XXIV rock; a petrologically-confirmed example has been

found at [Knock](#) in Lewis and there are a few others suspected (Ritchie [1992](#)).



In situ debitage from axehead manufacture at Creag na Caillich, Killin © NMS

Maceheads

As for other types of ground stone artefact, Middle to Late Neolithic maceheads are conspicuous by their absence from this part of Scotland (Roe [1968](#), Fig. 34; [1979](#), Fig. 11). The closest example is the miniature pestle macehead found, along with a food vessel in a child's cist, over the local authority border at [Glenhead](#), Doune; this is dated to the Early Bronze Age (Anderson [1883](#), 452–3, Figs 10, 11).

Carved Stone Balls

28 carved stone balls, probably dating to around 3000–2800 BC, are known to exist in the region with the majority housed in the collections of Perth Museum and Art Gallery. The most recent addition, one with six knobs, was found at Sheriffmuir (MPK20240) on the Blackford Estate in [2017](#) (Anderson-Whymark and Hall [2020](#)). Another six-knobbed ball had previously been found at [Sheriffmuir](#), although its precise findspot is unknown; it is likely to have been several miles from the 2017 findspot. An assemblage of Late Neolithic struck lithics was also recovered from the topsoil around the 2017 findspot during fieldwalking by Anderson-Whymark and Hall. This provides both circumstantial dating evidence and an indication that carved stone balls were not necessarily deposited in isolation but can form part of larger episodes of activity (Anderson-Whymark and Hall [2020](#)). Given that fewer than 50 of Scotland's known examples have accurate findspots or contextual data (Anderson-Whymark and Hall [2020](#), 1), the Sheriffmuir ball is

important both nationally and locally, and provides an opportunity for future investigation of the wider environs of individual findspots. In addition to being a valuable research resource, carved stone balls form an important popular entrée for the public to engage with the past (Hall et al [2017](#)).



Neolithic Carved Stone Ball © PMAG

Struck Lithics

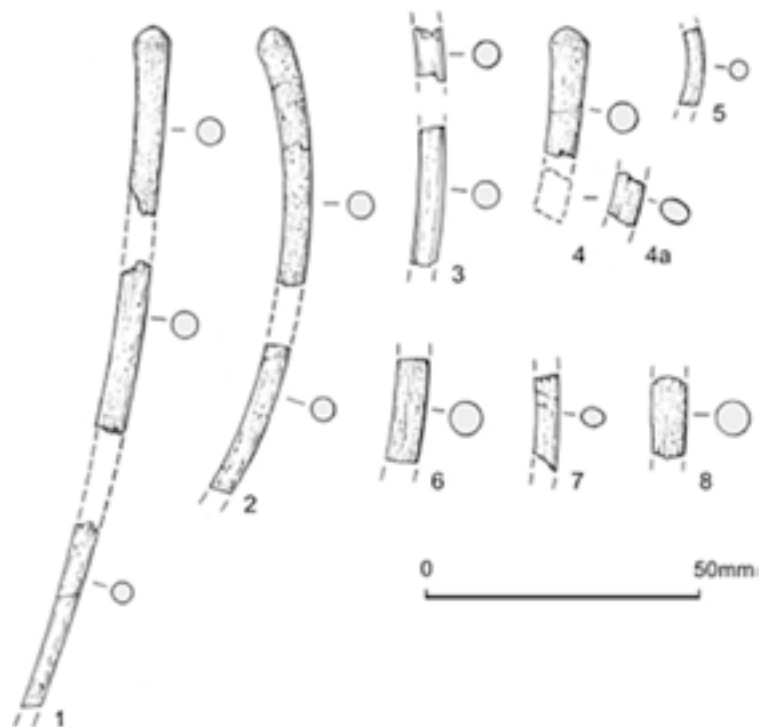
With the exception of the pitchstone artefacts (Ballin [2009](#); [2015](#)), the struck lithics of Neolithic Perth and Kinross have arguably not received as much attention as they deserve. Wright's unpublished report for the Tay Landscape Partnership Scheme ([2012](#)) assessed collections for Mesolithic lithics. He revealed the majority of finds to be non-diagnostic to any prehistoric archaeological period although some were typologically categorised as having Neolithic or Bronze Age origins. Beyond this, there is currently no reliable overview of the region's various lithic scatters and stray lithic finds; however, some important observations can still be made. The presence of pitchstone artefacts from the Isle of Arran in the Early Neolithic 'hall' at [Claish](#) indicates that pitchstone was being imported to this part of Scotland from at least as early as around 3700 BC. The presence of Middle or Late Neolithic pitchstone associated with rock art at Ben Lawers (MPK12583 & MPK17236; Canmore [238569](#) & [290143](#); Bradley et al [2013](#), 49) as well as in a seemingly Late Neolithic context at Sheriffmuir (MPK20240; Anderson-Whymark and Hall [2020](#)) demonstrates that it was still being imported several centuries later. To Ballin's

list of 11 findspots of pitchstone in Perth and Kinross (and including Claish, Stirling) published in 2009 (Ballin [2009](#), Appendices 1 and 2) can be added finds from [Forteviot](#) (MPK1882; Brophy and Noble [2020](#), 85, 261), [Wellhill](#) (MPK1785), Ben Lawers, Sheriffmuir (Anderson-Whymark and Hall [2020](#)), Freeland Farm (MPK20049; Nicol and Ballin [2019](#)) and [Leadketty](#) (MPK1965).

Regarding the use of other raw material, locally-obtained flint seems to have been used at Sheriffmuir (Anderson-Whymark and Hall [2020](#)), while good-quality translucent dark grey flint, believed to have been imported from a chalk zone within England, was used for the Late Neolithic artefacts found at [Littleour](#) (MPK6955; Saville and Finlayson [1998](#)). While Saville did not specifically name Yorkshire as a candidate source area, Ballin has emphasised the extent to which Yorkshire flint was imported into southern Scotland during the Middle and Late Neolithic (Ballin [2011](#)). A review of all the finds of probable imported Neolithic flint in Perth and Kinross would be worth undertaking, in order to gauge the extent of its spread in this part of Scotland. Other non-local lithic resources are the quartzite pebble and flint found associated with rock art on Ben Lawers (MPK12583, MPK17236, MPK17237 & MPK12584), which are thought to have been brought from a coastal deposit (Bradley et al [2013](#), 49). Other raw materials known to have been used during the Neolithic in this part of Scotland include locally-available quartz and agate. Further information on the choice of raw materials in Neolithic Scotland more generally can be found in ScARF Neolithic section [2012](#) and Warren ([2006](#)).

3.4.7.3 Organic Materials

Artefacts of wood, bone and antler are rarely found in mainland Scotland and this is also the case in Perth and Kinross. However, a fine collection of calcined bone 'skewer' pins was found in association with cremated remains in the Late Neolithic [Forteviot](#) cemetery (MPK1888; Leach et al [2020](#); Noble et al [2017](#)). These survived because they had passed through the funeral pyre, having been used to fasten funerary garments.



Carbonised wooden fragments found in association with the four-post building at [Leadketty](#) (MPK1977) are still being analysed and are anticipated to be reported as part of SERF Monograph 3 (Wright and Brophy [forthcoming](#)); it remains to be seen whether they were structural or artefactual.

3.5 Research Agenda

This section presents the agenda themes for the Neolithic in Perth and Kinross. Some are nested under the **overarching PKARF theme headings**, aimed at addressing wider multi-period priorities, while 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

Although valuable palaeoenvironmental work has been carried out as part of landscape and site-based investigations, clarity is still lacking on the overall palaeoenvironmental context (including climate) of the region's Neolithic. The reliance on timber and other woodland resources in Neolithic lifeways is evident (Noble [2017](#)), but there is much to learn about how these resources were obtained and used, what technologies were deployed and what evidence there is for impact on or stewardship of woodland. A better understanding of human / climate interactions is needed.

PKARF Agenda 3.1: More palaeoenvironmental work is required on Neolithic sites in the region in order to answer many research questions.

PKARF Agenda 3.2: Explore the potential to develop prehistoric tree-ring chronologies in Perth and Kinross for archaeological dating, climate record and other palaeoenvironmental applications

PKARF Qu 3.1: What is the palaeoenvironmental context for Perth and Kinross' Neolithic?

PKARF Qu 3.2: How did the environment change over the course of the Neolithic?

PKARF Qu 3.3: What is the relationship between humans and woodlands in Neolithic Perth and Kinross and how does that change through space and time?

PKARF Qu 3.4: How were woodlands used, impacted upon, stewarded (if at all) during the Neolithic and what wood technologies were in use?

PKARF Qu 3.5: What potential is there to develop prehistoric tree-ring chronologies in Perth and

Kinross for archaeological dating, climate record and other palaeoenvironmental applications?

Upland / Lowland Relationships

The upland Neolithic remains poorly understood with relatively few modern excavations having been undertaken. More needs to be known about the chronology of funerary and other ceremonial monuments and potentially Neolithic earthworks and hilltop enclosures which remain unexplored. Thought processes as followed by Loveday ([2016](#)) have proved effective and could be applied here even prior to fieldwork, with an upland Neolithic survey providing an opportunity to answer key questions.

PKARF Agenda 3.3: There is a need to locate and investigate settlement and subsistence activities in upland areas where field walking may be limited.

PKARF Agenda 3.4: More needs to be known about the chronology of funerary and other ceremonial monuments and potentially Neolithic earthworks and hilltop enclosures which remain unexplored.

PKARF Agenda 3.5: Undertake an upland Neolithic survey.

PKARF Qu 3.6: To what extent can significant differences in Neolithic practices, traditions and settlement patterns be identified between the upland and lowland areas of Perth and Kinross and how might such differences be explained?

PKARF Qu 3.7: To what extent, if at all, do hilltop enclosures relate to Neolithic activity and what do they tell us about lifeways and practices in this period?

PKARF Qu 3.8: To what extent is the apparent upland/lowland divide influenced by differential preservation and visibility of archaeological remains?

Periods of Transition

The traditional approach to characterising the past in terms of periods (ie Mesolithic, Neolithic, Chalcolithic etc) has its limitations, especially with regard to defining and explaining the transition from one period to the next. As far as the Neolithic to Chalcolithic transition is concerned, for example, a perspective that considers developments in the centuries before and after the first appearance of the

‘Beaker phenomenon’ might help us to understand better the context in which changes were occurring, the impact of Continental influences (including new people) and the response to them. Following the approach taken by Younger (2015), one potentially fruitful approach might be to focus attention on henges, since in several cases they are known to have been constructed during the second half of the third millennium BC in places where earlier monuments, dating to the first half of the third millennium BC, had existed.

PKARF Agenda 3.6: The transition from the Mesolithic to the Neolithic is an important but poorly understood topic, driven in part due to limited Mesolithic evidence, and requires further study.

PKARF Agenda 3.7: More work is needed on the 3rd millennium BC and the poorly understood transition from the Neolithic to the Chalcolithic.

PKARF Qu 3.9: When did farming arrive in Perth and Kinross?

PKARF Qu 3.10: What was the relationship between Mesolithic and Neolithic communities in the region?

PKARF Qu 3.11: How long did the Mesolithic hunting-fishing-foraging lifestyle continue after the first farmers appeared?

PKARF Qu 3.12: What evidence exists to support a theory of Mesolithic ways of life ending as a result of hunter-fisher-foragers becoming acculturated to a farming lifestyle?

PKARF Qu 3.13: What does the transition between the Neolithic and Chalcolithic look like, and when – and over how long – did it occur?

PKARF Qu 3.14: What was the chronological overlap in the use of Grooved Ware and Beaker pottery in Perth and Kinross?

PKARF Qu 3.15: How many Beaker-using Continental immigrants arrived in Perth and Kinross, and why did they come to this part of Scotland?

PKARF Qu 3.16: What was the impact of the Continental influences, including the new technology of using metal, on the resident Neolithic communities and how did they respond to their arrival?

Cropmarks

The region’s cropmark record is of significant importance for understanding the monument landscape of this period and this has been clearly demonstrated through recent research such as the SERF Project. Although valuable work has been carried out, further synthesis and characterisation of the cropmark record is still needed and the potentially Neolithic structures that have been identified, such as by Millican (2016a, 2016b), require further assessment and ground-truthing.

PKARF Agenda 3.8: The region’s cropmark record is of significant importance and further synthesis and characterisation of the cropmark record is needed.

PKARF Agenda 3.9: Neolithic structures that have been identified through cropmarks, such as by Millican (2016a, 2016b), require further assessment and ground-truthing.

PKARF Qu 3.17: How can an evaluation of all cropmark sites that might be Neolithic assist in our understanding of the monument landscape of the region?

PKARF Qu 3.18: What can an evaluation of lessons learned from prior excavations of cropmarks in the Region, and beyond, tell us about Perth and Kinross’s Neolithic?

PKARF Qu 3.19: To what extent would re-assessing and better characterising the cropmark record in Perth and Kinross more generally and in light of excavations, expand our understanding of the Neolithic of the region?

PKARF Qu 3.20: Which, if any, of the region’s cropmark sites, which bear a resemblance to causewayed enclosures, date to the Neolithic?

Settlements and Timber ‘Square-in-circle’ Structures

Priority 1: There is a need to improve our current poor understanding of Neolithic settlements and how they changed over time. For example, what was the architecture of houses that succeeded the Claish ‘hall’, particularly at sites where only pits are found? There is currently very little evidence for domestic timber structures across the region with knowledge largely dependent on pits and cropmarks.

Priority 2: The record for the Middle Neolithic (around 3500–3000 BC) is particularly thin. Recent

developer-funded discoveries and cropmark identifications offer potential targets and present opportunities for focusing future research. A systematic fieldwalking campaign, akin to that employed by Phillips in Strathtay in 1994 (Phillips and Bradley [2005](#)), could help to identify settlement sites and contextualise the cropmark record while also encouraging community participation and skills training. It may also aid identification of lowland late Mesolithic sites. Ground-truthing by excavation following fieldwalking would be key to capitalising on the information gathered (cf Barclay and Wickham-Jones [2002](#)).

PKARF Agenda 3.10: Carry out a systematic fieldwalking campaign assist in the identification of settlements and of individual domestic structures?

PKARF Agenda 3.11: Carry out an assessment of lithic collections already held in museums.

PKARF Qu 3.21: What kinds of house structure were used during the Neolithic?

PKARF Qu 3.22: How did domestic architecture and the size, organisation, temporality and distribution of settlements change over the course of the Neolithic?

PKARF Qu 3.23: What can be said about the domestic structures that had probably existed at sites where the only surviving evidence is in the form of pits and artefact scatters?

PKARF Qu 3.24: When considering the site of Haughs of Pittentian (MPK18545), can any of the timber 'circle-and-square' structures of the Late Neolithic (and possibly Middle Neolithic) be confidently interpreted as houses, as has been claimed?

PKARF Qu 3.25: What was the architecture of houses that succeeded the Claish 'hall', particularly at sites where only pits are found?

Economy, social organisation, material culture and patterns of resource use

Priority 1: Only a vague sense of the agricultural and animal husbandry regime exists and of what wild resources were consumed during the Neolithic in Perth and Kinross.

Priority 2: There is a need to better understand the nature of social organisation and its possible

changes over the course of the Neolithic in this part of Scotland.

Priority 3: Our understanding of the Middle Neolithic pottery in Perth and Kinross is constrained by its paucity.

Priority 4: Greater understanding is required concerning the use of resources and the changing patterns of connectivity linking the Neolithic inhabitants of Perth and Kinross with each other and with people elsewhere. In particular, it would be useful to find out whether any English (probably Yorkshire) flint arrived in this part of Scotland prior to 3000 BC.

PKARF Agenda 3.13: What strategy could be used to locate further sites containing Middle Neolithic Impressed Ware and Late Neolithic Grooved Ware pottery?

PKARF Qu 3.26: Beyond a probably early cessation of cultivation of bread wheat, in what other ways did the subsistence strategy change over the course of the Neolithic?

PKARF Qu 3.27: What was the nature of social organisation in Perth and Kinross, and how (if at all) did it change over the course of the Neolithic?

PKARF Qu 3.28: What can we infer about social organisation from the large Late Neolithic palisaded enclosures and timber 'square-in-circle' structures?

PKARF Qu 3.29: To what extent can the cursus monuments, bank barrow/s and hybrid cursus/bank barrows be interpreted in terms of activities at a tribal level?

PKARF Qu 3.30: How do the Middle Neolithic Impressed Ware and Late Neolithic Grooved Ware of Perth and Kinross compare with their counterparts elsewhere in Scotland and in Britain more widely?

PKARF Qu 3.31: What further can be understood about the chronology of exploitation of calc-silicate hornfels at Creag na Caillich?

PKARF Qu 3.32: What evidence exists for the arrival of English (probably Yorkshire) flint in Perth and Kinross prior to around 3000 BC?

PKARF Qu 3.33: What is the overall picture of stone exploitation as reflected in the stone axeheads found

in the region? In other words, what proportion of all axeheads that have been found belong to 'Grouped' rock types?

Monuments, funerary practices and enclosures

Priority 1: The chronology and associated funerary practices of monument types such as long mounds, cursus monuments and bank barrows remain poorly understood. A wider assessment of the potential for further Early Neolithic round barrows is also required.

Priority 2: Greater clarity of the chronology and form of the [Cleaven Dyke](#) (MPK6611) is required, including whether its north-west end consisted of a long barrow with an oval barrow adjacent to it.

Priority 3: Very little is known about the funerary practices of the Late Neolithic users of Grooved Ware pottery. For example, the [Forteviot](#) cemetery (MPK1888) featuring deposits of cremated remains was not associated with this kind of pottery.

Priority 4: It still remains unclear as to whether there are any Neolithic causewayed enclosures in Perth and Kinross and how many Neolithic enclosures of any type there are in this region.

Priority 5: It is unclear whether any standing stones, stone circles or other orthostatic stone settings (apart from the Forteviot standing stone) were erected in Perth and Kinross during the Neolithic.

PKARF Qu 3.34: What funerary practices were associated with the builders of Early Neolithic long mounds in the region and how do they compare to those found in similar monuments elsewhere?

PKARF Qu 3.35: What evidence exists for cursus monuments or bank barrows being used for the laying out or burial of the dead?

PKARF Qu 3.36: Over what date range were long mounds, cursus monuments and bank barrows constructed?

PKARF Qu 3.37: In how many cases were cursus monuments built onto pre-existing Early Neolithic long mounds?

PKARF Qu 3.38: When was the Cleaven Dyke constructed, and could the application of techniques such as OSL dating provide new information?

PKARF Qu 3.39: What evidence is there for the north-west end of the Cleaven Dyke actually being an Early Neolithic long barrow, and for an oval barrow adjacent to it?

PKARF Qu 3.40: What evidence is there for the presence of Neolithic causewayed enclosures in Perth and Kinross?

PKARF Qu 3.41: How many Neolithic enclosures are there in this region, when were they constructed and how were they used?

PKARF Qu 3.42: What was the nature of Middle Neolithic funerary practices?

PKARF Qu 3.43: What was the nature of Late Neolithic funerary practices associated with the users of Grooved Ware pottery?

PKARF Qu 3.44: What evidence exists for the erection of standing stones (other than the Forteviot cemetery-marker stone), stone circles or stone settings during the Neolithic in Perth and Kinross?

Rock Art

Priority 1: The region has a rich rock art record, but its chronology is unclear. Further work is required to acquire dating evidence for the lifecycle of decorated stones and practices associated with them.

Priority 2: Rock art requires better integration into the narratives of the period where it can contribute more effectively to the understanding of the Neolithic in both the uplands and lowlands.

PKARF Agenda 3.14: There is a need to integrate Rock Art into the wider narratives of the period.

PKARF Agenda 3.15: More dating evidence is required for Rock Art to improve chronologies.

PKARF Qu 3.45: What is the chronology of the region's rock art?

PKARF Qu 3.46: To what extent is rock art associated with Neolithic and Early Bronze Age activities in the region, both ritual and domestic?

PKARF Qu 3.47: What relationships can be determined between rock art and the natural landscape in the region?

PKARF Qu 3.48: What is the character of rock

art in this region, and what can this tell us about connectivity with other regions within and outwith Scotland?

PKARF Qu 3.49: How can rock art contribute more holistically to our understanding of the region's Neolithic?

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