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Rhynie, A Powerful Place of Pictland

Edited by Gordon Noble

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Rhynie, A Powerful Place of Pictland

Rhynie, A Powerful Place of Pictland: The development of a landscape of Pictish royal power from the Roman to the early medieval period

Edited by Gordon Noble

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HISTORIC ENVIRONMENT SCOTLAND | ÀRAINNEACHD EACHDRAIDHEIL ALBA

THE PICTISH ARTS SOCIETY

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This volume is dedicated to Jane Geddes, who inspired a lifelong interest in the Picts through her course 'The Work of Angels', a much-loved course in the incredibly inspiring History of Art department at the University of Aberdeen in the 1990s and 2000s

And to Ewan Campbell, the archaeologist I have learnt the most from, and a knowledgeable, dedicated, and enthusiastic fieldworker and finds specialist, that we can all learn from

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Gordon Noble, Aberdeen, 11th July 2024.

Chapter 1

POWERFUL PLACES

Gordon Noble

1.1 Introduction

The nature of the societies and the social, ideological and political frameworks that filled the chasm left by the decline of the Roman Empire in the 5th century AD – both within and beyond the empire's boundaries – is one of the most fascinating and longstanding debates regarding late and post-Roman Europe. Traditionally, our broad-scale narratives have focused on the transformations of the Late Roman World in mainland Europe that gave rise to so-called successor states (eg Wickham 2005). Evidence from the northern and western edges of Europe has been given less prominence; however, recent decades have seen evidence from more northerly regions such as Scandinavia provide increasing insight into first-millennium AD society and the transformations that happened at the edges, or even beyond, the Roman Empire in a late and post-Roman context (eg Brink 1996; Ringtved 1999; Hedeager 2011; Ljungkvist & Frölund 2015; Skre 2020).

Across its western reaches, in Britain and Ireland, the topic of how the kingdoms of the post-Roman period formed has been a subject of enquiry for many decades. The 5th–9th centuries AD are seen as pivotal for the development of society in post-Roman Britain and, like elsewhere in Europe, regions that were part of the Roman Empire have tended to receive the most sustained study. In England, the continuity between the Roman and post-Roman period is debated (eg Dark 2000; Wickham 2009; Fleming 2011, 2021; Gerrard 2016), but there were certainly radical shifts in economy, society and politics in many areas, with the migration of new peoples and lifestyles being major contributors to a new socio-political horizon. A key period of change in England came in the 6th and 7th centuries AD with the establishment of sites of royal and elite residence. New or renewed phases of work at key sites such as Lyminge (Kent), Sutton Courtenay/Long Wittenham (Oxfordshire), Rendlesham (Suffolk) and Yeavering (Northumberland) have been revolutionising the picture we have of royal power in early England and its material traces (Brennan & Hamerow 2015; Scull et al 2016; Semple et al 2017; Thomas 2018; Scull & Thomas 2020). During the 6th and 7th centuries in England royal power came to be legitimated in increasingly sophisticated terms, with the hall complexes functioning not only as residences but places and landscapes for displaying and reproducing kingly authority through wider practices of assembly, exchange and ritual. The evidence for kingship, ritual and elite residence also has rich foundations in Ireland, where a fulsome historical and archaeological record has led to sophisticated studies on kingship, ritual and residence (eg Bhreathnach 2014; Gleeson & Carty 2013; Gleeson 2017, 2021). The later prehistoric royal sites of Emain Macha, Crúachain, Dún Ailinne and Tara are well-known archaeological landscapes, comprising key monuments connected to public ritual, royal residence, assembly and inauguration (Warner 2000b; Schot et al 2011; Gleeson 2012). In addition to these a whole host of more minor royal sites are known from the later first millennium AD including high-status crannog sites, promontory forts and ring-forts (eg Warner 2000b; Gleeson & Carty 2013; Gleeson 2012; O'Brien & Hogan 2021). The historical sources, including the law tracts, for Ireland record the structures of kingship, the exercise of power and assembly practices within royal landscapes (Kelly 1988; Bhreathnach 2014; Gleeson 2015, 2017). The evidence for Ireland makes a strong foundation for tracking the development, ideologies and ritualised dimensions of kings and kingdoms in first-millennium AD western Europe.

In Scotland, in contrast, the topic of the formation of the early kingdoms of the first millennium AD, and the sites of royal residence and power, have seen much less study due to a dearth of both historical and archaeological evidence. Like Scandinavia, the Roman Iron Age and post-Roman periods are, for some regions of Scotland at least, virtually prehistoric in terms of written sources and the archaeological evidence is exceedingly thin on the ground compared to that of England and Ireland. For comparison, Scotland has struggled with dozens of archaeological sites known from the Late Roman and early medieval periods as opposed to the hundreds or even tens of thousands known from England and Ireland (eg Hamerow 1993, 2012; O'Sullivan 2008; O'Sullivan et al 2014). This deficit of evidence from the 3rd century AD onwards has resulted in the development of models of

social and economic collapse (eg Hunter 2007) with the continuities between Roman Iron Age society and that of the post-Roman period difficult to demonstrate, and developed kingship and political cohesion for regions such as Pictland has only been seen as a feature of the 7th century onwards (Fraser 2009; Woolf 2017a). Indeed, existing models of the development of late and post-Roman society in northern Britain have tended to characterise the polities that existed beyond the boundaries of the Roman Empire as small scale, where power was transitory and much less developed than in more southern and central European areas. Minimalist views have at times considered regions such as northern Britain as comprising 'peasant-mode' societies (Wickham 2005) or 'farmer republics' (Fraser 2009) with a flat social hierarchy, which lacked developed structures of power and governance until the late first millennium AD or beyond. This perspective is perhaps a direct product of a historiographical and methodological tendency to rank these societies based on a set of evidentiary criteria such as coinage, charters and land-tenure, which are often used to map the 'progress' of kingdoms towards the state-like structures of governance and rulership seen to exist further south and east. In addition, these approaches tend to assume a unilinear socio-evolutionary model of political development, rather than considering the multiple pathways and longer-term trajectories by which early European communities were transformed during the first millennium AD. They also rely on the historical evidence rather than the materiality and spatiality of power that other sources of evidence can provide.

Scotland, with its repeated phases of Roman invasion and long-lasting influence, yet never permanent occupation, will have had different trajectories of development to areas that lay fully within the bounds of the Roman Empire. Until recently, the lack of evidence has hampered elucidation of what those trajectories might be; however, a new generation of field projects are beginning to have a dramatic impact on our knowledge of Scotland and of the archaeology of the Late Roman Iron Age to early medieval periods. As outlined in this volume, this new evidence is stressing much greater continuities between these periods than previously recognised and suggests quite different pathways to power in regions such as north-east Scotland that remained largely outwith the direct intervention (but not beyond the influence) of Roman society.

This monograph documents the archaeological excavations at Rhynie, Aberdeenshire, and the wider Upper Strathbogie valley from 2011 to 2022, outlining and analysing the evidence for a major central place of Pictland as it developed from the *c* 3rd century AD through to the 7th. The excavations at Rhynie, and two nearby sites of Tap o' Noth and Cairn More, have produced the richest dataset yet for considering the Late Roman Iron Age to early medieval period in Scotland. Included in the sites studied is the Craw Stane complex at Rhynie – the first non-hillfort elite complex of Pictland to be excavated – whose results have revealed the multifaceted nature of the use of this central place. The site, at its height between the late 4th and mid- to later 6th centuries AD, encompassed elements of an elite settlement, ceremonial centre and place with extensive craftworking. A series of sculptured stones stood in association with the settlement, and the iconography of these stones along with the wider archaeological evidence provides an illuminating evidence base for consideration of the nascent power centres of early medieval northern Britain, with broader implications for the nature of power and rulership in late and post-Roman Europe. A few hundred metres to the north of the Craw Stane complex stood a contemporary cemetery, now partly overlain by the modern village of Rhynie. A number of Pictish stones also appear to have been erected in association with this cemetery, which was found to have phases of burial in the 5th and 6th centuries AD, but could well have had a longer currency of use. In the wider valley stood two contemporary sites: the spectacular fort of Tap o' Noth and a complex ringfort at Cairn More. At Tap o' Noth, settlement began to grow around an earlier Iron Age vitrified fort (400–100 cal BC) erected on the summit of the Hill of Noth. By the 3rd century AD, hundreds of house platforms had been constructed on the hill and by the 5th–6th century AD the hill was bound by a 16.75ha enclosing wall and palisade. Occupation endured at the site until the 7th century AD. At Cairn More, settlement extended from the 5th to 7th century AD providing a third site in contemporary occupation in the first millennium AD, all within five kilometres of one another. Together, they provide extraordinary new evidence for a period when settlement and elite centres have been exceedingly difficult to identify.

In the following chapters, the evidence and narrative will expand from the local and detailed towards the wider European context. The monograph comprises detailed examination of the excavated evidence and material culture from the Craw Stane complex, including analysis of one of Britain's most extensive, best contextualised and most comprehensively dated metalworking assemblages from the period. This artefactual evidence not only provides insight into local practices, but has significant implications for understanding the cultural connections of the early medieval period in Britain. Analysis of the environmental sequence through pollen, phytolith and botanical remains is also outlined, along with the more limited evidence from the faunal material and charred assemblages. The interpretive elements of the monograph address research issues such as the role of hillforts and enclosed settlement, Roman Iron Age relations on the northern frontier, cult and kingship, the nature and development of rulership in the early kingdoms of northern Britain, settlement conglomeration, power and visual culture, and the material basis of early medieval polities. The major topics briefly addressed above, such as continuity between the Late Roman and early medieval periods, kingdom formation and the wider European context, will be largely paused until the final chapters. However, as the final discussion will hopefully show that the new evidence from Rhynie and the Upper Strathbogie valley can at last begin to make significant contributions to the key debates that surround this formative period of European history.

1.2 Rhynie

Our story of the modern investigation of Rhynie begins on 10 March 1978, when a remarkable discovery was made just to the south of the modern village of Rhynie, which lies in the Upper Strathbogie valley, Aberdeenshire (Illus 1.1). On that day, the farmer Kevin Alston was ploughing the field in which the Craw Stane, a Pictish symbol stone, stood. The plough hit a large stone on which a fabulous carving – the so-called Rhynie Man (Illus 1.2) – was

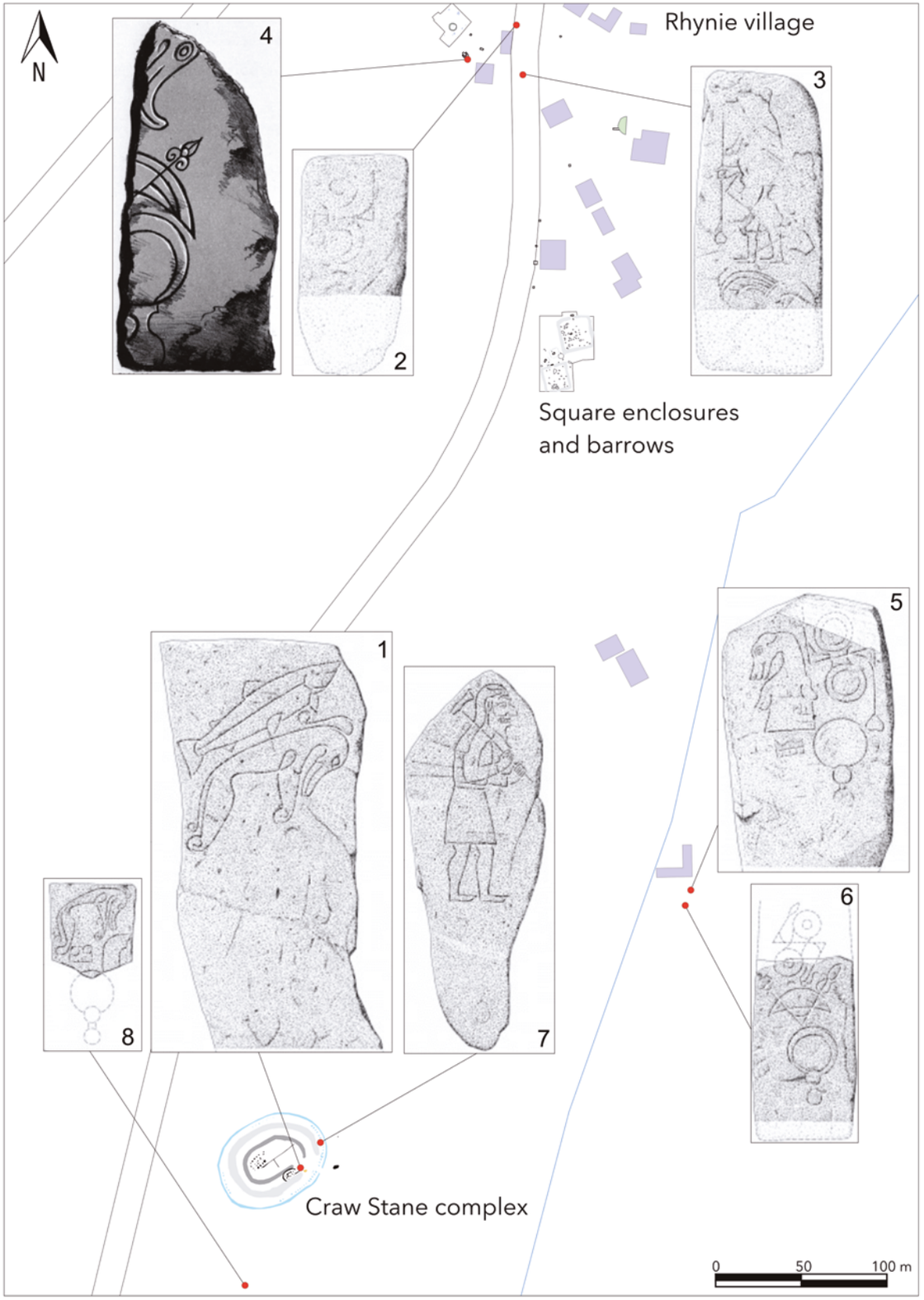
Illus 1.1
Location map of Rhynie highlighting the location of the Craw Stane complex, Tap o' Noth and Cairn More. Contains OS data © Crown copyright and database rights 2024 Ordnance Survey

Illus 1.2
The Rhynie Man when first discovered in 1978. © Aberdeenshire Council Archaeology Service

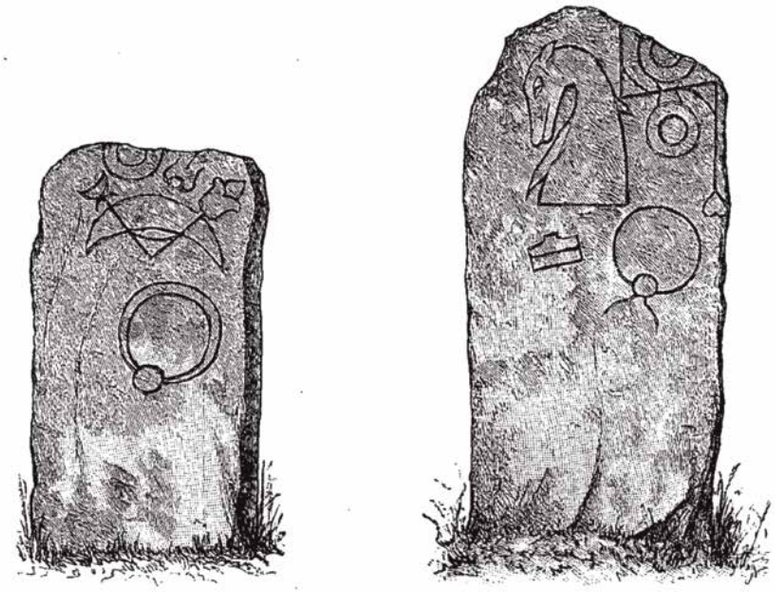
revealed. A month later Kevin found another stone, bringing the number of identified first-millennium AD carved stones from Rhynie to a total of eight (Illus 1.3).

The stones from Rhynie belong to the wider corpus of 'Pictish stones', which includes over 200 carved stone monuments with symbols, often found in pairs, known from eastern and northern Scotland (RCAHMS 2008). The first photographs following the discovery show the Rhynie Man stone lying on its side in the freshly ploughed field with the impact of the plough on the stone identifiable as white scars overlying the carving at the top of the stone (Illus 1.2). The colour photo and the archaeological scale bar to the right of the stone brings the image into the present, providing a snapshot of what must have been a period of great excitement, bafflement and awe on behalf of the finders and those who had to deal with the aftermath of this discovery – principally Ian Shepherd who was the regional archaeologist at the time. Today a find of this type would have been dealt with swiftly, but that dramatic day in March 1978 led to a much less exciting and more drawn out process of the stone being shifted from field to field and then via a tractor to Barflat farm, the residence of Gavin Alston, Kevin's father, where it stood outside the house and latterly in a barn.[1] It was only in 1988 that the stone found its current home, moved by Aberdeen Shore Porter's Society to Aberdeenshire Council Headquarters at Woodhill House, Westburn Road, Aberdeen. Rhynie Man now stands sentinel, watching the daily throng of visitors and staff coming and going at the council headquarters, far removed from his original findspot in a field to the south of Rhynie. Who was this figure depicted on the stone. Why was it in this location? How did it relate to the other Pictish stones from this area? These are some of the questions that led to this project to find out more.

There had been interest in the Pictish antiquities of Rhynie from the 18th century onwards (OSA 1791–9 (Vol 19): 292), with accounts of the Pictish stones from the environs of the village beginning to proliferate in the 19th century (Logan 1829; Stuart 1856: 4; MacLagan 1880) (Illus 1.4). In the 20th century, Isabel Henderson identified Rhynie as a key area for the dissemination of the symbol stone tradition (1958: 54), but it was the discovery of Rhynie Man in 1978 that really began to focus archaeological attention on the remains of the valley, with more detailed accounts of the stones and the archaeology of the area, including newly identified cropmark enclosures, appearing in the 1980s–2000s (Shepherd & Shepherd 1980; Ralston & Inglis 1984, Ralston 2004: 39; RCAHMS 2007: 119–22). These earlier studies and



Illus 1.3
The eight Pictish symbol stones from Rhynie and their findspots in relation to the modern village and the excavated sites described in the monograph.
Contains OS data © Crown copyright and database rights 2024 Ordnance Survey



Illus 1.4
Christian MacLagan's depiction of Rhynie No. 5 and No. 6 carved stones (from MacLagan 1880)

accounts provided an intriguing picture of the rich archaeology of the Upper Strathbogie valley and the potential to link symbol stone findspots with a diverse range of cropmark and upstanding remains. This set the foundations for the current research and what transpired to be one of the largest research projects conducted in Scotland in recent decades. Dozens of students and volunteers from around Scotland and further afield descended upon the small village of Rhynie at least once a year to carry out fieldwork from 2011 to 2022, training in excavation and field investigation techniques whilst marvelling at the unfolding archaeology before them. That fieldwork, and the efforts of its participants, have begun to overturn our perceptions of the scale and character of the Late Roman Iron Age to early medieval society in north-east Scotland.

The investigations reported on in this volume began as the relatively small-scale Rhynie Environs Archaeological Project and work continued with subsequent HES- and Leverhulme-funded projects that have fleshed out the landscape context of the remarkable archaeological remains of the Upper Strathbogie valley. The initial focus of the project was the cropmark complex found in association with the Craw Stane, first identified through aerial reconnaissance by Ian Shepherd in 1978 (Chapter 2) (Illus 1.5). Excavations from 2011–17 found that the Craw Stane stood towards the entranceway of the enclosure complex which, in an

Illus 1.5
The cropmarks of the Craw Stane enclosure complex © Aberdeenshire Council Archaeology Service

Illus 1.6
Rhynie Woman activities montage. Images © Hayley Keane

early phase, comprised ditches (and presumably ramparts) surrounding a low glacial knoll. In a later phase, an elaborate timber wall of oak posts and planks was built where inside and out a series of buildings stood. The excavations revealed a rich material assemblage including sherds of Late Roman wine amphorae imported from the eastern Mediterranean, sherds of glass drinking vessels from France and one of the largest assemblages of metalworking production evidence known from early medieval Britain, including the moulds and crucibles required to make pins, brooches and a range of other objects (Chapter 7). When an iron axe-shaped pin resembling that of the axe carried by the Rhynie Man was discovered, the ability of these remarkable finds to shed new light on the iconography of the carved Pictish stones also became obvious. On the outskirts of the village, a few hundred metres north of the Craw Stane, excavations in 2013–14 found traces of a contemporary cemetery and uncovered the remains of ploughed-out Pictish burial mounds, including the partially preserved remains of an adult female buried within a long cist in a square barrow. This was one of two burial monuments located next to two unusual square enclosures.

Work in the environs between 2017–22 followed up the work at the Craw Stane enclosure, with excavations targeting three hillforts that overlook the complex: Cairn More, Cnoc Cailliche and Tap o' Noth. The investigations at Cnoc Cailliche showed that this small fort (0.11ha) was constructed and occupied around 400–200 cal BC in the Iron Age (reported on in Noble et al 2020b). Cairn More is enclosed by the remains of two stone walls, the inner enclosing an area around 0.2ha. An evaluation by Murray Cook in 2010 suggested a phase of occupation in the period AD 410–630. The University of Aberdeen excavations revealed evidence for internal buildings at Cairn More and elaborate timber revetment for the ramparts, and obtained radiocarbon dates spanning the 4th to 7th centuries AD, activity which directly overlaps with the occupation phases at the Craw Stane complex (Chapter 5). Perhaps the most spectacular results of the environs project came from Tap o' Noth, one of the most imposing forts in Scotland (Chapter 4). The summit oblong fort is the second highest hillfort in Scotland and one of the best-preserved examples of a vitrified (heavily burnt) fort. Surrounding this structure is a massive 16.75ha enclosure forming the second largest hillfort

enclosure in northern Britain, within which lies hundreds of hut platforms recorded in earlier surveys (Ralston & Watt 1983; RCAHMS 2007: 103–5). Given the height and nature of its location, investigating the oblong fort was an exercise in extreme archaeology, with the vitrified walls and areas of the interior tackled over two gruelling seasons. The excavations on the summit revealed the buckled and heavily burnt wall faces of the fort and a well. Dating evidence showed that the construction and destruction of the site lay in the period 400–100 cal BC and there was no hint of later reuse of the site, despite a comprehensive set of radiocarbon determinations. The results from the larger fort were the most surprising of all of the dating results from the project. Due to its size and elevation, scholars had suggested the construction and occupation of the lower fort at Tap o' Noth dated from a time when the climate was warmer, possibly during the Bronze Age (eg Halliday 1985: 238; Mercer & Tipping 1994: 5; Armit 1997: 57). Excavations in 2019 began to overturn that idea dramatically, with radiocarbon dates from two platforms and the rampart spanning the 3rd to 6th century AD period, dates that are broadly contemporary with the Craw Stane complex and Cairn More. LiDAR and photogrammetry surveys also revealed many more house platforms were contained within the lower fort – perhaps as many as 800 – making Tap o' Noth the largest and one of the most densely occupied early medieval hillforts known in Britain and Ireland, and one with important Late Roman Iron Age origins.

The project at Rhynie was fuelled by a developing set of research questions that evolved from basic queries surrounding the chronology and character of the Craw Stane complex to much grander questions regarding the development of the kingdoms of early medieval Scotland. Project partners and supporters were key to the success of a project of this scale. In the first phase of investigations, a series of small grants were obtained to allow small- to medium-scale field seasons to be undertaken. From 2015 onwards, Historic Environment Scotland became a major funder due to the project's ability to address national and international research agendas, but also as a result of its aims of providing training to a generation of students and to bring an understanding of a 'dark age' of Scottish archaeology to wider public attention.[2] Over the course of ten excavation seasons, more than 100 students were trained in key fieldwork skills, working alongside a similar number of volunteers. Within a few years of working at Rhynie the project also began to become deeply embedded in the community. On the community engagement front, the project had the critical support of Rhynie Woman, a local artistic collective that ran hugely successful engagement initiatives alongside the excavations, including pop-up museums, fire festivals, tours of the archaeological sites and events at the annual Rhynie gala – tying community and archaeologists together in ways rarely achieved (Illus 1.6). The media profile of the project, including the social media 'Northern Picts' accounts, have also helped bring new audiences to a long-loved, but poorly understood, era of Scotland's history. In terms of overarching research goals, many of the research questions were tied into Scotland's first ever national research agenda, the *Scottish Archaeological Research Framework* (ScARF 2012), but many new topics and avenues of research quickly opened in the face of an unprecedented body of new archaeological material gained over an exciting and extended period of archaeological discovery.

In summary, the research documented in this volume started modestly but began to tackle big picture questions surrounding the transitions from the small-scale societies of the Iron Age to the early kingdoms of northern Britain. The results and conclusions are yet to be laid out, but in this volume we will propose that Rhynie was a key landscape through which the developing polities of northern Pictland were forged. This was a multifunctional landscape associated with Late Roman Iron Age to early medieval elite residence, assembly, tribute gathering, production and exchange, ritual and burial. It was a multinodal central place controlled by warrior kings, and it is through the archaeology of the Upper Strathbogie valley and the iconography and character of the material culture recovered that we perhaps get our best glimpse yet of the form and evolution of Pictish society in the period *c* 300–650 AD. Overall, the results of the excavations in the Upper Strathbogie valley provide an unexpected and unparalleled insight into an elite landscape of the Picts and their predecessors, and it is the role of this monograph to pull all these results together to tell a story of the Upper Strathbogie valley from the Iron Age to its early medieval height, and finally its fade into relative obscurity in later periods.

Chapter 2

BACKGROUND AND CONTEXT

Gordon Noble and Meggen Gondek

2.1 The background to the investigations

The foundation for the work reported in this monograph was the Rhynie Environs Archaeological Project (REAP). Meggen Gondek (then at Durham and latterly University of Chester) and Gordon Noble (then at Durham, later Glasgow and now Aberdeen) formed REAP in 2005 to examine the group of Class I stones from Rhynie. Early work included a series of geophysical surveys and the excavation of a prehistoric roundhouse in the vicinity of the Craw Stane (Gondek & Noble 2015). However, it was not until the 2010s that the project really took off, with both directors now in permanent jobs and funding raised for initial pilot work at the Craw Stane complex in 2011 (Illus 2.1). The early aims of the REAP project were outlined in a publication by Gondek and Noble in *Pictish Progress* in 2011, a volume that followed a series of conferences marking the 50th anniversary of the seminal volume *The Problem of the Picts* (Wainwright 1955). In that publication, it was noted that there was great potential for exploring the landscape context of symbol stones, with Rhynie proposed as an ideal case study given the concentration of monuments found in the vicinity of the village and the fact that the Craw Stane appeared to be in situ[1] (Gondek & Noble 2011: 282). As a result, the grouping of eight stones known from Rhynie offered the opportunity to investigate the potential relationships between the monuments and the landscape in which they were found.[2] The relatively open agricultural environment that formed many of the stone findspots, along with a range of other archaeological monuments, provided good opportunities for fieldwork and landscape approaches to be undertaken. The interlinkages between the monuments were seen as key:

Illus 2.1
The Craw Stane with Tap o' Noth in the background © Cathy MacIver

> the symbol stones structured the field of action around them; they defined their own space/place, alongside other features that may no longer survive. The ceremony or actions around them, which may sometimes be archaeologically visible, represents the contextualised social moments we are interested in when we ask, 'what do these stones mean?' (Gondek & Noble 2011: 288).

In the 2011 chapter, Gondek and Noble produced a 'symbol map' (Gondek & Noble 2011: 289, fig 8.2) to draw out the associations and context of the symbols, with a northern grouping linked to the location of a probable early medieval cemetery (following RCAHMS 2007: 119–22). The clustering of hillforts around the symbol stone distribution was also highlighted, alongside the possible location of an early church centred on the parish church at Rhynie. However, as the aim of the landscape analysis was to consider the function and potential date of the Craw Stane enclosures, Tap o' Noth was only briefly mentioned. The occurrence of the enclosures at the Craw Stane was seen to provide a context for the erection and use of this impressive symbol stone and at least two of the other stones from Rhynie that came from the vicinity (No. 7 – the Rhynie Man, and Rhynie No. 8). The position of the Craw Stane at the entrance to the inner enclosure was considered a significant clue to the date of the enclosure complex, though the discovery of Bronze Age pottery near the Craw Stane indicated that the enclosures could also relate to multi-period activity including that of prehistoric date. Ultimately, however, the Craw Stane enclosures were interpreted as the ploughed-out remains of a 'ringfort' (cf Harding 2004: 238) and the 2011 chapter briefly examined Iron Age and early medieval examples of these in Scotland. Discussion also focused on multi-period settlement sites in the Northern Isles, such as the Broch of Gurness and Pool, where symbol stones have been found in settlements with Pictish period buildings. The authors then examined the potential ritual role of the Rhynie enclosures, with the location of an apparent palisade outwith the ditches seen as a reversal of the norm, suggesting the site was one where 'more specialised and perhaps ritualised activities were undertaken' (Gondek & Noble 2011: 300). The rich prehistoric remains of the Rhynie valley were seen as a sign of the reuse and reinvention of an already significant prehistoric landscape in the early medieval period (cf Bradley 1987; Driscoll 1998; Newman 1998; Campbell 2003: 55). The conclusion of the 2011 paper (written before the first field season at the Craw Stane complex in the summer of 2011) was that the chronology of the Rhynie cropmark enclosures was the pressing research issue to address.

Prior to the commencement of the first field season, scheduled monument consent was obtained for evaluative excavations at the Craw Stane enclosures. The rarity of an in situ Class I symbol stone was highlighted in the application, along with the potential for understanding the stone in relation to the associated cropmarks – either as a contemporary monument or reuse of an earlier enclosure complex perhaps of prehistoric date. The initial objectives were modest:

- Determine the character, extent and survival of the cropmark features
- Obtain material suitable for scientific dating of the enclosures and other features
- Develop a deeper understanding of the Rhynie landscape

The 2011 trench ran from the Craw Stane downslope to the north, encompassing all three enclosing elements – the inner ditch, the outer ditch and the palisade (Illus 2.2). Finds-rich deposits were located in the upper fills of the outer ditch and good dating material was found for all of the major features uncovered. The 2011 season therefore exceeded all expectations in terms of results, with radiocarbon dating indicating a 5th to 6th century date for the site and important sherds of Late Roman amphora, glass from western France, metalwork objects and metalworking evidence recovered (Noble & Gondek 2011). The first season was completed on a budget of around £4,500 scraped together through funding from the Carnegie Trust for the Universities of Scotland, the Society of Antiquaries of London, the Society of Antiquaries of Scotland and internal funding from the University of Aberdeen and the University of Chester.

With the 2011 season dating the enclosures to the early medieval period and confirming the presence of in situ deposits broadly contemporary with Rhynie's carved stone monuments, the focus of the project shifted towards recording the major constituents of the monument through strip-and-map excavation (Illus 2.3). This involved evaluating the interior for the survival of internal buildings and assessing the associated economic and artefactual evidence. The work at the site continued as part of the Rhynie Environs Archaeological Project (REAP), directed by the Universities of Aberdeen and Chester, and excavations at the Craw Stane complex subsequently took place in 2012 and 2015–17. This period of investigation provided detailed insights into the Craw Stane settlement complex, with the strip-and-map approach characterising a large proportion of the complex whilst leaving more than 85% of the archaeology in situ (Chapter 5). In addition, the two square enclosures (Illus 2.4) identified by aerial photography near the village were targeted for excavation in 2013 and a programme of community-focused investigations concentrated on test-pitting in the village gardens, revealing further elements of the cemetery in 2014.

The research questions for the 2012–17 seasons were more informed and ambitious than the 2011 season and concentrated on the following:

- How can we characterise the activity at Rhynie? Was this a Pictish settlement/cult centre/fort or did it encompass elements of all of these?
- How did the Class I Pictish sculpture relate to the enclosures and related features? Were they contemporary with the settlement phases? What was their role and function in the early medieval landscape of Rhynie?
- Given our lack of understanding of the activities and nature of the interior of early medieval enclosures, what can strip-and-map techniques reveal about the ground plan of the enclosure complex at Rhynie?
- How did the site develop through time? Did it begin as an unenclosed settlement? How did the site end? Was the enclosure complex destroyed or deliberately dismantled?

Illus 2.2
The 2011 season – the initial trowel back of the first season of excavation at the Craw Stane complex enclosures

Illus 2.3
The most ambitious field season – 2016 at the Craw Stane complex. Tap o' Noth can be seen in the background

Illus 2.4
The square enclosures by Rhynie village © Aberdeenshire Council Archaeology Service

- How can we address the lack of Pictish domestic settlement in lowland contexts such as Rhynie? Given the lack of Pictish domestic architecture in mainland Scotland, what was the form and nature of the buildings associated with the enclosures at Rhynie?
- What was the nature of activities carried out on the site? Is there evidence for onsite production of metalwork and other craftworking activities? What type(s) of metalworking was conducted at this centre? Can we say any more about the importance of metalworking at early medieval centres of power?
- What are the limits of the early medieval site? What can wider geophysical, test-pitting and other investigative techniques bring to our understanding of the site and its extent?
- How did the Craw Stane cropmark complex relate to the cemetery located closer to the modern village? How did the cemetery develop? Did its growth go hand-in-hand with the development of the enclosure complex?

From 2017 onwards, focus on the Rhynie valley shifted to the wider environs and work was conducted as part of the University of Aberdeen Northern Picts Project (established in 2012). The potential to reconstruct the long-term development of the Upper Strathbogie landscape in the processes of state formation from the Iron Age to early medieval period was highlighted in funding applications submitted to HES in 2017 to help support the wider environs work. The Northern Picts: Rhynie Environs Project (2018–22) built on the legacy of the REAP project and aimed to characterise and date other sites in the Rhynie valley – the enclosures at Tap o' Noth, Cnoc Cailliche and Cairn More – to provide context for the development of the Craw Stane complex. The capabilities and the resources of the team working on the environs project were significantly boosted in 2017 by the awarding of a Leverhulme Trust Leadership Award to Gordon Noble for the 'Comparative Kingship: The Early Medieval Kingdoms of Northern Britain and Ireland' project. Rhynie was one of the case studies of that project, allowing Comparative Kingship researchers

to work on the excavation and analysis of Tap o' Noth and Cairn More. The palaeoenvironmental work reported on in this monograph (Chapter 8) was also conducted as part of the Comparative Kingship project, as was the historical contextualisation surrounding the development of the Picts and the nature of kingship, and the development of mapping and place-name analysis (Chapters 3 and 12).

The focus of the work on the environs of the Craw Stane complex involved obtaining robust chronologies and characterising the forts at Tap o' Noth, Cnoc Cailliche and Cairn More. The research questions posed at this stage of the project included:

- Was the Craw Stane enclosure complex part of a larger landscape of power that encompassed the Upper Strathbogie region?
- Did the Rhynie landscape resemble royal landscapes in early medieval or late Iron Age Scandinavia, Ireland or Anglo-Saxon England, which were polyfocal in nature with contemporary sites existing within a complex settlement hierarchy?
- How did the landscape of Strathbogie develop from the Iron Age to early medieval period? Is there evidence of continuity or was the Pictish central place at Rhynie built to reference an earlier Iron Age regional centre as a means of symbolically legitimising new forms of rulership?
- Was metalworking production restricted to the Rhynie complex or was it practised at other sites in the wider landscape?
- What can the Strathbogie evidence tell us about wider processes of state formation in early medieval Scotland?

Illus 2.5
Fred Murray, one of the project's most dedicated and 'colourful' volunteers
© David Denoon

Illus 2.6
Excavations at Tap o' Noth platforms T15–T17 in 2022

- How did the Craw Stane complex relate chronologically and functionally to sites such as Tap o' Noth, Cnoc Cailliche and Cairn More forts? Did activity at the Craw Stane complex in the 4th–6th centuries AD shift focus to Tap o' Noth oblong fort, as might be suggested from the dating evidence from sites such as Craig Phadrig? Or did the elite focus on this wider landscape end in the 6th century AD and move to other locations within Northern Pictland?
- How can this series of sites help us illuminate the crucial narratives surrounding state formation in early medieval Scotland?

The three new research sites posed significant challenges for the Northern Picts/Comparative Kingship team. Cairn More had previously seen limited investigation as part of the Strathdon Hillforts project (Cook 2011b); however, renewed investigations showed that the site was extensively covered by, and damaged by, gorse, which required a heroic effort by Rhynie local Fred Murray to clear it (Illus 2.5). This enabled the site to be tackled in open area excavation from 2018–20. Cnoc Cailliche (also known as Wheedlemont) was excavated in 2017 to provide an outline chronology for the site (Noble et al 2020b) which showed that the defences and internal settlement remains identified belonged to the Iron Age. The largest and most challenging undertaking of the environs project was Tap o' Noth, Scotland's second highest hillfort which loomed over the valley below (Illus 2.6). It was a site that the local community was immensely keen to see investigated but was a daunting challenge given its scale, complexity and relative inaccessibility. The initial focus of the work at Tap o' Noth was on the summit fort (2017–18) and in 2019–22 focus moved to the lower fort and platform settlements.

With these sites there were some clues to what the investigations might find. The previous work at Cairn More suggested a site broadly contemporary with the Craw Stane enclosures, while Cnoc Cailliche was thought to span the Iron Age to early medieval period given its morphology and discovery of Iron Age pottery at the site (NRHE ID 17215). At Tap o' Noth, there was little doubt that the vitrified oblong fort would prove to be Iron Age, given previous results at oblong vitrified forts of this type (eg Cook 2010). However, an early medieval phase was also hoped for based on evidence from sites such as Craig Phadrig, Inverness, where E Ware and other early medieval finds were found in secondary phases of occupation (Small & Cottam 1972).[3] The lower enclosure and platforms at Tap o' Noth were generally thought to be earlier than the summit enclosure (eg Halliday 1985: 238; Mercer & Tipping 1994: 5; Armit 1997: 57), an observation that proved to be the reverse of the actuality. As the work progressed and the number of Late Roman Iron Age and early medieval sites in the valley increased, it became clear that the extent of the first-millennium AD archaeology in the valley had been seriously underestimated and that the project had the potential to tackle research issues well beyond those relevant to the Upper Strathbogie valley.

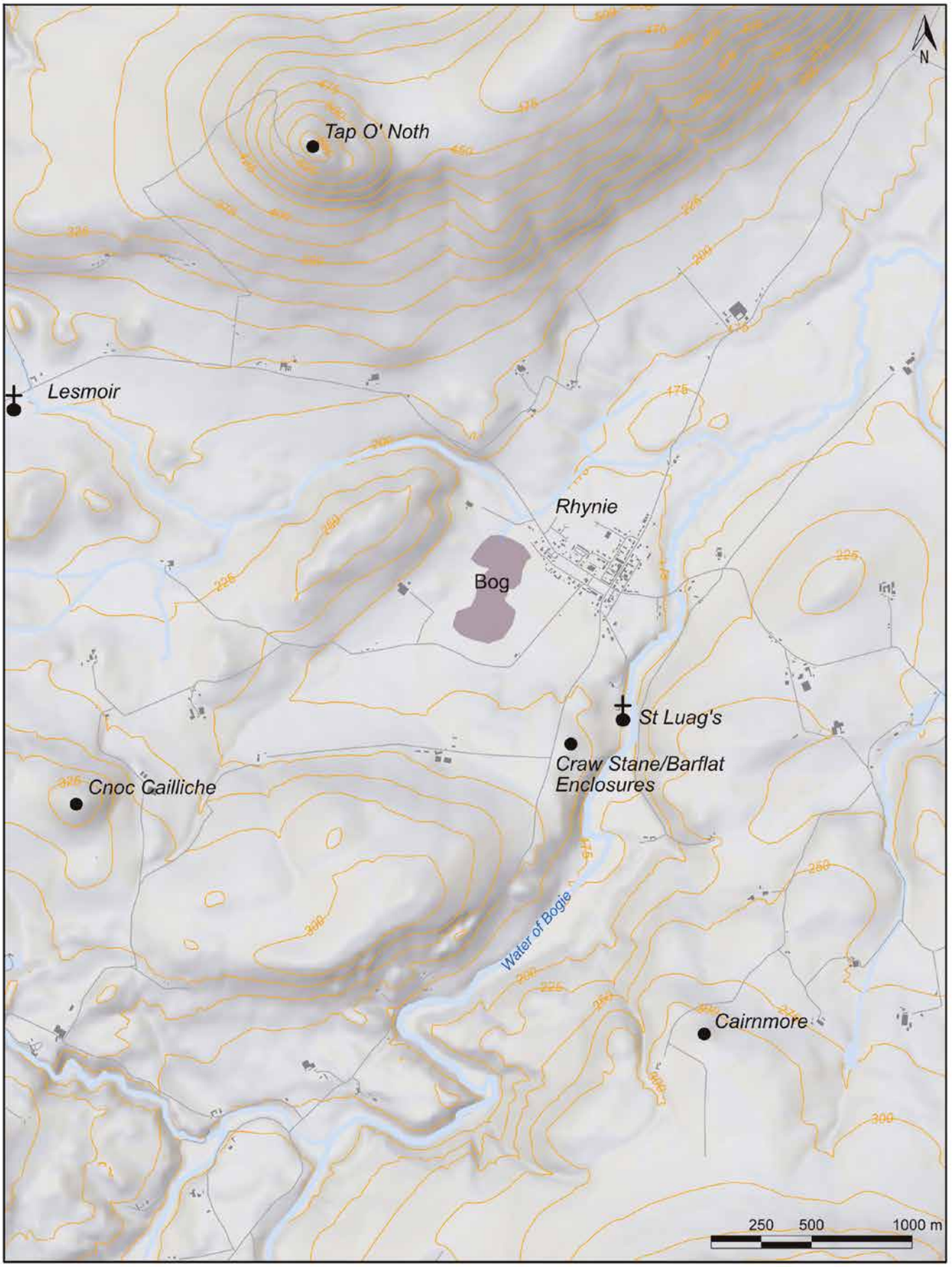
2.2 A connected and resourceful place: the physical setting

Gordon Noble and Nicholas Evans

Rhynie is a small village, located in western Aberdeenshire in north-east Scotland (Illus 1.1, 2.7). The modern village is a 19th-century planned settlement on the site of an earlier village known as the Muir of Rhynie (RCAHMS 2007: 195–6, and see Chapter 3). Rhynie lies between the River Bogie, Ord Burn and Burn of Easaiche and sits at 181m OD, making it one of the higher settlements in Aberdeenshire. Though located not far from the Cairngorms National Park, it occupies a rich agricultural valley with close connections to more lowland areas in the east and north. The First Statistical Account of Scotland from the end of the 18th century records Rhynie parish as comprising around 20,000 acres of land with a population of around 836 in 1755 and 681 in 1797 (OSA 1791–9 (Vol 19): 291). The population had grown to over 1000 by 1841, with the main industry listed as agriculture (Wright 1845: 1016). The main watercourse – the Water of Bogie – flows to the east of Rhynie and the Craw Stane complex, from Auchindoir to the south as far as Huntly around nine miles to the north. There, it merges with the River Deveron which continues north-east to Turriff and ultimately to Banff on the Moray coast. The Bogie is noted for its brown trout, with salmon also known to swim in the river, but the watercourse is shallow and not navigable.

Today the population of Rhynie has declined to around 450 people. In a modern context, Rhynie can seem relatively isolated; situated at the fringes of Aberdeenshire, in a location far from the sea and nestled in the shadows of the uplands. Nonetheless, Rhynie is located in a strategic position at a natural communication node in the centre of a wide valley between the Cairngorms and Cabrach hills to the west and the Correen-Bennachie range to the east. The valley defines major routeways through the hills leading northwards to the Moray coast, the upper reaches of the River Don to the south, and to the River Dee and the Mounth beyond (RCAHMS 2007: 121; Brander 2014: 29). Other routes lead off east towards the Garioch and lower Don, and west through Essie and the Cabrach to modern Dufftown in the southern reaches of Moray (RCAHMS 2007: 121). In the post-medieval period, a drove road ran from Huntly through Rhynie and down to the River Don at Kildrummy – a route also shown on Roy's 18th-century map (Haldane 1968: page, map 1) (Illus 2.8). Roy's map is particularly revealing, as it demonstrates that the route through Rhynie from the Mounth was the most direct path from the eastern lowlands to Moray in the north. The routeways that pass through this landscape mean that Rhynie has often occupied a strategic and liminal position between the regional polities of eastern and northern Scotland.

The Craw Stane (Rhynie No.1) (Illus 2.1), the Pictish symbol stone that formed the focus of the initial stages of the archaeological investigation that this volume reports on, sits within the valley bottom to the south of the modern village on what are now the lands of Barflat farm (Illus 1.1, 2.7). The site is 200m away from the location of the old parish kirk which is adjacent to the river. The parish church was demolished in 1823 when a new church was built within the centre of the current village but the



Illus 2.7
The Rhynie valley showing the position of the main sites investigated and a reconstruction of the possible extent of the Rhynie bog.
Contains OS data © Crown copyright and database rights 2024 Ordnance Survey

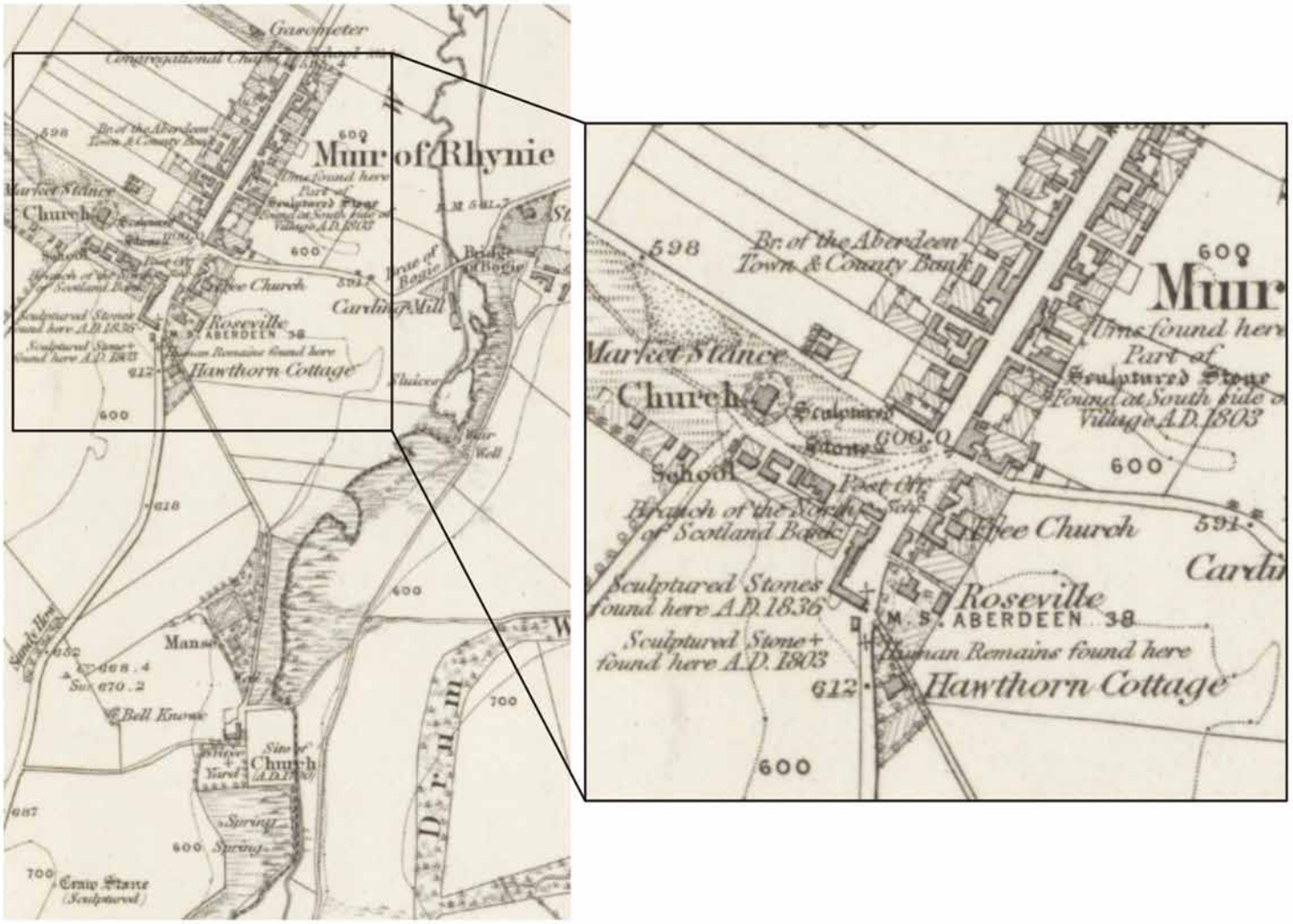
kirkyard remains enclosed by a rectangular boundary wall that houses gravestones and burial monuments dating back to the 17th and 18th centuries, including a 1668 memorial to Alexander Gordon of Muirack (Shepherd 2006: 46). Near to the church is a mire through which the Water of Bogie flows (the site of the pollen core reported on in Chapter 8). Roy's Military Survey of Scotland suggests that the Craw Stane stood in proximity to a major routeway that connected the Strathbogie valley to the Don valley at Kildrummy (Illus 2.8).

Roy's map shows a bog to the west of the Muir of Rhynie, as does the Gordon estate plan of 1776 (RHP2554), which gives the extent of the moss as over 32 acres in size (Illus 2.8). Today, the small road which leads out of the village on its south-west side towards Cnoc Cailliche is known as Moss Road, and a small community forest which occupies a wet and boggy part of the landscape represents the drained remains of that bog. These 18th-century estate plans, local knowledge, aerial photographs and topography suggest that the bog extended much further than it does today (Illus 2.7). The presence of a large bog may have been part of the motivation for situating the Craw Stane complex in this part of the landscape, as the wetland would have provided peat for fuel and perhaps bog ore for metalworking.

Prior to the work reported on in this volume, there had been no previous environmental studies in the area to reveal in detail the character of the pre-modern valley through time in which Rhynie was situated. Charred assemblages from the excavation of a Bronze Age settlement in 2005 (Gondek & Noble 2015: 138) suggested the presence of alder, birch, willow, hazel, cherry and very small amounts of oak in the prehistoric landscape. The limited use of oak in a Bronze Age roundhouse, and the use of inferior timbers for building such as alder, suggested that oak was relatively difficult to source by the middle of the second millennium BC (Ramsay in Gondek & Noble 2015: 140). Naked six-row barley from the Bronze Age settlement is a sign that the cultivation of the landscape stretched back at least to the Middle Bronze Age. A pollen core from the mire downslope from the Craw Stane (Chapter 8) indicates local woodland in the first millennium AD that included both deciduous and coniferous trees, principally pine, alder and birch, but also some oak, ash and elm. It also suggests mixed farming in the vicinity of the site, with dung spores indicating grazing animals and cereal grains indicative of arable cultivation. Pollen and botanical information from the Tap o' Noth vitrified oblong fort also point to animal grazing and mixed woodland availability in the vicinity of the fort in the Iron Age. In the modern era, there were also uncultivated upland areas in the Rhynie area. The Gordon estate plan of 1776 (RHP2554) includes Tap o' Noth in a substantial area of commonty that could be used by neighbouring inhabitants for rough grazing. The same source depicts much of Quarry Hill to the south-west of Rhynie as uncultivated and undivided, perhaps hinting that this was utilised similarly (and also as a quarry). Nevertheless, the Strathbogie estate rental produced for its Gordon lords in 1600 indicates that rent in Rhynie parish primarily consisted of arable produce with pastoral agricultural rents (mainly cattle rather than sheep) a feature of its upland areas (Shepherd 2021: 88–91). This was in contrast to its western upland neighbour, Essie parish (united with Rhynie parish in the 17th century), whose inhabitants were obliged to provide livestock as most of their rent.

Illus 2.8
Roy's Military Map showing Tap o' Noth, Muir of Reny and the Kirk of Reny and the wetland area to the west of the village. Reproduced with the permission of the National Library of Scotland under the Creative Common Attribution (CC-BY) licence 2024

However, Roy's Military Survey map and RHP2554 show that the Craw Stane complex in the 18th century was within but close to the southern extent of cultivated land beside Quarry Hill, with little arable land present to the south before Auchindoir (in the next parish) was reached (Illus 2.8). Analysis of Roy's map and RHP2554 also suggests that past cultivated land was broadly consistent with that cultivated today – ie it comprised an area to the immediate west of the Craw Stane, stretching westwards towards the fort at Cnoc Cailliche and also some land to the south close to the Bogie. To the north, the cultivated land in the 18th century circled the base of Tap o' Noth on all sides and the cultivable land stretched north-east towards Huntly and the Deveron. The Old Statistical Account of Rhynie (OSA 1791–9 (Vol 19)), written only a few decades after Roy's map, suggests that little 'improvement' had been carried out to the fields of the Upper Strathbogie valley at this time. Thus, Roy's map may give a broad picture of the land that would have been suitable for agriculture in earlier periods in this immediate area. The Old Statistical Account noted the soils of Rhynie parish as being very fertile, and by the time of the New Statistical Account (NSA 1845 (Vol 12)) over 50 acres of land are said to have been under cultivation in the parish. The account notes that improvement had taken place, with 'waste land' having been reclaimed – presumably this was the period in which the Rhynie bog was drained. Certainly by the 1st Edition Ordnance Survey maps the Rhynie bog was gone and the present character and layout of the modern village and landscape around had begun to take shape (Illus 2.9).



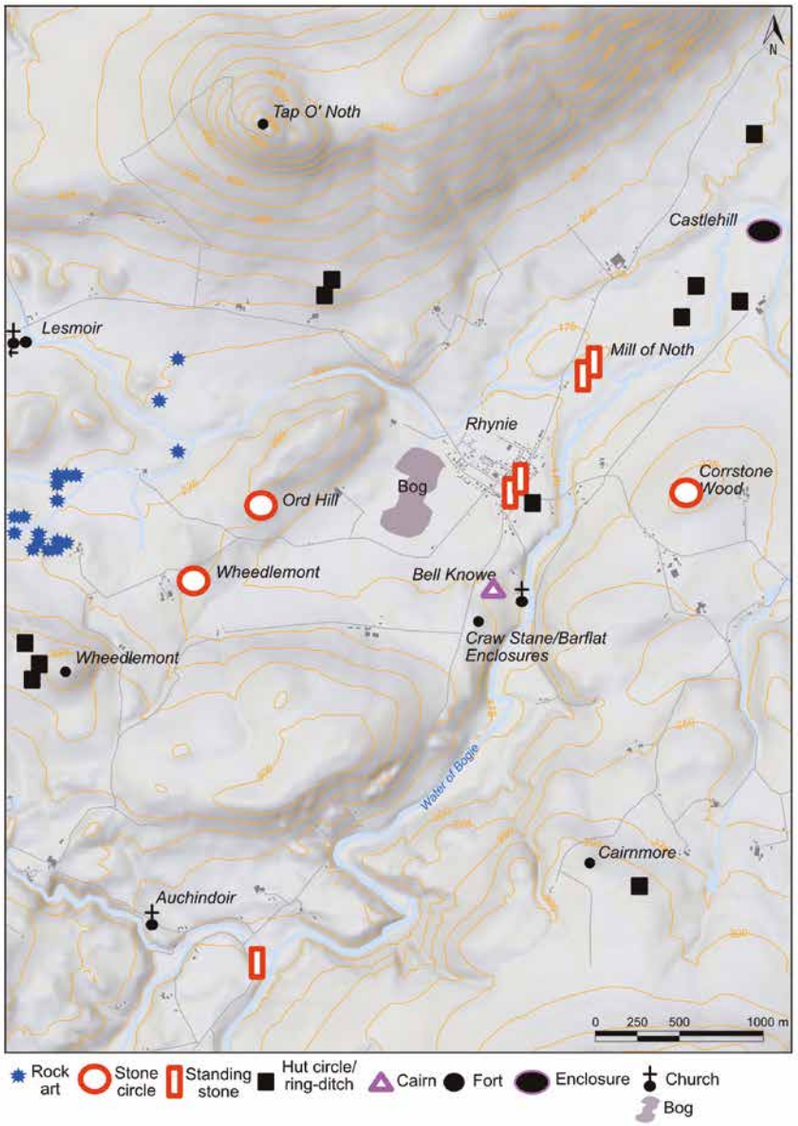
Illus 2.9
Rhynie Ordnance Survey 1st Edition 1870. Reproduced with the permission of the National Library of Scotland under the Creative Common Attribution (CC-BY) licence 2024. The 1st Edition records a number of antiquities found near the southern extent of the village including 'sculptured stones' and human remains

Cairn More on the east side of the Bogie in Kearn parish is not depicted on Roy's map, but is found on a Forbes estate plan of *c* 1771 (RHP260/1). This shows muir ground immediately around the enclosure, though a few small 'poor', 'stony' enclosed arable fields are depicted just to its south and west, marking the limit of cultivated land, which is much more a feature of the more northerly and western parts of the parish. This Cairn More was near the edge of a large expanse of unenclosed land at the western end of the Correen Hills located at the southern end or beyond farms with mosses, muir and a little pasture land. The primary land-use mentioned in this upland area was the taking of 'turf' for fuel. RHP260/1 also depicts a number of folds for animals, perhaps primarily sheep, indicating that a mixed arable and pastoral economy was present (Shepherd 2021: 260–2), though the potential for change over time, means that, without contemporary data, this much later evidence need not necessarily correspond to the first-millennium situation.

2.3 Prehistory of the Upper Strathbogie valley

Gordon Noble and Meggen Gondek

The Upper Strathbogie valley is a rich, multi-period landscape, which is home to a significant concentration of prehistoric remains (Illus 2.10). Neolithic and Bronze Age remains tend to cluster in the more upland areas to the west of the modern village of Rhynie. For example, there is a notable concentration of rock art consisting of simple cup-marked monuments – a style which dominates much of the rock art of north-east Scotland (Gannon et al 2007: 73; George Currie pers comm) (Illus 2.10). Nearby, there is also a cluster of stone circles and standing stones, with a recumbent stone circle at Corrstone Wood (NRHE ID 17657) and settings of stones or remains of circles at Ord Hill (NRHE ID 17221) and Cnoc Cailliche (NRHE ID 17204) (Illus 2.10). A pair of standing stones at Mill of Noth (NRHE ID 17668) are also located on the outskirts of the village to the



Illus 2.10
Prehistoric remains in the vicinity of Rhynie village. Contains OS data © Crown copyright and database rights 2024 Ordnance Survey

north, whilst two standing stones were removed from the modern village itself in the 19th century and now lie at the entrance to the village square on the south-east side (NRHE ID 17186). Numerous cairns, prehistoric cists and urn burials are also known from the area (see Gondek & Noble 2015: 127, illus 2). Additional remains include prehistoric hoard sites in the wider environs: a hoard of eight Bronze Age flat axes is recorded as coming from the base of Finglenny Hill to the north-west of Tap o' Noth, a findspot overlooked by the Late Neolithic henge monument at Wormy Hillock (Coles 1969: 102; Cowie 2004: 258; Gannon et al 2007: 56–7, 76), and a hoard of Late Bronze Age swords were recovered from Brawland Farm, near Cnoc Cailliche (NRHE ID 17198).

Elements of the prehistoric past were seemingly reused during the Pictish period (Chapter 9). Rhynie No. 5 has cup-marks on its non-symbol face (and a series of intriguing zoomorphs on the symbol side: Chapter 11), and though the Craw Stane has no prehistoric carvings itself, its general shape and large size has encouraged the assumption that this is also a reused prehistoric standing stone (Clarke 2007: 39) (Illus 2.1). In 2005, an eroding cattle scrape to the north of the Craw Stane produced several sherds of an All-Over-Corded Beaker, which may indicate a Bronze Age internment had formerly been located on the knoll near to the Craw Stane (Cook 2005). However, the REAP excavations examining the cropmark complex around the Craw Stane found little evidence of Neolithic or Bronze Age activity aside from a redeposited Bronze Age faience bead in an upper fill of the inner ditch. Around 200m north of the Craw Stane, one notable prehistoric feature can be highlighted – the 'Bell Knowe', a probable Bronze Age cairn (Illus 2.10). It survives to 1.7m in height and is around 19m in diameter. The Bell Knowe has a modern story that it was named because it was the base for a wooden support that held the church bell (Eeles and Clouston 1958: 102; RCAHMS 2007: 121). Comparable accounts were used to explain other Scottish 'bell' place-names, but, as is possible here, the name probably originally referred to the bell-like shape of the feature (Eeles & Clouston 1958: 102; Taylor & Márkus 2012: 295–6; RCAHMS 2007: 121).

Alongside these examples of cairns and standing stones, the Rhynie landscape also contains the imposing remains of hill-forts, some of them of known prehistoric date and others that are (or were) assumed to be. The most spectacular Iron Age site in the Upper Strathbogie valley is undoubtedly the upper fort of Tap o' Noth, which dominates the skyline views from Rhynie (Illus 2.1, 2.6). The summit fort is amongst the best surviving examples of an Iron Age vitrified oblong fort, whilst the lower fort, around 17ha in extent, forms the second largest hillfort in Scotland (eg Halliday 1985: 238; Mercer & Tipping 1994: 5; Shepherd 1986; Shepherd 1996: 146). Cnoc Cailliche (Wheedlemont) lies 3km to the south of Tap o' Noth (Illus 2.10) and comprises outer defences enclosing an oval area of around 0.11ha. Excavations in 2017 by the University of Aberdeen demonstrated that the site dated to 400–200 cal BC (Noble et al 2020b), making it broadly contemporary with the vitrified fort at Tap o' Noth. Early settlement in the Rhynie environs is also represented by the record of hut-circles and ring ditches, souterrains, and a number of Roman finds known from Tap o' Noth and the vicinity (Illus 2.10), providing a rich prehistoric background to the later remains (Chapter 9).

2.4 The symbol stones and early medieval archaeology of Rhynie

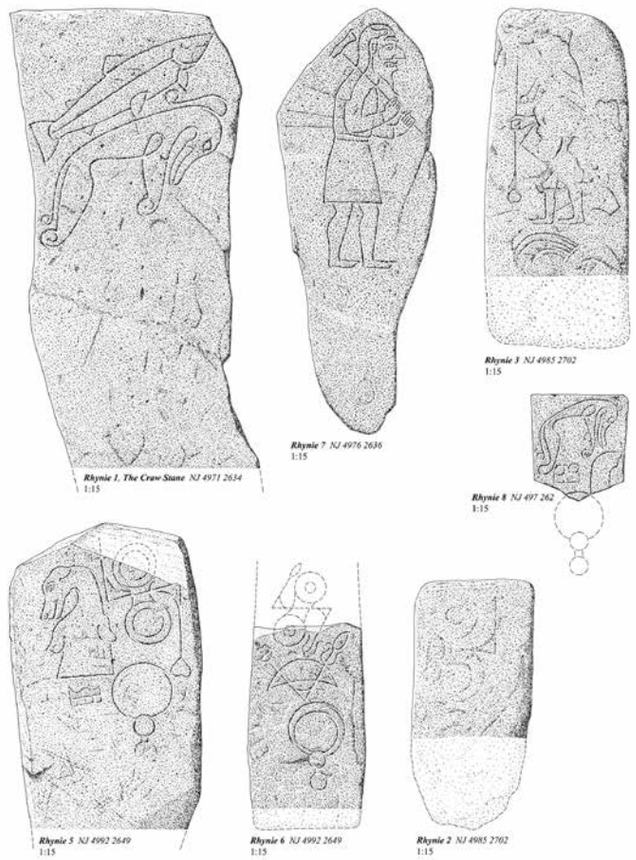
Gordon Noble

The eight known early medieval carved stones from Rhynie comprise a range of different monuments of differing sizes, lithologies and character (Table 2.1) (Illus 2.11). They range from small fragments of what would have always been modestly sized stones (Rhynie No. 8) to very large intact examples (Rhynie Nos 1 and 7). The stones are all of geologies that would have been locally available and comprise granite, whinstone and gabbro.

They are all symbol stone (Class I) monuments, with no early Christian sculpture known from the Rhynie area. The stones are carved with a variety of symbols though certain motifs recur – eg there are three double-discs and Z-rods and three Pictish beasts (and a beast head) across the Rhynie assemblage. The symbol combinations are generally those found across the wider corpus, though the combination of two animal symbols on No. 1 is unusual, as are the two lone figures (Rhynie Nos 3 and 7). The symbols and figures are all carved with a certain simplicity of line, with little in the way of internal decorative embellishment to the symbol designs. Given the importance of the corpus, each stone will be considered in turn.

Rhynie No. 1, the 'Craw Stane', features a salmon and Pictish beast incised on the smoothest face of an imposing standing stone (Illus 2.11). The lines of the carvings are confidently incised but lack any major elaboration, such as internal accent lines found above the line of the beast's belly, which can be identified on other Aberdeenshire symbol stones such as Dyce, Tillytarmont, Ardlair, Broomend of Crichie and Tullich. The Craw Stane salmon motif is the only example present in the Rhynie corpus but can be found elsewhere in Aberdeenshire at Keith Hall and Kintore, which again feature more embellishment such as more detailed tails (RCAHMS 2008: 26, 28).

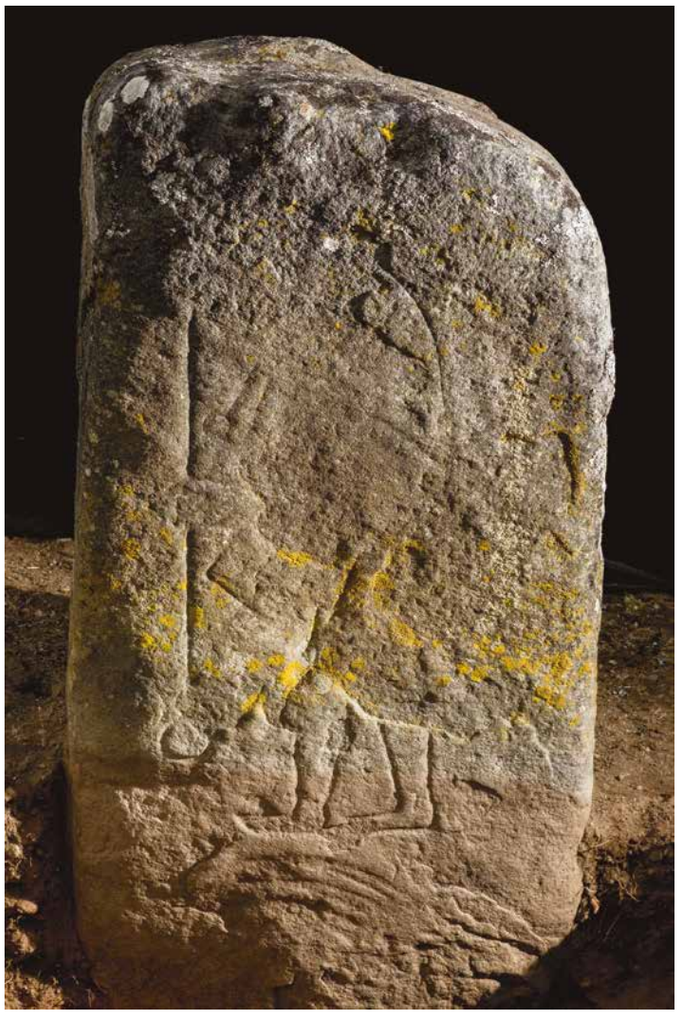
Rhynie No. 2 (Illus 2.11) is a very worn whinstone glacial erratic recorded as having a double-disc and Z-rod on one face. Logan (1829: 56, Plate IV) shows it before it was broken and his drawing suggests it had a crescent and V-rod below the double-disc and Z-rod. Certainty is lacking due to the condition of the monument, but like the others in the Rhynie corpus, the double-disc symbol appears to have been of a relatively simple style, with smaller concentric circles in each of the discs being the only additional ornamentation.



Illus 2.11
The seven extant Pictish symbol stones from Rhynie
© Historic Environment Scotland

Stone	Material/Condition	Size	Carvings/Symbols	Location	Info
Rhynie no. 1 The 'Craw Stane' NJ42NE 35	Grey granite/complete	H over 1.85m, W 0.9m, D 0.4m	Beast/Salmon	In situ at Barflat Farm	Reset in 1930s in concrete.
Rhynie no. 2 NJ42NE 22.01	Whinstone/very weathered	H *c* 0.96m, W 0.72m	Double-disc and Z-rod	Village square	Found during roadworks around 1836 near the Plough Inn at Rhynie and placed near Howies Inn. In 1864 it was taken to the market square.
Rhynie no. 3 NJ42NE 22.02	Whinstone/damaged	H *c* 1.35m, W 0.58m, D 0.3m	Warrior; S-shape	Village square	Found during roadworks around 1836 near the Plough Inn at Rhynie and placed near Howies Inn. In 1864 it was taken to the market square.
Rhynie no. 4 Mains of Rhynie NJ42NE 36	Granite?/destroyed	H *c* 2.4m, W *c* 1.8m	Beast/Crescent and V-rod/ Mirror	Destroyed/unknown	Recorded intact and standing at the Mains of Rhynie in the 18th century, the stone was broken up in 1803 for use as building stone. This largest fragment was broken up again for building purposes in 1826.
Rhynie no. 5 Rhynie, Old Church NJ42NE 32.02	Whinstone/fragment	H 1.63m, W 0.76m, D 0.23m	Early hunt scene; Beast head/Double-disc and Z-rod; Mirror; Comb	Churchyard	Found reused in the foundations of the old church during demolition in 1878.
Rhynie no. 6 Rhynie, Old Church NJ42NE 32.02	Red granite/fragment	H over 0.84m, W 0.43m, D 0.25m	Double-disc and Z-rod; Crescent and V-rod; Mirror	Churchyard	Found reused in the foundations of the old church during demolition in 1878.
Rhynie no. 7 Barflat The 'Rhynie Man' NJ42NE 52	Gabbro/complete	H 1.78m, W 0.70m, D 0.39m > 0.13m	Rhynie Man	Woodhill House, Aberdeen	Found during ploughing in 1978 downslope from the Craw Stane.
Rhynie no. 8 NJ42NE 53	Pink granite/fragment	H 0.43m, W 0.39m, D 0.16m	Beast/S-shape/ Comb/?Mirror	Churchyard	Found during ploughing near to Craw Stane.

Table 2.1
The Pictish symbol stones from Rhynie



Illus 2.12
The warrior carving: Rhynie No. 3. Image © Michael Sharpe

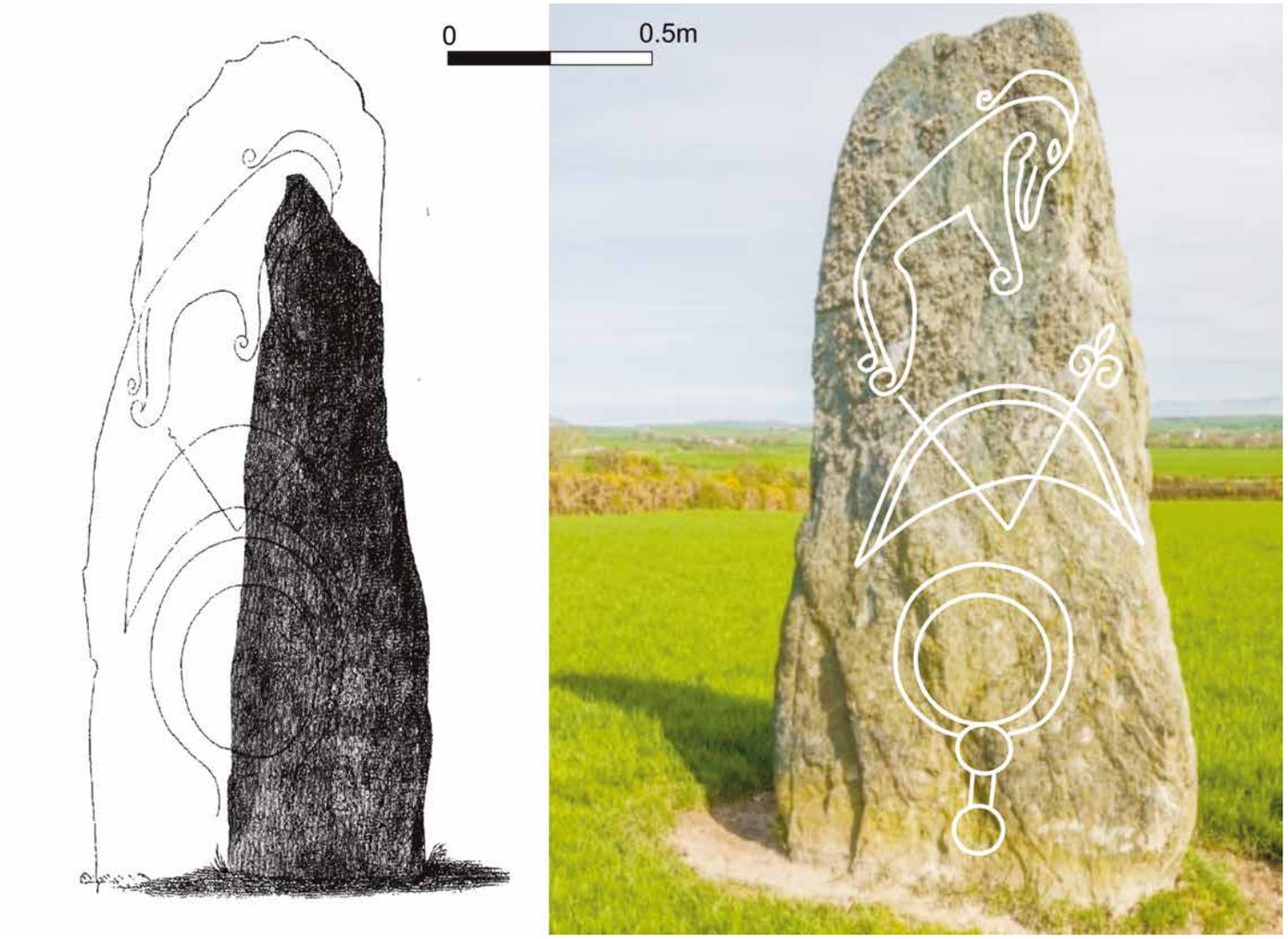
Illus 2.13
Stuart's depiction of the warrior on Rhynie No. 3 (from Stuart 1856: Plate VII)

Unfortunately by 1903, Rhynie No. 3 (Illus 2.12), the warrior stone, was so defaced that it was difficult to see the carvings (Allen & Anderson 1903: 182); however, recent study has helped clarify its detail (Hall et al 2020: 130–2, fig 4) (Illus 2.11–2.13). The figure carries an elaborate spearhead with a possibly circular embellishment just below the blade and a circular butt. On the left arm of the warrior is a rectangular shield with central boss. Logan (1829: 56) suggests the individual wore a cloak, and there are possible suggestions of this on Stuart's image of the stone (Illus 2.13); however, delamination of the stone since the 19th century makes this interpretation uncertain (Logan 1829: 56, plate V). The warrior has close parallels with that featured on the Collessie stone and shares a similar funerary context (Hall et al 2020: 132, figs 2 and 6). A warrior figure is also depicted on the recently discovered Tulloch stone from Perth, which may have been similarly associated with a burial mound (Hall et al 2020: 129).

Rhynie No. 4, a now lost monument, appears to have displayed a Pictish beast, crescent and V-rod, and mirror carved onto one face of a granite monolith (Illus 2.11, 2.14). Early drawings of the stone are sketch-like but suggest that the Pictish beast was of a similar size to that on the Craw Stane and surmounted a large crescent and V-rod (Logan 1829: 56, Plate IV; Stuart 1856: Plate VIII). This was in turn situated above a massive mirror motif.

An unusual beast symbol with flippers, a double-disc and Z-rod, and a mirror and single-sided comb is carved on Rhynie No. 5 (Illus 2.11). The beast symbol resembles that found on a silver plaque from the Norrie's Law hoard, which also features the same double-disc and Z-rod as the Rhynie stone, though the designs of the Norrie's Law symbols are more intricate and elaborate (Noble et al 2016b: 734–5). As part of the recording of the stones for the project monograph an unusual set of motifs that seem to pre-date the Pictish symbols were identified on Rhynie No. 5 (Chapter 11).

Rhynie No. 6 is broken as a result of being used in the construction of a gate in the 19th century (MacLagan 1880) (Illus 2.11). It is a small slab of red granite that has part of a double-disc and Z-rod symbol, a crescent and V-rod, and a mirror. Again, the symbols are relatively simple, with little in the way of internal decoration other than concentric circles within the double-disc. The terminations of the V-rod are relatively plain and appear similar to those at the end of the V-rod on the lost No. 4.



Illus 2.14
Reconstruction (right) of Rhynie No. 4 based on Logan's depiction from 1829 (left) (Logan 1829: 56, Plate IV)

The human-like figure on Rhynie No. 7, dubbed the 'Rhynie Man', is around 1m tall, with pointed teeth and carries an axe with a very narrow shaft over his right shoulder (Illus 2.11). The individual wears a sleeved tunic with a belt at his waist, and his feet are pointed like that of the warrior on Rhynie No. 3. Another distinguishing feature is the hair which flows midway down his back. Katharine Simms has recently suggested that the individual's hairstyle resembles the tonsures worn by aristocratic youths or sons of kings (*maicc ríg*) while they were members of warrior-bands, though the specifics of this interpretation seem speculative (Simms 2020: 405). Closer to home, the hairstyle of Rhynie No. 7 resembles that of the warriors depicted on the Collessie stone in Fife and the Tullochstone in Perth, though in these cases the hair seems to have been short rather than long at the back (Hall et al 2020: 130–2, figs 2 and 6). A similar tunic/long hair combination is seen on the Balblair stone, Kilmorak, but the individual on this stone carries a club or stick rather than an axe (RCAHMS 2008: 70, 80; Hall et al 2020: online supplement fig 4). A similar axe is depicted in the hand of a tunic-wearing figure on the stone from Mail, Cunningsburgh, Shetland, but in this case the individual has an animal-like snout and a set of vicious-looking teeth and appears to be part-human, part-animal and/or wearing an elaborate mask and outfit (Turner 1994).

Rhynie No. 8 (Illus 2.11) is of a different character than the others in the group. While it is broken, it is likely to have always been much more modest in size that the other stones. It resembles in size and form the stones that Alcock (1996) characterised as 'stelae' or 'plaques' (Noble et al 2018a: 1342). It shares similarities with the stones from Dunnicaer, particularly Dunnicaer No. 1, though the full length of the Rhynie example is not known. The stone is of pink granite and is carved with a Pictish beast, a curvilinear symbol, a single-sided comb and part of what is likely to be a mirror. The comb is a simpler version of the one found on Rhynie No. 5 and resembles the example found on the stone at Nether Corskie, Aberdeenshire (RCHAMS 2008: 34).

References to the Pictish symbol stones at Rhynie (Illus 1.3) stretch back to the 18th century, with the Old Statistical Account describing carved stones from the village (OSA 1791–9 (Vol 19): 292). A stone which may have been the now lost Rhynie No. 4 is referenced in this account, with the entry stating: 'a large stone, about five feet diameter, on which there are some hieroglyphical

characters, and standing on the moor of Rhynie, is said to have been erected in the memory of [an] engagement' (OSA 1791–9 (Vol 19): 292). The earliest detailed archaeological account of carved stones at Rhynie can be found in Logan (1829), whose *Observations on Several Monumental Stones in the North of Scotland* refers to a number of stones from the village and describes the finding of graves and cairns in the vicinity of those recovered from the southern edge of the Muir of Rhynie settlement. Logan's paper was read to the Society of Antiquaries of London and is imbued with 19th-century romantic notions of druidism and mysticism, but nonetheless provides an otherwise useful account of the discovery of the stones. Following Logan, Rhynie appeared in early surveys of carved stones including *Sculptured Stones of Scotland* (Stuart 1856, 1867). In the first volume of this seminal work, Stuart recorded the Craw Stane (Rhynie No. 1 or the *Cro* or *Crow Stone* as he called it) as being in situ in a field of Mains of Rhynie farm and illustrated a number of the other Rhynie stones (Stuart 1856: 4) (Illus 2.13). His second volume in 1867 recorded the four Rhynie stones previously identified by Logan.

In the following decades, Christian MacLagan (1880) documented the finding of two further stones in 1878 (Illus 1.4) and Allen and Anderson (1903: 182–4) recorded in detail the six extant stones at that time. In the 20th century, the Rhynie stones made occasional appearances in art historical studies of the wider corpus, with the most in-depth analysis being that of Henderson (1958: 54) who saw Rhynie as an area of strategic importance for the spread of the symbol stone traditions from northern to southern Pictland. Archaeological interest in the Rhynie stones grew dramatically in the 1970s with the discovery of the Rhynie Man and one further symbol stone discovery increased the collection to eight (Illus 2.11). The discovery and parallels for Rhynie Man, and the small symbol-bearing slab (No. 8) discovered by ploughing in 1978, were published in an article by Ian and Alexandra Shepherd in the *Proceedings of the Society of Antiquaries of Scotland* (Shepherd & Shepherd 1980).

The eight Rhynie Pictish symbol stones known today were found in a variety of circumstances. The Craw Stane (Rhynie No. 1) still appears to stand in situ (although it was reset in concrete following its collapse during a storm in 1930) and it would appear that Rhynie No. 4 was also upright when recorded in the Old Statistical Account. The Ordnance Survey First Edition map and Ordnance Survey Name Books state that when the turnpike road was being constructed for the modern village in 1836, 'two standing stones [that] interfered with the line of communication were dug up and placed bedside the principal Inn then existing in the village' and subsequently moved to the centre of the market square in the village (ONS Name Book 1865–71). These are likely to have been Rhynie Nos 2 and 3, but they appear to have already been disturbed by this point as Logan states that Rhynie No. 2 was found while ploughing a field near the village, and Rhynie No. 3 is said to have been found under a stone cairn (Logan 1829: 56). Thus, it seems that the stones had already been moved by 1826 when Logan composed his paper for the Society of Antiquaries of London. Reference to them being dug up again implies they had been set upright near the village inn by 1836 and had been shifted once more when the turnpike road was constructed. The larger Rhynie No. 4 stone was unfortunately not treated in the same manner and was recorded in 1803 as having been broken up for reuse in buildings locally, with a fragment reused in a schoolhouse and then built into a stable. However, by 1826 the larger portion was also broken up and by 1903 all fragments were lost (Allen & Anderson 1903: 183). Rhynie Nos 5 and 6 were recovered from the foundations of St Luag's church in 1878 (MacLagan 1880: 11–13) and Rhynie Nos 7 and 8 discovered during agricultural operations (Shepherd & Shepherd 1980). The Craw Stane remains the largest surviving stone but Logan's account (1829: plate IV) suggests that Rhynie No. 4 was even larger. The findspots of the stones follow a rough north/south linear distribution, with three stones found to the south, two from the modern churchyard and three from the outskirts of the modern village (Illus 1.3). The stones are considered further in Chapter 11.

The discovery of Rhynie Nos 7 and 8 led to yet more discoveries and in the summer of 1978 the cropmark enclosures (Illus 1.5) around the Craw Stane were identified by Ian Shepherd as part of the Aberdeen Archaeological Surveys programme of flying in north-east Scotland. This programme of recording took place from 1977 to 2007 under the Grampian Regional Council and latterly Aberdeenshire Council following local government re-organisation in 1996 (Aberdeen Archaeological Surveys 1979). Ian Ralston also took photographs in 1978 and the site was photographed regularly from then onwards. In the early 1980s, Ian Ralston and Ian Shepherd highlighted the enclosures as potentially being contemporary with the stones and an important site for future investigation – sentiments which were repeated in later publications (eg Ralston & Inglis 1984: 17; Shepherd 1983: 331 – see also Shepherd & Greig 1996: 43; Ralston 2004: 39). Rhynie made regular appearances in more general accounts of the Picts, though was rarely accompanied by any in-depth analysis of the context or character of the landscape or the stones themselves, and the enclosures were only occasionally mentioned (eg Ritchie 1989: 6, 18; Foster 1996: 75; Alcock 2003: 166; Henderson & Henderson 2004: 87–8, 123). In the 2000s, the RCAHMS survey *In the Shadow of Bennachie* (2007: 119–22) outlined a more detailed study, dedicating four pages to the archaeology of Rhynie as a case study in the landscape setting of symbol stones. The RCAHMS account highlighted the probable significance of this landscape in the early medieval period, referencing the well-connected routeways through the Rhynie valley at the junction of which the symbol stone concentration and Craw Stane enclosure complex lie, and stated that this may have been a contributing factor to the significance of this landscape through time. The cropmark record was also showcased, with the Craw Stane enclosures suggested to be contemporary with the stones (RCAHMS 2007: 123). Two square enclosures located by the village (Illus 2.4) were interpreted by the RCAHMS as being part of a Pictish cemetery and earlier records of human remains being found in this area were also pointed out. However, the hillfort of Tap o' Noth and the symbol stones and archaeology in the wider valley bottom were not connected, with each discussed separately in chapters on the Iron Age and early medieval periods respectively.

In the wider landscape, early medieval occupation was first confirmed at Cairn More fort during evaluation of the site by Murray Cook in 2010, as part of *The Hillforts of Strathdon*[4] project, which built on the survey and classification work that had been conducted in the RCAHMS *In The Shadow of Bennachie* volume (Cook 2011b). This project targeted six smaller hillforts in Aberdeenshire with the objective of exploring the sequences of activity in, and relationships between, enclosed and unenclosed later Iron Age to early medieval settlement. Cairn More overlooks Rhynie

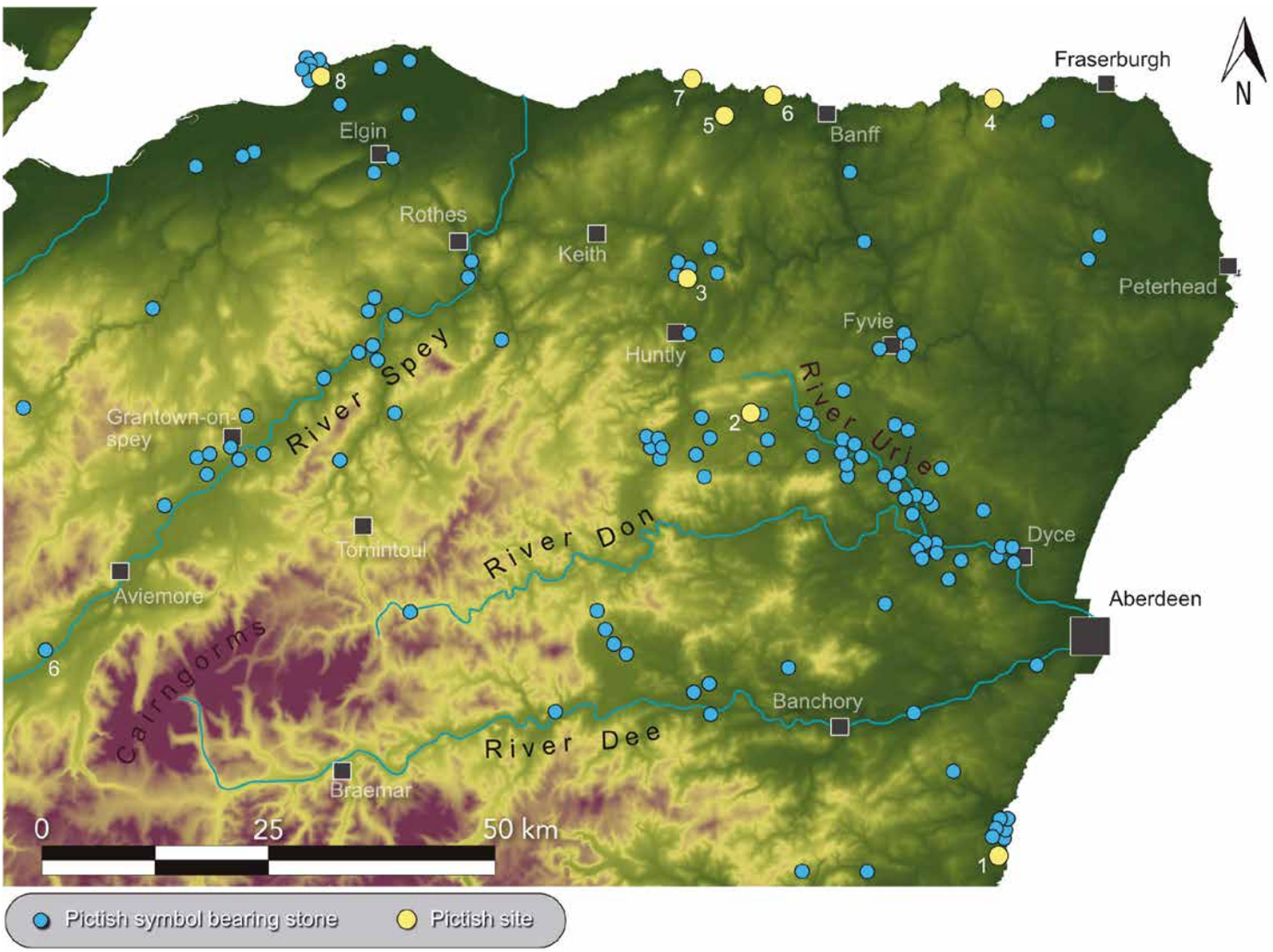
but is actually located in the parish of Auchindoir and Kearn and comprises a double-banked ringfort. Cook's keyhole excavation of the ramparts secured two samples for dating which produced determinations centring on cal AD 410–630 (Cook 2011b: 216–17). Evidence of non-ferrous metalworking was also found at the site, including pin and brooch moulds (Chapter 7).

Another site of potentially early medieval date was the former parish church of Rhynie, which was sited downslope from the Craw Stane complex. The dedication of this church is uncertain, but the existence formerly of a prominent natural boulder on the slopes of Tap o' Noth called Clochmaloo or Cloch Maluidh (MacDonald 1891: 254–5; Simpson 1932: 86; MacDonald & Laing 1970: 142), which reference Moluag (an affectionate form of Lugaid of Lismore), makes it plausible that Rhynie was also dedicated to this saint. The Moluag association found in this parish is part of a potential cluster of dedications to this Gaelic saint in the wider region (see Chapter 3). A number of geophysical surveys were conducted around the parish church by the Northern Picts and Comparative Kingship project, but no definitive enclosing elements suggestive of an earlier establishment were identified. To the north-west of Rhynie is the medieval parish church of Essie, enclosed by a sub-rectangular boundary wall. No memorial stones pre-dating the 18th century are evident at this site (NRHE ID 17222) and again geophysical survey failed to show up evidence of any earlier enclosure around the modern church wall. No early Christian carved stones have been found at St Luag's or at Essie.

2.5 The early medieval archaeology of north-east Scotland

Gordon Noble

In terms of early medieval archaeology, the north-east of Scotland is known for a distinct concentration of Pictish symbol stones and much of the work on the Picts in this area has been art historical or synthetic in nature (Henderson & Henderson 2004: 167). In their 1903 corpus of symbol stones, Allen and Anderson (1903: civ) highlighted the importance of Aberdeenshire with its large concentration of Class I monuments. Indeed, Allen and Anderson identified Aberdeenshire as the likely place of origin for the symbol stone tradition, an idea later



Illus 2.15
Identified Pictish sites in north-east Scotland (pre-2000). 1 Dunnottar (references); 2 Picardy; 3 Tillytarmont; 4 Cullykhan; 5 Gaulcross; 6 Green Castle; 7 Portsoy; 8 Burghead

challenged by Isobel Henderson (though as noted above, Henderson (1958: 54) did see Rhynie as an important conduit for the spread of the symbol stone tradition). However, few other archaeological sites of this period had been recognised prior to the 2000s (Illus 2.15) – an issue that was highlighted in Wainwright's seminal volume *The Problem of the Picts* (1955), where only a small number of locations in north-east Scotland were recorded. Archaeological evidence for all of Pictland was generally thought to be thin on the ground and sites in the north warranted little detailed discussion.

For many years, promontory forts on the south coast of the Moray Firth constituted the primary evidence for early medieval settlement in north-east Scotland. These were revealed from the 1960s onwards, with campaigns of fieldwork at Burghead (Small 1969) and Green Castle, Portknockie (Ralston 1980, 1987, 2004), both located in Moray. In the 1970s, Leslie Alcock undertook excavations at Dunnottar in Aberdeenshire, one of the very few sites in north-east Scotland documented in early sources, with two late 7th-century references in the *Annals of Ulster* to sieges at *Duin Foither* (Alcock & Alcock 1992: 267). Unfortunately, no traces of early medieval defences or settlement were found at the site. Although Alcock suggested that the fort may have been located further along the coast at the promontory sites of Dunnicaer or Bowduns, it seems more likely that the later castle, an important medieval royal castle of Scotland, has largely removed any traces of early medieval settlement on the stack. Prior to the 2000s, excavations at the multi-period promontory site at Cullykhan (Greig 1970, 1971, 1972) provided the only confirmation of Pictish period settlement on a fort in Aberdeenshire.

Antiquarian discoveries in north-east Scotland included part of a silver hoard from Gaulcross, Banffshire (now Aberdeenshire) (Stevenson and Emery 1964), and the discovery of a decorated whetstone from nearby Portsoy (RCAHMS 2008: 139). The silver objects from Gaulcross were first recovered during the removal of two stone circles at Ley Farm in 1838 but only three objects (a handpin, a spiral bracelet and a length of silver chain) survived into the modern day and are now curated by the National Museum of Scotland. The findspot was surveyed by the Northern Picts Project team at the University of Aberdeen and National Museums Scotland in 2013 and the team recovered over 100 pieces of silver missed by the original finders (Noble et al 2016b). The new objects showed that this was a hacksilver hoard and the date of the hoard is suggested to be 5th to 6th century AD, making it broadly contemporary with the height of early medieval activity at the Craw Stane complex (Noble et al 2016b: 734–5). The Portsoy whetstone was found in the 1920s and comprises a small cylindrical stone of phyllite with carved human heads on either end – one apparently displayed on the end of a sword – with carvings of a fish, three crescents, an arch and tongs set between the two heads (RCAHMS 2008: 139; Noble et al 2016b: 737). The object is unique in the corpus, but the symbols resemble those found on carved Pictish stones.

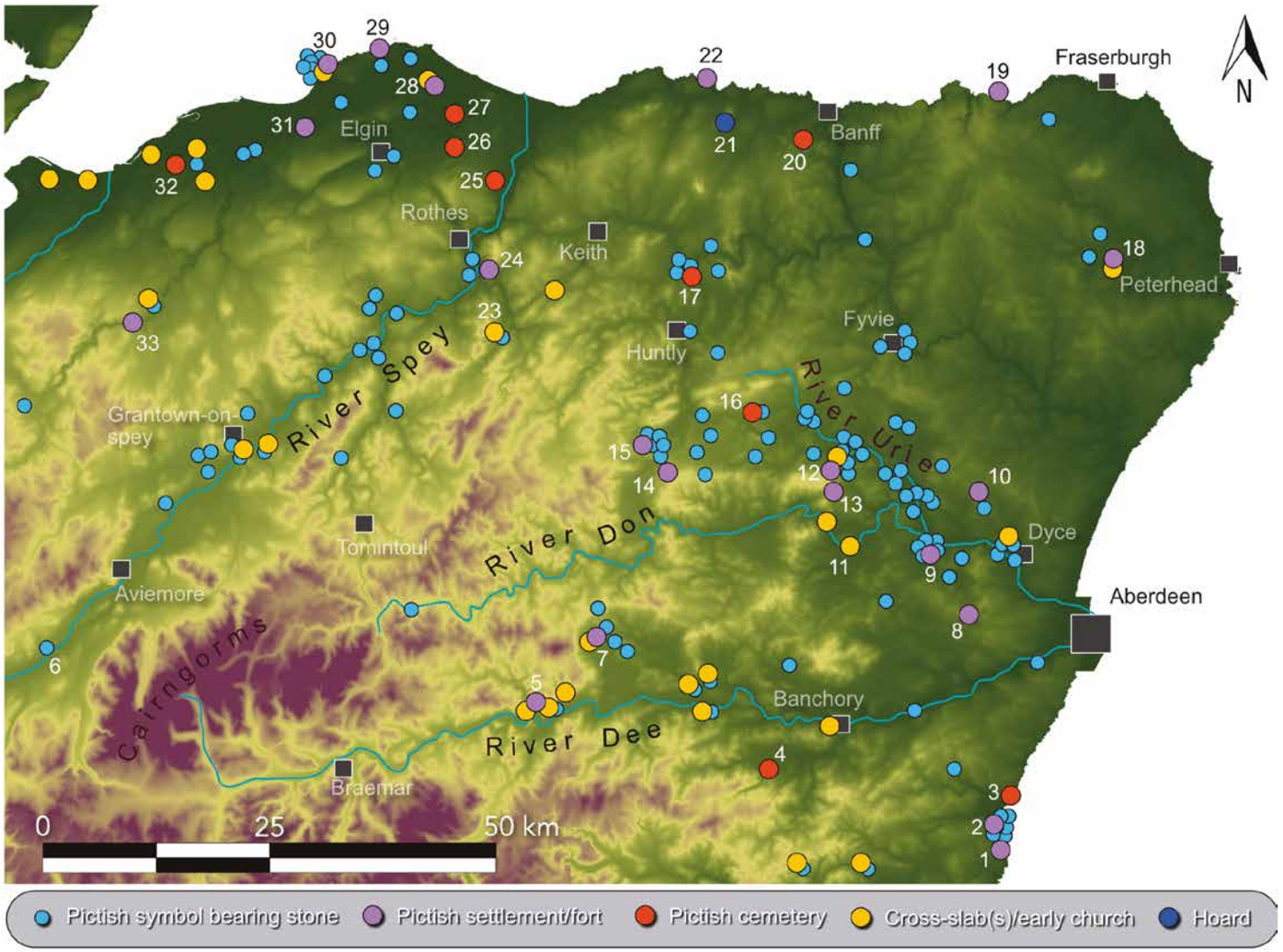
The identification of new Pictish period sites occurred in Aberdeenshire in the 2000s, with a series of enclosed settlement

Illus 2.16
The impressive nuclear hillfort on the summit of Mither Tap o' Bennachie

Illus 2.17
Map of the approximate extent of the overkingdom of Pictland *c* 700 AD plotted, with Rhynie and the regions of Pictland labelled

excavations that took place as part of Murray Cook's *The Hillforts of Strathdon* project (Cook 2011a, 2011b). As noted earlier, Cook identified Pictish period occupation at Cairn More fort near Rhynie and also revealed Pictish occupation or construction phases at two further Aberdeenshire sites: Maiden Castle at Bennachie, and the Hill of Barra near Oldmeldrum. Excavations in advance of path improvements uncovered early medieval occupation phases at the prominent Mither Tap o' Bennachie hillfort (Atkinson 2007) (Illus 2.16), whilst development-led archaeology also discovered early medieval settlement remains at Kintore, Aberdeenshire (Cook & Dunbar 2008: 149). However, the sites identified in these contexts have tended to be poorly preserved due to their location in the intensively cultivated lowland zones of eastern Scotland.

In 2012, the Northern Picts Project at the University of Aberdeen was established to investigate the early medieval archaeology and early history of an area stretching from Aberdeenshire to Easter Ross, covering the probable extent of the Pictish provinces and kingdoms of Fortriu and Ce (Illus 2.17). The project undertook a series of excavations on Pictish period sites across Scotland and targeted a number of enclosed sites in the north-east from 2014–17 that have helped enrich a very impoverished settlement record (Illus 2.18). Sites with phases of activity dated to this period now include Doune of Relugas and Knock of Alves – two complex forts in Moray that show multi-period development (Noble et al 2020b). In Aberdeenshire, excavations in 2019 and 2021–2 fleshed out the chronology for Mither Tap o' Bennachie, and identified intensive occupation of this spectacular fort in the 7th and 8th centuries cal AD. A 7th-century phase of occupation was also recognised at the small ringfort at Hill of Keir (Noble et al 2020b). Probably the most important excavations of the Aberdeenshire-based Northern Picts research were conducted at Dunnicaer, just to the north of Dunnottar. Pictish stones were found at the site in the 19th century by youths from the nearby village of Stonehaven who climbed up on the sea stack at Dunnicaer and dug them up from what was described as a low wall around the edge of the stack. Excavations from 2015 to 2017



Illus 2.18

Pictish sites in north-east Scotland (sites underlined = ones with fieldwork/new analysis post-2000). 1 Dunnottar; 2 Dunnicaer; 3 Stonehaven; 4 Dalbreck; 5 Tullich; 6 Dunachton?; 7 Migvie; 8 Hill of Keir; 9 Kintore; 10 Barra Hill; 11 Abersnithock; 12 Maiden Castle; 13 Mither Tap; 14 Cairn More; 15 Rhynie; 16 Picardy; 17 Tillytarmont; 18 Old Deer; 19 Cullykhan; 20 Hills of Boyndie; 21 Gaulcross; 22 Green Castle; 23 Mortlich; 24 Dandaleith; 25 Orbliston; 26 Midtown; 27 Pitgaveny; 28 Kinneddar; 29 Covesea; 30 Burghead; 31 Knock of Alves; 32 Greshop; 33 Doune of Relugas

demonstrated that the site was a highly eroded promontory fort and the stones appear to have come from the ramparts of this settlement. The radiocarbon dates from the site centred on the 2nd to 4th centuries AD, including the rampart from which the symbol stones were recovered, pushing back the likely chronology for the emergence of the symbol tradition (Noble et al 2020a). The presence of rare and unusual Roman finds showed that the occupants of Dunnicaer were likely to have been elites in contact with the Roman world, despite the frontier being hundreds of kilometres to the south.

Tracing Pictish burial traditions in north-east Scotland has presented similar problems to its settlement record, though significant developments have occurred in recent years (Illus 2.18). Early work was conducted in 1856 when the area around the Picardy Stone at Myreton Farm in Aberdeenshire was examined. The stone was found to be standing on a cairn *c* 2.4m in diameter and an 'empty grave' was found on the south side of the stone, aligned east/west and around 2.1m in length (Stuart 1856: 4). Whilst this may have been a Pictish burial, only further excavation and dating could conclusively show this to be the case. In the 1970s, Woodham identified a square cairn at Tillytarmont in Aberdeenshire, which had been the findspot of five Pictish stones. The cairn was composed of water-worn stones and measured around 4.25m across. No trace of burial was found underneath, though this could have been missed in the fluvio-glacial sands beneath the cairn. Further west, upstanding Pictish cairns are known at the Highland sites of Garbeg (Wedderburn & Grime 1984) and Pityoulish (Rae & Rae 1955), but no upstanding cemeteries survive in Aberdeenshire.

Progress in identifying cemeteries in the east was significantly boosted from the 1970s onwards, with the onset of the previously mentioned RCAHMS and Aberdeenshire Council aerial survey programmes. The aerial evidence for Pictish burial traditions in northern Scotland was brought together by Mitchell and Noble in 2017 and cemeteries of square and round barrows have been identified in Aberdeenshire at Hills of Boyndie and Balmakewan, with possible examples at Dalbreck and West Balhalgardy – though the number remains fewer than that of other regions likely due to the limited occurrence of cropmarks in this region (Fraser & Halliday 2011: 312). The dating of long cists from Stonehaven has also proven successful in identifying examples of Pictish period burial (Mitchell 2019) and additional cemeteries have been identified further west at Greshop, Pitgaveny, Midtown and Orbliston in Moray. Other than the cemetery at Rhynie (Chapter 5), the only excavated monumental cemetery in north-east Scotland is Greshop (excavated in 2016), but unfortunately no human remains survived in the acidic soils (Mitchell et al 2020).

Early Christian sites from early medieval Aberdeenshire are not generally well documented, with few historical sources or references in early texts. One exception is a place called Ner, associated with obituary notices of two individuals both later regarded as saints in Irish chronicle notices in *c* 623 and 678 (Clancy 2008: 367–8). Ner may relate to Fetternear in Aberdeenshire, which contains the Gaelic element *foithir* plus *Ner*. The later obituary notice was of a Nechtan, perhaps the saint to whom, in the hypocoristic form *Mo Nithoc*, the nearby Abersnithock (originally Eglismonithoc) was dedicated. This church was also dedicated to St Finnan, who may be the Uineus, abbot of Ner, who died *c* 623 (Clancy 2008: 368–71). This site is located near Braehead Farm, 2.5km north of Monymusk, the church to which Abersnithock belonged in the early 13th century (NRHE ID 18051). Ruins of a small rectangular chapel and rectangular enclosure overlooking the River Don survive here (RCAHMS 2007: 129) and in 2022 a vallum enclosure was identified around the church site, with deposits dated to the 8th to 9th centuries AD (Noble et al 2024).

There are many saints likely to have Pictish origins who appear in the early 16th-century *Aberdeen Breviary*: St Mayoc – associated with Dalmaik on the Dee; St Caran – linked to Fetteresso and Premnay; and St Voloc – to whom Dumeath and Logie (Ruthven) in Mar were dedicated (Clancy 2008: 377; Macquarrie 2012: 10–15, 44–8). However, little is known about these saints or the places with which they were associated. Aberdeenshire is home to an early surviving Christian manuscript, *The Book of Deer*, a 10th-century gospel book written in Latin with added later marginalia in Gaelic (Forsyth 2008). Archaeological attempts to find the early church establishment at which this book was written have been compounded by a lack of evidence and modern development around the old parish church at Old Deer, yet recent work at the nearby Cistercian abbey (founded 1219) has found early medieval features and provided dates throughout the later first millennium AD (Ali Cameron pers comm). Survey and excavation in 2013 at Tullich in Deeside, Aberdeenshire, identified a series of enclosures around a later chapel site and conservation work revealed a number of new stones, with the corpus from this site now comprising a Pictish symbol stone and more than a dozen incised crosses, suggesting it was the location of an important early Christian site (Clancy 2008: 371–4, 392; Geddes et al 2015). A collection of sculpture from Dyce, Aberdeenshire also indicates the presence of another important church, this time centred on the Don (RCAHMS 2007: 126, 128, fig 7.11). Small-scale testing of a circular enclosure around the church at Migvie in 2019, a further later chapel site, suggests an ecclesiastical settlement was present here in the 7th–8th centuries cal AD (Noble et al 2024).

Overall, the evidence for the early church in Aberdeenshire remains sparse. As yet, no site of the scale of Portmahomack or Kinneddar (Carver et al 2016; Noble et al 2019a) is known from Aberdeenshire, and the area is notable for its relatively few early medieval cross-slab monuments compared to other regions. While investigations have been limited, the evidence from northern Pictland, or Pictland more generally, suggests little significant impact of the church before the late 6th century and the main period of development appears to have been the 7th century and later – ie towards the end or after the main floruit of the Rhynie, Cairn More and Tap o' Noth sites that form the focus of this volume.

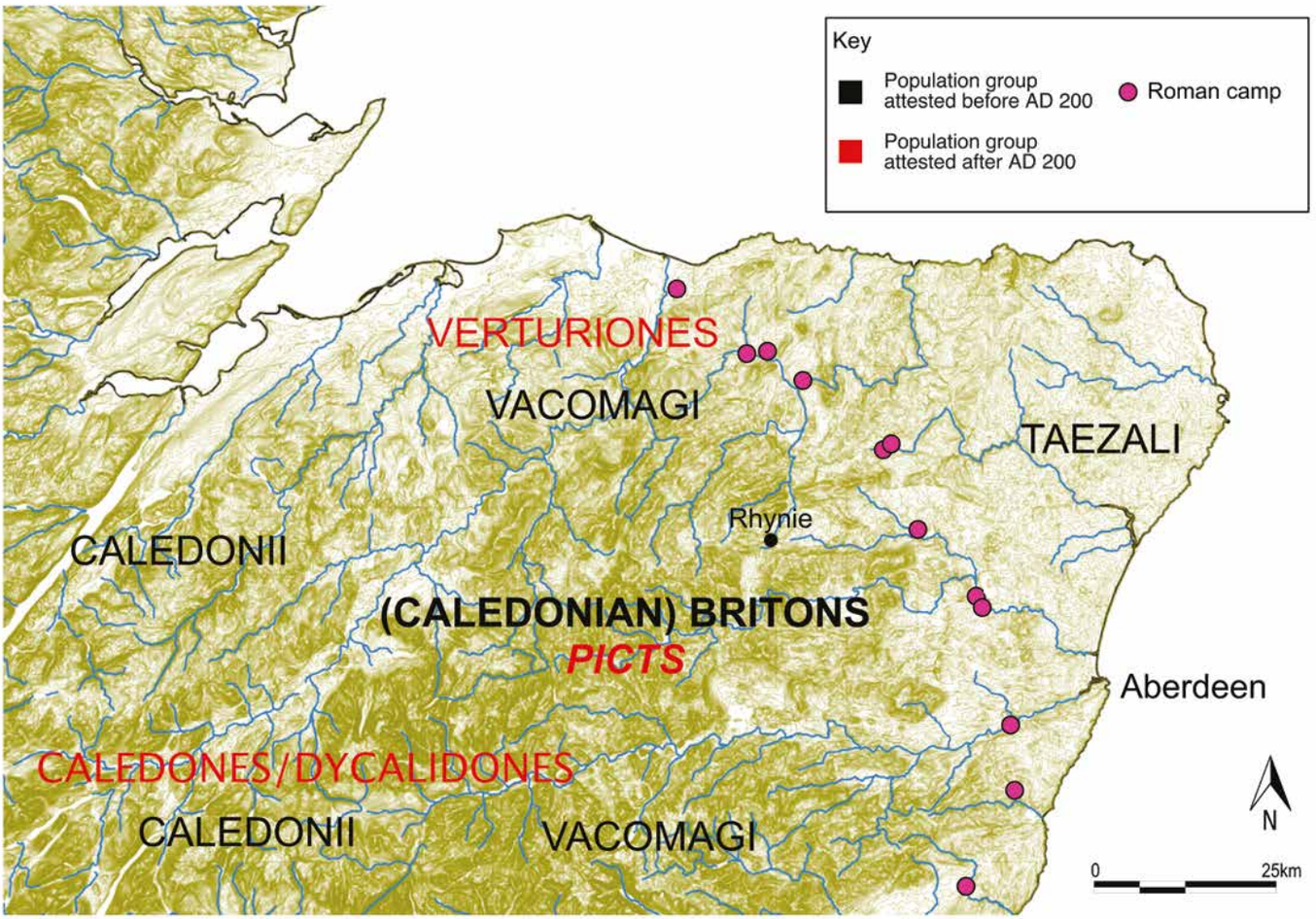
Chapter 3

EXPLORING THE HISTORICAL AND PLACE-NAME EVIDENCE

Nicholas Evans with Simon Taylor[1]

3.1 Historical background

Direct textual evidence for the Rhynie area only starts to exist from the 11th century onwards, centuries later than the apogee of Rhynie, Tap o' Noth and Cairn More, but it is possible to gain some insights into the wider context in the 1st millennium AD. Our first references to the region result from Roman activity from the 1st century AD onwards. According to Ptolemy's *Geography* (AD 140×50), the area was probably inhabited by either the Vacomagi (from the Moray Firth coast to Angus) or the Taexali (in at least the area of Buchan) (Illus 3.1) (Rivet & Smith 1979: 140–1, 463–4, 484–5; Strang 1997: 26). Initially the Romans regarded



Illus 3.1
North-east Scotland in the Roman period, AD 70–410. Population groups attested before AD 200 are in black, those after AD 200 in red.
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these peoples as 'Britons' (*Britanni*), a generalisation for any inhabitant of Britain, albeit an adaptation of a Celtic ethnic word *Priteni/Pritani*, which was also used by some of the island's inhabitants for themselves, though not necessarily with the same connotations (Jackson 1954; Koch 2003).

The Rhynie area remained outside the zone of Roman control in the early centuries AD, though it is likely that the inhabitants would have been affected by their presence. Roman camps were established not far away to the east and north at Logie Durno, Glenmellan (Ythan Wells), Burnfield, Muiryfold, Auchinhove and Kintore (Cook & Dunbar 2008; Jones 2011). These probably date to the campaigns of Agricola in the 70s and early 80s and perhaps also to those of Septimius Severus in the period 208–11. In the early centuries AD it is possible that Roman raiding parties devastated the area, and that the locals fought and made treaties with them. Even when the Romans had retreated, there is increasing evidence for continued relationships with them, as was the case beyond other frontiers of the empire (Hunter 2007: 32–6, 45–8; Hunter 2010, 2014: 208–9, 212). These would include trade, diplomatic relationships, gift exchange and Roman tribute-taking, as well as people visiting the empire, to join the army for instance (Breeze 1982: 113, 139).

The presence of the Roman Empire to the south may have had important influences on the social and political makeup of northern groups (a theme explored in Chapter 12). According to the account of Tacitus, one response to Agricola's campaigns was that the polities north of the Forth in Caledonia joined together in at least a temporary alliance (*Agricola* 27.2, 29.3–4: Ogilvie & Richmond 1967: 109–11). Cassius Dio (writing in the 230s) stated that in the decades around AD 200 the peoples of the north had coalesced into two polities, the Maeatae (Μαιάται) and beyond them the Caledonians (Καληδόνίοι), who were both regarded as rebelling against the empire (Cary 1927: 216–17, 262–3). Since the Maeatae controlled land around the Forth (Taylor et al 2020: 51–4), it can be assumed that the Caledonians occupied the land to the north, perhaps encompassing the area around Rhynie.

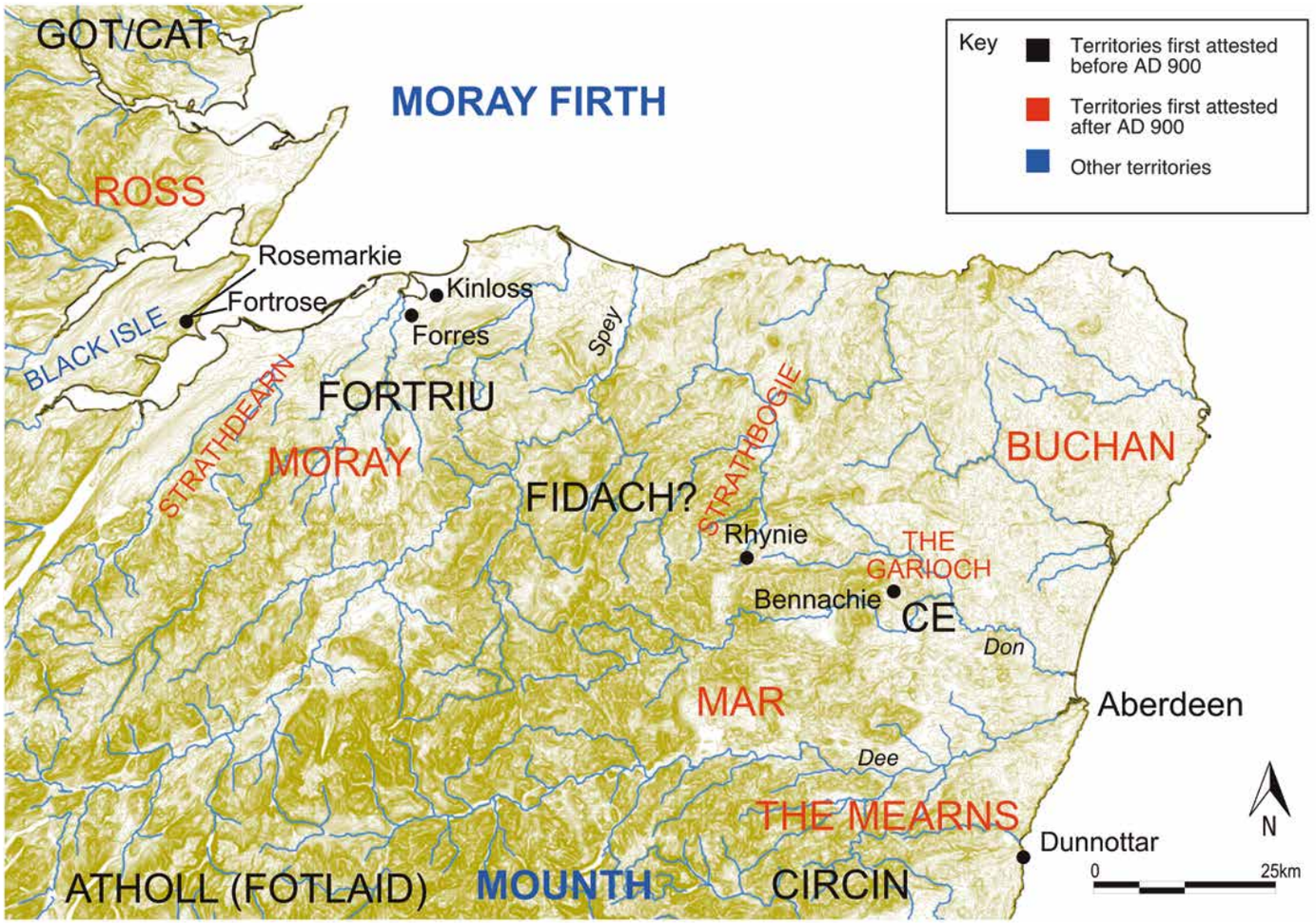
Following the Severan wars, there is no evidence of warfare against the empire for several decades. When conflict is noted again in the last years of the 3rd century, it was conducted by the Romans against *Picti*, a new general term for people north of Roman Britain (Evans 2022). The Romans maintained outposts north of Hadrian's Wall, but it is uncertain whether they ever ventured beyond the Firth of Forth again. However, it is clear that the Picts did come to them, attacking the Roman province in the 4th and perhaps the 5th centuries AD. In the account of the 'Barbarian Conspiracy' of 367–8, Ammianus Marcellinus stated that two main Pictish groups, the Dicaledones and Verturiones (*Dicalydonas et Verturiones*), conducted a coordinated attack on Roman Britain (*Res Gestae* xxvii.8.5; Seyfarth et al 1978: vol 2, 47). The Verturiones were probably based around the Moray Firth (Woolf 2006), while the Dicaledones were at least partly located on the west coast, since Ptolemy called the ocean there Δουηκαληδόνιοσ (Rivet & Smith 1979: 44, 132, where it is transcribed as *Duecaledonius*, 338). Nevertheless, these polities may have had wider hegemonies that extended into north-east Scotland.

3.2 The regions of Pictland

Our historical sources unfortunately do not provide further information regarding the impact of this raiding, and after the end of Roman Britain there is a gap of about 150 years before useful textual evidence commences. While no events (to our knowledge) are recorded in Strathbogie, available sources can be used to partially reconstruct the wider political context, including some of the territories between the Moray Firth and the Mounth (Illus 3.2). The longer Pictish king-lists record a series of Pictish provinces or regions: *Fib* (Fife); *Fidach* (possibly connected to Glenfiddich, but see below); *Floclaid* or *Foltlaid* (likely to be Atholl); *Fortrenn* (Fortriu); *Got* or *Cat* (Caithness and Sutherland); *Ce* (Aberdeenshire); and *Circin*, a term used for the large lowland area from perhaps Strathearn, through Gowrie, Stormont and Angus to the Mearns (Broun 2000; Evans 2013). This list was essentially a geographical statement referring to at least some of the core territories of the Pictish kingdom from Caithness to Fife during Constantín's reign (862–76). Given that territorial names like Fortriu, Ce and Circin did not have a contemporary political significance after the mid-10th century at the latest, as they were replaced by other terms like Moray, Buchan, Angus and Strathearn, it is plausible that they pre-dated considerably their inclusion in the Pictish king-lists. However, it is a considerable leap to relate any of them with the Rhynie area's monuments described in this monograph, whose floruits were centuries earlier. Moreover, the Pictish king-list does not provide a comprehensive list of Pictish territories, so the territory around Rhynie may not have been included in the text.

3.2.1 Fortriu

In the late 7th century, the most powerful Pictish kingdom was Fortriu. Formerly thought to be a region in central Scotland, Alex Woolf has relocated this powerful polity to the area north of the Mounth (Woolf 2006). Specific textual references indicate that Strathdearn was in Fortriu, and that Forres and Kinloss were in the 'plain of Fortriu' (*Magh Fortrenn*) (Woolf 2006: 191–9), but none of these can be dated before the 10th century. There are two references indicating that there was also a broader definition of Fortriu, though again these post-date AD 900. The first is in the *Anglo-Saxon Chronicle* Version E. Bede in his *Ecclesiastical History* describes the northern Picts as separated from the southern Picts 'by steep and rugged ridges of mountains' (III.4; Colgrave & Mynors 1969: 222–3)[2]. The *Anglo-Saxon Chronicle* Version E, summarising Bede, describes these northern Picts as *wærteres be norðum morum* – ie '*Wærteres* beside the northern moors'.[3] The second reference is the *Historia Regum Anglorum*'s entry for 934. There it states that Æthelstan's land army devastated *Scotia* to Dunnotter and *Wertermorum* (Woolf 2006: 197–9). In both these cases *Wærter-/Werter-* represents an attempt to render an underlying Pictish **Uorter-* or **Uerter-* or the like with reference to the inhabitants of **Uortr-* (Gaelicised as **Fortr(iu)*). The exact location of *Wertermorum* is not clear, but it seems to have been the easternmost part of the Highlands from the Mounth to the Moray Firth, presumably relatively close to Dunnottar. Thus, by the 10th century at least, the term Fortriu had a wider meaning, perhaps indicating an area that was much larger than its original core. This broader connotation is also implied by the Gaelic 9th- or 10th-century text *Senchas Síl hÍr*, in which *Mag Fortrenn* and *Mag Cirgin* are presented as the two main plains of the *Cruithnig* (the Picts) of *Alba* (Evans 2013: 14–15).



Illus 3.2
Territories and places in north-east Scotland, AD 400–1200. Territories first attested before AD 900 in black, AD 900–1200 in red, others in blue. Contains OS data © Crown copyright and database right 2024

Given its fertility, the coastal Moray Firth area from the Black Isle to the River Spey is understandably the prime candidate for Fortriu's original core. This location is strengthened by the suggestion that Fortrose on the Black Isle means 'the point or promontory of Fortriu' (Taylor forthcoming), and by the likelihood that the attack in AD 367–8 on Roman Britain by the Verturiones indicates that this group had a maritime orientation, given the distance from the province and references to incursions by sea undertaken among other participants in the 'Barbarian Conspiracy' (*Res Gestae* xxvii.8.1–10; xxviii.3.1–3, 3.7–8; Seyfarth et al 1978: vol 2, 46–8, 75–7). Moreover, from the late 6th century, this region contained the major power centre at Burghead, and by AD 700 the episcopal seat at Rosemarkie. Both of these sites suggest that the Moray Firth region was the political core of Fortriu on the eve of its late 7th-century expansion. That does not preclude the possibility that Strathbogie was part of that early Fortriu (Broun forthcoming a), since polities could contain multiple, often rival, power centres. Coastal Moray may even have been dominated by its hinterland for a period after the end of Roman Britain, by polities based at sites such as Rhynie. It should not be expected that power only radiated out from the coastal lowlands.

Nevertheless, by the late 7th century the kingdom of Fortriu, probably focused on the Moray Firth, had become the most powerful Pictish territory, controlling all the zone south to the Firth of Forth. In the Battle of Nechtanesmere (Dún Nechtain) in 685 the king of Fortriu, Bridei son of Bile, defeated the Northumbrians and expanded into southern Pictland (Fraser 2009: 50–1, 54–8, 212–16, 224). This overkingship of the Picts would have required control of the routeways between northern and southern Pictland which passed through the Rhynie area. As a result, it can be speculated that Rhynie's hinterland was one of the earlier areas incorporated into an expanding Fortriu, though it is uncertain how much earlier than 685 this process can be dated.

3.2.2 Ce and Fidach

While Fortriu became the pre-eminent Pictish region in the north, there were other first-millennium territories in northern Pictland. The territory of Ce appears in additions to the longer Pictish king-lists, dated from 862 to 876 (Broun 2007: 75–9; Anderson 2011: 245), and the name is also found in the titles of

two Gaelic tales in lists dating from the 10th and 11th centuries, as *Cruthmag Cé*, 'Pictish plain of Ce' and *Beinn Cé*, 'the peak of Ce' (Mac Cana 1980: 46–7, 61, 63; Evans 2014: 66–7). The latter has been plausibly identified as the highly visible, substantial upland area of Bennachie about 17km to the east of Rhynie, whose prominent Mither Tap o' Bennachie is the site of a hillfort with evidence for occupation in the 7th–8th centuries AD (Dobbs 1949: 137–8; Noble & Evans 2022: 106–7). Ce, therefore, is likely to have been a substantial area which included Bennachie and at least some of the lowland area surrounding the hilltop. Ce may have had a genitive form with **Gen-,* with a Latinised form of the name recorded in Adomnán's *Life of Columba* (I.33; Anderson & Anderson 1991: 62–3) when he described Artbranán as *Geonae primarius cohortis*, 'leader of the army of *Geona' (Sharpe 1995: 294, note 149; Kilpatrick 2021: 424–5). If so, this would indicate that Ce already existed in some form in either the late 6th century when Columba lived, or at the end of the 7th century when Adomnán wrote his account.

Another potential Pictish territory to the west of Rhynie could be represented by *Fidach* in the longer Pictish king-lists (Anderson 2011: 245) – if Watson's (1926: 115) very tentative and linguistically uncertain connection of this with Glen Fiddich in Banffshire is correct. However, Broun has suggested that *Fidach* in fact meant 'woody' and was included to ensure that a stanza had sufficient names beginning with F-, so it was not necessarily an established territorial name at all (Broun 2007: 79). Nevertheless, while the identification of this name with Glen Fiddich is extremely uncertain, it is more likely that it was a territorial name than simply an adjective.

3.2.3 Mar

In the later Middle Ages the earldom of Mar, located primarily on Deeside and Donside, lay to the south and south-east of Rhynie. Mar has been suggested by Broun to have had origins in the Pictish period as a *mormáer*dom (Broun forthcoming a; see below). The first dated reference to this territory occurs in Irish chronicle items for the Battle of Clontarf in 1014, which specify that a *mormáer* (a regional lord) of Mar in Alba died in this conflict near Dublin (Mac Airt & Mac Niocaill 1983: 448). A potentially earlier reference to Mar may survive in the text *The Reigns of Nath Í and Ailill Molt*, alongside a form of the Pictish territory of Ce (Evans 2013: 11–14). A *mormáer* of Mar is also found in 12th-century additions to the *Book of Deer* recording a property transaction made in 1131 or 1132 (Forsyth et al 2008: 138–9 (Text III)), and it survived to become an important later medieval regional lordship (see below).

3.2.4 Lost polities?

Thus, by the end of the Pictish period the Upper Strathbogie area was probably regarded as part of a larger Fortriu, but the lack of direct contemporary evidence for the locality before the 10th century means that alternatives for the dominant power in the area prior to 685 cannot be ruled out. For example, Mar and Ce might have included all or part of the area, or other unattested polities could have existed in the area before the expansion of Fortriu from around the Moray Firth. Early medieval kingdoms in Britain and Ireland in the period from AD 400 to 800 were not generally monolithic entities with a single narrow royal dynasty ruling from a few key 'capital' places. Rather, they were often multifocal, with more than one branch of a dynasty or multiple kindreds vying for overlordship from various power bases (Charles-Edwards 2000: 21–2, 36–40, 54, 455, 527–9, 534–48; Byrne 2001; Fraser 2009: 101, 348, 361). It is therefore unclear whether the rulers of Rhynie were based in Fortriu, Ce, Mar or another territory or kingdom, but the key fact, identified through the archaeology and the place-name evidence (see below), is that there was a significant royal power centre at Rhynie which lost its exalted status in the 6th century AD.

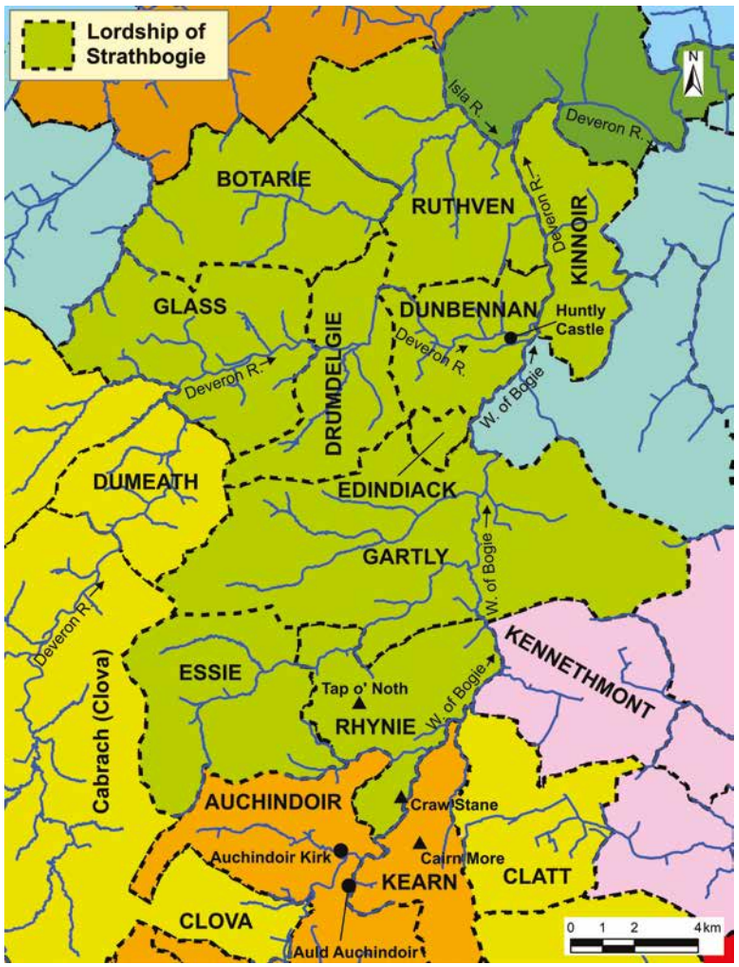
3.3 The later historical context

The Rhynie area itself remains largely a blank before 1100, but later political geography offers some clues as to the status and context of the site in earlier periods. The late 9th and 10th centuries saw a transformation in language, where Pictish was replaced by Gaelic as the dominant tongue of what became the kingdom of Alba. The territories of Fortriu and Ce ceased to be mentioned for contemporary events, and new regional names such as Moray, Buchan, Mar and Strathbogie began to appear in sources, later joined by the Garioch in the late 12th century (Stringer 1985: 60–8; Woolf 2006; Evans 2014: 96–9). By the mid-12th century, Moray included much of the land from the western seaboard of Scotland to the River Spey and maybe beyond this to include Strathbogie (Ross 2011: 64–80). It is possible, but not provable, that later provinces like Moray were pre-existing divisions of Pictish territories, though this should not be assumed. Others, such as Menteith in southern Alba (Broun forthcoming a), were more likely to have been new creations that cut across pre-existing boundaries in the changing social, political and linguistic context of the 9th to 12th centuries.

3.3.1 The origins of Strathbogie[4]

In the second millennium AD Strathbogie was the name for much of the area around Rhynie. As well as being a topographical term for the catchment area of the River Bogie, Strathbogie was the name of a deanery of the bishopric of Moray by the 1220s.[5] It was (and remained until the 20th century in Gaelic) the name for Huntly, the centre of the lordship (Alexander 1952: 382–3) – Huntly being a name the Gordons brought with them from Berwickshire in the early 14th century (Illus 3.3). It is uncertain how much older Strathbogie was, and what form any earlier regional administrative units had, though many of the names of the area's local units and significant places are Gaelic, and occasionally Pictish, indicating that the later medieval situation after 1100, when our source material becomes more plentiful, was based firmly on pre-existing foundations.

The first reference to Strathbogie appears in an addition to one textual group of the king-lists of Alba, which contain notes on the deaths of each monarch (Anderson 2011: 268, 276, 284, 288–9). The same details are found in the Verse Chronicle inserted into the *Chronicle of Melrose* (Anderson 1922: vol 1, 604; Anderson et al 1936: xxiv–xxvi). Among these additions is the information that King Lulach mac Gilla Comgáin (1057–8),



Illus 3.3
The Lordship of Strathbogie in the 1220s. Contains OS data © Crown copyright and database right 2024, and NRS data © Crown copyright and database right 2024

the stepson and successor of King Mac Bethad mac Finnlaích (1040–57), was killed 'in Essie in Strathbogie', 3km west of Rhynie. Although these notes survive in manuscripts of the 14th century or later, it is likely that they were inserted *c* 1124 (Broun 1999: 153–60). Essie is located in a valley with watercourses that flow into the Bogie, with the western edge of Essie parish running along the watershed between the catchments of the Bogie and Deveron. However, no part of Essie parish is on the Bogie itself. This is a further indication that, when it first appears in the record, Strathbogie referred to a territory which included at least part of the wider Bogie catchment area.

The main meaning of Early Gaelic *srath* is 'sward, grass(land); meadow or grassy place by a river' (*DIL*). This is also its chief meaning in Irish place-names.[6] In former Pictland, in contrast, Scottish Gaelic s(*t*)*rath*- chiefly refers to large, broad valleys and is thus used more in the sense of modern Welsh *ystrad* 'valley floor, plain, vale'. The implication of this is that the Pictish cognate was closer in meaning to modern Welsh, and that this influenced Scottish Gaelic usage (Taylor 2011: 105, 108). The earliest identified example in Scotland may be the battle of **Srath Ethairt*, recorded in the Irish chronicles in *c* 654 and tentatively identified as Strathyre, Perthshire, in the borderlands between Pictland and Dál Riata in the southern Highlands (Watson 2002: 91; Fraser 2009: 183).[7] However, a clearer case is the battle in *Sraith Erenn* in 904 (Anderson 2011: 251), identified as Strathdearn 'the valley of the River Findhorn' in medieval Moray (Woolf 2006: 192). Furthermore, many of the Strath-names in Scotland (both in the Pictish and Northern Brittonic-speaking areas) are attached to territorial units with some kind of political or administrative dimension. These can range from parish-names such as Strathmartin, Angus,[8] and Strachan, Kincardineshire,[9] to territory names such as Strathearn and Strathclyde. Also the majority of Strath-names contain the names of their rivers. This is especially the case of straths of the larger and more important watercourses. It can therefore be confidently stated that the Bogie of Strathbogie was in origin a river-name.

Bogie, with earliest forms *bolgy(n)* or *bolgin*,[10] contains a word which derives from early Celtic **bolgo*- 'bag'. This gives Old Gaelic *bolg* 'bag, sack, belly' (modern Gaelic *balg*) and Welsh *bol* (also *bola*, *boly*) 'belly, bag, bulge'. The Pictish form would have been **bolg* or the like. The element appears frequently in Scottish place-names referring to a wide range of features including hills, pools and bays (Taylor & Márkus 2012: 301). In the context of a watercourse, the word, whether Pictish or Gaelic, probably refers to deep or 'bag-like' pools, also known as 'pots' (Watson 1926: 441). There are in fact several of these on the Bogie, two of which are named on the OS 6-inch 1st Edition map: Juncan Pot south of Huntly[11] and Lord John's Pot, Gartly.[12] The suffix *-in* is a common place-name forming suffix which almost always becomes *-i/y/ie*, in Gaelic orthography *-(a)idh*.[13] It can be assumed that the river-name Bogie was coined first, with Strathbogie being a secondary development. Given that both elements could as well be Pictish as Gaelic, it is perfectly possible that the names both of the river and its valley go back to Pictish times.

3.3.2 The Lordship of Strathbogie

The first clear evidence for the Lordship of Strathbogie is found in a charter of 1226 (Moray Reg. no 30), concerning a dispute between the Bishop of Moray and David, a son of Earl Duncan II of Fife, who held the 'fief of Strathbogie' (Ross 2003: vol 1, 132). The Lordship of Strathbogie has been regarded as a creation of King William the Lion's reign (1165–1214), although documentary evidence for its extent and its lords does not begin until the above-mentioned 1226 charter (Duncan 1975: 188; Barrow 1988: 4; Ross 2015: 100). It is possible that the Strathbogie lordship was created for David, or that he gained or expanded it through his marriage to a woman known only as 'G' (Barrow 1988: 4), though the family's control of Strathbogie and the lordship itself may have begun earlier. It has been suggested that the MacDuff Earls of Fife may have held lands in Strathavon in Speyside as early as the 1130s (Taylor & Márkus 2012: 105–6; Ross 2013: 29–31). This increases the chances that the same kindred had other nearby lands north of the Mounth, including in Strathbogie, before 1200.

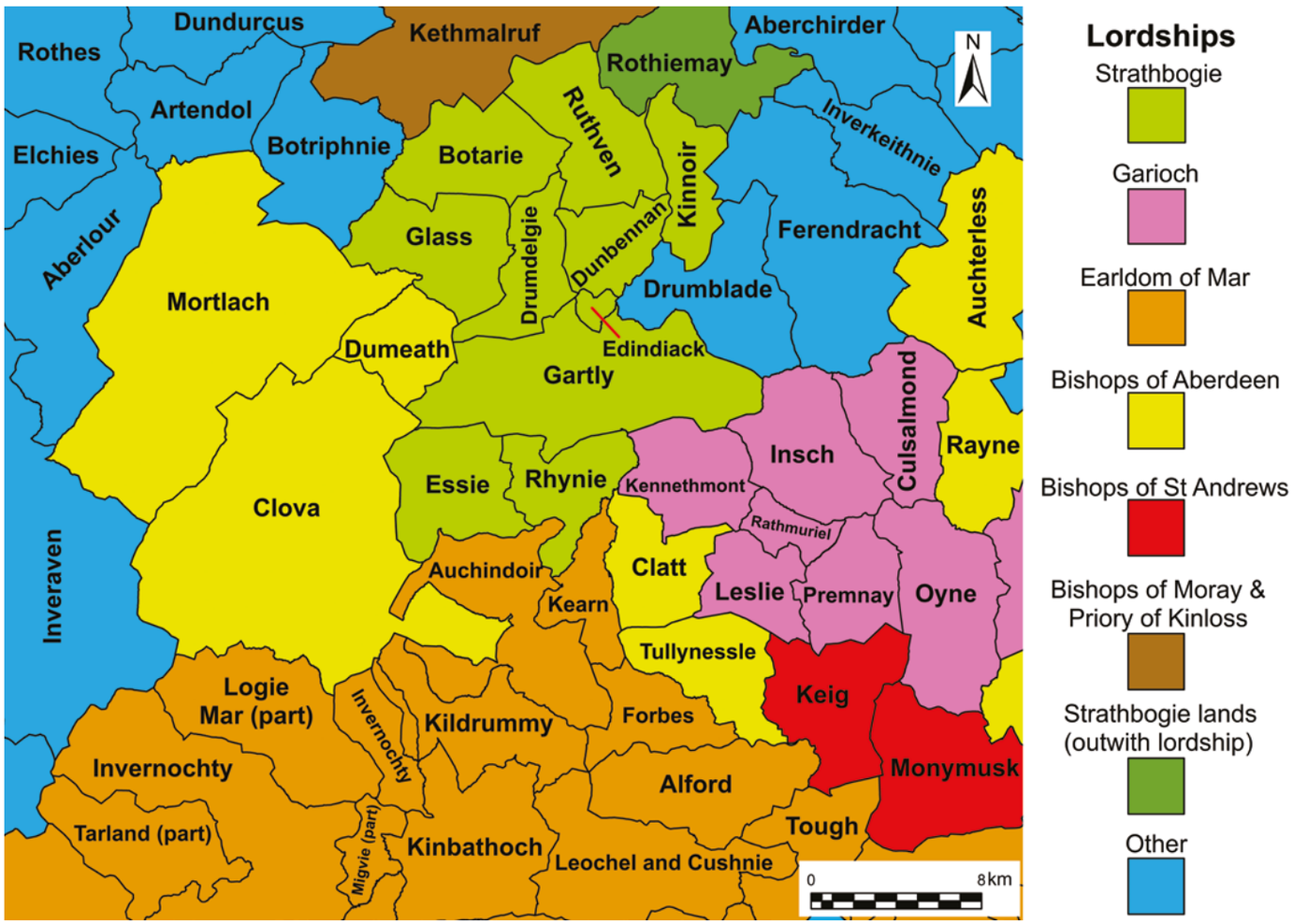
From the earliest records to the 1600s the lordship consisted of ten medieval parishes based around the Bogie and Deveron rivers in the medieval deanery of Strathbogie (Illus 3.3). These comprised

Kinnoir, Essie, Rhynie, Dunbennan, Ruthven, Glass, Drumdelgie, Botarie, Gartly and Edendiack (Ross 2015: 100, who omits Edendiack).[14] The caput of the Lordship of Strathbogie was not at Rhynie, but nine miles north at Huntly (Ross 2015: 100), itself formerly called Strathbogie (see above). Here the Rivers Bogie and Deveron meet. Interestingly, however, it was Strathbogie that gave its name to both the political and ecclesiastical units, even though the Bogie's catchment area is smaller than the Deveron's and includes lands in the parishes of Kennethmont, Clatt, Kearn, Auchindoir and Clova, none of which were in the medieval lordship. Neither did the lordship include the lower Deveron, closer to the Moray Firth, nor the upper part of the Deveron catchment located in Dumeath parish and the Cabrach (also known as Strathdeveron), which was formerly part of Clova parish. Nevertheless, it is the River Deveron, not the Bogie, that runs through the central part of the lordship, including next to the caput at Huntly Castle.

It is likely that Strathbogie became the lordship's name because it had once been the more important of the unit's two straths. The significance of Rhynie may be reflected in an economic importance that was only later eclipsed by Huntly. In a 1600 rental the market at Rhynie was recorded as being of much greater economic value than that at the Raws in Huntly, £80 vs £20 (Shepherd 2021: 260). This indicates the advantageous position of Rhynie as a centre, located at a crossroads for routes north to Huntly and beyond, west across the Cabrach to Moray, south to Kildrummy and Donside, and east to the Urie valley and the coast beyond (Simpson 1930: 48–52). Furthermore, Huntly was not a medieval parochial centre, since the parish of Huntly was only created in the 18th century out of the parishes of Dunbennan, Kinnoir and part of Drumdelgie (Ross 2003: vol 1, 95, 99). All this indicates that Huntly only became prominent after it was established as a military base and centre for the Lordship of Strathbogie, when the motte and bailey was built in the late 12th century or early 13th century (Simpson 1922: 149–50).

3.3.3 The Earldom of Mar, Clatt, and the Lordship of the Garioch

In the year 1200, a short distance south of Rhynie was the earldom of Mar. As mentioned above, a *mormáer* of Mar was first attested in 1014, but the role may have had earlier, perhaps Pictish, origins (Illus 3.4). After 1200, the successor to the *mormáer*dom, the earldom of Mar, included most of highland Deeside (including Braemar and Cromar) and Donside, as well as the more northerly parishes of Clova (with Cabrach), Auchindoir and probably Kearn towards the southern end of the Bogie's catchment area. Dauvit Broun has recently suggested, from the place-names Midmar



Illus 3.4
Lordships around Rhynie in the 1220s. Contains OS data © Crown copyright and database right 2024, and NRS data © Crown copyright and database right 2024

(from *Migmar) and Craigievar between the rivers Dee and Don, that Mar was originally confined to Deeside (Alexander 1952: 330; Broun forthcoming a).

Nevertheless, there are also places in the Rhynie environs that might reflect connections to Mar. In Auchindoir and Kearn parish, in the medieval parish of Kearn, at the boundary with Auchindoir parish, there is the settlement of Marchmar (NJ 484 232), first recorded in 1552. The name contains Scots *march*, 'boundary', which presumably refers to the northern boundary of Mar (Alexander 1952: 330). As a Scots name rather than a Gaelic one, it points to a relatively late coining, possibly not long before its first appearance in the record, and so cannot be used to identify the much earlier extent of Mar.

A significantly earlier name, which probably alludes to a border, is the parish-name Auchindoir, analysed below as 'davach of the boundary'.[15] Auchindoir lay on the Mar side of the boundary between the *mormáer*dom, later earldom, of Mar and the territorial unit which developed into the Lordship of Strathbogie (Illus 3.3). It also lay on the Mar side of the boundary between the deanery of Mar in Aberdeen diocese and the deanery of Strathbogie in Moray diocese (Rhynie parish). Moreover, the kirk of Auchindoir and the settlement of Auld Auchindoir were located close to the parishes of Rhynie, Essie, Kearn and Clova.

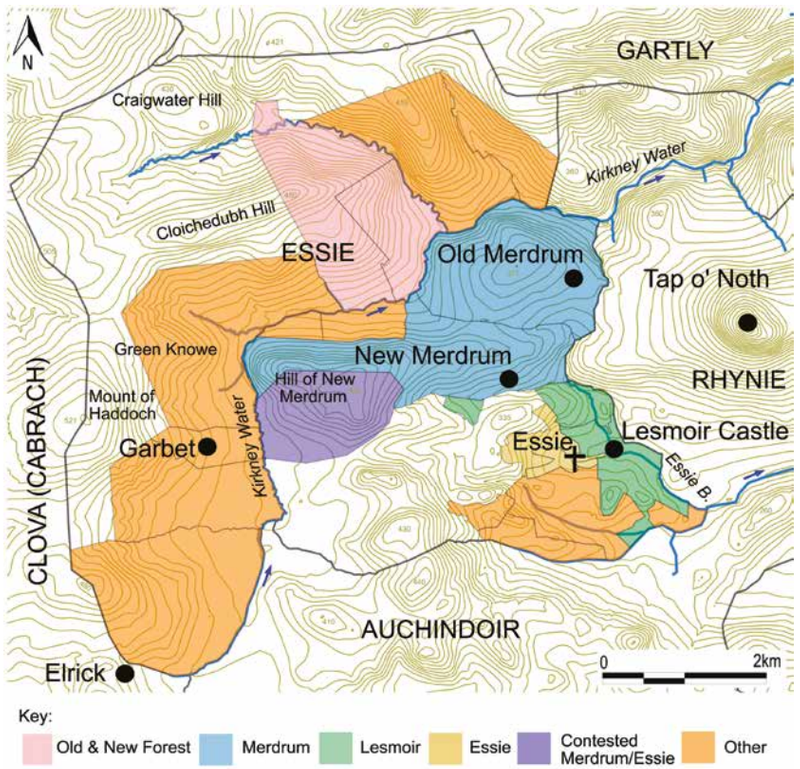
Another early name which might contain the territory-name Mar is Merdrum,[16] '(the) ridge of Mar' (Gaelic *druim*, 'ridge'). Merdrum was a large land-unit in the medieval parish of Essie, in the lordship and deanery of Strathbogie, which by the 16th century had been divided into the farms of New Merdrum and Old Merdrum (Illus 3.5). The ridge itself presumably refers to the upland area in the lands of Merdrum on the south side of the Kirkney Water from the Hill of Oldmerdrum west to Clayshot Hill (named 'Hill of New Merdrum' on RHP2254 and RHP2256, both dating to 1776). The name '(the) ridge of Mar' may have been coined because it was the last large ridge fully in Essie (and the later Lordship of Strathbogie) encountered before someone entered Mar, whether heading south into Auchindoir or west into the Cabrach (in Clova parish). It might also be speculated that Merdrum also once had a wider connotation, stretching westwards beyond Craigwater Hill, Cloichedubh Hill and Green Knowe to include all the north-western lands of Essie parish right up to the boundary with Cabrach from Mount of Haddoch northwards.

On the east bank of the River Bogie opposite Rhynie was Kearn parish, probably in the earldom of Mar, and then Clatt parish (which also included a small stretch of the east bank of the Bogie, encompassing Blairindinny) (Illus 3.4). The church of Clatt and its territory (*schira*, 'shire') were already possessed by the bishops of Aberdeen by 1157, when this status gained papal recognition (Abdn Reg. i, 5–7). East of Clatt lay the Lordship of the Garioch, which included the parish of Kennethmont, located north of Clatt and on the east bank of the Bogie opposite the northern part of Rhynie parish. The Garioch was given by King William the Lion to his brother Earl David between 1179 and 1182 (Barrow 2003: 266; RCAHMS 2007: 139–40; Broun forthcoming a). It became the name of the whole lordship which extended east beyond Inverurie to Fintray on the northern bank of the River Don, including lands not originally called the Garioch (Stringer 1985: 60–7).

Thus, the development of the Lordship of the Garioch indicates that such units could preserve existing territorial names, while transforming their extents and nature, by becoming larger or smaller secular units. Under such a model it could be suggested that over time Strathbogie lost lands east and south of Rhynie but gained others beyond the Bogie catchment area to become a lordship centred on Huntly by the 13th century. This potentially included lands that came to be under the lordships of Mar, the Garioch and the bishops of Aberdeen, turning Rhynie from a central into a peripheral location in Strathbogie.

3.3.4 Parishes and the Dioceses of Moray and Aberdeen

By the end of the 12th century the environs around Rhynie were divided up into parishes, each with its parish priest, who provided pastoral care chiefly through the administration of the holy sacraments, supported by the payment of teinds or tithes. A settlement was deemed to be in the parish to whose church it paid teinds.[17] The parishes were grouped together into bishoprics, with the bishop having overall responsibility for the smooth running of the system. The bishop was provided for by lands belonging directly to the bishopric (known as mensal lands), as well as various dues exacted from the churches in his diocese. In order to make his task more manageable, most dioceses were divided up into deaneries, each one managed by a dean. There is evidence from elsewhere in Scotland that both parishes and deaneries were often based on earlier secular units of lordship (Barrow 1975: 127;



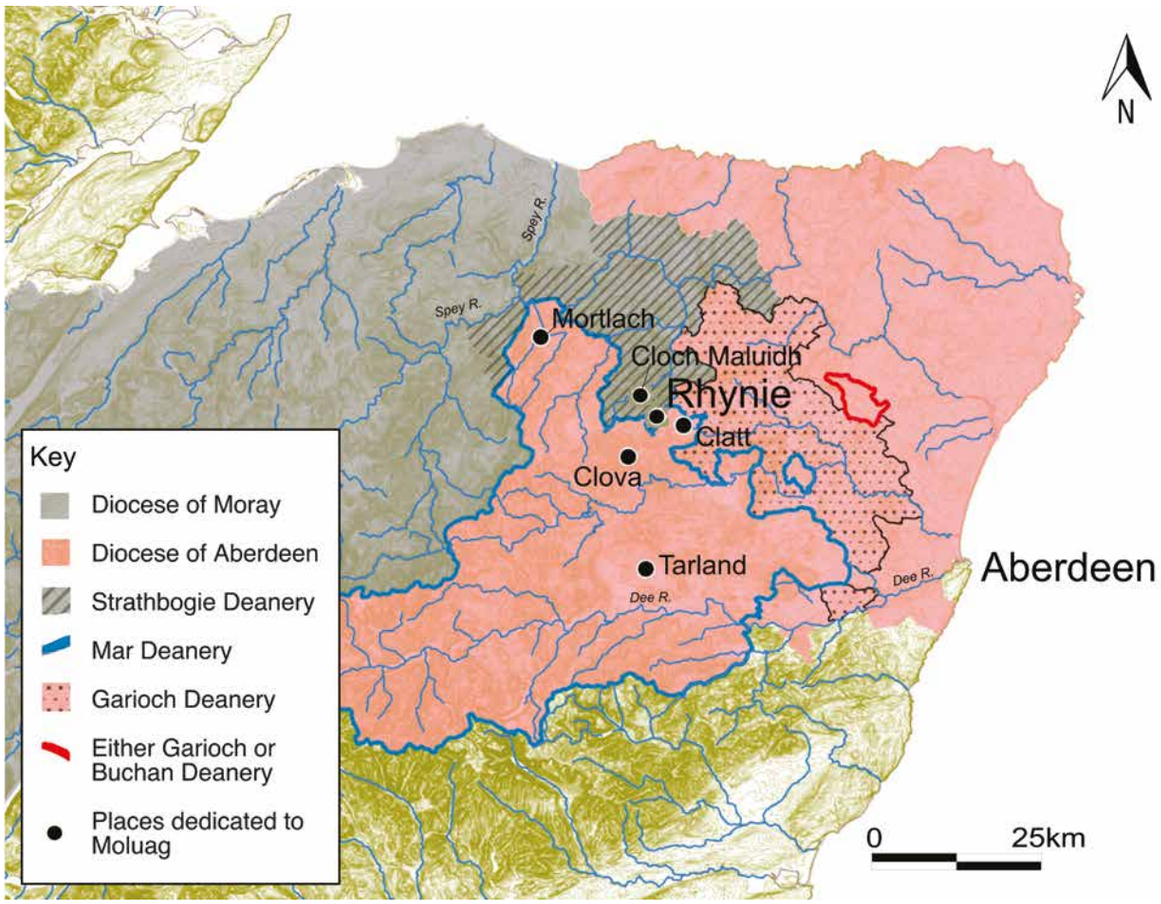
Illus 3.5
Essie parish with farm units from RHP2254 and RHP2256, both AD 1776. Contains OS data © Crown copyright and database right 2024, and NRS data © Crown copyright and database right 2024

Rogers 1997). The wider Rhynie area was especially complex in this regard (Illus 3.6), with Rhynie itself being in the diocese of Moray and the deanery of Strathbogie, while adjacent parishes to the east and south were in the diocese of Aberdeen, one (Kennethmont) in the deanery of Garioch and two (Auchindoir and Kearn) in the deanery of Mar. These largely map onto the pattern of secular lordship, though not exactly, since the deanery of the Garioch included lands of the bishops of Aberdeen in addition to the Lordship of the Garioch (Stringer 1985: 65–6).

The situation immediately before the emergence of the medieval bishoprics of Moray and Aberdeen in the first half of the 12th century is complex. According to later accounts, at some point before 1130, probably in the 11th century, Mortlach near Dufftown in Banffshire became an episcopal centre (see Woolf 2007a: 312–14 for an examination of the evidence). Woolf (2007a) has argued that the bishopric of Mortlach was established by Máel Coluim III (1058–93)[18] to project control into Moray, with Mortlach's bishop in charge of subordinate peripatetic bishops (*chorepiscopi*) with jurisdiction north of the Mounth. While this is an attractive theory, it is one created in the absence of reliable contemporary evidence for 11th-century Church organisation. What is clear is that in the first decade of David I's reign (1124–53) a bishop's seat was established near the mouth of the River Don, just north of the burgh of Aberdeen; the first bishop styled 'of Aberdeen' was Nechtan, who first appears in the record in 1131 (Watt & Murray 2003: 1; Forsyth et al 2008: 138). The new bishopric of Aberdeen included Mortlach, from where the bishops claimed that their see had been transferred. Mortlach lay at the very western edge of this area, close to the Spey, with only a thin arm of the Moray deanery of Strathbogie separating it from that river.[19]

It is around this time that the bishopric of Moray is first mentioned. Its cathedral church, after some moving around, finally settled in Elgin in the early 13th century. It is likely that the bishops of Moray sought to include areas under the jurisdiction of Mortlach when the latter was incorporated into the bishopric of Aberdeen. The political background to this ecclesiastical 'musical chairs' (or *cathredae*) is almost certainly the final incorporation of the semi-independent territory of Moray into the kingdom of Scotland (Woolf 2007a: 317–22). Although there is nothing explicit in the record, there is some evidence to suggest that the deanery of Strathbogie was in contention, since as late as 1157 the Pope confirmed to Edward, Bishop of Aberdeen, the teinds (perhaps just from royal lands) from between the Dee and the Spey.[20] However, at this time the western edge of Aberdeen diocese did not reach the Spey because parishes in the Moray deaneries of Strathbogie, Elgin and Strathspey came in between its diocesan parishes and that river.

The church of Mortlach appears to have been dedicated to St Moluag, a high-profile Scottish saint whose cult was centred



Illus 3.6
Dioceses and deaneries relating to the Rhynie area, *c* 1260. Contains OS data © Crown copyright and database right 2024, and NRS data © Crown copyright and database right 2024

on Lismore (Argyll) but who was believed to have died and been buried at Rosemarkie (Ross). The sources both for the dedication of Mortlach and the saint's death and burial at Rosemarkie are from 16th-century Aberdeen.[21] Moluag was the patron saint of Clatt, a prebendal church of Aberdeen.[22] The parish church of Tarland, granted by the mormáer of Mar to the priory of St Andrews, was also dedicated to him.[23] It is also likely that he was the patron saint of Clova, a medieval parish now united with Kildrummy. He certainly had an important presence in Clova: the medieval chapel or church now known as St Luke's Chapel is dedicated to him, since it is referred to in the early 18th century as *Sommiluaks Chapell*, ie Saint Mo Luag's.[24] All the above (Mortlach, Clatt, Clova and Tarland) are in the diocese of Aberdeen, deanery of Mar.

One other trace of Moluag's cult in the Rhynie area is the topographical feature of Cloch Maluidh on the slopes of Tap o' Noth. This is a Gaelic name meaning 'Moluag's Stone' which according to Macdonald, who had a deep knowledge of the area, refers to

> a spur of rock jutting out on the side of the Tap o' Noth overlooking Scordarg, and half way up the Tap. The face of this perpendicular rock is about 30 feet high, and behind, standing clear of the hill, it is 7 or 8 feet high.[25]

As a Gaelic name containing a saint's name, it can be assumed that it was coined in the medieval period. Alongside the concentration of Moluag sites, the naming of such a prominent topographical feature only further indicates how strong the cult of Moluag was within the wider Rhynie area. Their presence at both ends of the important route through inhospitable terrain between Mortlach to the north-west and Rhynie and Clatt (including the Cabrach) to the south-east suggests that Moluag was seen as protecting the traveller along this critical routeway.

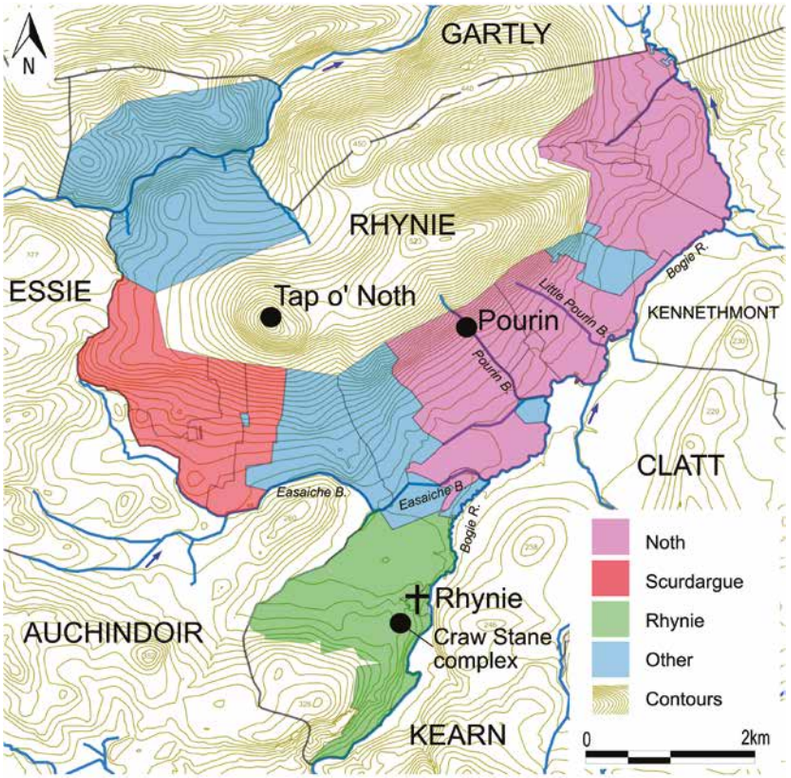
3.4 Place-names in and around Rhynie

The environs around the archaeological sites at Rhynie, Tap o' Noth and Cairn More were part of a wider evolving secular and ecclesiastical picture, upon which the analysis of place-names can shed further light. Place-names can provide evidence for various aspects of social history such as language, land-use, settlement, administration of justice, and more generally the changing perception and interpretation of the environment through time. The following selective analysis, focused on high-status centres around the excavated sites, is drawn from surveys of place-names in the medieval parishes of Rhynie and Essie (later simply Rhynie), Auchindoir, Kearn (later united as Auchindoir & Kearn), Gartly, Clatt, Kennethmont and to a lesser extent Cabrach. These surveys have utilised a number of sources, which record transactions, agreements, rentals and taxes relating to landholdings and churches from the 12th century onwards. They include the cartularies of the bishoprics of Moray[26] and Aberdeen (*Moray Reg.* and *Abdn. Reg.*), the Register of the Great Seal (*RMS*), the 16th-century and 17th-century *Retours*, rentals, sasines and taxation records, and from the late 18th century onwards, estate plans and maps, such as 1st Edition Ordnance Survey maps and their accompanying Ordnance Survey Name Books.[27] These sources show that by the 12th century the Rhynie area was predominately Gaelic-speaking, though some Pictish place-names survived. By 1200 Scots and Flemish speakers were settling in the Lordship of the Garioch to the east.[28] Over time, Scots expanded into the Rhynie area, replacing earlier Celtic nomenclature or being used to name new settlements. By about 1500, when we see the larger landholdings divided into two or more separate units, the affixes distinguishing these new divisions are all in Scots, for example Auld and New Merdrum (Rhynie), first appearing as such in 1511. Gaelic continued to be spoken in Strathbogie well into the 17th century, though there is evidence that it was no longer spoken by the inhabitants of Huntly and Rhynie parishes by 1728 (Withers 1984: 176). Gaelic lingered longer in the upland areas, with the adjacent parish of Cabrach still recognised as Gaelic-speaking in 1705, although Gaelic had 'declined markedly there' by the mid-18th century (Withers 1984: 55, 255–6). It persisted much longer in Upper Deeside, its last native Gaelic-speaker dying in 1984 (Gaelic in the North East 2023).

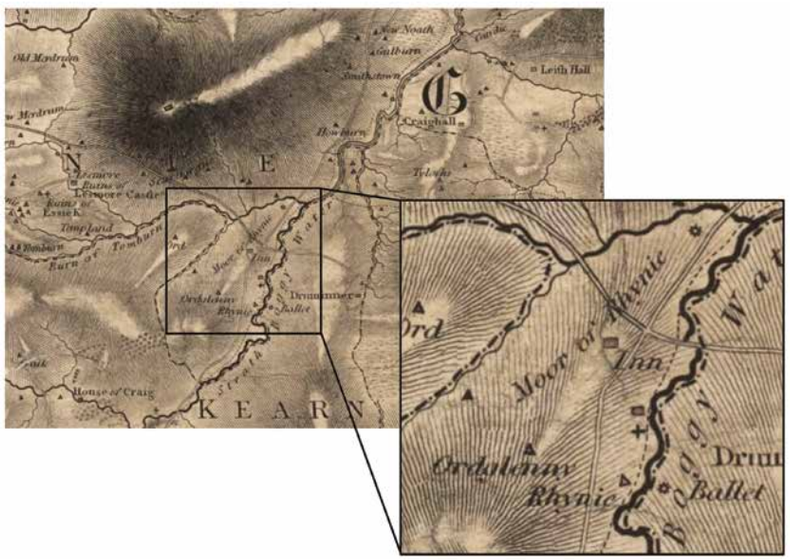
3.4.1 Rhynie parish

The modern Rhynie parish was formed through the union of the parishes of Rhynie and its western neighbour, Essie, after the Reformation in the early 17th century (Ross 2003: vol 1, 96) (Illus 3.5 and 3.7). The boundary between the two can be relatively clearly deduced from two 18th-century estate plans (RHP2254 and RHP2256), so it is clear that both the Craw Stane complex and Tap o' Noth were in the medieval parish of Rhynie. Presumably the main early secular centre of what later became the parish of Rhynie was the high-status Craw Stane complex near the site of Rhynie old kirk. Rhynie first appears in the episcopal records of the diocese of Moray in the 1220s as (the church of) *Rynyn* or *Ryny* (Moray Reg. nos 69, 73, 81). The place-name, however, provides important evidence for the early significance of this location as it has every appearance of being a Celtic coining containing 'great king' or 'very royal'. This interpretation is based on the analogy of the evolution of the closely comparable (Loch) Ryan (Wigtownshire), which is one of the earliest recorded of all Scottish place-names, appearing in Ptolemy's *Geographia* as *Rerigonion* (Grigg 2015: 85–6). This has been interpreted variously as 'very royal place' (Watson 1926: 34; Rivet & Smith 1979: 447) and 'place of the foremost great or divine king' (Isaac 2005: 202). The fact that we do not have such early forms of Rhynie makes an overly close comparison problematic. However, there is no reason to doubt that Rhynie contains early Celtic **rīg* 'king' (which can also be translated adjectivally as 'royal'). Thus, a minimalist and provisional reconstruction of Rhynie in early Celtic might be **rīgonin* or **rīgonīn* 'place of or associated with (-īn) a great (-*on*-) king (*rīg*-)' – see Noble and Evans (2019: 59) for a more detailed analysis of this name. As far as labels go, and given Rhynie's situation within the historical kingdom of the Picts, it would be uncontroversial to describe Rhynie as a Pictish place-name. In fact, given the analogous (Loch) Ryan, the name could well predate the Pictish period by several centuries.

It should be stressed that the original referent for the name is not the present village of Rhynie, which grew up on the muir or rough grazing of Rhynie and was thus named Muir of Rhynie, appearing as such on early OS maps. Muir of Rhynie grew up



Illus 3.7
Rhynie parish with farm units from RHP2254 (1776). Contains OS data © Crown copyright and database right 2024, and NRS data © Crown copyright and database right 2024



Illus 3.8
Rhynie and its immediate vicinity on James Robertson's topographical and military map of the counties of Aberdeen, Banff and Kincardine of 1822. Reproduced with the permission of the National Library of Scotland under the Creative Common Attribution (CC-BY) licence

around a market stance, still shown on early editions of the OS map, conveniently situated at the crossroads of the north/south road from Donside to Huntly (now the A97) and the west/east road from the Cabrach to Kearn and the Garioch (now the A941). However, the earlier core of Rhynie parish was further south of the present village around and to the south of Rhynie old kirk. This can clearly be seen on Robertson's map of 1822 (Illus 3.8), which has perhaps only an Inn at *Moor of Rhynie* near the crossroads, whereas *Rhynie* is located south of the parish kirk in the vicinity of the Craw Stane complex. Robertson's depiction is broadly confirmed by earlier maps by Robert Gordon (Gordon 32, dating to *c* 1636–52), Roy's military map of *c* 1750 and the RHP2254 estate plan of 1776 (which does, however, show that there was a settlement at Muir of Rhynie by the late 18th century). Together, these provide strong evidence that the early modern Rhynie settlement was located at roughly NJ 498 262, only about 100–200m south-east of the Craw Stane complex. Therefore, the place-name Rhynie indicates the royal nature of the high-status early medieval complex located around the Pictish stone known as the Craw Stane and near the site of the medieval parish church with its impressive collection of Pictish stones (Noble et al 2019c; Chapters 5, 11 and 12).

After Rhynie the most important name in the parish is Noth, which can also be dated to the Pictish or even pre-Pictish period. Noth was originally the name of a territory almost 5km in length which abutted the lands of Rhynie to the north-east.[29] It may derive from a word for 'bare, naked, exposed', cognate with modern Welsh *noeth*, meaning 'naked, stripped, bare'. This could have described the steep hillside of Tap o' Noth or perhaps it indicates that, when the name was first coined, the territory of Noth was relatively clear of tree cover in contrast to much of the surrounding landscape. Should the latter be true, it may be that the lower slopes to the east near the Bogie and perhaps to the south were more intensively used for arable farming, providing an important source of food for both the activities on Tap o' Noth and the royal residence at Rhynie.

This territory can be reconstructed with some confidence from the settlements and relief features containing the name Noth. On both the OS 6-inch 1st Edition and the OS Landranger maps this includes Bogs of Noth, Glen of Noth, Hill of Noth, Mill of Noth, Milton of Noth, Newnoth, Oldnoth, Raws of Noth, Smithston (of Noth) and Tap o' Noth. Tap o' Noth itself is a Scots secondary formation meaning the top or highest point of the lands of Noth, which, along with the Hill of Noth, was commonty or common land to all the adjoining farms (1776 RHP2254). The fact that all the names of the above settlements have a Scots element indicates that the territory of Noth was divided up many centuries after the name for the original territory was coined. The boundary between Noth and Rhynie on the 1776 Estate Map (RHP2254) appears to be near the Burn of Easaiche, on which lies the Mill of Noth, which perhaps served both Noth and Rhynie. Two prominent standing stones on the south bank of the burn, just outside the Noth area, may have been repurposed as additional boundary markers.

On the lands of Noth there was a place called Pourin, which first appears as a cottage at NJ503292 in 1870 (OS 6-inch 1st Edition). The cottage is long gone but the name survives in two small burns, Burn of Pourin and Burn of Little Pourin. This is itself an indication that Pourin was once substantial enough for it to have

been divided. Despite such a late appearance in the record, the name probably derives from G *pòr* 'cropland' plus a diminutive suffix (Taylor 2011: 105; Taylor & Márkus 2012: 473). It seems, therefore, to attest to arable land usage, perhaps at a time when the pastoral economy was the norm in Noth.

Alongside the Pictish (or even pre-Pictish) names of Noth and Rhynie, there are smaller land units, such as Scurdargue and Clashindarroch, and a peppering of minor features that chiefly have later Gaelic names. In the later medieval period there was no clear secular centre of importance in the parish of Rhynie. According to later Gordon family texts, John Gordon, who lived *c* 1400 and was an ancestor of significant branches of the family, including those based at Lesmoir in Essie parish and Craig in Auchindoir, was associated with Scurdargue (Bulloch 1903: 26–30; Ree 1907: 21, 32). Scurdargue lies to the south-west of Tap o' Noth, 2.3 km north-west of Rhynie, and is unequivocally a Gaelic name (*Scordarg* 1511, *Scordarg* 1535). It contains the element G *sgòr,* defined variously as 'a sharp, steep hill rising by itself; steep precipitous height on another hill or mountain; a peak'. It is not entirely clear to which local feature it applies, though given its location on the lower slopes of Tap o' Noth it is possible that it refers to the Tap itself. The second element is G *dearg* 'red', in relation to which Macdonald (1891: 255) wrote: 'I am told that there was a rock of reddish colour long quarried for road-making, but which has almost disappeared by the reclamation of the land'. However, Scurdargue first appears in sources in 1511 (*RMS* ii. no 3599), so there is no strong evidence for this as a significant early medieval centre.

It is much more likely that Lesmoir, just to the west of Rhynie parish, near to Scurdargue, acted as the main lordly centre in the area in the post-1200 era, and probably considerably earlier (Illus 3.5). Today, Lesmoir is represented by the two farms of Milton of Lesmoir and Mains of Lesmoir, with the ruins of Lesmoir castle very near to the latter's farm steading. The castle lies right beside the boundary of the former parishes of Essie and Rhynie (Shepherd 2021: 24–5, fig 6), suggesting that it was a centre of lordship which once stretched well into Rhynie. The Castle of Lesmoir is

> represented by a circular earthwork of a medieval homestead moat, possibly of the Frendraught family, holders of lands of Essie before the third quarter of the 13th century, and fragments of a late medieval fortalice, all largely hidden by farmyard rubbish (Shepherd 2006).

Its name is significant, underlining as it does the important role it played in secular lordship from many centuries before the 13th century and its first appearance in the record (*Lesmoir* 1561 x 1577 *RMS* iv no 2637).

As it stands, Lesmoir is a Gaelic name containing the generic element *lios* (Old Gaelic *les*) qualified by Gaelic *mòr* 'big'. Old Gaelic *les* is defined as 'the space about a dwelling-house or houses enclosed by a bank or rampart'; also 'sometimes the bank or rampart itself'. The above-mentioned circular earthwork may very well be the eponymous *les*. In modern Scottish Gaelic its primary meaning is 'a garden', while in Ireland it is a remarkably common place-name element, with hundreds of examples displayed on the distribution map in Flanagan and Flanagan (1994: 111).[30] In his important study of this element, MacDonald (1987) identified only 12 names containing *les-/lis-* across the whole of Scotland. A few more can be added to his list (see Taylor & Márkus 2012: 426–8) but even so it presents a stark contrast to Ireland. MacDonald concluded that in former Pictland, as well as in Northern Brittonic-speaking areas of southern Scotland, it refers especially to high-status places, some of them parishes, having a similar meaning to that of the cognate Welsh *llys* m. and f. 'court, manor house, hall', while retaining its basic meaning of an enclosed space. This does not mean that all *les-/lis-* names north of the Forth necessarily go back to the Pictish period, but it does at least indicate substrate influence on the Scottish Gaelic use of the word (MacDonald 1987; Taylor 2011: 107).

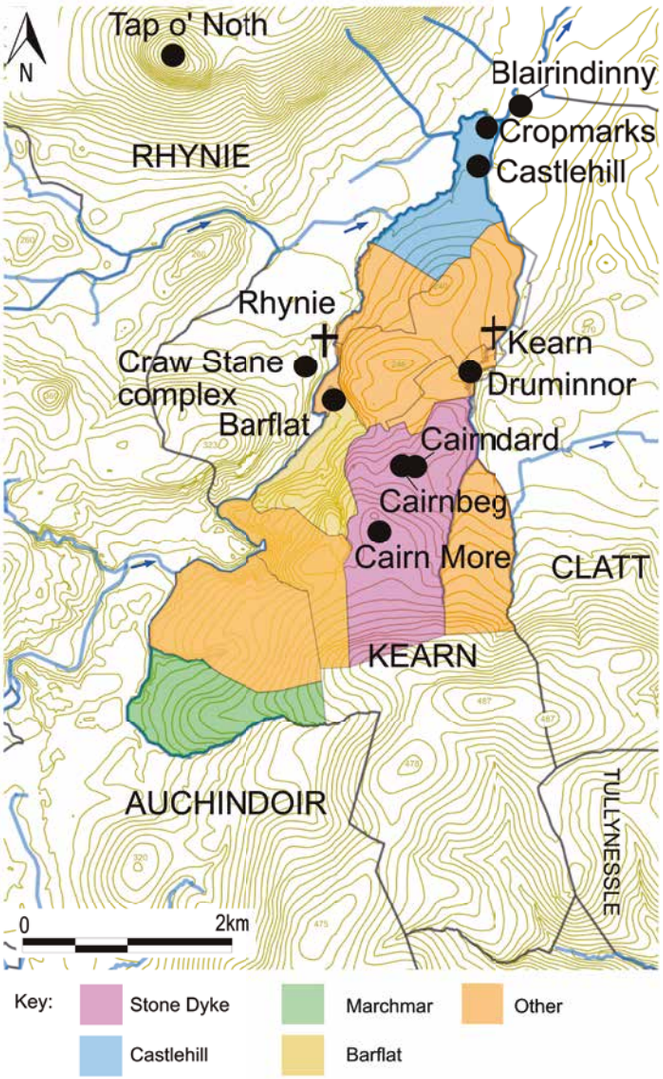
Lesmoir occupies a strategic position controlling a significant route from Strathbogie into Moray via Mortlach and on to Elgin. It is worth noting than on this route about half-way between Lesmoir and Mortlach (Dufftown) is Lesmurdie, 'Murdoch's *les*', which may have played a similar role in controlling the thoroughfare (MacDonald 1987: 41). In this regard, Lesmoir could have taken on a role similar to that of the fort on Tap o' Noth and might even have been originally established when the fort was in use, or have taken over from the fort and the palace complex at Rhynie as the local centre of power in the early medieval period.

3.4.2 Kearn parish

The medieval parish of Kearn, which included the archaeological site at Cairn More, lay to the east and south of Rhynie. It was situated between the Bogie and Carlinden Burn to the west, the Kearn, Cannie and Gadie burns to the east, and extended south to the Correen Hills (Illus 3.9). It was in the deanery of Mar in the diocese of Aberdeen, and probably in the earldom of Mar. Though amalgamated with the parish of Forbes and then Auchindoir, Kearn's boundaries can be reconstructed from an estate map (RHP260/1) produced *c* 1771 for the Forbes family (for discussion, see RCAHMS 2007: 143). At that time the Forbes family dominated the parish from their seat at Druminnor Castle, which is only 270m from the parish church of Kearn (Shepherd 2021: 255–63).

Kearn parish contained a mix of arable and pastoral land to the north and west, including the haughlands by the Bogie opposite Rhynie whose relative fertility is indicated by the farm-name Barflat (*Beirflat* 1595 *RMS* vi no 225), 'a flat or level ground where bear or barley is grown'. Much of the parish's land in the south consisted of upland grazing (RHP260/1; Shepherd 2021: 255–63). Kearn's place-names follow the pattern of the area more generally, with the more significant and established settlements such as Druminnor, Cairndard, Cairnmore and Cushnie being of Gaelic origin, while the later, often less important ones, as well as smaller natural features, were subsequently coined in Scots.

Within the parish there is a small cluster of settlement-names with the element *càrn* 'a cairn, a tumulus' situated around the early medieval enclosed site or fort on the hill of Cairn More (*càrn mòr* 'big cairn'). These include Cairnmore to the south-west of the hill, while to the north there is Cairndard and the neighbouring, no longer inhabited small settlement of Cairnbeg (*càrn beag* 'little cairn'). Cairndard seems to be the core settlement given that it appears in the record centuries before the others.[31] It can be analysed as Gaelic 'cairn or tumulus of the height', most likely with reference to the fort of Cairn More. The hill itself first appears on



Illus 3.9
Kearn parish, including farm units from RHP260/1 (*c* 1771). Contains OS data © Crown copyright and database right 2024, and NRS data © Crown copyright and database right 2024

a *c* 1771 estate plan (RHP260/1) with a more prominent ring, perhaps intended to depict the banks of the early enclosure. The plan has no trace of the later settlement of that name but does show a piece of land called *Cairn more folds* to the north of the hill and west of Cairndard. While all these names are coined by Gaelic-speakers, the sequence is probably: 1) Cairndard, with reference to both the hill and the settlement, perhaps contrasting the perceived remains of the fort with the group of cairns 750m to the south-west on elevated but slightly lower ground; 2) as Cairndard became primarily the name of a sizeable land-holding, the hill with its fort became known as Cairn More 'big cairn'; 3) this then gave its name to the later settlement of Cairnmore, while Cairnbeg was named to pair with Cairnmore. Cairndard's antiquity is underlined by the archaic definite article, which pushes its coining back into the 12th century at the latest (Ó Maolalaigh 1998: 20–1). The main point here is that these name-givers were using Gaelic *càrn* as a generic term to refer to any perceived prehistoric structure.

The name Kearn itself applies to the northern part of the parish around the medieval parish kirk (now only a graveyard at NJ514266) and Druminnor, the centre of lordship of the Forbeses, who held the lands of Kearn and Forbes from the 1270s at the latest.[32] This was reflected in Druminnor Castle's alternative name, Castle Forbes. Druminnor[33] is a Gaelic name probably meaning 'the ridge of the confluence' (Gaelic *inbhear* 'river-mouth, confluence').[34] If so, the eponymous confluence is that of the Kearn Burn with the Water of Bogie. At this most northerly part of Kearn parish, in the narrow tongue of land formed by these two watercourses as they run roughly parallel to each other just before they meet, lies the farm of Castle Hill. This may refer to Druminnor Castle or a quite different feature all together. Aerial photography has revealed the cropmarks of a possible enclosure on a large natural knoll at the above-mentioned confluence, about 350m north of Castlehill farm steading (NJ52NW 69). An arc of ditch about 2m in breadth is visible on the south flank of the knoll, suggesting a roughly circular or oval enclosure with an internal diameter of between 35m and 40m. (NRHE ID 107474, 17669, cf 17660). Beside this feature, on the other side of the Kearn Burn in the parish of Clatt, is Blairindinny.[35] The final element in this name may be G *dún* in the sense 'fortified hill',[36] and if so, is likely to refer to the above-mentioned site. The name Kearn[37] probably derives from Old Gaelic *cern* 'angle, corner, recess', modern Gaelic *ceàrn*, with a similar meaning, and may refer to the above-mentioned tongue of land, or the wider area between the River Bogie and Kearn Burn, that includes Druminnor.

3.5 Conclusions

When considering all the historical and place-name evidence, it is clear that the general lack of early textual evidence relating directly to the environs of Rhynie renders analysis difficult for the first millennium AD. As a result, archaeological research provides evidence that is not matched by textual evidence and therefore has to be assessed primarily on its own terms. However, even though Rhynie, Tap o' Noth and Cairn More do not appear in first-millennium sources, the later evidence, especially from place-names, does enable these centres to be placed in historical contexts to some extent. The name Rhynie highlights the royal significance of that centre, and later place-names and land units provide evidence for the hinterlands associated with each of these Pictish sites. It is uncertain whether the rulers of Rhynie were part of a polity beyond Strathbogie, but certainly by the late 7th century at the latest, the region had been incorporated by Fortriu into their kingdom of the Picts.

Later medieval evidence allows us to reconstruct tentatively the development of this area after these sites fell into disuse. For example, place-name evidence indicates that Rhynie and Tap o' Noth, both with Pictish (or even pre-Pictish) names, were superseded at least partly by the Gaelic-named Lesmoir. Moreover, east of the Bogie in the parish of Kearn, the centre of power shifted from the significant hillfort now known as Cairn More to Druminnor, the centre of the Forbes lordship.

At their peak, Rhynie and Tap o' Noth were probably at the centre of a substantial Strathbogie territory, but they moved to

the periphery after their decline. Mar came to include Auchindoir and probably Kearn (with the new boundary embodied by the Gaelic place-names Merdrum and Auchindoir); the Garioch included Kennethmont; and Clatt was held by the bishops of Aberdeen. By 1200 a reshaped Strathbogie was recentred on what later became known as Huntly, leaving Rhynie on the edge of the lordship. By the 12th century, the hinterland of Rhynie was also ecclesiastically divided into the dioceses of Moray and Aberdeen and their deaneries of Strathbogie, Mar and the Garioch. To some extent this reflected the secular situation in the region, in addition to complex pre-existing religious structures and devotion to saints, most notably those associated with the bishopric of Mortlach and its patron saint, Moluag. These later divisions attest obliquely to the strategic significance of the area, which contained important routes through the Highlands connecting lowland Aberdeenshire and Scotland south of the Mounth to the Firthlands in the north. For centuries, kings of the Picts and Scots had a strong interest in preventing rivals from exercising hegemony over this region, as the rulers of Rhynie had presumably achieved when the Craw Stane complex was flourishing.

Illus 4.1
Aerial photograph of Tap o' Noth, showing the vitrified oblong fort at the summit and the remnants of the large outer fort below

Chapter 4

EXCAVATION RESULTS: TAP O' NOTH

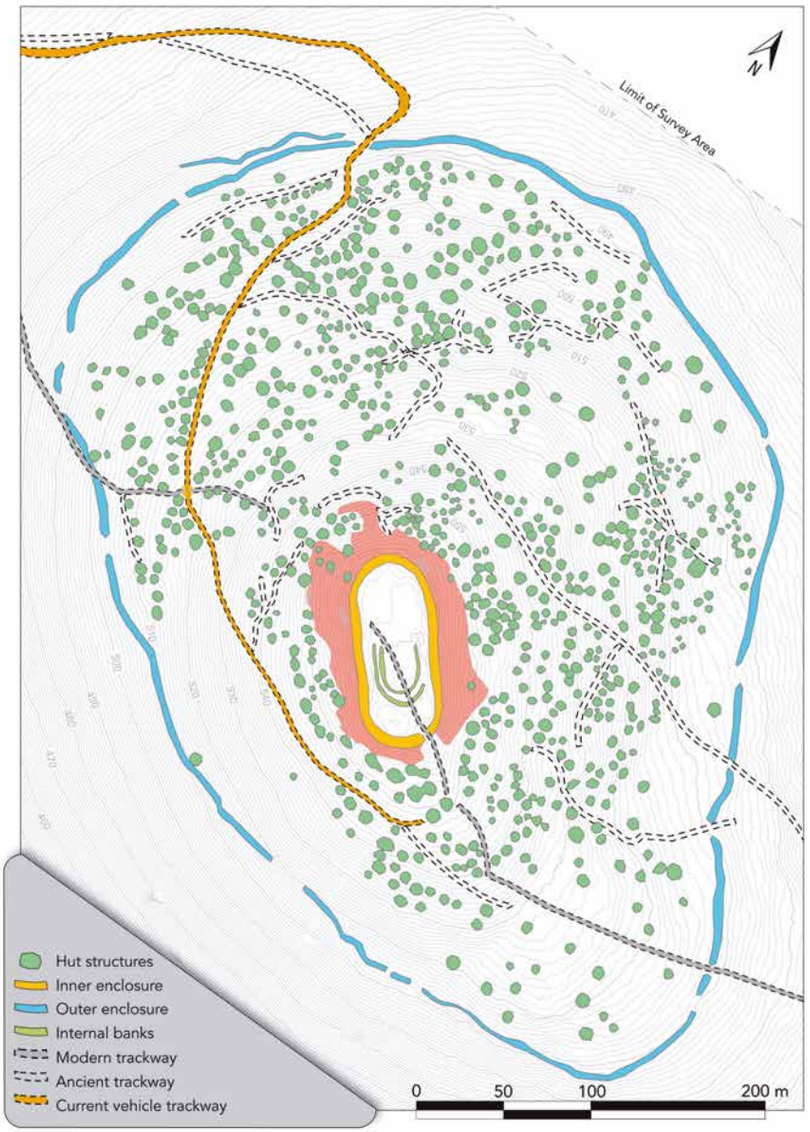
Gordon Noble, James O'Driscoll and Cathy MacIver

4.1 Introduction

Tap o' Noth is the second largest, and one of the most spectacularly sited hillforts in Scotland, positioned on a prominent and distinctive hill at 563m OD overlooking the village of Rhynie (Illus 4.1, 4.2 and 4.3). The investigations at Tap o' Noth formed the focus of the University of Aberdeen Northern Picts: Rhynie Environs Project (2017–22) funded by Historic Environment Scotland. This project built on the work at the Craw Stane complex (Chapter 5) and aimed to characterise and date the environ sites of the Rhynie valley – the enclosures at Tap o' Noth, Cnoc Cailliche and Cairn More – to provide a context for the development of the elite centre in the valley bottom. Investigations were scheduled to run over three seasons from 2017–19, but the spectacular and unexpected results from the lower fort prompted further seasons of excavations in 2020–22, which targeted additional sections of the lower fort rampart and a number of additional house platforms.

With the Northern Picts: Rhynie Environs Project we hoped to address the following research questions:

- How did the landscape of the Rhynie valley develop from the later prehistoric to early medieval period? Did the Pictish enclosure complex at the Craw Stane evolve from an earlier Iron Age regional centre at Tap o' Noth?
- How did the Craw Stane complex relate chronologically and functionally to sites such as Tap o' Noth, Cnoc Cailliche and Cairn More forts? Did the focus at the Craw Stane complex in the 4th–6th centuries AD shift to Tap o' Noth as might be suggested from early medieval reoccupation of other Iron Age oblong forts such as Craig Phadrig, Inverness-shire (Small & Cottam 1972)? Or did the elite focus on this wider landscape end in the 6th century AD and move to other locations within northern Pictland?
- How can the important series of sites in the vicinity of Rhynie help us answer crucial questions surrounding the development of the Pictish kingdoms?
- Did the landscape of the Upper Strathbogie valley resemble royal landscapes in early medieval or late Iron Age Scandinavia, Ireland or Anglo-Saxon England, which were polyfocal in nature with contemporary sites existing within a complex settlement hierarchy (eg Brink 1996)?



Illus 4.2
Plan of the archaeological features at Tap o' Noth, including the vitrified oblong fort at the summit (orange) and its associated rampart collapse (red), the large outer fort (blue) and internal house platforms identified in the LiDAR and photogrammetry results (green)

Illus 4.3
Vertical aerial photograph of the first excavation season (2017) within the oblong fort

- How did the character of the enclosed sites and the material assemblages of Tap o' Noth, Cnoc Cailliche and Cairn More compare or contrast to the Craw Stane complex?

4.2 The forts of Tap o' Noth

Tap o' Noth consists of two forts crowning the Hill of Noth; a massive oblong-shaped vitrified fort at its peak and an irregularly shaped stone-walled enclosure downslope (Illus 4.2). The upper oblong fort was recorded from the late 18th century onwards and through time was increasingly identified as part of a group of similar vitrified oblong/oval forts found throughout eastern Scotland, with Tap o' Noth recognised as a very well-preserved example of a vitrified fort (eg Douglas 1782: 245–6; Feachem 1966). The massive enclosing wall, which stands 2–3m above the level of the interior (RCAHMS 2007: 103), has partially collapsed creating an impressive 'apron' of stone extending up to 30m downslope beyond the perimeter of the wall (Illus 4.2). Quarrying and stone robbing in the post-medieval period have impacted upon the wall's integrity. Nonetheless, the extent of the downslope material demonstrates the quantity of stone that would have originally made up the wall and the resources that went into building the fort. The location and size of the construction suggests the fort must have been a spectacular sight for those who saw the fort in its heyday. At various points, particularly on the south-western side, large masses of vitrification are apparent indicating that the wall was originally built with an internal timber framework, which, upon the fort going on fire, enabled the vitrification process to take place. The fort itself encloses an area of about 0.38ha. No entrance has been identified, as is common with this monument type, but other features include two internal and parallel U-shaped banks and an impressive well or cistern.

The outer fort (Illus 4.1, 4.2 and 4.4), first recorded on the 1st Edition OS map of 1867, consists of a single stone rampart that extends up to 12m wide and encloses an area of around 16.75ha, making it the second largest hilltop fort in Scotland after Eildon Hill North in the Scottish Borders. The lower fort rampart has been substantially affected by stone robbing, though the majority of its perimeter can still be traced on the ground, in aerial photographs

Illus 4.4
GIS Skyview analysis derived from LiDAR data of Tap o' Noth revealing the hundreds of house platforms within the lower fort

and through LiDAR and photogrammetry survey (Illus 4.2 and 4.4). This has identified approximately ten gaps or entrances but it is likely that some may not be original (RCAHMS 2007: 105). The RCAHMS (2007: 104), and later Ralston and Watt (1981, 1982, 1983), recorded hundreds of hut platforms within this lower enclosure and aerial mapping suggests the existence of many more (see below). The RCAHMS also recorded a number of short stretches of track which may have serviced the clusters of small circular house platforms contained within the lower rampart.

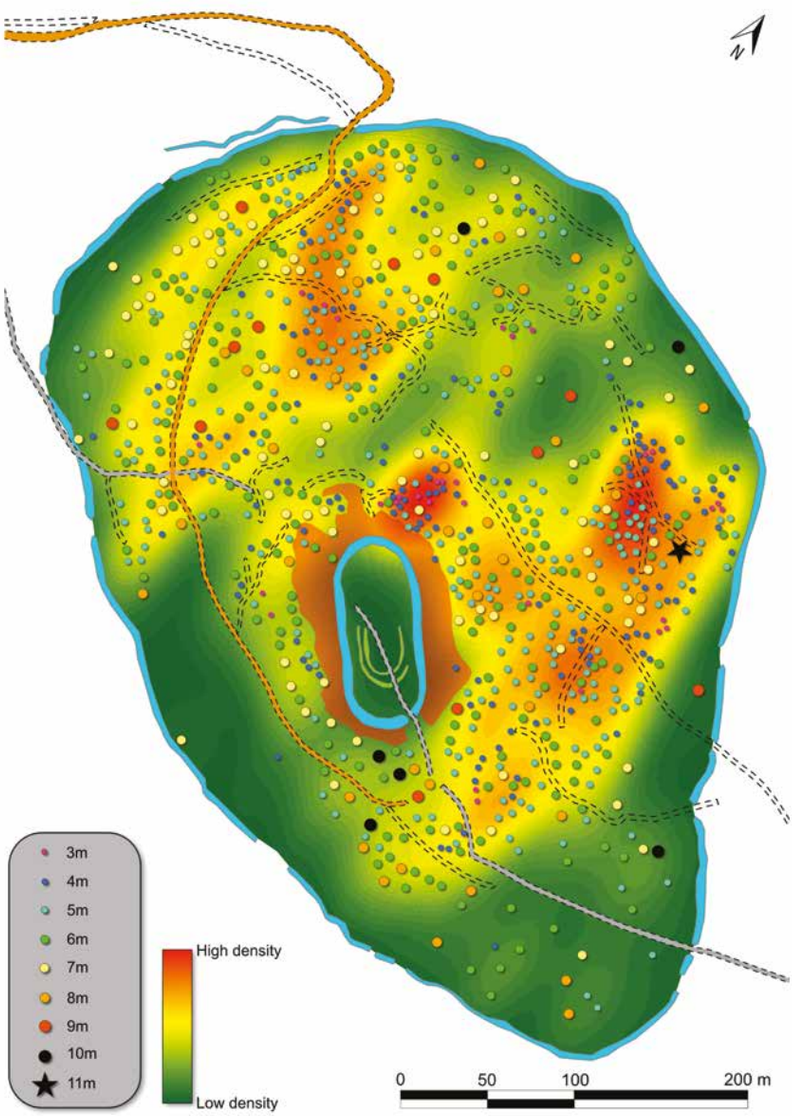
From an early date, Tap o' Noth has attracted the attention of numerous antiquarians and archaeologists. As early as the 18th century, scholars were writing about the vitrification of the oblong fort; Douglas (1782: 196–7), for example, disregarding the commonly held belief that the oblong fort was 'the mouth of a volcano', described the site as being 'constructed of stones vitrified by the force of fire, of which kind many have been lately discovered in Scotland'. By the middle of the 19th century, antiquarians such as Hibbert (1857: 295–7) and MacLagan (1875: 51) had recorded the state of the oblong fort in some detail, with Hibbert (1857: 296) possibly describing the lower fort, stating how 'some observers' had traced the extent of some 'trenches' around the 'whole compass of the mountain'. In the 1880s, James Macdonald (1891: 35–52) spent a single season investigating the massive wall of the oblong fort, testing possible internal features and preparing the first measured drawings of the site with the aid of his nephew who was an architect. Macdonald excavated two sections through the wall, noting on the eastern side that larger stones at the base were overlain by smaller loose stones, with no evidence for vitrification. Here, the original wall measured approximately 6.1m wide at the base and 3.7m in height. Macdonald's second section was located on the western side, where vitrification is more apparent. Here he noted a very similar structure and composition to the wall in the east. Macdonald (1891: 38) concluded that the vitrification process was not a practical or structural design and instead may have been an incidental consequence of frequent 'beacon fires'.

In addition to the fort's wall, Macdonald (1891: 45–7) also identified stretches of walling in the interior which he interpreted as dwellings. Here, he describes the walls as being 0.9–1.2m thick and 0.6m high on the east side (less certainly on the west side). These could well have been parts of the U-shaped banks in the interior which would not be identified again until the 1990s (Dunwell & Strachan 1997). Macdonald also explored the 'well' (more properly a cistern) shaft, where he recorded a layer of moss about 0.75m below the surface which overlay 'a considerable bed of clay'. Once the clay was removed, all the surface water which had collected disappeared. No obvious masonry or other structural features were associated with the cistern, and it appeared to comprise a simple rock-cut shaft some 2.4m in diameter which narrowed towards the base.

By the time Kilbride-Jones (1935: 448–9) had published his report on the stray finds around Tap o' Noth, some of the house platforms surrounding the lower slopes of the oblong fort had been identified. Subsequent visits, particularly by Ralston and Watt (1981, 1982, 1983) in the early 1980s, recorded a total of 234 possible examples. In the late 20th century, visits by Dunwell and Strachan (1997) recorded possible settlement features within the oblong fort and identified the two U-shaped banks, along with two possible hut-circles in the fort's interior. RCAHMS (2007: 104) completed a detailed earthwork survey in 1999 and suggested these U-shaped banks were part of the circular/oval enclosing walls of an earlier fort that enclosed a roundhouse. The 20th century witnessed a number of excavations on oblong forts in Scotland, with archaeological intervention at sites such as Finavon and Clatchard Craig (Childe 1935, 1936; MacKie 1966a, 1967; Small & Cottam 1972); however, Tap o' Noth remained uninvestigated by excavation in the modern period. There have been a number of attempts to date vitrified forts using alternatives to radiocarbon such as archaeomagnetic and thermoluminescence dating techniques during the later 20th century (Sanderson et al 1988: 315, table 3; Gentles 1993) (Chapter 9). The latter were both utilised at Tap o' Noth, producing Bronze Age and early medieval determinations for the vitrified wall (Sanderson et al 1988: 315, table 3), neither of which match the current radiocarbon chronology (Chapter 8).

4.3 LiDAR survey and conditions prior to excavation

In 2015, a LiDAR survey was commissioned by Aberdeenshire Council Archaeology Service, Forestry Commission Scotland and the University of Aberdeen which focused on Tap o' Noth and the Upper Strathbogie valley centred on Rhynie. An area approximately 5km north/south by 3.5km east/west, incorporating Tap o' Noth at the northern edge and Cairn More on the south-east, was surveyed at 0.5m resolution (Illus 4.4). A series of photogrammetry derived models were also produced as part of the Leverhulme-funded Comparative Kingship project. Both the LiDAR and photogrammetry surveys suggested that the number of house platforms previously recorded on the hill had been significantly underestimated. These surveys identified hundreds more potential examples, with up to 808 candidates recorded. The house platforms were shown to cluster in groups, with individual platforms measuring around 3–11m in diameter within the lower fort (Illus 4.2 and 4.5). The platforms comprised level terraces partially cut into the natural slope of the hill, some of which occupy long curvilinear terraces up to 250m in length that may have been altered to prepare parts of the hillslope for habitation. Other house platforms occur in curvilinear patterns which follow the contours of the hill or line the routes of a series of trackways. Some of these trackways had been identified in the earlier RCAHMS survey and were clarified in the LiDAR and photogrammetry surveys.



Illus 4.5
Analysis of LiDAR and photogrammetry data, showing the size and density of the house platforms

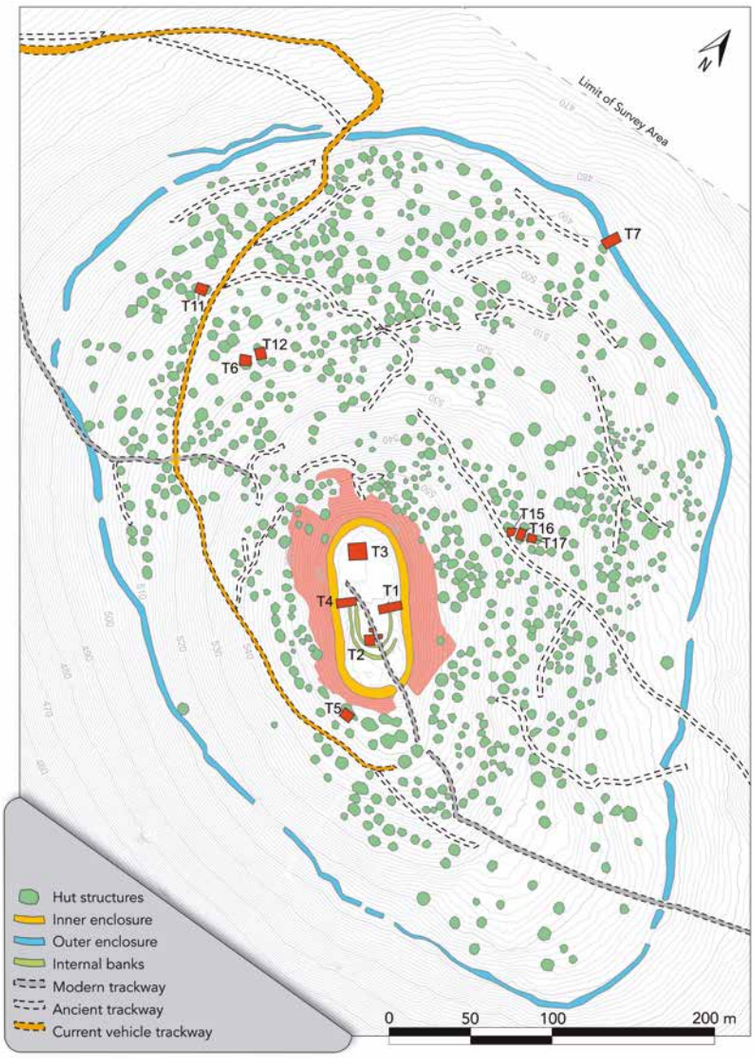
The house platforms display two clear concentrations. The first are located on the north-eastern side of the hill, surrounding the oblong fort and extending downslope to the outer rampart; the second is a major grouping concentrated on the western side of the lower fort (Illus 4.5). Areas where few platforms were recorded are also noted, principally on the eastern edge of the fort and on its steepest slopes. The more level terrain found at the east meant that any terracing, if present, was likely to be less extensive and with higher vegetation growth today less visible in any survey results. As such, further structures may be present in these areas but are likely more difficult to detect from surface traces alone. Conversely, the steepest parts of the fort – in the area abutting the oblong fort immediately to the north and north-west, and on the southern part of the interior – were largely devoid of structures and this is likely to represent a real absence due to the impracticalities of construction on such a gradient.

The most common-sized house platforms are between 4m and 8m in diameter, though erosion has undoubtedly reduced the size of these features. Larger examples (up to 11m in diameter) are spread throughout the interior but are much less common and are often found at the edge of groups of platforms (Table 4.1). The presence and rarity of these may indicate some form of hierarchical organisation to the settlement. With regards to chronology, from the survey results alone, the fact that a limited number of platforms are dug into the scree of the collapsed oblong fort is a good pointer that at least some of the house platforms are of a later date than the vitrified fort. Dunwell and Strachan (1997) and the RCAHMS (2007: 104) both recorded potential hut-circles within the interior of the oblong fort but the LiDAR and photogrammetry surveys failed to identify these.

With regards to the lower fort rampart, the LiDAR and photogrammetry surveys have added further detail to previous interpretations and plans. Whilst as many as 17 gaps were evident in the enclosing elements of the lower fort, only three are used by trackways which appear to be pre-modern (Illus 4.2 and 4.5). Two of these are located within 35m of one another, suggesting that consolidating and limiting the number of entrances may not have been an original design feature. This implies that a large proportion of the remaining gaps could also be original but excavation is required to clarify this point. The present vehicle track which climbs the southern side of the hill may follow the line of an original trackway, as a large number of house platforms appear to respect its route. Indeed, where the track penetrates the enclosing elements on the north-western side, an older track separates from the modern and extends downhill on a steeper incline before it is again truncated by the more recent trackway.

Diameter of Platform	Number of Platforms
3m	30
4m	147
5m	270
6m	219
7m	87
8m	36
9m	12
10m	6
11m	1

Table 4.1
Platform size and numbers



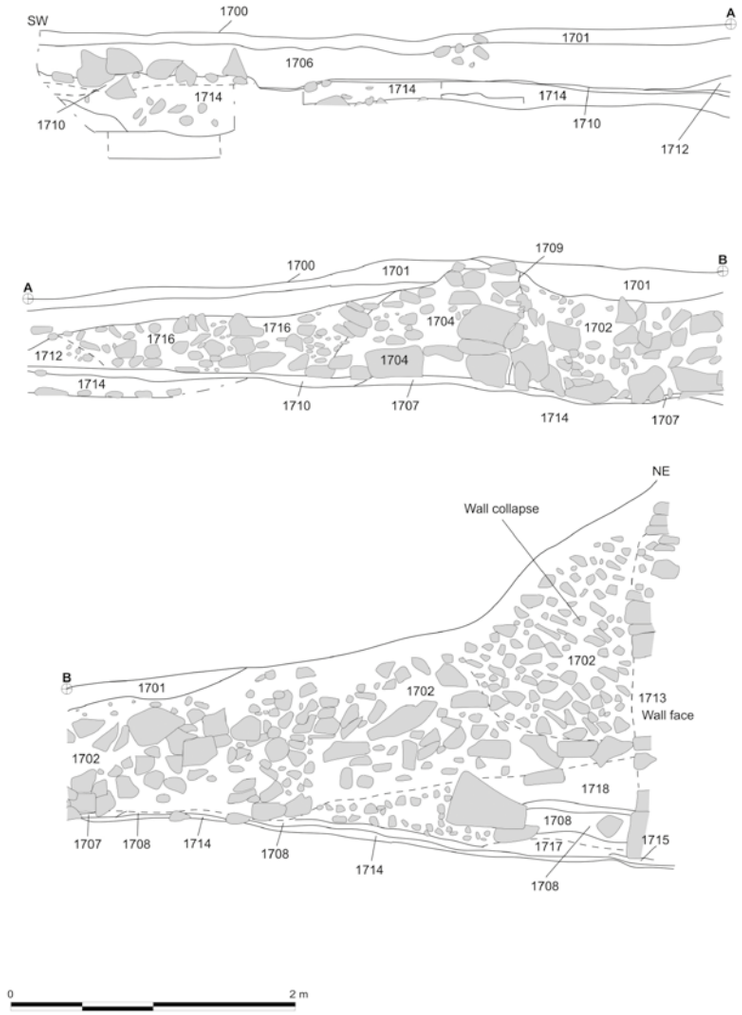
Illus 4.6
All trenches 2017–22 plan

4.4 Excavations 2017–22

The LiDAR and photogrammetry surveys provided an excellent basis for targeting features at the site and excavations from 2017–22 investigated all of the major elements of the Tap o' Noth hillforts, including the rampart of the oblong fort, the U-shaped banks and interior deposits of the summit fort, as well as the rampart of the lower fort and a range of house platforms selected to represent a sample of different topographical positions within the fort (Illus 4.6). In 2017, a single trench was excavated inside the oblong fort abutting the rampart to evaluate the complexity of the site, to test the logistics needed for future seasons and to obtain a basic chronology for interior occupation (Illus 4.7). The programme moved into a more invasive investigation of the oblong fort interior in 2018, focusing on another section of the inner wall face, possible

Illus 4.7
Excavations in progress at Trench 1 (2017), inside the oblong fort at Tap o' Noth

Illus 4.8
Post-excavation plan of Trench 1 showing the wall face (1713) and inner U-shaped bank (1704)



Illus 4.9
South-east facing section of Trench 1 split into three parts: wall face (1713) below and deposits extending into the interior – mid and upper image. The large stones to the left of 1708 are likely to be from the collapse of the wall face

settlement features in the interior and the cistern previously excavated by Macdonald. The subsequent seasons targeted the larger outer fort and a sample of house platforms (Illus 4.6).

4.5 The upper vitrified oblong fort

4.5.1 Natural peat/old ground surface(s)

The earliest material encountered during excavation within the oblong fort were thin layers of natural peat. This consisted of a dark black-brown clayey peat with frequent interlocked stone or bedrock jutting through. In places, this peat layer was found to overlie a yellow-orange-brown boulder clay. On occasion, such as near the wall face in Trench 1, a thin lens of blackish-brown peaty silt (1707) containing charcoal was found overlying the natural peat horizon. This deposit may represent an episode of ground clearance prior to the construction of the fort.

4.5.2 North-east rampart

In 2017, a single rectangular trench (Trench 1) measuring 15m x 5m was excavated against the north-east rampart of the oblong fort (Illus 4.7 and 4.8). The trench was positioned to allow exploration of the wall collapse, the inner wall face and part of the interior. The basal deposit comprised a peat layer (1714) which extended under the wall face, where it was only a few centimetres in depth. It was found intermittently into the interior, but in general thickened towards the centre of the fort (Illus 4.9). This is likely to have been the original ground surface encountered by the fort builders. A thin lens of brown soil with charcoal inclusions (1715) also extended beneath the wall, but did not extend into the interior. An area *c* 3m wide was excavated against the wall face but only a small fragment of the wall face survived intact (Illus 4.10). The surviving wall face section (1713) stood just over a metre high and was composed of heat-shattered stones. The vitrification process in this part of the site had clearly been so catastrophic that the individual stones were cracked into many pieces and the wall face was extremely fragile. While there were places where drops of vitrified material adhered to the stones, there was no sign of the mass vitrification present in other parts of the oblong fort, but excavation did not extend beyond the wall face where vitrification is likely to be concentrated. Small voids in the wall face may represent evidence for timber lacing but the destruction was so severe

Illus 4.10
The small section of brittle, heat-affected wall face surviving within Trench 1 (to the left of the upright ranging rod and above the horizontal ranging rod)

that any pattern to the putative timber slots was not identifiable. The wall face held back a core of much smaller angular stones. The basal courses of the wall face were found in situ and did not appear to be heat affected. They measured up to 0.2m in height and 0.4m across, a likely indication of the original size of many of the facing stones.

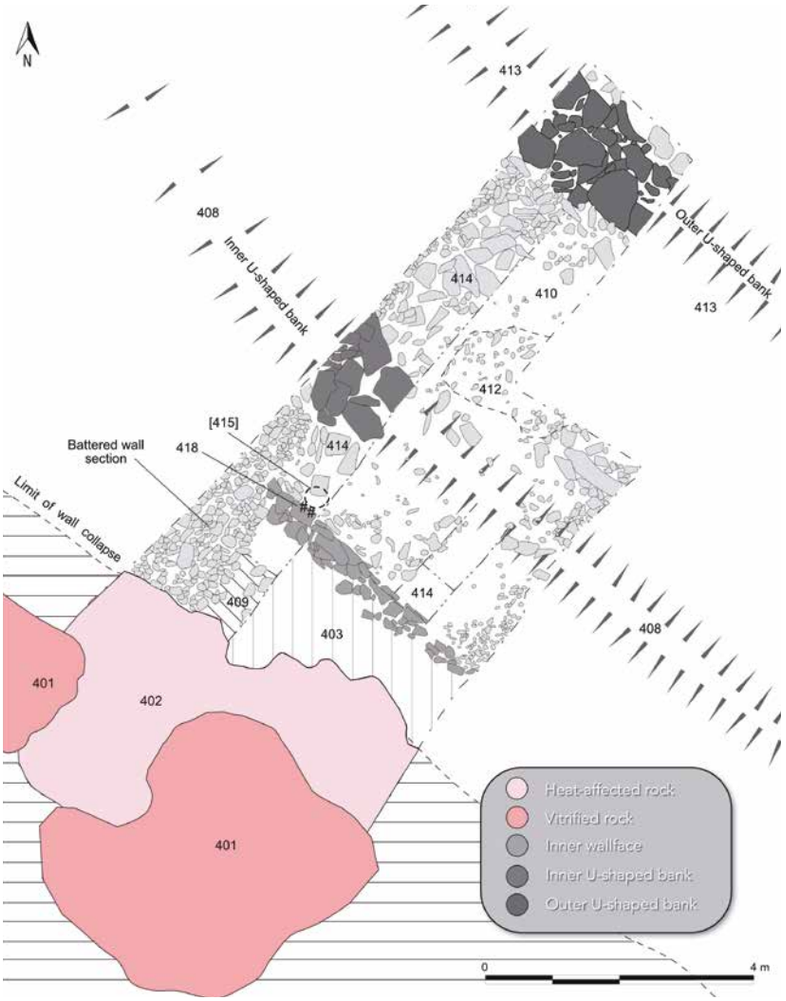
Abutting the basal stones of the inner wall face was a deposit of orange-brown, charcoal and bone-rich silty soil (1708) that extended around 4m into the interior. This layer was up to 0.2m deep and was roughly level with the interior topography, implying it had formed during the occupation of the fort and was not a product of the destruction or decay of the wall. It may therefore represent a midden deposit relating to the main occupation phase that built up during the use of the fort. Overlying this at the inner face was a layer of smaller angular stones with occasional larger stones (probably collapsed facing stones) mixed with soil (1718). This extended from the wall face for about 1m into the interior and could represent initial slump or the slow accumulation of detritus following abandonment. A more substantial layer of voided angular rubble (1702) overlay this deposit, reflecting a more catastrophic collapse event. The uppermost part of (1702) was made up of relatively small stones possibly wall core material that had slumped out after the larger facing stones had fallen away.

Towards the interior, in the south-west end of the trench, there were few indications of occupation or activity. Covering around 6m of the south-west end of the trench was a spread of stones/cobbles (1706) which were tightly packed but formed no clear structure or purpose. They appeared to abut the south-west edge of the internal U-shaped bank, which could imply they were formed later, but this relationship was unclear due to the disturbance of these deposits by a modern bowl-shaped pit [1705] which measured *c* 1.0m x 1.2m and 0.3m deep and contained a voided rubble fill of stones. A modern coin dated 1990 was found at the base. Under (1706) was a reddish-brown loamy layer (1712) that may have been a surviving fragment of an old ground surface. Both (1706) and (1712) were truncated by pit [1705].

4.5.3 South-west rampart (406)

In 2018, Trench 4 (11m by 5m) was positioned against the inner side of the oblong fort rampart on the south-west side (Illus 4.11 and 4.12). In this trench, the inner wall face survived to a height of five courses, constructed of flat slabs of metamorphosed sandstone – a stone type which makes up the vast majority of the rampart and one that can be found outcropping on the hill (Illus 4.13). Three sub-rectangular transverse beam slots for timber lacing were also identified, two of which were found on the eastern side of the trench. Beam slot (419) measured 0.15m high and 0.18m wide and was separated from the lower beam slot (421)

Illus 4.11
Overhead view of excavations in progress at Trench 4, inside the oblong fort. The wall face and vitrified masses are evident on the left of the image, with the two U-shaped banks visible to the right

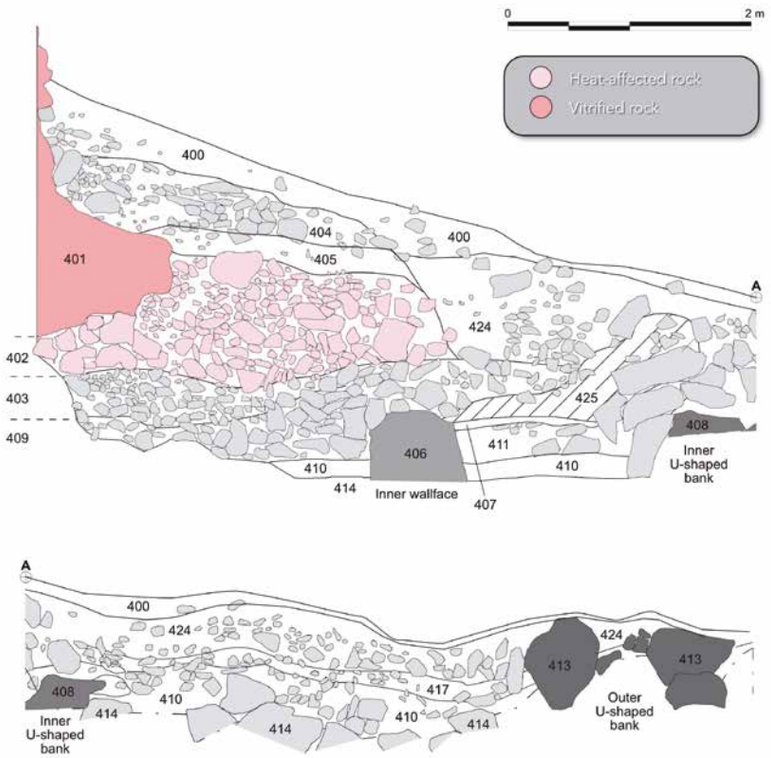


Illus 4.12
Post-excavation plan of Trench 4 showing the mass of vitrified and heat-affected rock within the core of the oblong fort rampart

Illus 4.13
The wall face of metamorphosed sandstone and one of the beam slots in Trench 4

(measuring 0.26m wide and 0.21m high) by a single course of stone. This lower beam would have sat directly on the natural peat/old ground surface. A third beam slot (423) measured 0.33m wide by 0.17m high and was located approximately 1.35m west of the other examples. The slots were filled with a loose, mid-brown sandy silt with degraded charcoal fragments and small bits of burnt bone within the fill.

The bulk of the exposed wall core comprised a series of rubble layers (Illus 4.14), many of which had been affected by the large-scale collapse and destruction of the wall. The lowest wall core layer consisted of voided medium to large stones (409) with a matrix of mid-brown sandy clay, delimited on the northern side by the wall face (406). This material was not heat affected and lay directly on the natural peat (410). Within the wall and overlying (409) was a deposit of small, angular, reddened heat-shattered stone (403) intermixed with a loose, light brown silt. This layer contained some vitrified material closer to the wall face. Deposit (403) lay underneath a thin layer of collapsed partially vitrified stone (402), over which was a mass of vitrified stone (401) within the former core of the rampart. This comprised medium to large heat-reddened stones fused together with no obvious structure, forming a vitrified mass measuring approximately 2.1m high and extending for at least 1.3m into the core of the wall. The upper sections of the vitrified stone in (401) seemed to be more fused, with less obvious indications of individual stones. Over the core of the rampart, a thin layer of mid-brown silty clay (405) may



Illus 4.14
South-east facing section of Trench 4 split into two parts: wall face above and deposits extending into the interior below

represent regeneration of a topsoil after the abandonment of the fort and partial collapse of the wall. This layer abutted (401) and sat directly on top of wall core (402). Over this probable old ground surface was a layer of relatively recent wall collapse (404). It comprised medium to large stones that were not fire-reddened. A layer of collapsed small to medium stone was evident over the majority of the trench (424) intermixed with a moderately compacted mid-brown sandy silt. Finally, overlying the trench was a thin silty topsoil (400) that contained modern glass and pottery.

4.5.4 Structure against the wall face

Between the south-western wall face and the inner U-shaped bank (408), and directly overlying the natural peat in Trench 4, was a distinct compact light blue clay layer (411) with frequent charcoal fragments (Illus 4.15). The clay deposit was approximately 0.18–0.38m in thickness and extended beyond the limits of the trench to the east and west. It was delimited on its southern side by the wall face of the oblong fort and extended for 1.5m towards the U-shaped bank (408). A similar clay (425) was found overlying bank (408), though this may relate to material disturbed during the construction of that feature (see below). Clay deposit (411) had multiple lenses of clay and charcoal and may represent a number of floor layers built up over time.

A small oval feature [415], possibly a post hole, with a steep-sided U-shaped cut was identified at the top of clay deposit (411), abutting the inner face of the fort wall (406) (Illus 4.16). This feature measured 0.35m x 0.30m and was 0.20m deep, and had a stone at its base which sat on natural peat. Its fill comprised a light bluish-brown clayey silt (416) that showed signs of having been heat affected towards the edges of the feature, suggesting that a post may have been burnt in situ. Next to this post hole was a small deposit of charred timber with the appearance of wicker-work (418) extending along the wall face to the east. A deposit of dark-brown silty clay (407), 0.05–0.15m in thickness with frequent amounts of charcoal, some fragments of animal bone and moderate amounts of stone, overlay deposit (411) (Illus 4.14). This layer extended beyond the limits of the trench to the north-west and south-east, but was defined on its south-western side by the inner face of the fort wall (406), and may have been truncated by the inner bank (408) on the north-east side. This deposit could represent a destruction layer associated with the burning of the last phase of a building with a clay floor and a wicker- and post-defined superstructure built up against the rampart wall face. Between the inner (408) and outer (413) U-shaped banks, a thin deposit of mid-brown silty sand mixed with small to medium stones and occasional flecks of charcoal (417) was recorded. This deposit may also be associated with the destruction of the fort or it may be a continuation of the occupation deposits represented by (411).

Illus 4.15
Blue clay deposit (411) in south-east facing section of Trench 4 rising up over the inner U-shaped bank

Illus 4.16
Small oval post hole [415] cut into the upper levels of the blue clay floor (411) in Trench 4

4.5.5 U-shaped banks/walls

The two U-shaped banks present in the interior of the oblong fort were investigated in Trenches 1, 2 and 4 during the 2017 and 2018 field seasons (Illus 4.8 and 4.12). As noted earlier, these banks had been interpreted by the RCAHMS as part of an earlier fort on the summit (2008: 105). However, Trench 4 provided tentative evidence that at least the outermost bank (408) had been inserted after

the oblong fort or at least the structure built up against the wall. The inner U-shaped bank (408) was located 2m to the north-east of the inner face of the oblong fort, running more or less parallel to its line. It comprised a 1.1m wide linear deposit of stone intermixed with a light brown-grey silty clay, with large angular stones forming the bank's core. Large pieces of charcoal were also recovered from the core. Overlying the bank (408) on its southern side was a deposit of blue clay (425) similar to that found in floor (411). Considering this 'capping' was inconsistent and visible only to the south (and its similar composition to (411)), it seems likely that during the construction of bank (408) the floor of the structure built up against the wall of the oblong fort had been truncated with the blue clay (411) reused as a capping. This suggests the bank was secondary to the earlier occupation of the fort (floor 411) that was built up against the wall face. Around Trench 1, the outermost bank was difficult to identify on the ground and within the trench its line was difficult to disentangle from wall collapse. However, the foundation of the bank may be represented by a small deposit of grey-brown silty clay (1717) that extended from the north-west baulk across the trench and measured up to 0.9m wide and 0.2m deep.

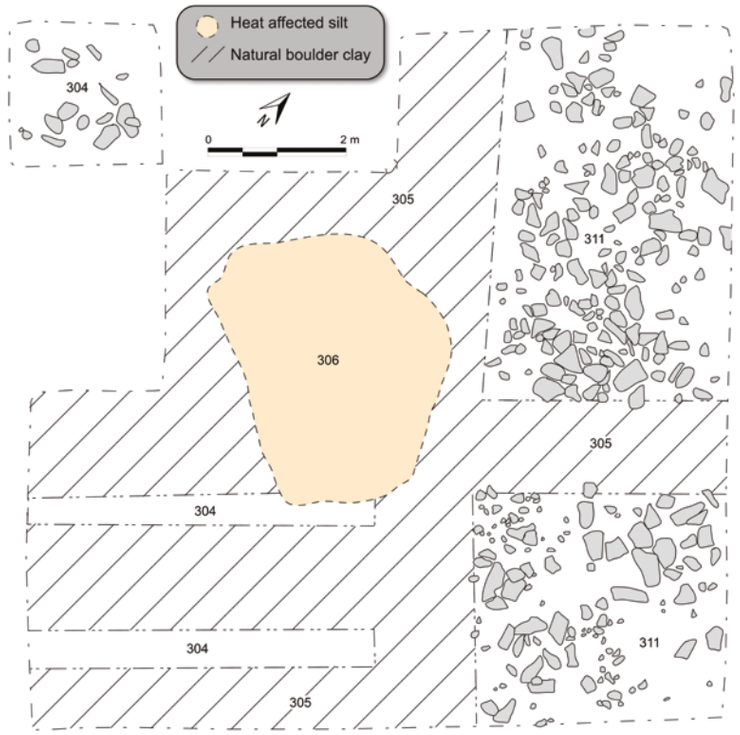
The inner bank was identified in Trenches 1, 2 and 4. The best-preserved section was found in Trench 4 (413), where it ran parallel to the outermost bank (408) (Illus 4.11 and 4.12). The bank (413) was located around 6.5m from the inner wall face and comprised small to medium boulders sitting directly on the natural peat. The stones had a matrix of light brown sandy silt with no obvious charcoal. The bank measured around 1.7m wide and up to by 0.45m in height. The feature was of similar character in Trench 1 (1704), again sitting directly on the natural peat, though here it was overlain by tumbled stone from the collapse of the oblong fort wall. Although there was no clear stratigraphic evidence, the occurrence of small pieces of vitrified stone within the upper layers of the bank (1704) suggests it may post-date the destruction of the oblong fort. Only the very edge of the inner U-shaped bank (215) was exposed in Trench 2, where it was revealed in plan and not excavated.

4.5.6 The central areas of the oblong fort

Two trenches were excavated in 2018 to investigate the central areas of the interior of the oblong fort. Trench 3 measured 10m x 10m and was placed in the north-western part of the interior on a raised area of ground (Illus 4.17). Trench 2 measured 6m x 5m, with two small extensions to the north-west (3m x 2m) and to the north-east (2m x 2m) and was opened to investigate a hollow identified as the well (Illus 4.18 and 4.19).

Trench 3 showed little in the way of obvious activity. One of the few areas of interest was a thin 0.05m spread of reddish-brown heat-affected silt (306) with some charcoal inclusions and fragments of animal bone. This lay directly over the natural peat and was spread over an area around 2m by 2m. Overlying this was a layer of tumbled stone (311) evident across the entire trench. This stone deposit did not form any obvious structural feature but could perhaps be related to material from the construction phase of the wall, later collapse of the wall or even material moved around in more recent times.

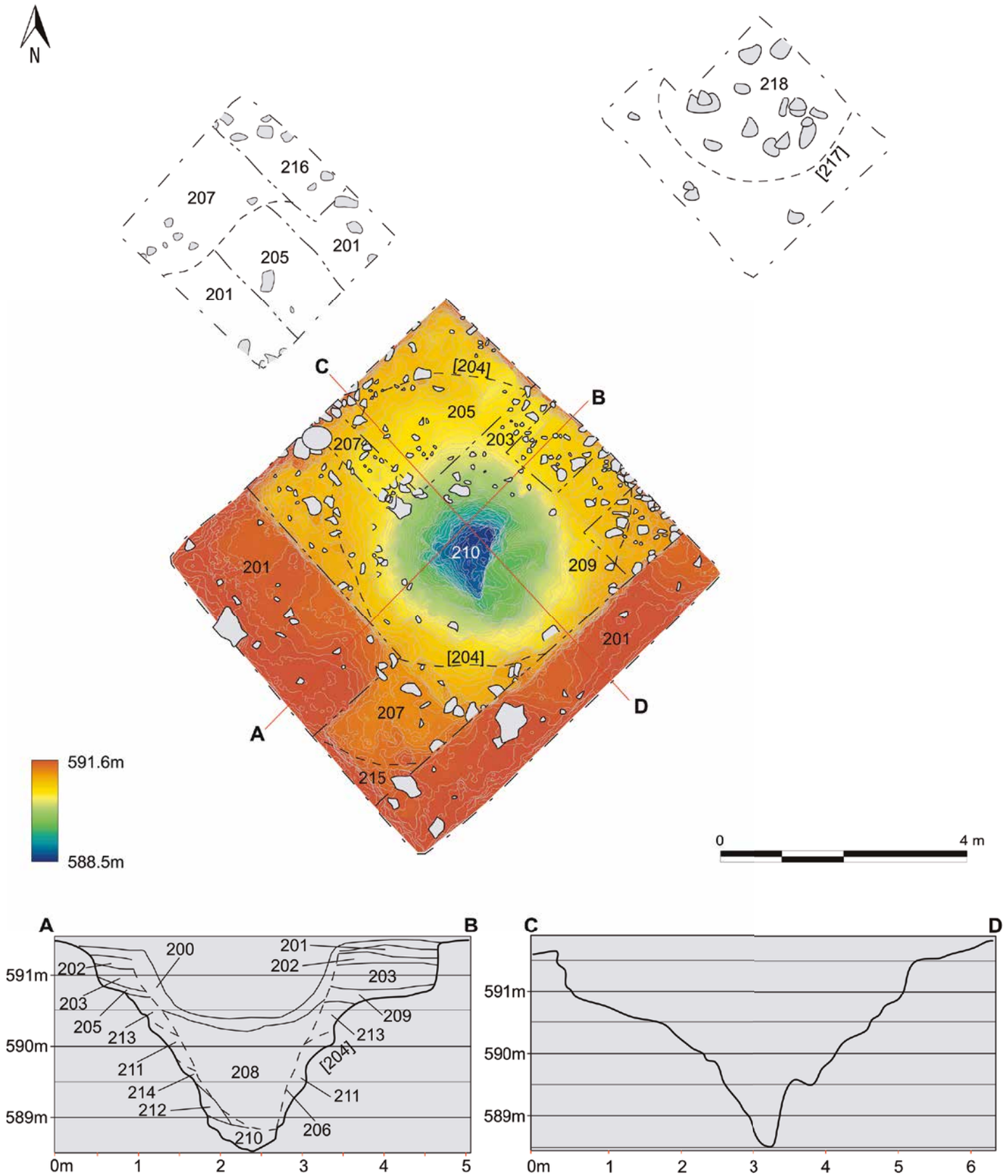
Trench 2 had more in the way of obviously in situ deposits, with the main feature being the cistern shaft [204] investigated by



Illus 4.17
Post-excavation plan of Trench 3, within the oblong fort at the north-west

Macdonald (Illus 4.18). The upper cut was sub-circular in plan, measuring approximately 4.0m x 3.1m, with gradual sloping sides at the top that steepened close to vertical towards the base (see profiles on Illus 4.18). It measured 1.7m deep from the present ground surface and cut through the natural peat (216), subsoil (207) and bedrock. Although extensively disturbed by the antiquarian investigations,

Illus 4.19
Oblique aerial photograph of the cistern, looking west. The intact upper fills can be seen adhering to the edge of the shaft



Illus 4.18
Above: post-excavation plan of Trench 2, the cistern within the oblong fort. Below: profiles of the cistern shaft with context numbers of the various fills indicated

some deposits were found in situ. Macdonald's team had excavated a trench measuring approximately 3m x 3m at the top of the cistern that tapered towards a narrow bottom at the base. The antiquarian trench had left parts of the basal deposits and material overlying natural on the sides of the shaft in situ. It was backfilled with a largely homogenous grey-brown silt with 19th-century ceramics and glass throughout. The backfill also contained several large angular stones that required ropes to remove.

Around 0.1m of the basal fill (210) of the cistern remained intact (Illus 4.18). This was waterlogged and included well-preserved twigs of birch and abundant amounts of charcoal covering an area around 1m across. Elements of the fill on the side of the cistern also survived, along with deposits around the lip of the cut. These latter deposits appear to represent successive layers of clay lining that had built up during the original construction, use and perhaps repair of the cistern, or may simply reflect remnants of more extensive fills left in place by Macdonald's labourers. They consisted of a lower dark grey, loose clayey silt (212) measuring 0.04m thick surviving on the southern side of the cut that was overlain by a hard yellow clay (214) forming a 0.03m thick lining. On the upper edges of the cistern (Illus 4.18) there were remnants of a dark-brown clay (211), and a more compact yellow clay (213) 0.03m thick, that represented the uppermost surviving cistern deposits (Illus 4.19). Some elements of original in situ deposits (205/209) were also evident as charcoal-rich accumulations on the upper lip of the north and west side of the cut. Overlying these charcoal-rich deposits was a substantial overburden that included a layer of yellow clay which may have been redeposited from the 19th century excavation.

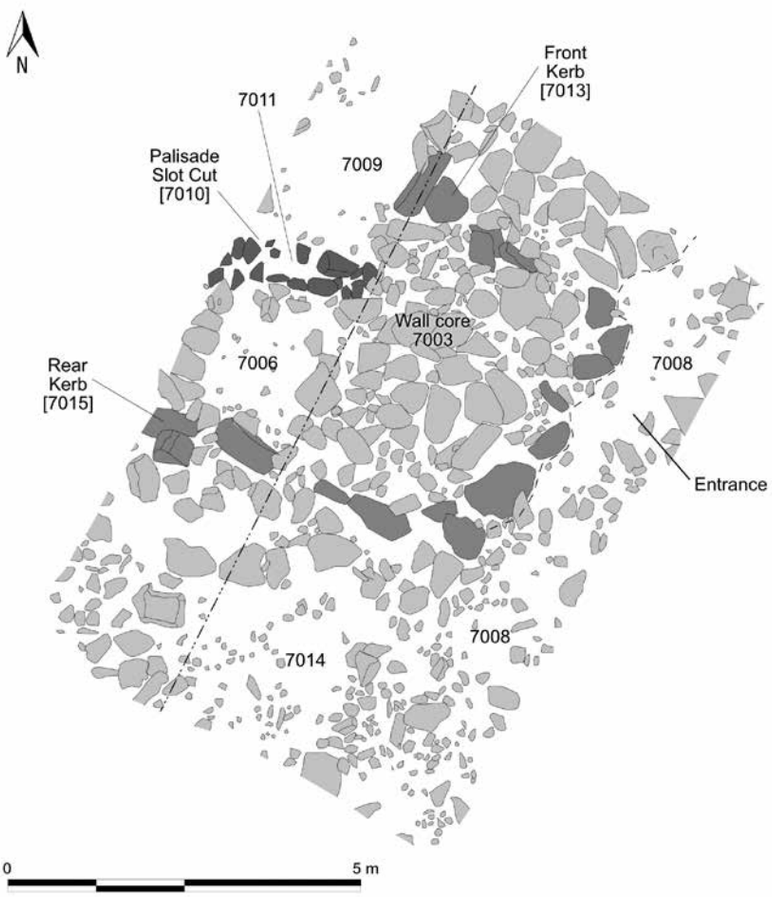
In the two extensions to Trench 2, additional features and deposits were identified (Illus 4.18). In the north-east extension, a sub-circular feature [217] cut into the natural boulder clay (207) that measured *c* 2m in diameter and extended beyond the limits of the trench to the north-east. A small 0.4m x 0.5m sondage at the western edge of this feature revealed a silty, blackish-brown peaty fill (218). It appeared to represent a significant feature that was at least 0.4m in depth and it could have been the edge of another cistern or a very large pit. In the north-west extension, natural peat (207) was encountered at a depth of 0.35m underlying a layer of yellow-brown clayey silt (201/205). Deposit (201/205) extended towards the cistern shaft and may represent material from the original digging out of the cistern.

4.6 The lower fort enclosures and platforms

4.6.1 Lower rampart

In 2019, Trench 7 was excavated across the rampart of the lower fort, targeting one of the possible entranceways on the north side of the hill (Illus 4.20 and 4.21). The trench covered the western rampart terminal and confirmed it as a probable original feature. This entrance based on surface traces measures around 4m wide. Within the trench small angular stones appeared to form a rough surface (7008), though no associated structural features such as post holes relating to a gate were identified. The underlying natural subsoil (7009) in this area consisted of a layer of frequent, loose, small angular stones within a bright orange-brown sandy clay with small patches of dark peaty material.

Illus 4.20
Excavations in progress in Trench 7, at one of the entrances to the large outer fort. The scale lies downslope with the entrance to the right



Illus 4.21
Post-excavation plan of Trench 7 of the outer fort

Illus 4.22
North-west facing section of Trench 7 across the rampart of the lower fort

The rampart of the lower fort (7003) consisted of a deposit of mixed angular and sub-rounded stones some of massive proportions (Illus 4.21). At the back of the rampart was a line of large boulders approximately 1.0m by 0.6m that formed a basal course of a wall face or an irregular 'kerb' (7015) into which the irregular boulder core had been piled. Edging the terminal in the entrance passage and along the front of the rampart, a line of medium-sized upright stones (7013) *c* 0.6m x 0.4m, some of which had slumped forwards, formed a similar footing of a wall face or 'kerb' on this side of the rampart. Set upslope from the outer wall edge, and first identified under the core of the rampart, the line of a palisade slot [7010] ran roughly east/west (Illus 4.21, 4.22 and 4.23). The upper cut of this slot was 0.8m wide, narrowing to 0.3m at the base, with a sub-rectangular profile cut into the underlying subsoil. At the centre of the palisade slot was a deposit of collapsed stone and a grey-brown silty material with charcoal flecks (7011) that extended in a band 0.4m wide and 0.3m deep. A 0.1m thick basal deposit of dark orange-brown clayey silt (7006) with frequent charcoal and occasional small flecks of burnt bone overlay the natural subsoil and was localised between the rampart inner wall line and the palisade slot (not evident in section). Overlying the palisade slot and forming the core of the rampart was a mixed deposit of angular and sub-rounded stones (7003). The stones ranged up to 0.5m in length, but there was no consistency in the size of the stones or their arrangement. In the upper levels of the deposit, the stones were notably more voided, giving the impression they had simply been dumped between the kerbs as an informal stone mound rather than forming collapse from a well-constructed wall. The lower levels of the rampart core had small patches of silty material (7004) intermixed with the stones. In section, the stones of the rampart core were notably smaller above the projected line of the palisade, implying that the palisade (or at least one phase of it) was contemporary with the rampart, though there could have been two phases to this given the radiocarbon results (Chapter 8), and the slight disjuncture between the lowest course of stone lining and stones lining the upper part of the palisade slot (Illus 4.22).

Upslope from the rampart, above/abutting the rear wall face, a series of deposits was identified (Illus 4.21 and 4.22). Although hard to define in the small area exposed within the trench, these were interpreted as successive occupation deposits. The lowest sat directly on subsoil and consisted of an orange-brown silt (7012) with frequent charcoal inclusions and occasional flat stones *c* 0.3m x 0.2m within this material, which could have formed a rough surface. This was delimited to the west by a line of larger stones, *c* 0.45–0.35m in size (not evident in section), which may have formed the base of a turf wall structure. Overlying (7012) was a charcoal-rich silt (7007) containing more obvious flat stones that again could have formed a paved surface. Deposits (7012) and (7007) covered the same area within the trench and may represent successive layers of

Illus 4.23
Pre-excavation photograph of the palisade slot in Trench 7. Palisade slot defined by upright stones to right of scale

occupation within a larger structure that extended beyond the limits of the trench to the west (Illus 4.22). To the east of the stones at the edge of this possible structure, another charcoal rich but distinctly different deposit of silt (7014) with frequent small angular stones extended 3–4m to the south (Illus 4.21). It covered the space between the structure and the entranceway and could represent a less well-preserved activity layer immediately within one of the entrances to the lower fort. Over all these layers in the southern portion of the trench was a claggy waterlogged silty clay deposit (7002) and a 0.15m thick topsoil (7001) comprising a silty peat. No topsoil was present over the majority of the bank material which was visible above ground as a spread of stone.

4.6.2 T5 Platform

Trench 5 was excavated in two stages (Illus 4.24 and 4.25). In 2019, a trench measuring 5m x 4m (Illus 4.25) was positioned to investigate one of the possible house platforms/quarry scoops within the lower fort, at the base of the scree slope just below the upper fort on the southern side of the hill. It successfully identified the westernmost remnants of a platform that had been created by redepositing subsoil and other angular stony material (5005) to create a level terrace measuring *c* 7m x 12m. The 2019 investigations were limited to revealing the floor (5002), which contained deposits of animal bone and a pottery sherd.

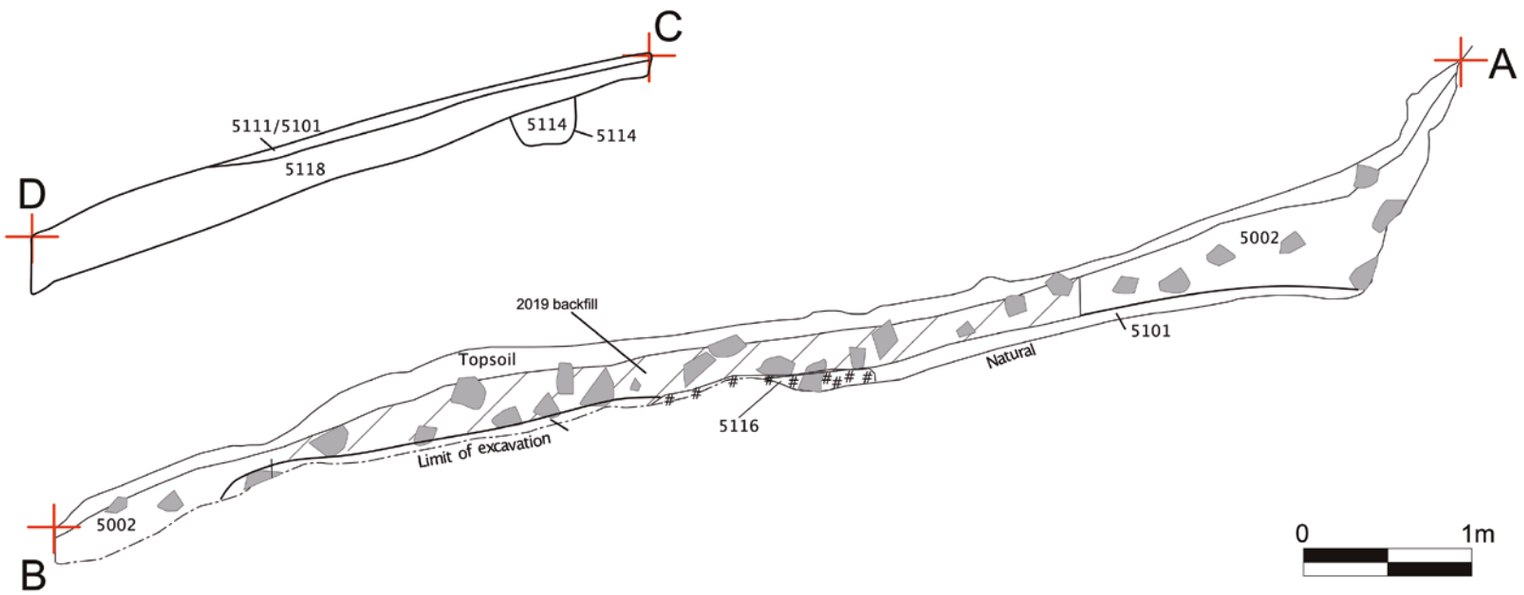
Illus 4.24
Drone image of platform T5 extension mid-excavation with south at the top of the picture. The baulk mid image is that shown on Illus 4.25

In May 2021, Trench 5 was re-established with a 5m x 8m extension located on the east of the 2019 trench (Illus 4.25). A hearth (5116) was revealed set centrally within the full extent of the floor layer (5101) of the T5 platform. The 2021 trench revealed that the structure was oval/sub-circular in plan measuring around 6.8m north/south by at least 8.5m east/west. The foundations for this had been created by digging into the hillslope (up to 1m depth at the upslope end of the trench) and spreading the quarried material downslope to create a near level platform. The northern extent of the floor was laid upon natural boulder clay subsoil, while the southern part was erected over a foundation comprising a mixed deposit (5118) of large quarried metamorphised sandstone interspersed with a yellow-brown to dark-brown silty clay soil. The foundation of the T5 platform was up to 0.4m deep at the southern end of the trench and was recorded through a 1m wide sondage dug to natural in the southern half of the trench (Illus 4.26). Around the north-eastern and southern sides of the platform were notable deposits of bright yellow-brown (5110) and grey-brown (5111) silty-loam that appear to have been the degraded remains of a turf outer wall. No such deposit was obvious on the northern side and it seems likely that the quarried hillslope to the north was utilised as the back wall of the structure. At the north-eastern limits of the trench, the edge of another platform (5117), consisting of a grey-brown silt very similar to the floor/turf layers of the main structure already described, was identified. This is likely to represent the floor of another house on the slope above.

The central hearth (5116) revealed in the Trench 5 extension consisted of an area of concentrated stone and charcoal with only one in situ kerb stone on its south side. The hearth deposits consisted of dark blackish-brown silt with heavy concentrations of charcoal and areas of orange-red clayey silt around its margins that provided evidence of in situ burning. The hearth formed part of the occupation deposit(s) on the platform which consisted of a thin floor layer (5101) of mid-brown clayey silt with frequent charcoal. The floor was up to 0.08m thick near the hearth but otherwise formed a thin deposit only a few centimetres deep across the platform. Pottery and metal finds were concentrated within the southern, downslope, side of the structure and included numerous sherds of hand-coiled pottery, including rim, body and base sherds, and two sherds of Late Roman amphorae (Chapter 7). The metal finds comprised a nail or fitting, a larger lump of iron and a fragment of a small copper-alloy projecting ring-headed pin.

Several cut features were identified around the hearth and on the north side of the structure, where they were easily recognisable due to being cut into the natural subsoil. The most obvious were three post holes – [5103], [5105] and [5107] – which were very similar in form and survived *c* 0.2m in diameter and 0.2–0.3m deep, containing a fine silt fill with abundant charcoal. These are considered likely to represent the remains of roof supports for the T5 platform structure. The much more mixed deposits occupying the foundation of the structure on its downslope side made it significantly harder to identify features here. However, a sondage in this area revealed a cut [5114] into natural representing a possible pit or post hole around 0.6m in diameter and 0.47m deep with a largely sterile, dark, loamy silt fill.

Illus 4.25
Plan of platform T5



Illus 4.26
East-facing section of western trench edge (A–B) of T5 and sondage (C–D) (as marked on Illus 4.25)

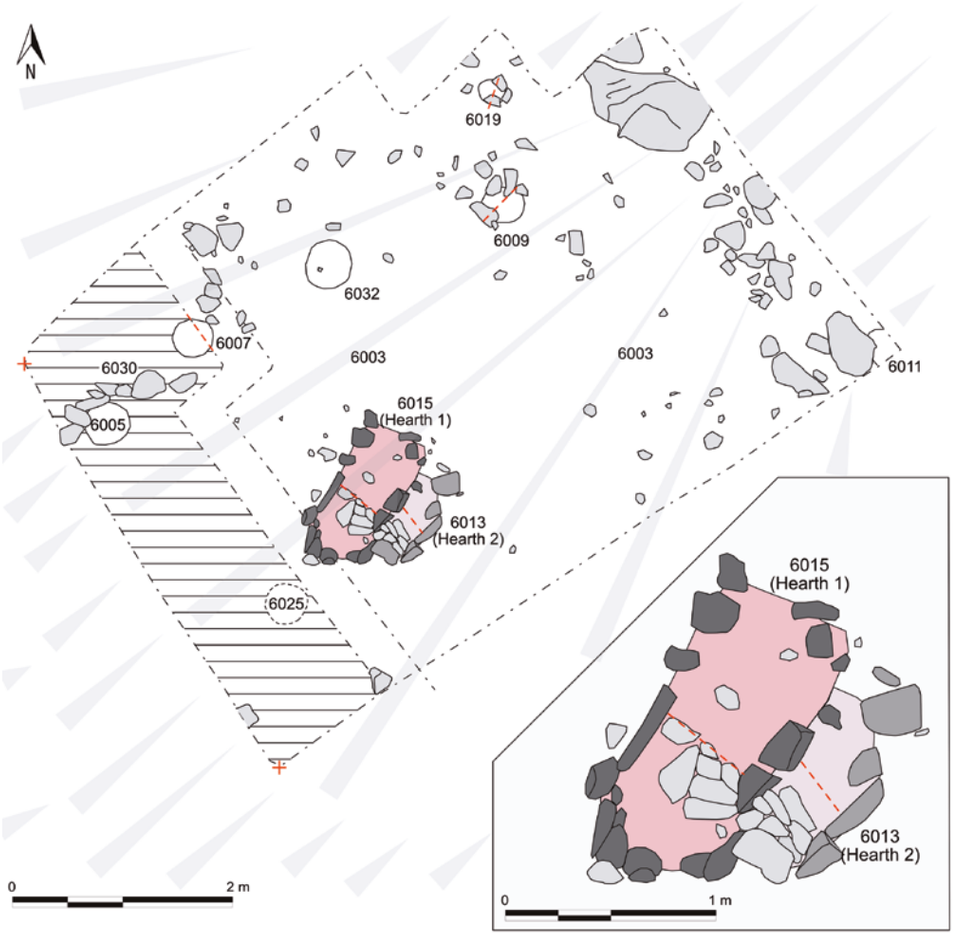
Illus 4.27
Post-excavation aerial photograph of T6 house platform – north-west is at the top of the image – Hearths 1 and 2 are evident in the image with sondage through the platform floors and foundation to the left (see illustration 4.29)

4.6.3 T6 Platform

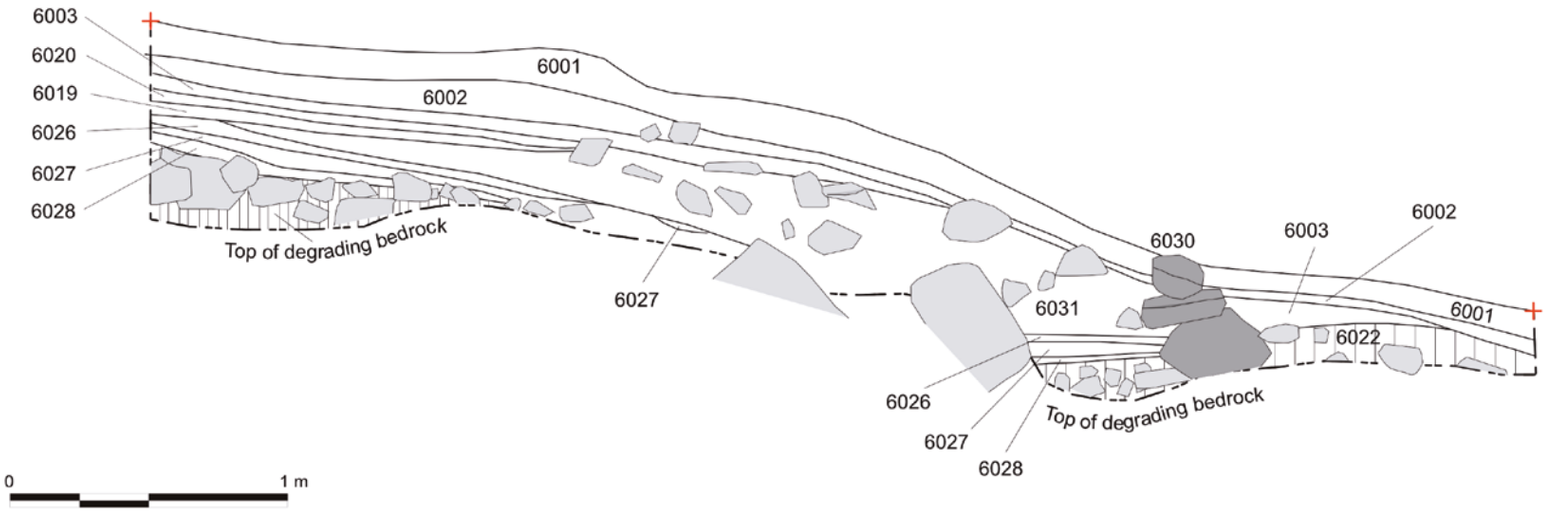
Trench 6 was established in 2019 to investigate a platform on the west-facing slope within the lower fort (Illus 4.27 and 4.28). As in T5, the T6 platform was constructed by cutting into the hillside and depositing the extracted material on the lower slopes to create a level surface. On the upslope, and downslope, bedrock was overlain by a series of occupation deposits – (6026), (6027) and (6028) (Illus 4.29). Above these layers was a substantial, stone-rich, deposit (6031) consisting of a greyish-brown gravelly silt with moderate amounts of small- to medium-sized angular stones and charcoal (Illus 4.29). This deposit had a maximum thickness of 0.38m and may represent later refurbishment of the platform or the collapse of some form of superstructure over the earlier floors. The termination of deposit (6031) downslope coincided with the position of a number of possible post holes – [6005], [6007], [6009], [6011] and [6019] – which may have demarcated the edge of this platform (Illus 4.28). The cuts for these post holes were difficult to define (see below) as their fills were similar to the deposit (6031). A number of sherds of Roman pottery was recovered around post hole [6005].

Two hearths [6015] (Hearth 1) and [6013] (Hearth 2) were identified at the centre of the circular platform (Illus 4.27 and 4.28). Hearth 1 [6015] was the larger of the two, measuring 1.44m long by 0.58m wide. It was defined by kerbstones and contained two distinct fills: the lower was charcoal-rich and ashy (6017) with occasional burnt bone and a series of heat-affected stones towards the base. The upper fill (6012) appears to have represented a refurbishment of the hearth with another layer of heat-affected stones covered by a charcoal-rich dark-brown silt with moderate amounts of small angular heat-affected stones and occasional burnt bone. A number of mould and crucible fragments were recovered from this upper fill (Chapter 7). The soils underneath this hearth were heat affected and oxidised. Hearth 2 measured 0.74m x 0.57m. Its fill (6014) comprised a charcoal-rich dark-brown silt with some burnt bone. This hearth was stone lined at its base, comprising thin slabs about 0.2m x 0.8m in size. A smaller assemblage of mould and/or crucible fragments was identified in the fill of Hearth 2. A small pit [6025] measuring 0.40m x 0.36m and 0.06m in depth was identified near the hearths; this was filled by a basal charcoal-rich lens (6024) and an upper orange-brown heavily oxidised fill (6023) (Illus 4.28).

A series of additional occupation layers were identified above (6031) which capped the early floor layers (Illus 4.29). These included (6019), which was only partially revealed on the upslope side of the trench as a thin 0.04m deposit of medium-brown sandy silt



Illus 4.28
Post-excavation plan of T6 house platform – sondage on left side (hatched), hearths 1 and 2 and post holes indicated



Illus 4.29
North-east facing section of T6 house platform

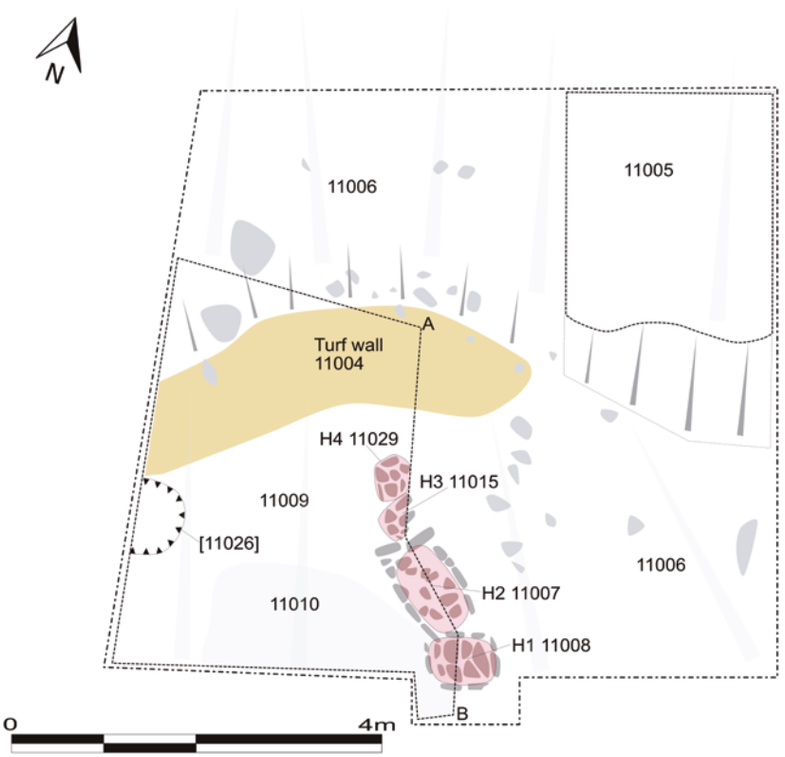
with charcoal. This lay beneath a medium-brown, 0.05m thick, sloping clay deposit (6020) which was again only identifiable in the upslope side of the trench. These were in turn positioned under later medium-brown deposits (6002) and (6003), that were up to 0.08m thick. These uppermost layers extended almost to the edge of the revetment (6031). The purpose of these layers is uncertain – they could represent midden layers from later activity from adjacent platforms rather than in situ late occupation of the T6 platform.

4.6.4 T11 platforms

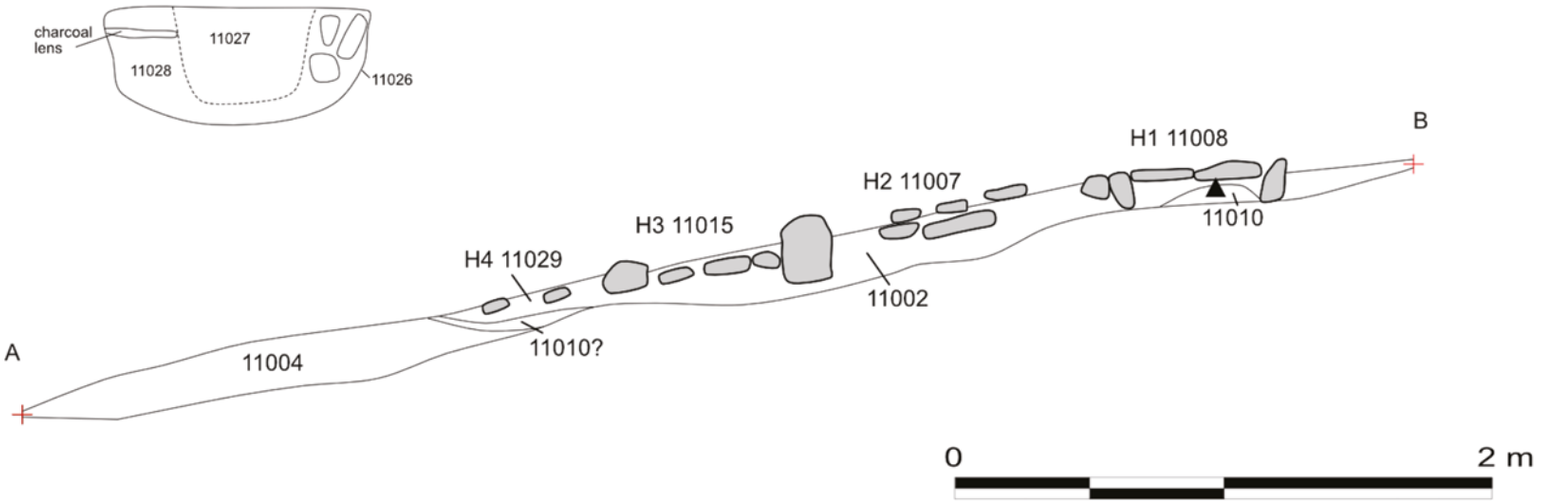
In July 2021, Trench 11 was established on the north-west shoulder of the hill, on the western side of the modern path that ascends the slope (Illus 4.30 and 4.31). The trench measured 8m x 8m and encompassed at least two platforms, an upper and a lower. Deturfing the upper platform immediately revealed the outlines of two hearths (H1 and H2) apparently in the centre of the platform (Illus 4.30 and 4.32). The western quadrant of the platform was selected for excavation and a floor layer (11002) was exposed following removal of the overburden. This deposit comprised a mid-brown clayey silt that contained a number of artefacts, including hand-coiled pottery, imported colour-coated Roman pottery, two polished stone discs, slag and a mould fragment (Chapter 7). Removing the upper floor layer revealed two further hearths (H3 and H4: Illus 4.32). The stratigraphic position of the hearths showed that hearth 4 was the earliest, overlain and thus replaced by hearth 3. Hearth 2 overlay hearth 3 and hearth 1 was probably the latest in the sequence, as its construction appears to have involved removing and perhaps reusing the northern kerbstones of Hearth 2. The hearths were made of locally sourced red and white granite and metamorphosed sandstone slabs. A number of stake-holes was found to the west of the hearths but the only substantial cut feature was a large post hole at the western trench edge: this was around 1m in diameter and 0.5m deep, containing a post-pipe and packing. This could potentially be the remains of an entrance, but further trenching would be required to test this idea fully.

Under floor horizon (11002) in the upslope part of the trench was a heavily oxidised and burnt layer of pinkish-orange clayey silt (11010), only vestigially present in the section drawing (Illus 4.31 and 4.33). This layer was associated with a dense concentration of charcoal that was concentrated to the west of hearth 1, though hearth 1 also sat on top of an extension of this deposit. Layer (11010) may have also underlain hearths 2 and 4, although this relationship was less certain. It may be that the hearths were constructed after this deposit had been cut through or largely removed, with the exception of hearth 1 which was more shallowly set and undoubtedly overlay 11010 (Fig. 4.32). Either way, (11010) is an early deposit in the sequence. Its character – a heavily oxidised clayey silt underlain by a distinct layer of charcoal – has the appearance of a destruction deposit and may represent a collapsed turf and timber roof or wall from an early phase of habitation on the platform that was destroyed by fire. Both (11002) and (11010) overlay (11004), a mixed deposit of yellow-brown and mid-brown clayey silt that appears to have been redeposited natural/an old ground surface laid to help level the platform.

The lower part of Trench 11 consisted of a linear terrace that extended east/west for at least 15m. The deposits on this lower platform comprised clayey silts containing a small number of artefacts, with the only clear differentiation in these deposits being an area of pinkish-orange clayey silt (11005) on the eastern side. This was heavily oxidised and similar in appearance to (11010) on the upper platform. This area, targeted for excavation, revealed that (11005) was concentrated in the downslope portion of the platform and sat directly on top of a natural blackish-brown peat and rocky subsoil. Layer (11005) was up to 0.08m deep but was inconsistent in profile, being only 0.03m thick in places. A few sherds of pottery and iron fragments were found on and within this layer. No hearth was located on the lower platform, though it may be this was positioned in the unexcavated area east of the trench where the platform extended for at least another 5m. The deposits in the western part of the lower platform could conceivably relate to another platform dwelling or activity area or, alternatively, the lower terrace may relate to ancillary activities associated with the upper platform. Only further excavation would be able to establish the validity of these hypotheses.



Illus 4.30
Trench plan of T11 with upper platform to the south and lower to the north



Illus 4.31
West-facing section of upper platform quadrant (Section A–B) T11 (as marked on Illus 4.30). Also show is the east-facing section of post hole [11026]

Illus 4.32
Hearths 1–4 on the upper platform T11

Illus 4.33
Layer 11010 by Hearth 1 and 2 on the upper platform T11

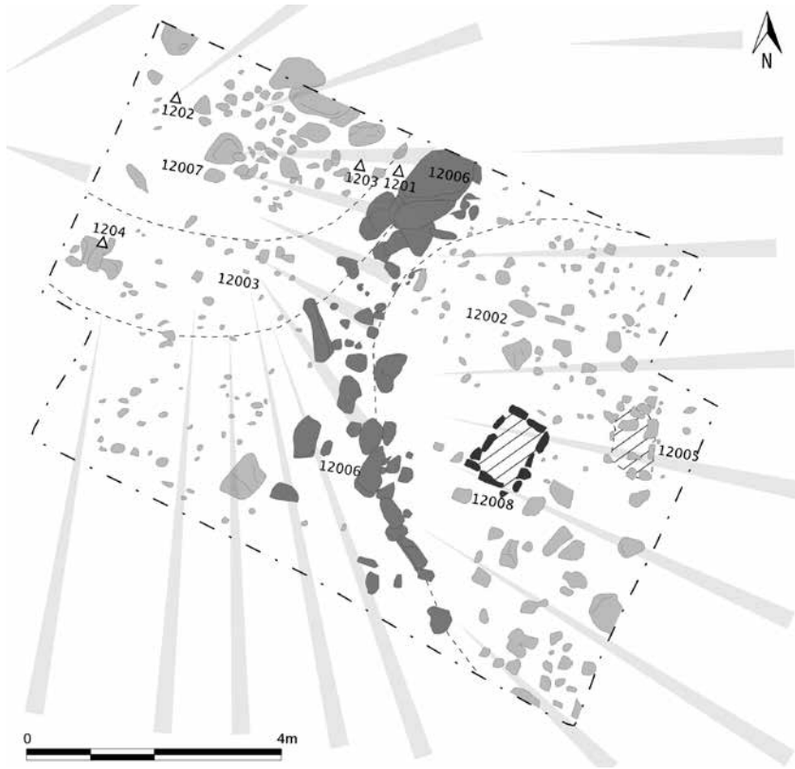
Illus 4.34
Platform T12 under excavation

Illus 4.35
Drone shot of the T12 platforms deturfed and cleaned up with the upper platform on the left

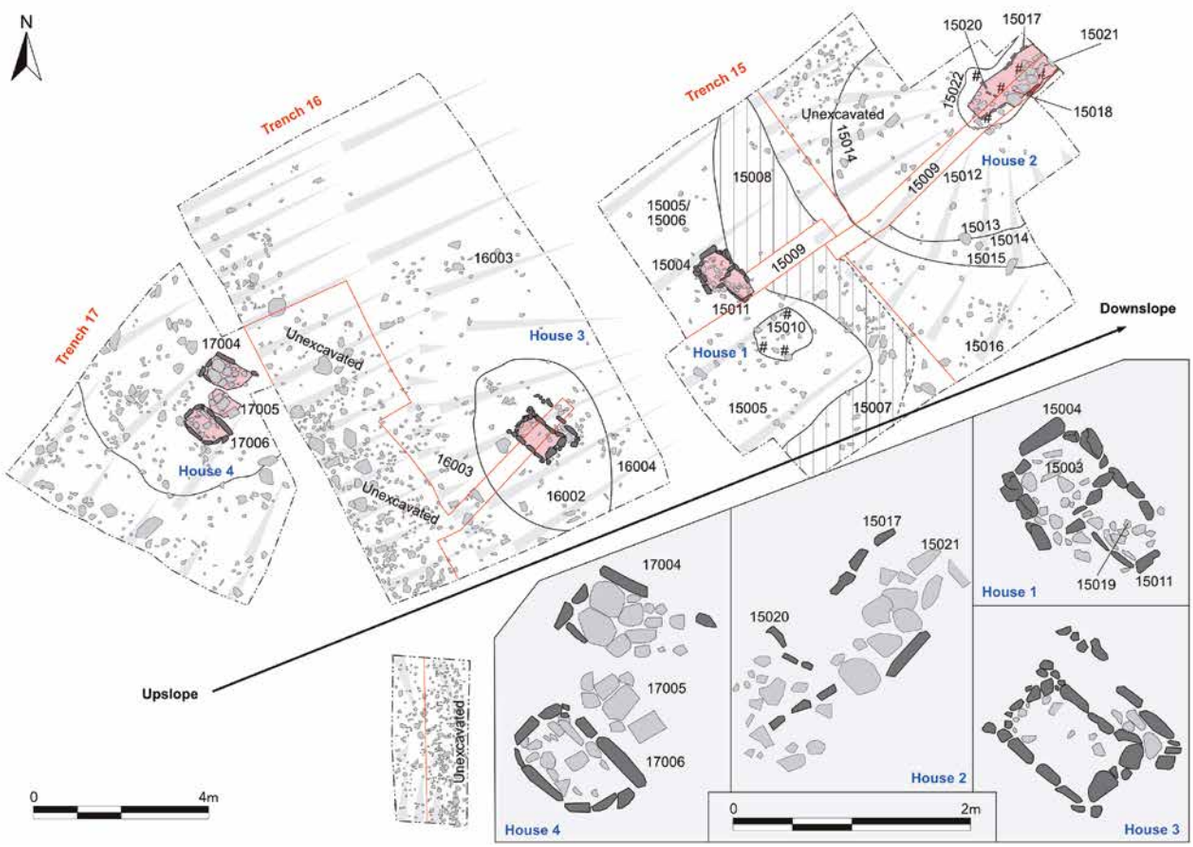
4.6.5 T12 platforms

Trench 12 targeted two platforms on the western side of the hill, one above the other (Illus 4.34–4.36). This trench measured around 8m x 8m with small extensions on the east and west sides. The removal of a 0.25m thick peaty topsoil (12001) revealed the upper floor layers (12002/12003) of the two house platforms (Illus 4.36). The upper, eastern platform extended to the edge of a terrace which had been augmented by the addition of a revetment (12006) outlining its western side and supporting the material that had been piled downslope to create a level surface for the floor. Immediately to the west of this and downslope lay the remains of the second, sub-circular, platform.

The upper platform had been recorded by LiDAR and photogrammetry as a *c* 6m diameter terrace but on the ground measured at least 8m across. A thick, dark-brown clayey silt intermixed with infrequent charcoal and medium-sized angular stones (12002) comprised the floor of this house. It survived up to 0.3m in depth and sat directly on the underlying natural or on the platform revetment to the west. While no small finds were recovered from (12002), two possible hearths (12008) and (12005) were identified near the centre of the platform (Illus 4.36). The first hearth (12008) consisted of a 1.0m x 0.6m setting of kerb stones set into (12002) and found directly on the natural. It had a single shallow fill comprising a 0.06m deep, dark greyish-brown sandy silt with moderate charcoal, infrequent burnt-bone fragments and frequent small heat-affected stones (12004). Its base, consisting of



Illus 4.36
Plan of T12 excavations, with the upper platform on the east and the lower downslope to the west



Illus 4.37
Plan of T15–T17 Platforms

small flat slabs of heat-affected sandstone, was also identified. A second possible hearth was located *c* 1m to the east of (12005) was left unexcavated.

The lower western platform was also recorded by LiDAR and photogrammetry, where it was defined as a *c* 7m diameter terrace. Two floor layers were identified on this platform (Illus 4.36), the upper of which consisted of a 0.1m thick mid brown clayey silt with infrequent charcoal (12003). A number of pottery sherds and leather-working cobble came from this context (Chapter 7). Underneath (12003), in the northern-western half of the trench only, lay a second possible floor layer, comprising a 0.04m thick, greyish-brown clayey silt with infrequent charcoal flecks (12007).

4.6.6 T15 Platforms

In June 2012, three trenches (T15–T17) were opened to investigate what can be identified as four platforms (identified as Houses 1–4) lying one above another within the north-west side of the lower fort (Illus 4.37 and 4.38). Trench 15 (T15) measured 8m x 8m, with an extension at the north-eastern side, and was opened to target two of the platforms (Houses 1 and 2) that lay below the platforms in T16 and T17 (Illus 4.37). Neither of the structures excavated within this trench was set on fully level ground, with a notable east/west slope marking each platform. The slope may have been incorporated to help with drainage, but it is also possible that the sloping topography may have been exacerbated by the later erosion of the platform edge. The underlying natural deposit (15009) comprised an irregular mixture of yellow and dark-brown gravel intermixed with medium to large stones. On the lower part of House 1, a foundation deposit (15016) was recorded for the house floors. This measured up to 0.48m in depth, and it had partly collapsed downslope where it met the floor layers of House 2. Fragments of pottery and an iron object were recovered from the interface between deposit (15016) and the overburden (15002) present between Houses 1 and 2.

House 1 on the upper platform of T15 was defined by two floor layers (15005/15006) that lay on top of the foundation (15016). The remains of a probable turf wall (15007/15008) was found slumped around the platform edge. The turf wall comprised a soft, 0.15m thick, light brownish-grey clayey silt with occasional charcoal, burnt bone and medium stones that extended in a broad arc around the eastern and south-eastern edges of the platform, following the contours of the hill. The deposit measured up to 1m wide and directly abutted the structure's hearth on its eastern side (see below), though its thickness here may represent evidence for collapse and slumping.

The turf wall demarcated the edge of the two floor surfaces (15005) and (15006) of House 1 on the upper platform of T15. The lower floor (15006) consisted of a 0.08m thick, compact, dark brownish-grey clayey silt with moderate amounts of charcoal. This abutted the central hearth and was recorded in patches on the eastern side of the hearth continuing underneath the western

Illus 4.38
Platforms T15–T17 under excavation. T17 is the upper platform, T16 & T15 are downslope

limits of the collapsed turf wall (15008). Directly on top of (15006), a 0.06m thick, compact, dark greyish-black clayey silt with moderate charcoal and occasional burnt bone (15005) represented the later floor layer associated with House 1. This was contained within the area defined by the turf wall (15007/15008). Floor (15005) abutted hearth 15004. The floors, platform dimensions and turf wall indicated that House 1 was elongated and sub-rectangular in form rather than circular and measured around 4m wide by 8m long.

House 1 was found to have at least two phases of use, indicated by the two floor layers and also by two superimposed hearths. The earlier hearth (15004) was defined by a series of locally derived flagstones set on edge and measured 0.98m wide and at least 1.09m long, though its southern side has been truncated by the later hearth (15011). The earlier hearth contained a 0.16m dark greyish-brown clayey silt (15003) with occasional burnt bone and frequent charcoal. Intermixed with this fill were several heat-affected stone slabs that may have been used as an unstructured base to the hearth. Overlying and partially truncating the lower hearth (15004) on the south-eastern side was a smaller hearth (15011) measuring 0.83m x 0.54m. It consisted of a series of flagstones set on edge; it contained a 0.15m deep fill (15019) of dark greyish-brown clayey silt with occasional burnt bone and frequent charcoal. Fragments of pottery were also recovered from the fill of this hearth. Immediately to the south-east of these two hearths, a thin (0.02m thick) amorphous spread of charcoal and burnt bone was found sitting on top of the upper floor surface (15005), which could represent a cleaning episode associated with late hearth.

Immediately downslope, House 2 was revealed to be more circular in shape, at least within the excavated area. It measured at least 6m in diameter. At least three floor deposits were associated with this building, as well as the partial remains of a possible turf wall (15014) which survived on its western, upslope side. The lowermost floor (15015) sat directly on natural (15009). It comprised a 0.09m thick, firm, light blackish-brown clayey silt with frequent charcoal (15015). This floor (15015) remained evident on the western upslope side of the trench partially underneath the collapsed foundation deposit (15016) of House 1 and the possible remains of a turf wall (15014). The turf wall survived as a 0.04m thick by 0.32m wide band of soft, light yellowish-brown clayey silt with occasional charcoal that curved around the western edge of House 2. Sitting above and truncating floor (15015) and turf wall (15014) was a 0.19m thick, dark-brown clayey silt with moderate charcoal (15013). Two fragments of pottery were recovered from this secondary floor surface. Above this, the final floor layer (15012) comprised a 0.07m thick, firm, dark reddish-brown clayey silt with moderate amounts of charcoal and occasional burnt bone.

This complex, multiphase occupation for House 2 may explain the poorly preserved hearth(s) recorded on the north-eastern edge of the lower platform in T15. At least two heavily disturbed elongated hearths were identified, which measured respectively approximately 1.32m x 0.78m (15017) and 0.87m x 0.61m (15020). Hearth (15017) was defined on its north-western and south-eastern sides by a series of flagstones; hearth (15020) was delimited on its north-eastern and south-eastern margins by smaller flagstones. The disturbance of both features resulted in a single mixed fill (15018) contained within both hearths which consisted of a loose, dark blackish-brown clayey silt with frequent burnt bone and charcoal intermixed with frequent heat-affected stones. An amorphous deposit of compact, dark blackish-brown clayey silt with frequent charcoal and burnt bone (15022) was spread around the poorly defined limits of both hearths. On top of (15022) and over hearth (15017) lay a series of well placed, partially heat-affected stone slabs (15021) that may represent the latest hearth associated with House 2 – though there was no obvious deposit (such as material associated with the final use of this possible hearth) found associated with this feature. Overlying the undisturbed features was a 0.1–0.3m deep, dark brownish-grey clay silt overburden (15002) intermixed with frequent small to medium stones, which was capped by a 0.1–0.2m thick, peaty turf line (15001).

4.6.7 T16 Platform

Trench 16 measured 10m x 6m and was opened over what appeared to be two possible platforms, although only one apparently structure, labelled House 3 (Illus 4.37), could be identified during excavation. It may be that a larger terrace had been prepared for a series of structures here, with other buildings located to the north-east just beyond the limits of the trench. Only part of House 3 lay within the trench, where it measured at least 7m long by 4.5m wide, with the long, downslope side of this building coinciding with the terrace edge overlooking House 2. Its plan strongly suggested that House 3, like House 2, was sub-rectangular in form and established on a north-west/south-east oriented terrace. The terrace had been created by cutting into the natural hillslope and spreading the resulting material to create a foundation downslope. The levelling material (16004/16011) was not fully excavated due to time constraints but where (16011) was partly removed to the north-east of the hearth it indicated that this deposit was at least 0.25m thick and the soil matrix contained several animal teeth, perhaps from redeposited midden deposits.

Multiple floor layers and two hearths were identified within the part of House 3 that was excavated in T16. The upper floor deposits consisted of a compact layer of mid-greyish-brown silty clay (16002) concentrated around the hearth and what appeared to be a broadly contemporary deposit (16005) on the north-west side of the building that extended up to 3m from the hearth. At the edge of (16005) was (16012), an orangey-brown loamy silt that may have been the remains of an outer turf wall of the structure. A possible earlier floor (16009) (not on the plan) survived only in patches and lay under (16005/16002) around the western upslope side of building. These lower floor remnants may have conceivably related to the fragmentary lower hearth (16008).

Towards the centre of floor (16002) lay a well-built rectangular hearth (16006) that measured around 1.2m long by 0.7m wide and was well defined by kerbstones of a mix of local geologies. The kerbs retained a number of heat-affected flat slabs and abundant charcoal (16007). Downslope, to the north-east side of hearth (16006), were the remnants of an earlier hearth (16008), partially covered by floor (16002). This hearth lay directly on the T16 platform foundation (16004) and consisted of one incomplete side and corner of a largely dismantled hearth. The kerb stones delimited the edge of three flat slabs, remnants of the hearth base, and these contained a charcoal-rich, mid-brownish-black clayey silt soil matrix (16012). Over the platform, and its associated floor

layers and hearths, lay a rubble overburden (16010) that extended to 0.7m deep on the upslope side and only 0.1m thick on the downslope platform edge.

4.6.8 T17 Platform

Trench 17 measured around 6m x 5m in maximum dimensions and was established in an irregular wedge-shape to conform to the shape of the platform initially identified here (Illus 4.37). The trench covered approximately 60% of the platform floor area of House 4, which is likely to have been around 5m in diameter. The structure on the T17 platform appears to have been sub-circular in plan, though remodelling through time and erosion may have obscured its full shape and character. At least three hearths were identified. A charcoal-rich layer (17011), possibly a robbed-out hearth, lay under the lowest hearth (17004) and another hearth located immediately upslope (17005). The stratigraphically lowest hearth (17004) measured around 0.8m long and 0.67m wide and contained a mid-brown, charcoal-rich, clayey silt soil fill (17007). Only five kerbstones survived, with the hearth placed right at the break of slope down to the platform below – the floors here may have been partly removed by the construction of the platform below or the edge of the platform may have been lost to later erosion.

Upslope, and probably later than (17004), was a second hearth (17005). This was placed between it and a further hearth (17006) to the south-west. Hearth (17005) was around 0.8m long and 0.55m wide and had a dark-brown, charcoal-rich, silty clay fill (17008). Only its basal stones survived, with all kerbstones seemingly robbed out. Hearth (17006) was likely the latest in the series and was very well-built, its sub-oval shape defined by well-constructed kerbstones. Its base largely comprised one flat slab. The fill of this hearth was a charcoal-rich, dark-brown silty clay (17009). Under the basal stones of the hearth was another charcoal-rich deposit (17010) which may represent the remnants of a robbed-out earlier hearth.

Two floor layers were also evident with House 4 on the T17 platform. A mid-greyish-brown clayey silt denoted a lower deposit (17003) which surrounded the upper hearth (17006); it survived up to 0.19m deep on the west side by the trench edge but was much thinner elsewhere. The upper floor consisted of a mid-brown clayey silt (17002) with frequent charcoal that survived around 0.11m deep and partly obscured the uppermost hearth (17006), suggesting this surface was related to a later occupation with no obvious surviving associated hearth. Two glass beads were found within this upper floor layer (17002).

4.7 Discussion: the excavated evidence

Gordon Noble

4.7.1 Vitrified wall and the upper fort

Considering the evidence for wooden beams discovered in Trenches 1 and 4, the masses of vitrified material that provide indirect evidence for timber lacing, as well as the massive amount of tumbled stone, it is clear that the wall of the oblong fort would have been a colossal structure that required substantial resources, time and workforce to construct and maintain. The condition of the small fragments of remaining wall face, composed of collapsed, heat-shattered and buckled stones in Trench 1, and the near total collapse of the wall face in Trench 4, demonstrates the extent to which the oblong fort was destroyed by the fire that led to its partial vitrification. The large lumps of fused and vitrified wall core in Trench 4 highlight the heat of this fire, with the volumes of vitrified material far exceeding that achieved in experimental examples (Chapter 7). Huge quantities of stone from the rampart collapsed into the interior and even more slumped downslope outside of the fort. In the interior, the lack of soil horizons in the voided tumble indicates that parts of the wall fell rapidly with no time for soil and vegetation to form amongst the stone slump, though whether this happened immediately upon destruction or later is difficult to discern.

4.7.2 The U-shaped banks

The U-shaped banks on the interior of the fort had previously been identified by Dunwell and Strachan and in the RCAHMS survey (Dunwell & Strachan 1997; RCAHMS 2008: 103–5), with the latter suggesting these belonged to an earlier sub-circular enclosure that pre-dated the oblong fort. However, the excavations showed that the U-shaped banks largely followed the line of the oblong fort wall face and that they may have been added at a later phase than the oblong fort. Indeed, small pieces of vitrified stone present in the inner bank matrix, and that the outer bank may have been cut through the clay floor (411) in Trench 4, suggests that the U-shaped banks are most likely to be secondary features constructed after the burning event that led to vitrification. However, the substantial tumbled stone deposit (1702) in Trench 1, that appears to represent collapse of the oblong fort rampart, extended over the outer bank and seemingly respected the edge of the inner bank. This could therefore imply that the banks were present when the main wall collapse occurred, but how soon after the fire this slump occurred is presently impossible to tell. The radiocarbon evidence may suggest that there was not a long interval in time between the construction of the fort and the U-shaped banks for the dates are broadly similar (Chapter 8); nonetheless, there is a high possibility of residual burnt material within the core of each bank if the U-shaped banks did indeed incorporate vitrified stone and other material from the oblong fort. That aside, the dates for the banks and the stratigraphy certainly do not support the banks pre-dating the vitrified fort and the most likely scenario is that they were later features post-dating its destruction. They may have been built to revet the damaged walls of the oblong fort, allowing some use of the interior following the catastrophic destruction. It is possible that the outer bank was constructed first, with the inner a secondary addition when the weight of the unstable rampart collapse became too much. However, how much later these banks are than the oblong fort is a moot point and one that could only be resolved with further work and perhaps alternative ways of dating the construction of the U-shaped banks, given the probabilities of the incorporation of residual material within their matrix.

4.7.3 The interior

Given the size of the oblong fort, only a relatively small area within its interior was explored. However, the trenches and combined excavated area are still significant in comparison to other

investigations at forts of this type. No obvious structural features were found in Trench 1 and the occupation evidence, in the form of midden material, was relatively slight aside from the animal bone deposits found directly next to the wall face in Trench 1. Thin and fragmentary patches of turf-like material found further into the interior in Trench 1 hinted at possible remains of turf-rich layers, but it is unclear whether these deposits related to the redeposition of turf from old ground surfaces during the construction of the fort or whether they could have defined buildings or activity within the interior. No other occupation evidence was found in the support of the latter.

Results from Trench 4 indicated that some form of multiphase structure was built against the inner wall face and was presumably broadly contemporary with the construction of the fort. Its northern and southern limits extended beyond the edge of the trench and the structure appears to have been truncated on the interior side by the outer U-shaped bank, but it abutted the oblong fort wall on the south-west. It survived as a series of blue clay deposits separated by lenses of charcoal but no finds were recovered from these deposits. Further into the interior there was even less evidence for structures or activity. In Trench 3, spreads of tightly packed stone demonstrated no particular form or function and could simply represent the gradual spreading of wall collapse from the rampart and subsequent redeposition. In the same trench, a small area of in situ burning was identified but this consisted of heat-affected material with small charcoal inclusions rather than any obvious hearth feature and radiocarbon dating may suggest that the deposits within Trench 3 pre-dated the oblong fort.

It therefore remains unclear if and how the interior of the fort was used, and the lack of any artefacts from two seasons of excavation within the fort is notable. Childe (1935: 61) did find a significant artefact assemblage at the oblong fort of Finavon but almost all the finds, as well as the only structural features, came from near the wall face, again suggesting that any activity was concentrated near the ramparts (Chapter 9). At Tap o' Noth, the relative lack of any structural evidence in the form of stone walls or cut features such as post holes implies that much of the central part of the interior was 'empty' or at least deliberately left free of structures, perhaps being used as a gathering or meeting place or for some other function. The more convincing structural evidence near the wall face could imply that the fort had a series of shelters and structures that utilised the space along the inside of the wall, allowing the central area of the fort to be left open. However, these structures were not continuous along the wall face as suggested by the lack of such structural evidence in Trench 1.

4.7.4 The cistern

The cistern was reputed to have been completely emptied in the 1880s during Macdonald's excavations (1891), so the fact that the antiquarian cutting did not fully mirror the original well profile was extremely fortuitous. It allowed samples to be retrieved to date the lowest fills at the base of the cistern, and enabled the identification of deposits around the sides and around the top of the cut. This revealed that the cistern was broadly contemporary with the construction and destruction phases of the oblong fort, with the well perhaps abandoned at the time of the destruction of the rampart. The identification of in situ basal fills and multiple clay linings gave a level of insight into the construction and use of the cistern, suggesting it remained in use for a significant period of time, which perhaps contrasts with the absence of other evidence of use of the fort interior. At 1.7m in depth, it was not particularly deep and little in the way of water was found at its base. It would have perhaps functioned as a catchment for rainwater and runoff from the surrounding bedrock and subsoil. Certainly, Macdonald's description highlights the use of clay as a sealant and lining:

> On digging down about 5 feet [1.5m], water oozed out from the sides of the cutting, and at a foot lower it bubbled up vigorously for a minute or two like a genuine spring, but on piercing the clay and reaching the rock the water collected in the cutting suddenly disappeared (Macdonald 1891: 46–7).

The clay linings clearly had a role to play in making the cistern watertight, and the multiple linings identified through excavation suggest it was repaired and maintained through time.

There was a notable lack of structural evidence around the cistern, so it is unlikely that it was surrounded by a structure or covered in any way. The absence of features around the cistern again suggests relatively light use of the central area of the fort for structures or buildings. The cistern shaft excavated at Finavon was much larger, measuring around 5m across and 6.5m deep, though, like Tap o' Noth, Childe (1935: 67) did not note any significant features or deposits around. Environmental evidence from the internal deposits suggests an open environment around Tap o' Noth at the time the cistern was in use in the Iron Age, with grass and scrub woodland in the vicinity of the fort. More surprisingly, indicators of farming in the form of probable cereal-type pollen and grazing indicators were found in the pollen evidence from the lower cistern fill, though it is possible that this was introduced along with the clay from areas further down in the valley (Chapter 8).

4.7.5 The lower fort rampart/wall/bank

The large lower fort is of a type that had been associated with a Bronze Age dating horizon (eg Halliday 1985: 238; Mercer & Tipping 1994: 5; Armit 1997: 57 – see also Ralston 1983: 158) or a late pre-Roman Iron Age date (eg Feachem 1966: 77–82). However, it has now been securely dated to the Late Roman Iron Age/early medieval period (Chapter 8). The extent of the enclosure is notable, with its *c* 1.5km perimeter reflecting an impressive control of resources and labour. A large population is also suggested by the 800+ platforms recorded within the interior; however, this is probably a conservative reflection of the total settlement considering that the excavations also identified occupation surfaces that were not apparent prior to excavation (eg immediately upslope from the rampart) and on the more level areas of the interior platforms would not need to have been dug into the hillslope, so other habitations may remain as yet undetected.

The rampart of this large lower fort originally consisted of a 4.5m+ wide bank of unstructured stones defined by a series of larger kerbs or revetment. It is unlikely that this would have stood to any great height and, as such, its function as a defensive boundary is questionable. However, the remnants of a palisade slot

associated with the rampart may suggest that the rampart acted as a footing for a large wooden palisade, which would have been a much more impressive, monumental barrier. The dating evidence suggests that both the rampart and palisade slot are broadly contemporary, though it is also possible, but less likely, that these features represent a close sequence of activity with the palisade quickly being replaced by the rampart. An early date from the palisade slot (Chapter 8), and a slight misalignment in the revetment of the lower parts of the palisade slot (Illus 4.22), may also indicate an earlier phase to the palisade, though given the relative shallow nature of the slot any earlier phase may have also been embanked in some way.

4.7.6 The character of the platforms

A series of occupation deposits abutting the interior of the outer rampart appear to represent the edge of a house floor or occupation of some kind near one of the entranceways to the lower fort. Excavation of other platforms within the interior of the outer fort also produced clear evidence of the use of the platforms for occupation often of multiple phases. The platforms were created by cutting into the hillslope and moving the excavated material downslope to create a level or slightly sloping foundation. In some cases, for example House 3, the foundation material included midden deposits that contained animal teeth, which may be the vestiges of more substantial animal bone deposits given the poor bone preservation encountered on the site, and may indicate the reworking of earlier occupation traces during the building of some of the platforms.

The material revetting the downslope limits of the platform foundations must have been extensive given the steep gradients in many parts of the hill, suggesting that, including the quarrying of the upslope portions, significant amounts of labour went into creating the platforms even before structures were erected on them. The buildings set on the platforms appear to have been packed very close together, with the evidence from Trenches 15–17 suggesting that structures directly overlooked others with little intervening space. These platforms appear to have been occupied by circular (up to *c* 8m in diameter) and sub-rectangular structures (House 3, T16 was at least 7m x 4.5m), though the plans of individual buildings were difficult to trace due to uncertainties as to their outer wall positions and a lack of earthfast structural features with the exception of a few post holes (eg those upon the T6 platform). The platforms appear to have witnessed repeated episodes of building over extended periods, with the series of hearths identified on T11 and T17 being particularly impressive – four stacked hearths on the upper platform at T11 and at least three on the platform in T17. Where multiple hearths were identified, they tended to shift upslope through time, perhaps as the edges of platforms became less stable and modifications had to be made to stabilise individual platforms. Floor deposits spread on the platforms were also evident but their preservation was mixed; certain platforms had multiple, clearly differentiated floor deposits, whilst others had deeper more homogenous deposits (see Reid et al 2023) for the difficulties in identifying floor deposits in Scottish soils). Artefacts and other finds associated with each platform were notably concentrated around the hearths, as were the more distinctive and obvious floor deposits, suggesting that activity within the structures focused on the hearth area. The floors and hearths exhibited similarities to the structures found at Cairn More (Chapter 6), and the overall architectural setting of the platforms – with substantial labour and resource investment implied by adjacent features such as paths and the rampart itself – imply that occupation was not ephemeral or short-lived. Finds such as metalworking moulds also indicate that settlement activity related to more than fleeting visits. The significance of the platforms and the lower fort will be explored further in Chapter 10.

4.8 Conclusions

Investigations at Tap o' Noth were the most logistically and physically challenging excavations undertaken during the project, yet produced some of the most surprising and rewarding results. The dating of the lower fort and a series of platforms within its enclosure was a particularly exciting and important outcome that has significant implications for our understanding of the Late Roman Iron Age and early medieval environs of Rhynie, wider Strathbogie and beyond. In returning to the research questions posed at the beginning of this chapter, we can now place the development of the landscape through time on a much firmer footing. It seems clear that the key to unlocking the long-term evolution of the early medieval/Late Antique centre at the Craw Stane is the development of Tap o' Noth and its evolution through time. Tap o' Noth was transformed from an Iron Age hilltop complex after a period of apparent abandonment to a large-scale settlement involving the construction and use of hundreds of dwellings on the hill. The settlement endured from the earlier first millennium AD until the late 6th or early 7th century AD and appears to have been a huge conglomeration of settlement contained by a very substantial rampart and palisade by the 5th century AD at the latest. The landscape focus of the project has undoubtedly helped illuminate crucial questions surrounding the development of this landscape through time and the interpretation of the overall evidence will be returned to in the final chapters of the monograph.

Chapter 5

EXCAVATION RESULTS: THE CRAW STANE COMPLEX

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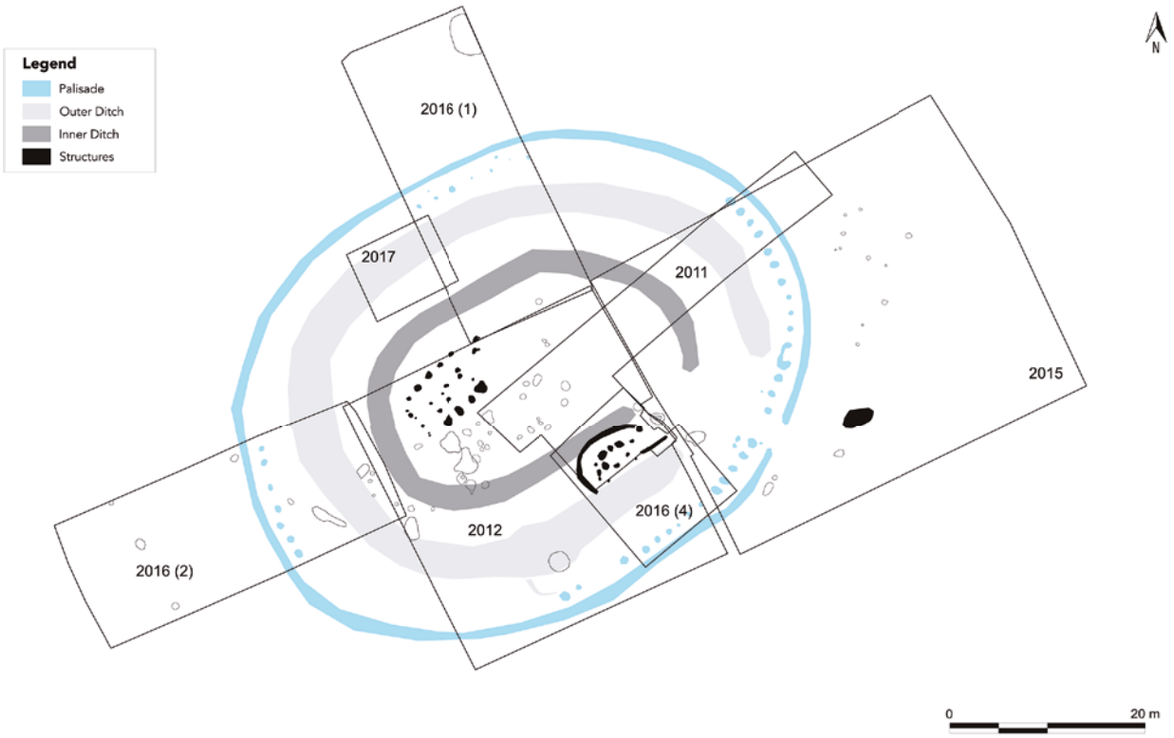
5.1 Background

Following the discovery of the Rhynie Man symbol stone in March 1978, aerial reconnaissance identified a series of circular enclosures in close proximity to its findspot (Aberdeen Archaeological Surveys 1979: 12) (Illus 5.1). Analysis defined the complex as a series of enclosure boundaries, comprising an inner and outer ditched enclosure and an outer palisaded boundary, that surrounded the site of the in situ Craw Stane and a distinctive knoll at the end of the sand-and-gravel ridge upon which the symbol stone stood (Fraser & Halliday 2007: 122). The inner ditch encompassed an area of around 32m x 20m, the outer an area of around 45m x 30m, and the outer palisade enclosed an area of 60m x 40m (Fraser & Halliday 2007: 122) (Illus 5.1). Even before the site was excavated, the enclosure complex was considered unusual and traces of internal features such as pits or post holes suggested a complicated and perhaps multiphase settlement (Fraser & Halliday 2007: 122).



Illus 5.1
The Craw Stane complex with location of 2011–13 and 2015–17 trenches.

Aerial photography in 1994 revealed further cropmarks closer to the modern village of Rhynie, including two large square enclosures (NJ 499 268) that were first identified by Moira Greig as part of the Aberdeen Archaeological Survey programme (Greig 1994) (Illus 2.4). The larger enclosure measured around 20m across and the smaller around 16m across, both with entrances on the northern side. The two enclosures were transcribed by RCAHMS and were interpreted as square barrows due to their morphology and proximity to the findspot of human remains and burial monuments uncovered in the 19th century (as recorded on the 1st Edition Ordnance Survey map, ONS Name Books and by Logan (1829)).

The first excavation season at the Craw Stane complex took place in 2011 and involved a relatively long and narrow evaluation trench. Subsequent years (2012 and 2015–17) expanded the scale of the excavation and utilised much larger trenches that were investigated using a strip-and-map methodology (cf Carver 2009: 101). This approach characterised a large proportion of the complex, whilst leaving more than 85% of the archaeology in situ (Tables 5.1 and 5.2) (Illus 5.1). The 2013 programme centred on identifying and characterising the nature of the two square enclosures, as well as testing the area for presence/absence of early medieval burials. The excavation involved opening a trench measuring 44m north/south by 32m east/west that again employed the strip, map and sample approach. In 2014, investigations conducted as part of a Heritage Lottery Fund community archaeology grant identified additional funerary elements a short distance to the north-east of the 2013 trench, some of which are likely to have been prehistoric in date. The results of these excavations are outlined below and are preceded by a brief consideration of the methodology used and the impacts that modern agriculture has had on the Craw Stane enclosure complex. Within the text on the excavations the radiocarbon dating evidence for the Craw Stane complex is not referenced in detail as this is the subject of dedicated consideration and modelling in Chapter 8 with dozens of dates available for the complex as a whole. Individual dates for the prehistoric features are referenced in text and tabulated individually. This chapter ends with a consideration of some new motifs found on Rhynie No. 5 symbol stone through photogrammetry study that was conducted in the latter stages of the project.

Year	Trench	Area (m2)	Max length (m)	Max width (m)
2011	1	382	45	16
2012	1	1017	33	30
2015	1	1533	43	36
2016	1	512	35	15
2016	2	535	36	15
2016	3	46	15	3
2016	4	204	17	13
2016	5	396	21	19
2017	1	82	10	8

Table 5.1
Trenches excavated at Rhynie 2011–17

Total area stripped (m^2)	2025
Total estimated area of site (m^2)	2793
% Site stripped	72.5%
% excavated of stripped features	18.83%
% left in site	86.35%

Table 5.2
Percentage of enclosure complex revealed by strip-and-map and percentage of deposits excavated

5.2 The effects of modern agricultural practices on the Craw Stane complex

While post-abandonment activity appears to have had an effect on the survival of the archaeology at Cairn More (see Chapter 6), there is no doubt that later activity has had a serious impact on the archaeology of the Craw Stane enclosures and the survival of burial features near the village. The result is that interpretations and hypotheses about the complex and cemetery are more limited than any other site reported on in this volume.

The underlying drift geology around Rhynie consists primarily of sand and some gravels, with the modern ploughsoil on the field in which the complex stands generally extending to a depth of around 0.2–0.3m. Thicker ploughsoils and hillwash found on the slopes of the knoll had in some cases partly protected the archaeology, revealing deeper ditch and palisade sections. However, the majority of excavations at the Craw Stane demonstrated high levels of plough attrition, with features on the summit of the knoll being particularly affected. Extensive and very obvious modern plough furrows up to 0.2m in depth ran south-west/north-east across the majority of trenches opened, obscuring and damaging all features uncovered (Illus 5.2) and 5.36. These furrows were removed prior to the excavation of features in the Craw Stane complex (Illus 5.2). Cattle in the field had also played a detrimental role in archaeology survival, eroding deposits down

Illus 5.2
Modern plough marks evident in a 2016 drone image

to the sandy subsoil in places and causing the topsoil to survive as only a skim of grass in others. The area immediately around the Craw Stane, especially to the south, was particularly affected and had exposed the whole of the modern concrete base of the stone. In 2005, erosion of this area led to the discovery of sherds of Bronze Age pottery from the largest cattle scrape around the stone (see Cook 2005).

Farm records show that the site was ploughed 14 times from 1977–97, with the field thought to have been ploughed before then too, though no records have been retained pre-1977. The site was scheduled in 2003 (Scheduled Monument SM69), with an informal agreement that the farmer would keep the field in pasture. In all years from 2012 onwards there were efforts to test the ploughsoil for archaeological potential during excavation; test-pits were dug prior to machine stripping to assess the depth of ploughsoil and a small percentage of soil sieved to assess the presence/absence of artefacts in the ploughzone. Metal detecting was also conducted, which in 2011, 2012 and 2016 involved detection prior to cleaning the trenches and an assessment of spoil heaps. In 2015, the 43m x 36m area of excavation was metal detected prior to topsoil stripping. The small-scale sampling of the ploughzone from 2011–16 produced no artefacts other than modern finds. The metal detecting of spoil heaps also yielded no diagnostic metal finds of early medieval date. Metal detecting prior to the topsoil strip of 2015 again produced no definitive early medieval finds, with a small assemblage of mainly modern finds retrieved.

In 2017, a large ploughzone sampling exercise was mobilised through student and community efforts. This was conducted as part of a student dissertation project by Peter Lamont at the University of Aberdeen, which examined the impacts of ploughing on archaeological sites. The 2017 trench was more modest than in previous years (Illus 5.1) but still provided an area of 64m^2 to assess, with an average ploughsoil depth of around 0.3m. The trench also targeted a portion of the outer ditch of the Craw Stane complex, whose upper fills had produced the majority of finds during the 2011–16 excavations, meaning that artefact recovery from the ploughzone was more likely than elsewhere on site. The ploughsoil was removed by a team of up to 12 students and volunteers over seven days. The topsoil was removed as one context using shovels and directly passed through 5mm sieves. Any artefacts retrieved were plotted on a 0.5m grid. While some artefacts were recovered in situ, the majority were found through sieving. After obvious modern finds were removed, a total of 30 artefacts were logged, averaging around 1.5 artefacts per cubic metre of soil. The artefacts included categories of finds found during the full excavation, such as moulds and imported pottery; however, the objects (moulds in particular) were highly fragmented and abraded. Abrasion on the ceramic moulds recovered from the ploughzone was such that the majority did not preserve any diagnostic morphological or design features, and many were only identified by their ceramic texture and matrix (Illus 5.3).

There were also notable absences in the ploughsoil assemblage. No early medieval metalwork was recovered from the ploughzone – through test-pitting, open area stripping of topsoil by hand or through metal detecting – suggesting that any early medieval metalwork incorporated into the ploughzone through plough disturbance had not survived (cf Haldenby & Richards 2010: 1160). The sandy, well-drained and acidic nature of the soils at Rhynie is

Illus 5.3
A comparison of some of the moulds found during excavation of the outer ditch during the full-scale excavation (top row) and from above the outer ditch during the ploughzone sampling exercise (mid and bottom rows)

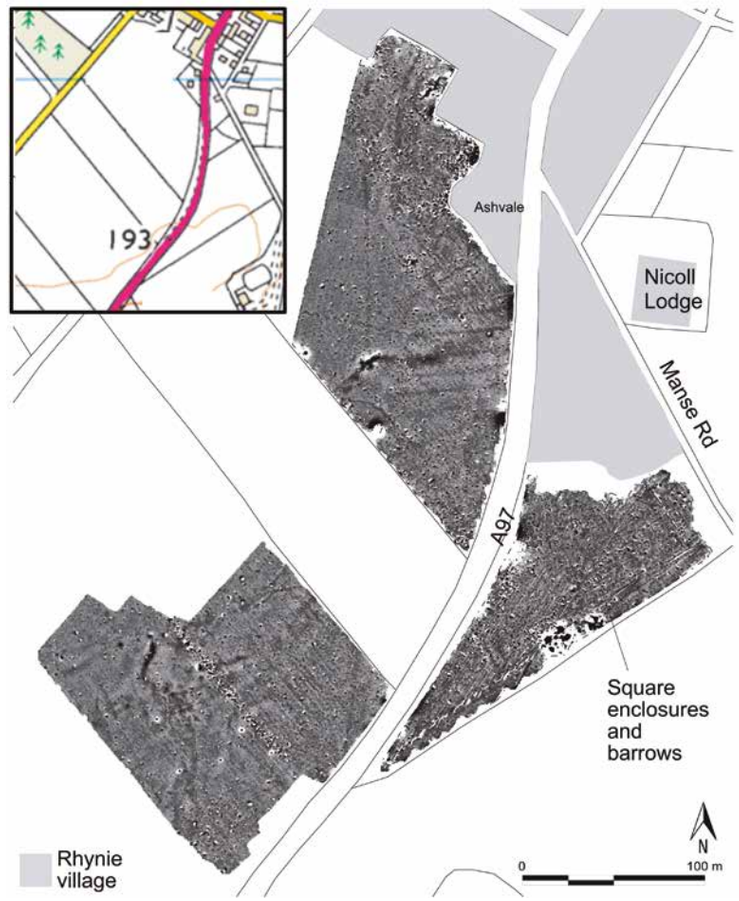
not conducive to material survival and likely contributed to this absence of metalwork, particularly if the material had already been broken up in the ploughsoil (Soil Map of Scotland 2018). Soil sampling at Rhynie provided an average pH of 5.8 (Gross 2017) and this combination of factors is known to promote the leaching of calcium, potassium and magnesium from objects, resulting in the eluviation of clay from poorly fired ceramics – as would appear to be the case with the moulds (Karen Milek pers comm).

The results of the ploughzone experiment at Rhynie was published in 2019 (see the full report in Noble et al 2019b). The article concluded that, given the very low artefact densities found over a known artefact-bearing feature, the possibility of mapping activity areas or even identifying sites through a methodology that involved sampling the ploughzone on a large scale would have been very limited. It would also have required the removal and sifting of large volumes of soil by hand, which the Rhynie assessment showed to be very labour intensive (clearing and sieving even the small area of the 2017 trench took seven days). The lack of metalwork finds from these contexts, combined with the very eroded state of any moulds in the topsoil, suggests that further ploughzone studies would therefore have limited or no success in characterising the presence of high-status metalworking at the site. The fact that this was the case on a site that has seen relatively little ploughing in recent years indicates that the effects of ploughing on sites in more intensively cultivated fields is likely to be even more bleak.

As numerous studies have highlighted, ploughing is a destructive force and the only way to preserve sites and subsoil features is

to cease all cultivation practices (Lambrick 1977: 32–40; 2004: 188–92; Oxford Archaeology 2002, 2010; Dunwell & Ralston 2008: 70). Studies also suggest that well-defined cropmarks and sites that lay within or adjacent to areas of pronounced topographic variation, particularly those in loose sandy soils or on crests of terraces or knolls, are highly vulnerable to plough damage (all of which characterise the Craw Stane complex) (Dunwell & Ralston 2008: 25, 42, 50–1; Cowley 2011: 51). The cumulative effects of ploughing means that if the Craw Stane complex had been as intensively ploughed as some sites in recent years there would have undoubtedly been less evidence to assess the character of the site, with subsoil deposits even more truncated and perhaps even less material surviving in the topsoil. Many of the richest artefact-bearing deposits at the Craw Stane enclosures were found in the upper fills of features, suggesting that significant loss has already occurred at the site. It is fortuitous that ploughing was curtailed at the site in 1997, though that was almost 20 years after the initial discovery of Rhynie Man and Rhynie No. 8 by ploughing.

The general lack of information retained in the ploughzone justified the strip-and-map approach at Rhynie and it proved to be an effective means of assessing a cropmark site of this nature, resulting in a characterisation of its date, structural components, material assemblages and preservation conditions. If a keyhole trenching approach had been adopted, it is unlikely any of the buildings associated with the enclosure complex would have been recognised or understood, and the spatial layout of the complex or artefact distribution would not have been recoverable. While the ploughzone experiment at Rhynie was a valuable undertaking, it suggests that unless a site is particularly finds-rich (of an order of magnitude exceeding that of Rhynie), testing ploughzone assemblages through fieldwalking, metal detecting or any form of sampling is likely to provide very limited results. Strip-and-map is likely to be a much more effective means of evaluating cropmark sites of this nature, particularly when they are threatened by ongoing damage through agriculture.



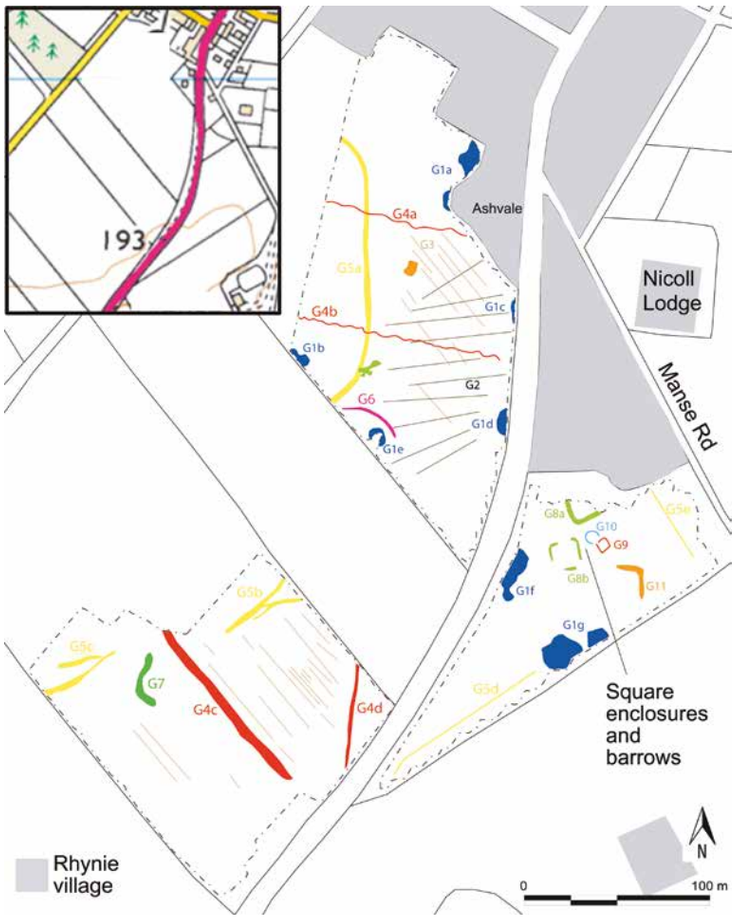
Illus 5.4
The results of the geophysical survey by the village – the field with the square barrows and enclosures is bottom right with the road approaching the village evident in the centre of the image

5.3 Geophysical survey and cropmark mapping

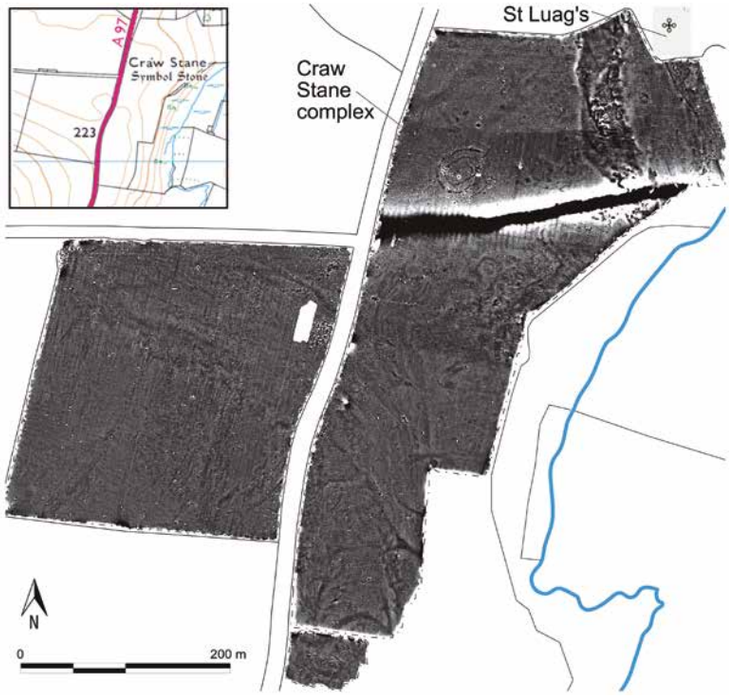
James O'Driscoll and Gordon Noble

As part of the Leverhulme-funded Comparative Kingship project, a total area of 23.1ha was surveyed in 2019 in the vicinity of Rhynie utilising a Sensys MXPDA 5 sensor gradiometry unit. This programme targeted two areas: one surrounding the concentration of square enclosures and barrows abutting the southern side of Rhynie village, and another within and surrounding the Craw Stane enclosure complex. The former comprised a 4.87ha area which incorporated grazing pasture and newly ploughed fields around the southern side of Rhynie village. Here the land gradually slopes from east to west, with the lower western extent of the survey area prone to flooding. Many of the anomalies detected within the survey here were associated with drainage and farming practices, though a number of possible archaeological features could also be identified. In Illus 5.4 and 5.5, anomalies G1a–G1g represent modern ferrous material (such as gates, wire fences, buried building debris, etc.). A series of linear striations G2 and G3 characterise two distinct tillage patterns, with the wider setting of G2 indicating an earlier, probably medieval, farming landscape. Within the eastern surveyed field, a close pattern of linear striations can be attributed to recent ploughing activity, whilst G4a–G4d represent levelled field boundaries, some of which may be associated with the narrow-stripped field systems visible in the 19th-century Ordnance Survey six-inch mapping. Attempts at improving water-drainage issues on the lower western part of the survey area (towards the bog area located on the General Roy map – see Chapter 2; Illus 2.7 and 2.8) are indicated by multiple drainage channels G5a–G5c, as well as two further modern drainage ditches visible on the ground at the time of surveying the easternmost field (G5d–G5e). Two curving positive magnetic anomalies G6 and G7 may also represent drainage ditches, though the latter is positioned on a slight topographical rise and so could also be indicative of an archaeological feature.

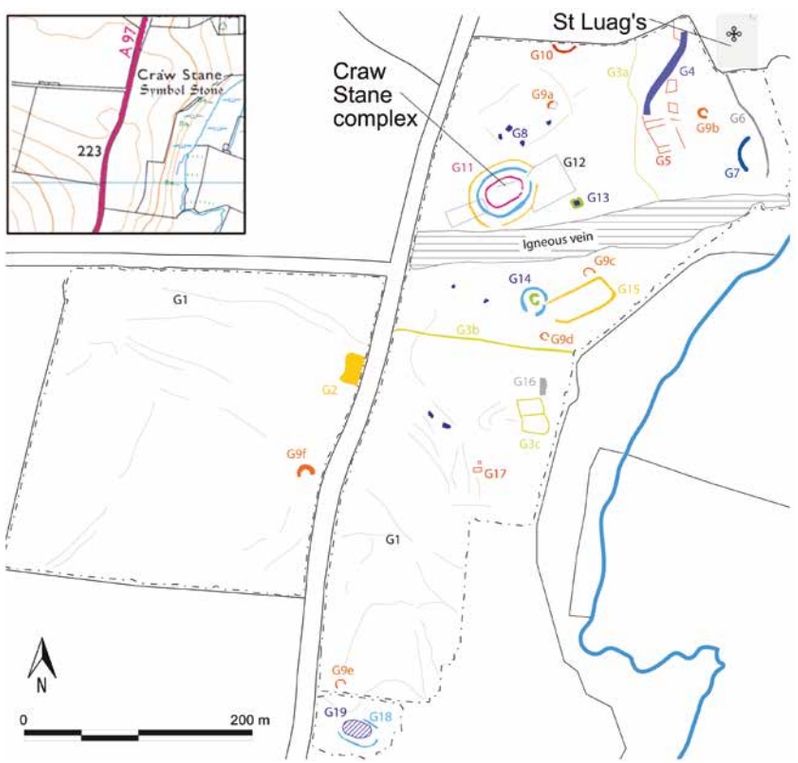
In the eastern field, two large square enclosures (G8a and G8b) excavated as part of this project (see below) were only faintly apparent in the survey results and the smaller square barrows excavated within this area were not visible at all. Outwith the area excavated in 2013, the geophysical survey detected two



Illus 5.5
Interpretation of the survey results by the village with features labelled G1–G11



Illus 5.6
Geophysical survey results around the Craw Stane



Illus 5.7
Interpretation of the survey results in the vicinity of the Craw Stane with features labelled G1–G19

possible features of archaeological potential, G9 and G10. G9 comprised a curvilinear band of negative magnetic readings which, when projected, had a diameter of approximately 8m, whilst G10 consisted of a faint band of negative magnetic readings measuring approximately 9m x 9m. It is possible that both of these features represent burial monuments such as round/square barrows, similar to those excavated outside the larger square enclosures G8a and G8b. Alongside the other factors discussed in Chapter 11, this would indicate that the early medieval cemetery is probably more extensive than previously identified. A larger faint band of positive magnetic readings with a distinct right angle (G11) may also suggest that another large square enclosure exists in this group of monuments, though more survey and excavation would be needed to clarify this.

A larger area of 18.23ha was surveyed in and around the Craw Stane enclosure complex (Illus 5.6 and 5.7). At the time of the survey, the eastern field was being used for cattle grazing while crops in the western field had recently been cut. Unfortunately, a change of landowner curtailed the area available for survey and only some of the Mains of Rhynie fields could be studied. A series

of broad, faint geological responses (G1) were apparent throughout the survey area, as well as a distinct igneous dyke which runs east/west immediately south of the Craw Stane enclosure. G2 represents an area of disturbance likely associated with a levelled sheepfold, while a series of relict field boundaries (G3a–G3c) were also identified in the survey area. A possible trackway (G4) leading to a series of probable structures (G5) near the Water of Bogie may be associated with the nearby church or a farming settlement. Attempts to manage the drainage of this waterlogged area can be identified by the presence of drainage ditches G6 and G7. Immediately to the north of the Craw Stane enclosure complex, up to four small sub-rectangular areas of positive magnetic readings were identified (G8). While it is difficult to contextualise these features without further survey or excavation, their close location to the Craw Stane complex and their curious shape suggest that they may be archaeological in origin. Given the presence of a building outside the enclosure at the Craw Stane enclosure complex these could potentially be further structures of early medieval date.

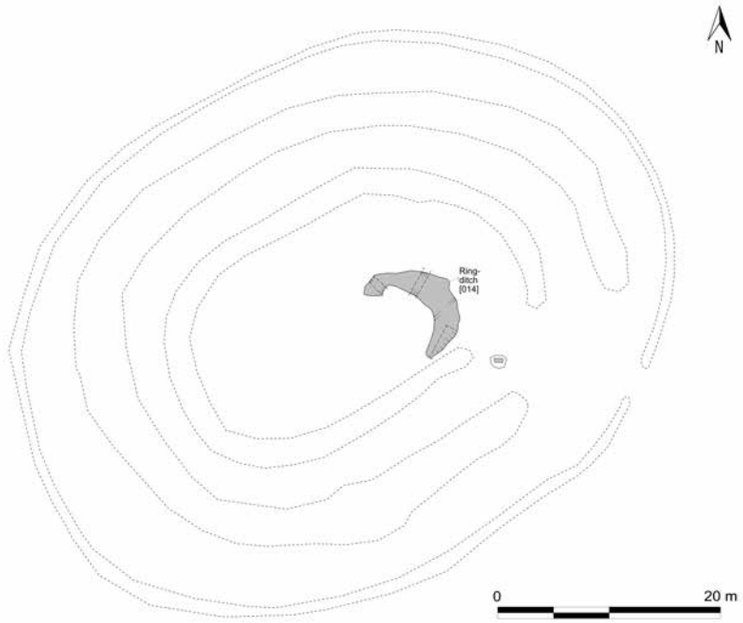
Up to six curvilinear bands of positive magnetic readings (G9a–G9f), ranging in size from 8m to 11m in diameter, were scattered throughout the survey area and most likely represent the remains of prehistoric roundhouses. G9a was excavated by the REAP project in 2006, which confirmed that it was a Bronze Age structure. The identification of an additional five structures within this area suggest this landscape was densely occupied in the Bronze and Iron Ages. On the northern edge of the survey area, the partial remains of a curvilinear band of positive magnetic readings (G10) indicates the presence of a large ring-barrow or small enclosure. The most apparent anomaly within the survey area is that of the Craw Stane enclosure complex (G11), with the geophysical survey identifying all three enclosing elements as well as the limits of backfilled excavation trenches (G12). Immediately outside one of these trenches, a square anomaly (G13) comprising a band of negative readings surrounding a central area of positive readings, and measuring approximately 12m x 12m, may represent an unrecorded square barrow, though excavation would be needed to clarify this. South of the Craw Stane enclosure complex, a sub-circular enclosure measuring approximately 20m across and comprising a broad band of positive magnetic readings surrounding a smaller sub-circular band of positive readings (G14) may represent a small enclosure or another burial monument. Abutting this to the east is a rectangular anomaly (G15) measuring 65m x 30m. Whilst it is difficult to interpret the significance of this feature, it could be related to the enclosure or a much later field system which incorporated the enclosure into its perimeter. G16 represents a small rectangular area of positive magnetic readings that may indicate a sunken-floored structure, while G17 is suggestive of a rectangular structure whose distinct band of negative readings may indicate that it is built of stone. At the very edge of the survey area, a possible oval band of negative readings (G18) surrounding an area of disturbance (G19) could represent settlement activity. Placed on a natural knoll overlooking the Water of Bogie, these faint anomalies may be archaeological in origin or could derive from geological features.

Overall, the geophysical survey results suggest that the Craw Stane enclosure complex and barrow cemetery are just small parts of a busy archaeological landscape. Only further fieldwork could begin to tease these apart; however, the most obvious geophysical anomalies appear to represent a number of prehistoric ring ditch roundhouses alongside possible burial monuments in close proximity to the village. Additional elements of early medieval settlement are also potentially identifiable, with sub-rectangular anomalies G8 and G16 being particularly intriguing. As noted above, the project was not able to access the field directly opposite the Craw Stane enclosure complex at the Mains of Rhynie, nor could it study a series of small strip fields extending down towards the village. Aerial photography has identified various sites within these areas, including during some very recent aerial reconnaissance work carried out in 2018 by HES. These sites include possible square barrows identified in 1997 (NRHE ID 80306) and in 2018 (NRHE ID 361343). The most intriguing remains identified by the recent HES survey are two possible sunken floor buildings (NRHE IDs 361342 and 361230) and a large palisaded enclosure (NRHE ID 361229). One of the sunken floor structures measures around 6m x 4m, while the other is large, sub-square or round in plan, and approximately 10–12m in diameter. The palisaded enclosure measures around 40m east/west by 28m north/south.

5.4 Excavation results: the Craw Stane complex

5.4.1 Prehistoric features

Over the course of the Rhynie investigations, a small number of prehistoric features were found in the vicinity of the Craw Stane. Excavations in 2005 revealed a *c* 8m diameter ring-ditch roundhouse dating to 1615–1300 cal BC downslope from the cropmark complex (for a full list of dates, see Gondek & Noble 2015: table 2). Burnt structural timbers, charred grain and a large deposit of Mid Bronze Age flat rimmed ware was recovered from the fill of the ring ditch.



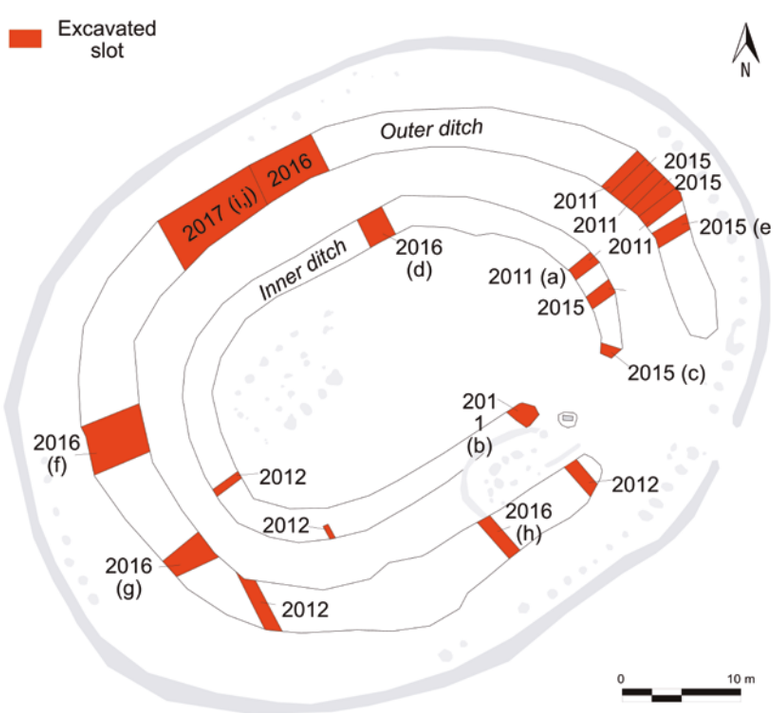
Illus 5.8
The Iron Age ring ditch identified in the Craw Stane complex interior

Within the Craw Stane complex itself, very few features dating to the prehistoric period were identified. In 2011 and 2012, a very truncated ring-ditch roundhouse [014] measuring *c* 8m in diameter and dated to 400–200 cal BC (SUERC-35633; 95% probability) was revealed at the centre of the complex (Illus 5.8). The ring ditch had a single charcoal- and burnt bone-rich fill with significant quantities of stone towards the centre of the ditch. The fill also showed patches of orangey-brown silt that may have been the remains of turf from an outer wall of the structure. The ring ditch only survived to a maximum depth of 0.35m and in most places was much shallower. No finds were recovered from any of the sections excavated. The only other indications of a prehistoric presence at the Craw Stane complex were a fragment of Bronze Age faience bead found redeposited in a ditch fill and sherds of a Bronze Age Beaker found in the cattle scrape at the site in 2005 (Cook 2005).

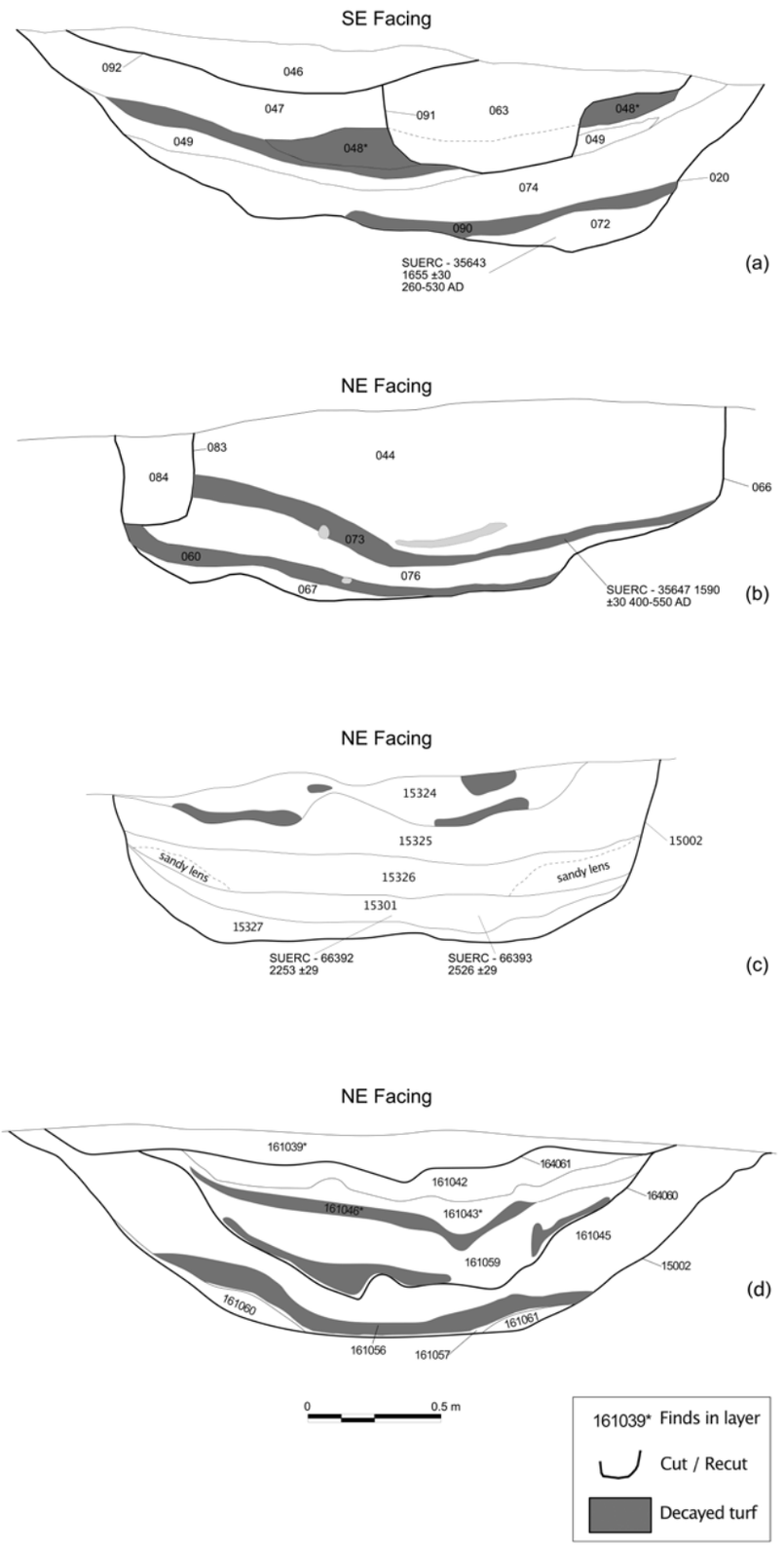
5.4.2 Inner Ditch

Seven sections were cut across the inner ditch of the Craw Stane enclosure complex during the five seasons of excavation (Illus 5.9). In 2011, a single section transected the north-eastern side of the inner ditch, whose cut [020] measured almost 3m wide and 0.7m deep (Illus 5.10a). The stratigraphy included a series of sand fills with two organic layers (048/090) that may have represented a turf lining or more gradual silting of the ditch (Illus 5.10a). Two recuts [091] and [092] were evident in the upper ditch profile.

The south-west terminal of the inner ditch was rounded in plan and U-shaped in profile, with five ditch fills evident in this



Illus 5.9
Slots excavated through the ditches at the Craw Stane complex



Illus 5.10
Examples of sections through the inner ditch – see Illus 5.5 for location of sections

Illus 5.11
Turf impressions in fill (161056) in the inner ditch

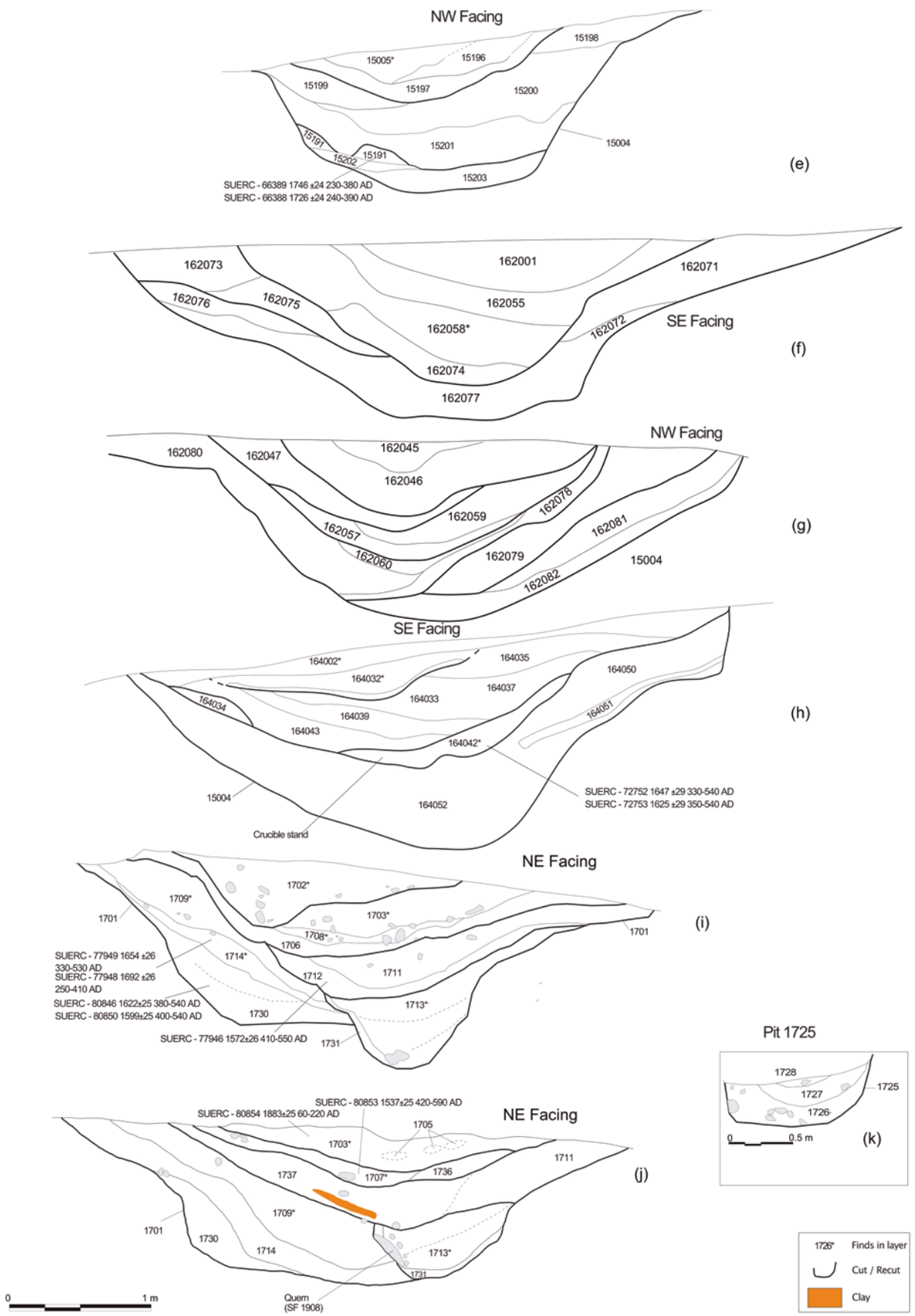
Illus 5.12
Upper recut of the outer ditch excavated in 2017 with finds- and charcoal-rich upper fill

section of the ditch (Illus 5.10b). Two of these, (073) and (060), were much more organic than the other sandy fills and may have been a turf lining to the ditch (Illus 5.10b). The uppermost fills of the ditch were cut by slot [164003/083] of Structure 3. The northern terminal of the inner ditch was also excavated in 2015, which was around 2m wide, 0.7m deep and terminated in a rounded cut (Illus 5.10c). Like the southern terminal, the sides of the ditch were sharply dug into the natural on both sides and contained a series of five silty sand fills.

The 2016 section across the inner ditch proved to be one of the most interesting and revealing (Illus 5.10d). This section was located on the north-west side of Trench 1 and showed that the ditch here measured 2.7m wide and up to 0.8m deep. The section also showed that the ditch had been recut on at least two occasions by [164060] and [164061] (Illus 5.10d). One of the lower layers (161056) was dug in plan and gave the impressions of individual slumped turves in the base of the ditch (Illus 5.11), suggesting that the more organic deposits within the ditch fills were redeposited turf that had been used as a lining or collapsed from a bank. Two further organic layers (161059) and (161046) lay in a recut of the ditch.

5.4.3 Outer Ditch

A total of 13 slots were excavated across the outer ditch (Illus 5.9). Three slots dug in 2011 were located on the north-eastern side of the enclosure complex and targeted 'hotspots' identified during the metal detecting survey. The outer ditch proved to be up to 4m wide and up to 1.1m deep in this area. The lower fills were sterile and sandy, representing natural silting and/or deliberate infilling of the ditch. The uppermost fills were charcoal-rich sandy deposits that lay within a recut of the ditch



Illus 5.13
Examples of sections through the outer ditch

(Illus 5.12). These contained significant quantities of quarried stone fragments, charcoal and animal bone and a large quantity of artefacts including numerous sherds of Late Roman amphora, fragments of bronze pins, amber beads and iron fragments. The nature of the finds-rich deposits suggests they were dumps from a period of destruction and/or clearing of nearby structures.

Subsequent seasons found further evidence for recutting of the outer ditch, with at least two recuts identified in a 2015 outer ditch section (Illus 5.9e and 5.13e). One of the lower fills (15191) that lay below a recut was dated to 230–380 and 240–390 cal AD (SUERC-66389 and SUERC-66388) (See Chapter 8 for full discussion of dating), providing some of the earliest dates from the ditch (aside from redeposition of Iron Age material). This layer was charcoal-rich and had slumped into the ditch from the exterior edge. The character of this fill suggested that it may have included cut turves and other organic material. The upper fills of the ditch, which lay within at least three later recuts, were largely sterile fine sands and silty sands.

The 2016–17 seasons explored the outer ditch further and concentrated on evidence for the dumping of metalworking-related artefacts. One slot in 2016 was a 4m wide section excavated across the western side of the outer ditch (Illus 5.9f and 5.13f). This section identified a basal fill of sterile yellowish-brown sand (162077) which had been subject to some burrowing and disturbance. Overlying the basal fill on the eastern side was a series of layers of mixed sand (162076), (162075) and (162073), and on the west side similar sand deposits (162077), (162072) and (162071) were recorded. Layers (162073) and (162075) lay within a probable recut of the ditch and all of these lower fills were in turn recut by a narrower ditch cut which had four major fills – (162074), (162058), (162055) and (162001). Layer (162058) was a charcoal-rich sand with mould and crucible fragments and a furnace base that appears to have been dumped into the ditch from the outer edge.

Another ditch section excavated in 2016 also showed evidence for the dumping of metalworking debris (Illus 5.9g and 5.13g). The basal fill of the ditch in this section was redeposited yellow sand (162082) which was overlain by clay-rich sand (162081). The ditch here showed evidence of being recut and filled by a gravelly sand (162079), which in turn was recut and filled with a series of sandy deposits (162078), (162080) and (162060). A further recut occurred with fills (162057) and (162059), then another recut with fill (162047) and a final recut with upper fills (162046) and (162045). Just below these final two layers, but not appearing in section, was a layer of yellow-brown sand (162054) which again represented a depositional event from the outer edge of the ditch (Illus 5.14 and 5.15). This contained around dozens of

Illus 5.14
Working shot of Trench 3, Sondage 3 from 2016 showing finds-rich layer (163054) with zoomorphic moulds slumping into the ditch from the outer side of the enclosure

Illus 5.15
Recording a large group of mould fragments from the finds-rich layer (163054) in the outer ditch, Sondage 3, 2016

clay mould fragments, including all the zoomorphic moulds for making animal figurines (Chapter 7) along with numerous crucible fragments.

A third slot dug in 2016 was located near to Structure 3 (Illus 5.9h and 5.13h). Here, recutting of the ditch was less obvious than elsewhere but there were at least three recuts that were shallower in profile than the recuts found elsewhere along the length of the outer ditch. A mid-fill (164042) of the ditch produced samples for two radiocarbon dates that were relatively early in the sequence from this feature. Finds were few in this part of the outer ditch, although a crucible stand was recovered from context (164042).

The 2017 season produced the most detailed information on the recutting of the outer ditch. The trench this year was established to solely target an 8m wide stretch of the enclosure boundary on the north-west side of the complex, and multiple sections were excavated to provide detailed profiles on the ditch fills (Illus 5.16 and 5.17). The lowest ditch fill identified was (1730) – a loose orange silty sand (Illus 5.9i; Illus 5.13i). Overlying the basal fill was a layer of black charcoal-rich sandy silt with frequent burnt bone (1714) and a layer of coarse sand (1709). Samples from (1730) and (1714) produced radiocarbon dates, with those from (1714) being older than those (1730) suggesting the incorporation of residual material within (1714) (see Illus 5.13i).

Illus 5.16
Photograph of the 2017 east-facing section of the outer ditch showing the multiple recuts

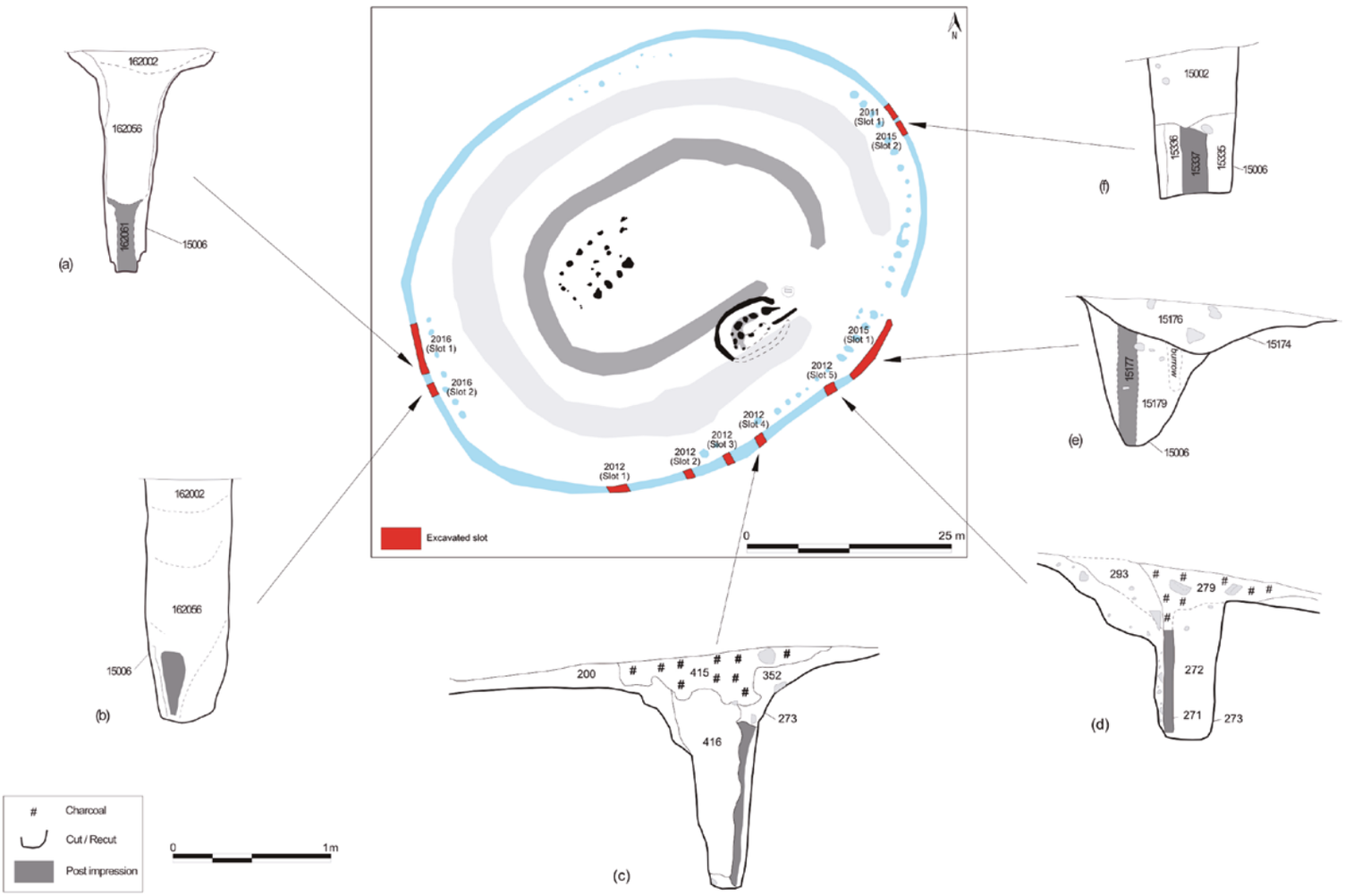
Illus 5.17
Photograph of the east-facing section of the outer ditch with rotary quern within recut excavated in 2017

The westernmost part of the trench in 2017 trench showed evidence of extensive reworking of the outer ditch. Deeper, more V-shaped ditch recuts were evident in two sections (Illus 5.13i, 5.13j and 5.17). The earliest recut was filled on the east side of the trench by a thin layer of pink clayey silt (1731) that may have been decomposed turf. This produced two Iron Age dates (SUERC-77953 and SUERC-77954), demonstrating the incorporation of redeposited charred material – perhaps from turves dug to line the recut (Illus 5.9j and 5.13j). At the west side of the trench, the top stone of a rotary quern was found slumped into the basal fill of the recut (Illus 5.9j and 5.13j) and the upper layers of this recut were sands with thin lenses of more organic material. The ditch showed evidence for having

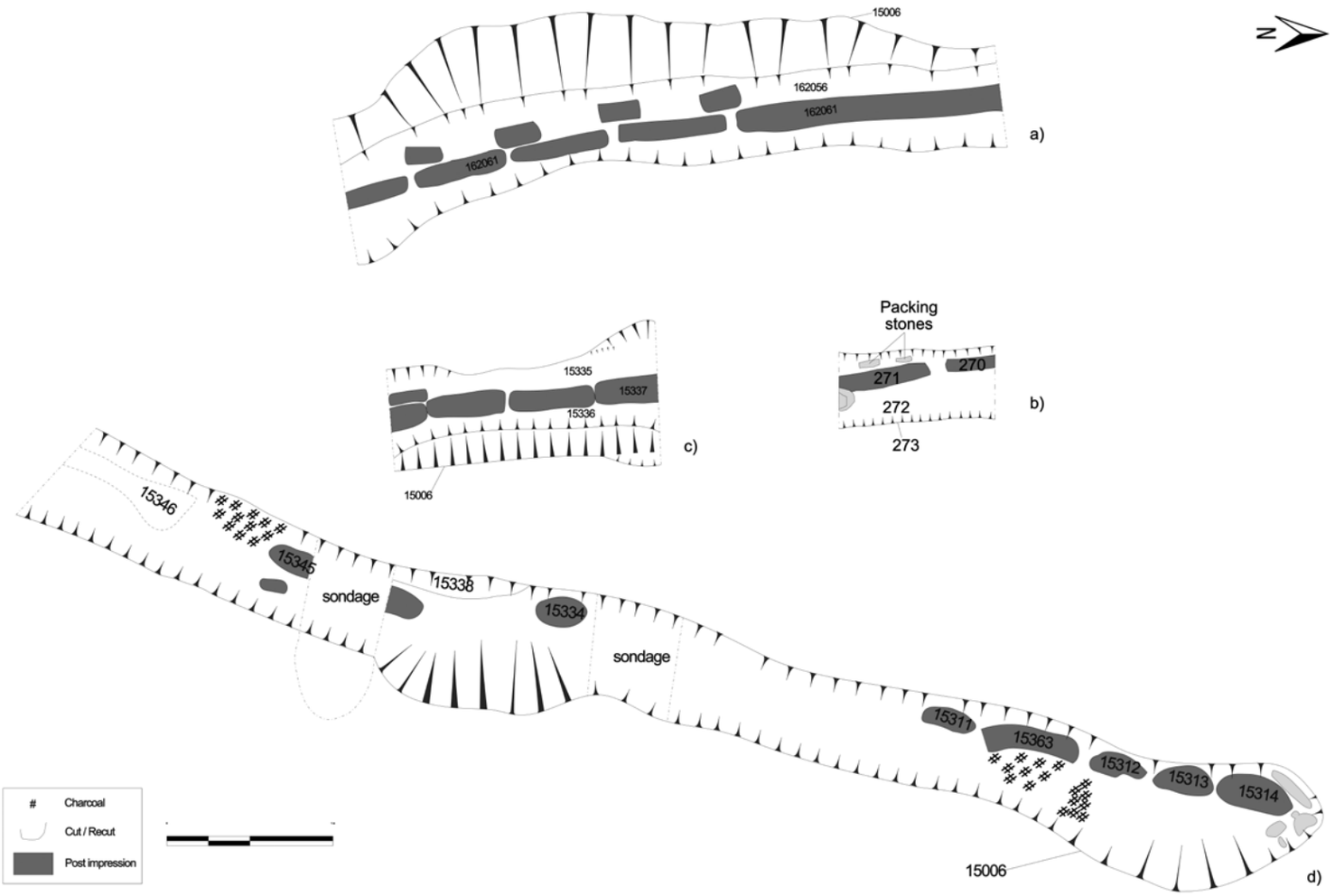
Illus 5.18
Pit [1725] cut into the outer ditch and backfilled with metalworking waste

been recut for a second time by a shallow bottomed cut, that was set slightly further to the north than the primary ditch cut (Illus 5.13i and 5.13j). This was filled with silty clay and sand fills (1711), (1712) and (1737). The ditch was then recut for a third time by another shallow cut set back again to the south, which was filled with a series of relatively sterile sand fills (1706), (1708) and (1703). A final shallow recut was filled with (1702/1703), a charcoal-rich black sand with burnt bone that contained the majority of finds. This layer included residual charred material, suggesting that the uppermost fills may have come from deliberate infilling of the ditch with earlier midden material (Illus 5.13i).

In the 2017 trench, a pit [1725] had been cut through the middle fills of the outer ditch (Illus 5.13k and 5.18). The pit was circular and bowl-shaped in profile and was around 1.1m in diameter and 0.75m deep. It was filled with (1726) – a dark charcoal-rich layer that appeared to line the outer edge of the cut. The edges were very distinct and the fill contained some severely burnt bone, cattle teeth and fire-cracked stone. There was also metalworking waste including clay moulds and a concentration of crucible fragments. The upper fills of the pit, (1727) and (1728), were silty sands with frequent charcoal. It is likely that this pit was used as an area for metalworking within what must have been a largely infilled ditch by that time. The pit may have been an emptied bowl-hearth that was later reused for dumping metalwork debris.



Illus 5.19
Sections excavated across the palisade and examples of the profile of the palisade slot



Illus 5.20
The plank and post setting impressions preserved at the base of the palisade

5.4.4 The outer palisade and post setting

The outer enclosure boundary was formed of plank and post settings (Illus 5.19 and 5.20). This was referred to as a palisade in pre-excavation publications and interim reports on the site, though the excavated evidence suggests a more complex outer boundary than the term palisade may imply. However, the term palisade has been retained for the outermost continuous foundation trench which held a plank and post setting. Around 2m inside the palisade foundation trench, an internal post setting was identified.

With regards to elucidating the architecture of the outer boundary, the most revealing investigations took place in 2016 when a 4m stretch of the palisade trench on the south-western side of the enclosure complex was excavated in plan. The preservation of plank and post shadows was such that the structural elements were evident in more detail than had been located elsewhere (Illus 5.19 and 5.20). The excavations revealed a deep foundation trench [15006] around 1m wide at the top that narrowed to around 0.3m wide at the bottom and was 1.4m deep (Illus 5.19a and 5.20a). A mid to dark yellowish-brown mottled sand (162002) that contained a piece of early medieval vessel glass filled the top of the palisade. Below this lay a lighter brown sandy fill (162056), which composed the main fill of the trench. Visible at the very base of the sequence was a fill of coarse dark-brown sand (162061) which preserved the impressions of planks and posts. Some of these structural elements may have been charred in places, as there were frequent inclusions of charcoal at this level. Once (162056) was fully removed, there were visible shadows of decayed timbers. Soil staining from at least four individual planks (162061) was visible along the centre of the base of the foundation trench, and the impressions of squared posts were identified at the interstices of the planks on the exterior side of the plank wall (Illus 5.19a and 5.21). The plank impressions were up to 0.5m long and around 0.1m wide, while the post impressions had maximum dimensions of 0.25m by 0.15m. In section, the lower fill (162061) that contained the post and plank impressions was visible for around 0.4m depth at the base of the cut. Soil staining on the other side of the plank line suggested that other timber or organic components were set on the internal side of the planks, but no clear post impressions were identifiable. The mid-fill (162056) of the foundation slot above the post and plank impressions was largely a homogenous sand that showed little evidence of features or differentiation (Illus 5.19a). Like the other slots dug through the palisade, none of the structural detail of the palisade construction was visible at the surface or in the upper fills. It would therefore appear that the planks and posts had been removed at some point in the site's history, leaving stumps or post impressions in only the lowermost fills.

Illus 5.21
Photograph of the plank and post settings at the base of the palisade

Illus 5.22
Possible plank/post impressions at the entranceway of the palisade

Clear plank impressions were also evident in the mid to lower fill of a small 1m section dug across the palisade slot next to the northern trench edge in 2012 (Illus 5.20b). Here, the palisade slot was up to 1.6m wide at the top and included destruction deposits that extended downslope. The cut was around 1.1m deep and was ramped on the inner side. Impressions of planks were evident on the inner side of the feature, which had been backfilled with loam and gravel (293) on the interior side and coarse sand (272) on the exterior (Illus 5.19d). In section, the plank impressions survived to a height of around 0.6m, but the upper portion had decayed or been deliberately dug out. Evidence of a possible recut containing a sandy fill of charcoal, burnt bone and stone (279) on the exterior side supports the latter interpretation. In plan, the plank impressions were again around 0.1m wide and at least 0.3–0.4m across. No posts were identified at the interstices but this may be due to the fact that only a very small slot was dug in this location. Packing stones for the planks or additional supports were found on the interior side of the planks.

Another slot dug across the palisade in 2012 showed that, in places, the palisade cut extended into the subsoil to at least 1.5m in depth (Illus 5.19c). The upper part of the cut was up to 1.4m in width and narrowed to 0.3m towards the base. A thin band of dark greyish-brown silty sand (352) on the interior side represented the remains of a decayed or partially removed plank, and a silty sand (416) had been backfilled around the timbers. A charcoal-rich deposit (415) with burnt bone filled the top of the palisade cut and extended to a depth of 0.3m. This may represent the deliberate digging out of structural timbers or the upper decay cone of timbers rotting in situ, followed by later infilling of the resulting voids.

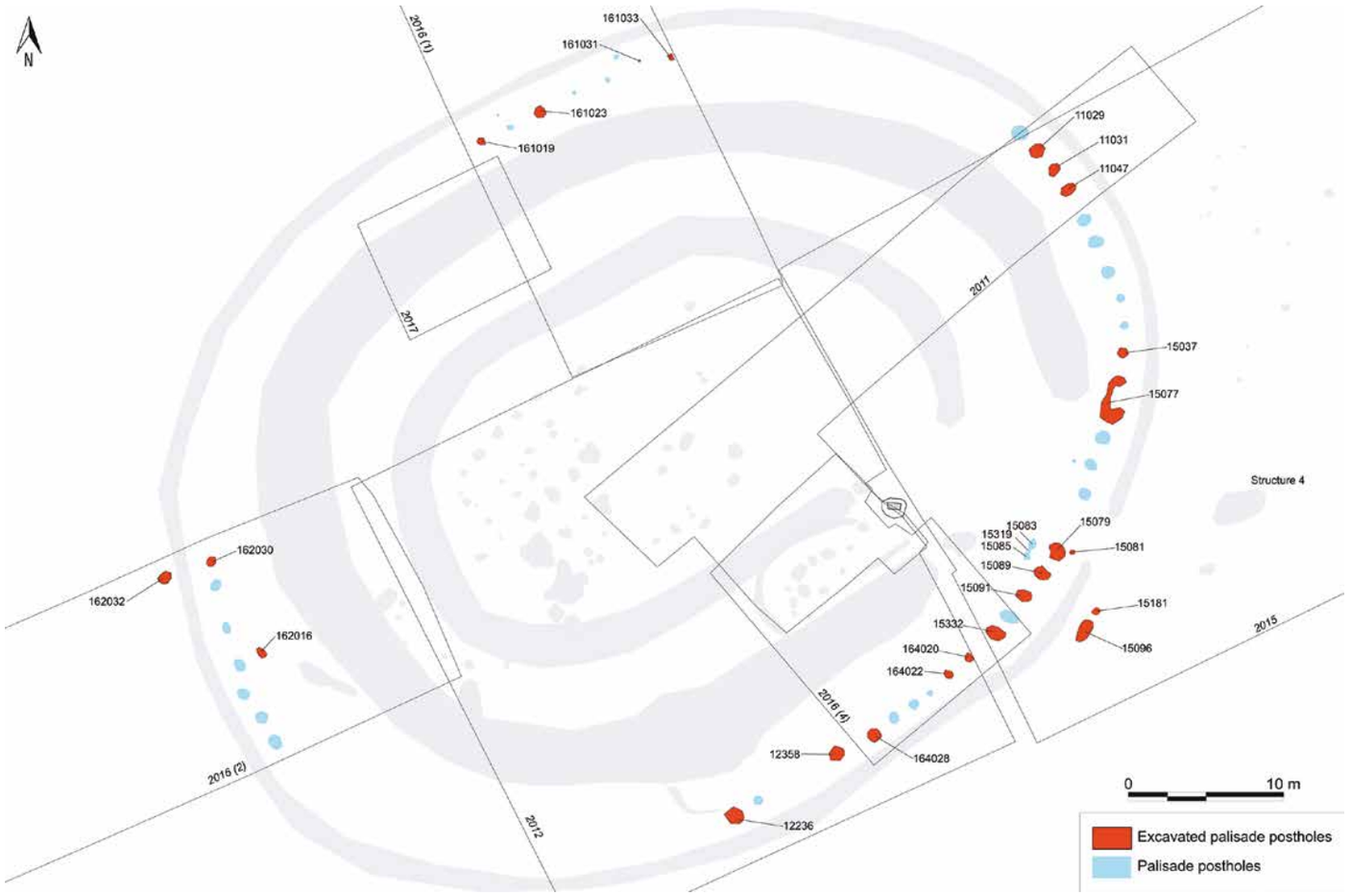
Plank and post impressions were also identified in the two slots dug across the palisade line during the 2015 excavations. One 2m slot, located downslope on the east side of the enclosure complex, revealed plank impressions in a foundation trench 1m deep (Illus 5.19f). Here, the plank impressions (15337) suggested timbers around 0.12m wide and up to 0.45–0.50m across (Illus 5.20c), though the distinction between individual planks was not entirely clear suggesting that the planks were closely set together or perhaps jointed. No external or internal post impressions were found; however, an organic fill (15335/15336) either side of the

vertically set planks suggested the presence of other structural timbers, horizontal planking or turf packing. Fragments of bone and charcoal were found in the upper fill of the foundation trench and no evidence of planks could be traced at the higher level. There was also no decay cone, suggesting that the upper portions of the planks had been removed. In section, the siltier fill (15337) associated with the plank impressions could be identified to around 0.45m in depth, with a reddish-brown homogenous sand filling the top half of the feature (Illus 5.19f).

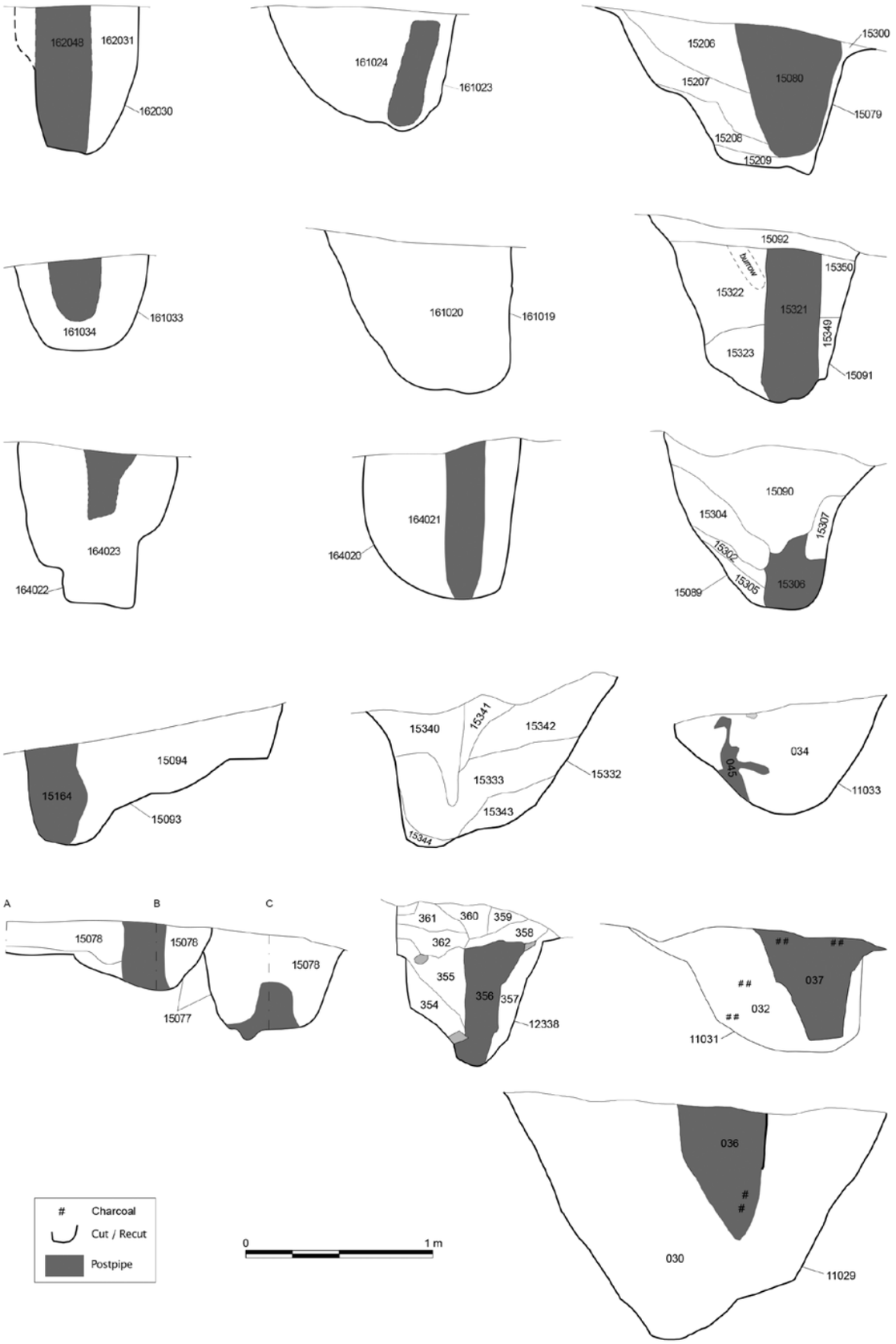
The second 2015 slot comprised an 8m long section dug across the palisade line at the southern side of the entrance (Illus 5.19e, 5.20d and 5.22). The palisade slot was noticeably shallower in this area, suggesting that truncation on the downslope side was more severe and/or that attempts were made to level the top of the palisade. A noticeable step in the palisade trench around 3m from the entrance, where the foundation trench became deeper, lends further credence to the levelling interpretation. Evidence of five post impressions – (15311), (15363), (15312), (15313) and (15314) – were found at the northern end of the foundation trench by the entrance gap (Illus 5.20d and 5.22). The post impressions comprised semicircular or D-shaped silty sand deposits around 0.4–0.5m across, perhaps representing planks or split posts with the flatter side of each facing towards the exterior of the enclosure. Stone packing was evident around the end post at the entranceway. However, structural details were difficult to discern in the rest of the excavated slot, though further possible plank impressions (15346/15345) were identified in the southern portion of the foundation trench. The post impressions contained a mixed assemblage of species of wood charcoal suggesting that the charred material was redeposited in the voids left by removed or decayed timbers. Post removal would undoubtedly have impacted what remained in terms of post impressions, and the variable evidence for the presence/absence of plank and post impressions in this excavated slot would suggest at least some of the palisade was deliberately removed or dismantled. The post impressions in this part of the palisade were directly against the inner face of the palisade cut and it may be these were elements of a more complex construction, with further features present in the centre and exterior side of the trench that have not survived as post impressions.

5.4.5 Palisade post holes

Closely associated with the palisade trench was a setting of post holes that lay inside the line of the palisade trench (Illus 5.23 and 5.24). Where excavated, the posts were found around the entire



Illus 5.23
Excavated palisade post holes and miscellaneous features



Illus 5.24
Sections of palisade post holes – in most cases clear post-pipes were evident

circumference of the palisade, though the exact position of many of the post holes in the 2012 trench was obscured by hillwash and destruction deposits. The post holes were around 1.6–1.8m apart and were each set a very regular 2m away from the projected line of the planks in the palisade foundation trench. The post holes were generally fairly uniform in shape, with 20 examples excavated in half-section or in full. Most were around 0.8–1m in diameter and 0.6–0.8m deep and were ramped in the majority of cases. Post impressions or decay cones were evident in many examples and were on average around 0.3m wide (Illus 5.24). Where identifiable, the post-pipes stood on the side of the post hole closest to the palisade line.

The palisade post-hole settings around the entranceway were found to be more complex in form and were more closely set. Architectural elaboration around the entrance included two additional linked post holes [15083] and [15085] on the south side of the entrance (Illus 5.23). These were found set back around 1.8m from the main line of palisade post holes and an additional small post hole [15081] was located between the entrance post hole and the terminal of the palisade trench. Upslope, the smaller post holes [15083] and [15085] were linked by a shallow dark-brown silty sand spread (15319) that may represent a very truncated plank or beam slot, but it survived to only 0.03m in depth. Similarly, between the fourth and fifth post holes along from the northern side of the entranceway, two adjacent palisade post holes [15077] were linked by a beam slot (Illus 5.23). The beam slot may have supported a timber structure built up on the interior edge, such as a stairway that gave access to a wall-walk or similar structure.

In addition to the architectural elaboration around the entrance, the character of two further palisade post holes is worthy of detailed comment. Palisade post-hole [12236] on the south-east side of the enclosure complex was one of the most intriguing features excavated at the Craw Stane complex. This was the most obvious palisade post hole revealed during the 2012 season, due to the substantial levels of burnt deposits and stone visible from the first cleaning. It was clear that this post had been removed or dug out and the void backfilled with a charcoal-rich mixture containing burnt and broken stone (Illus 5.25 and 5.26). This material was found throughout the feature and packed densely in the backfill. This was also the only palisade post hole excavated that had artefacts associated with it, which included the exceptional find of a set of metalworking tongs placed near the top of the feature that had seemingly been deliberately bent and broken prior to deposition. A fragment of a two-piece clay mould for a small penannular brooch was also found towards the base, and unburnt animal bone and teeth, probably from cattle, were found throughout the fill along with significant quantities of small fragments of burnt animal bone. A similar feature – post-hole [164028] – was identified in 2016 which was also evident from the surface and contained animal bone in a central fill. Excavation of both these palisade post holes proceeded in plan to allow the bone and finds to be plotted in situ, and revealed that the animal bone in [164028] was

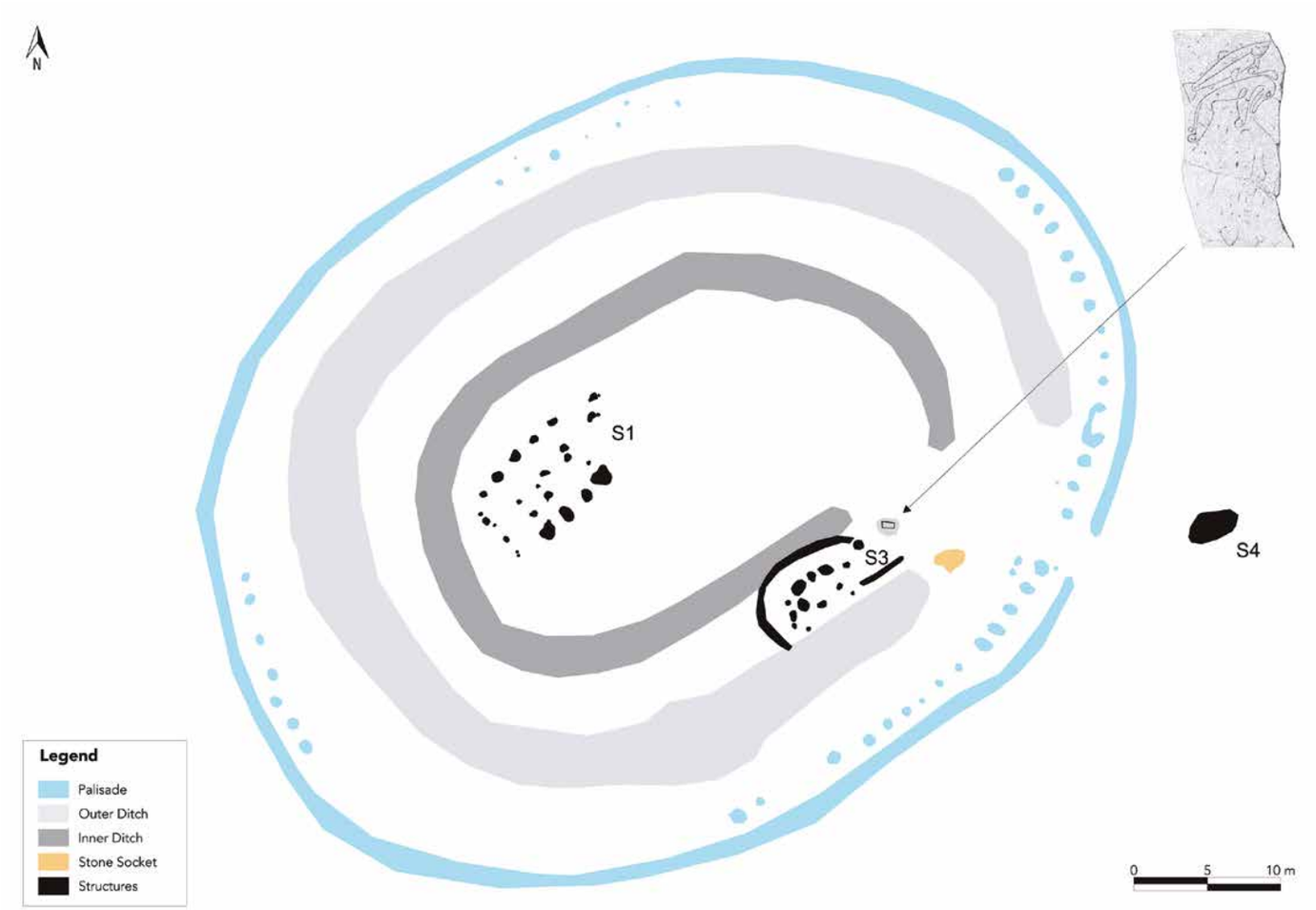
Illus 5.25
Post-hole [12336] with unburnt animal bone and fire-cracked stone evident at the very base of the backfill

Illus 5.26
Post-hole [12336] showing fire-cracked stone found in the backfill

Illus 5.27
Post-hole [164028] with fire-cracked stone and animal bone in the post-pipe

packed in the post-pipe fill created by the removal of the post (Illus 5.27).

In contrast to the interior, few features were identified on the exterior side of the palisade trench. In 2015, cleaning near the entrance exposed a linear area of disturbed soil (15096) that contained substantial quantities of burnt material including fragments of stone, charcoal and burnt bone (Illus 5.23). Removing the upper horizons revealed a small but deep post hole [15181] at the northern end that was 0.4m in diameter and 0.8m in depth, with a central post-pipe fill containing significant amounts of charcoal. Two fills at the side of more sterile sands, and an upper fill (15182) that extended across the width of the feature and 0.2m in depth, were also identified. The linear spread (15096) extended south-west from this post hole and was up to 2m in length, 0.7m in width and 0.15m in depth. The depth of post-hole [15181] and the associated spread that followed the line of the palisade may suggest that these features were part of some sort of timber structure built up against the external plank slot wall face near the southern entrance terminal. Another feature [162032] was found on the western exterior side of the palisade, opposite a palisade post hole on the interior (Illus 5.23). This feature was pit-like and sub-circular in plan, measuring 1.0m x 0.83m, and was filled with a basal fill of loose



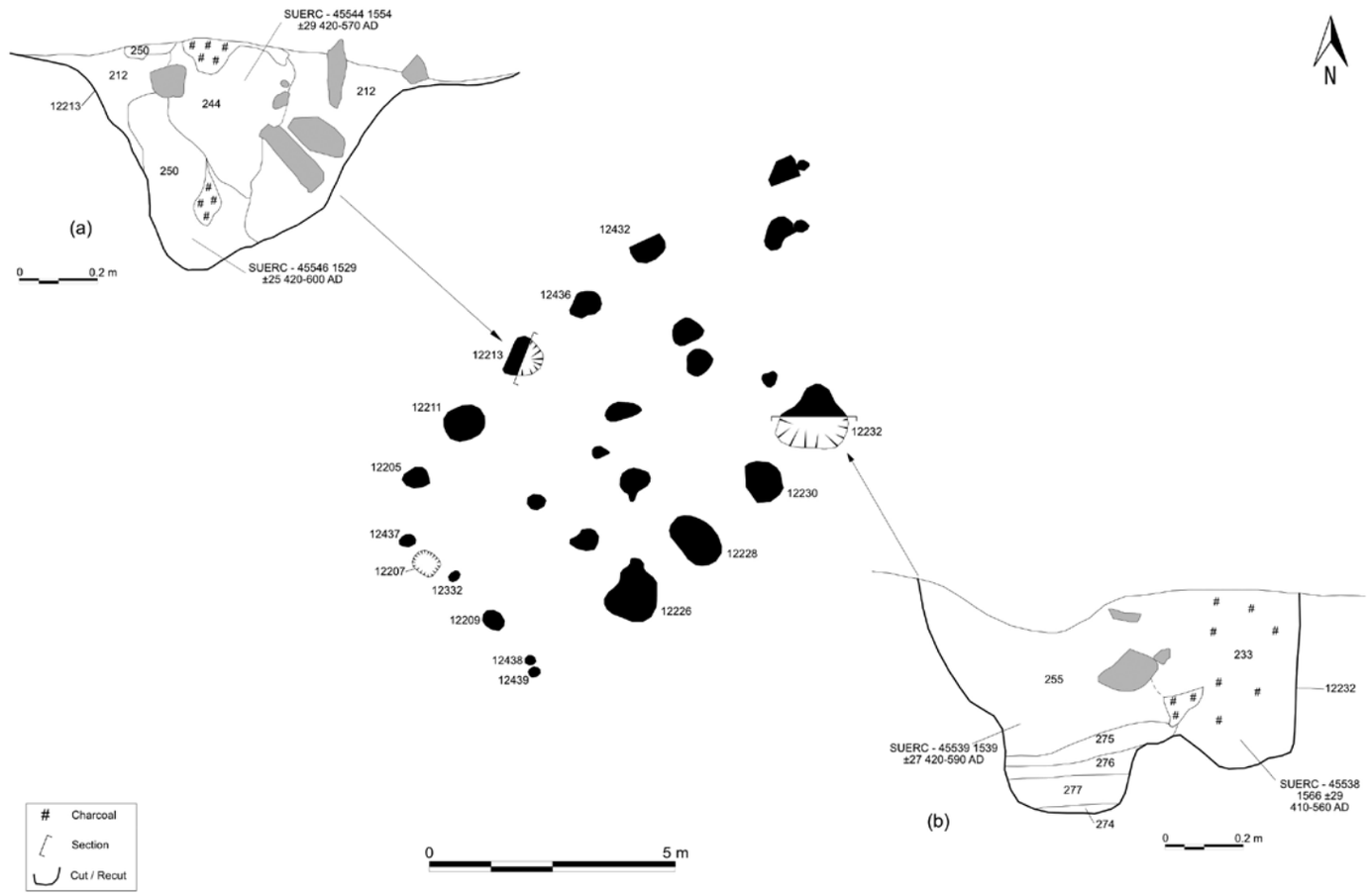
Illus 5.28
Plan of the Craw Stane complex showing the three buildings identified

orange-brown sand and an upper fill of mid-brown silty sand. The interpretation of this feature is inconclusive – it may be the remnants of an additional structural component of the palisade in this area or an isolated and unrelated pit.

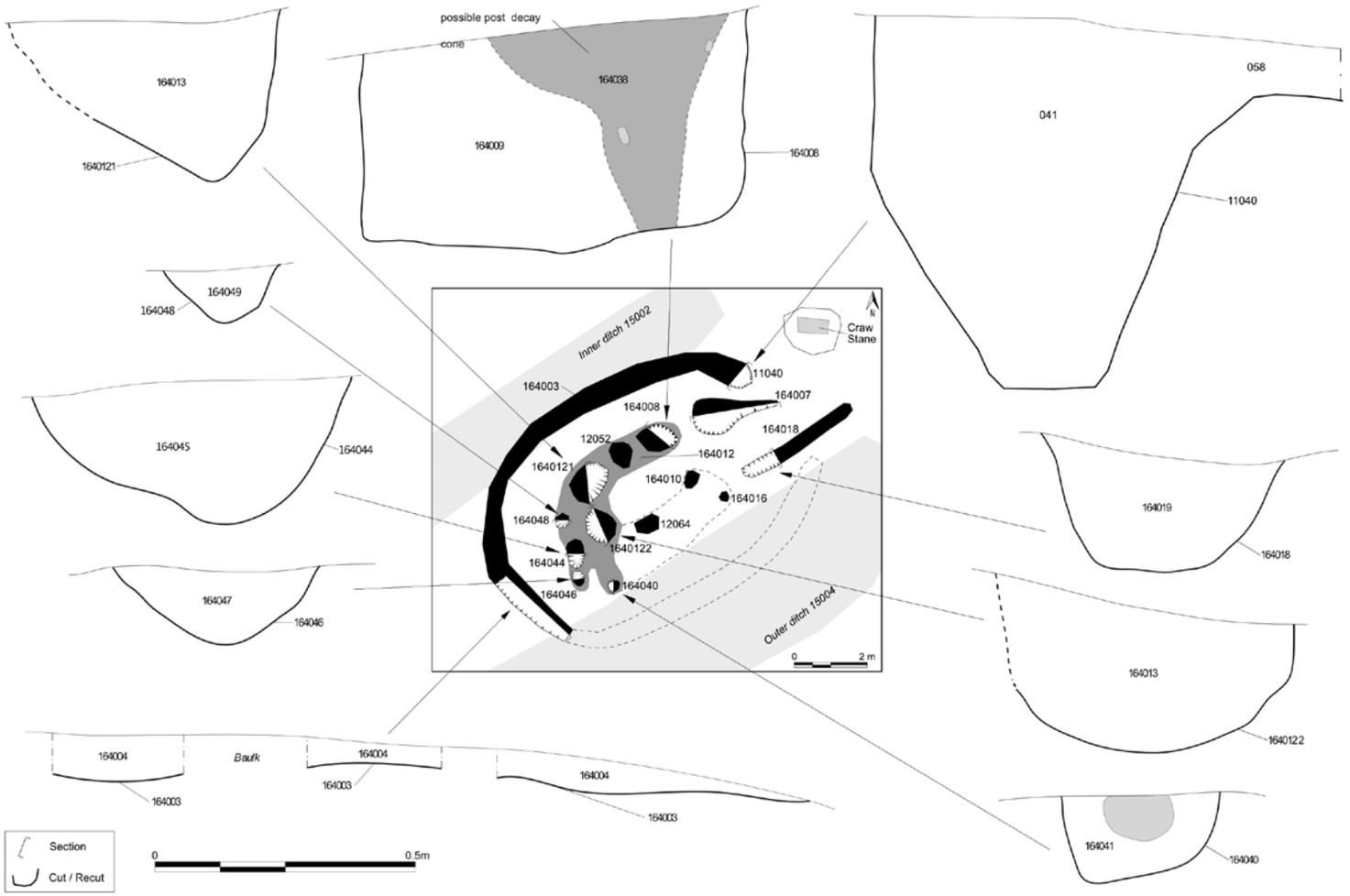
5.4.6 Buildings

Original interpretations identified four possible structures in association with the Craw Stane enclosure complex; however, one referred to in previous publications can now be ruled out. Of the remaining three structures, two were found within the enclosures (Structures 1 and 3) and another was located outside the complex (Structure 4) (Illus 5.28). Structure 1 consisted of a series of post holes arranged in a rectangular setting (Illus 5.29). The main structural timbers appeared on the north-west and south-east side and included four or five large post holes on each side. The post holes on the north-west side – [12205], [12211], [12213], [12436] and [12432] – had very obvious post-pipes with charred material evident on the surface of each post hole. All were of a similar size and character, with the exception of [12205] which was of a smaller diameter and did not contain such an obvious post-pipe. One of the four larger post holes [12213] was excavated and revealed a very clear post-pipe in section (12250/12244) and obvious packing on the northern side (212) (Illus 5.29a). Running parallel to this sequence was another line of post holes – [12226], [12228], [12230] and [12232] – which appeared to pair up with the four larger posts on the north-west side. Posts [12226], [12228], [12230] and [12232] were of a larger diameter than those in the north-west and had very obvious burnt post-pipes. A section through [12232] revealed a post-pipe full of charred material on the east side but no post-pipe was visible in the western half of the feature (Illus 5.29b). This suggests that the post hole had either been redug or replaced by another post. The other three post holes were of a comparative size to [12232], suggesting all four post holes were of a similar character.

Within Structure 1, another alignment of features – [12437], [12207], [12332], [12209], [12438] and [12439] – are suggestive of a transverse wall or interior division connecting the two north/south alignments of posts [12205–12432] and [12226–12232]. Post-hole [12207] was dug in plan, revealing a very obvious squared timber that had been burnt in situ. The squared timber measured around 0.2m across and had a light-brown silty sand/gravel packing fill. A small number of cut features were found to the north-east but no definite wall lines were found; truncation was particularly bad in this area and may account for this absence. An area of hard-packed gravel and several smaller pits or post



Illus 5.29
Cut features defining Structure 1



Illus 5.30
Features defining Structure 3

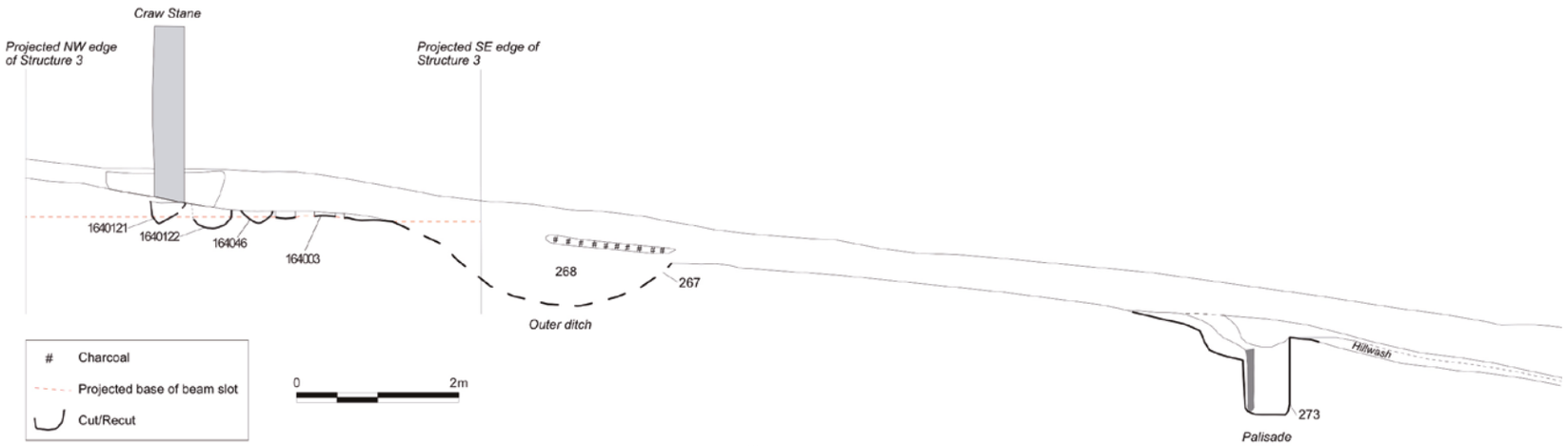
holes were evident in the interior, and together the features suggest a building of at least 9m x 5m. However, should the structure have included turf walls or non-earthfast timbers, Structure 1 may have been a much larger building of which the surviving remains represent only the main roof-bearing supports or remains of a cruck frame.

Structure 3 was located near the Craw Stane and comprised a series of features which were originally exposed in 2011–12 and re-examined in 2016 (Illus 5.30 and 5.31). The later excavations revealed most features in plan and section, including an upper arcing slot [164003], a lower arc or spread of material [164012] and a series of post holes (Illus 5.30). The upper arc [164003] consisted of a foundation slot around 0.2–0.3m wide and 0.05–0.30m deep, that deepened towards the north-east part of the structure. The slot terminated on the north-east side in a substantial post-hole [11040] that was only around 0.3m in diameter but 0.6m deep. Feature edges were particularly hard to define across the lower arc, which was recognised by a spread of dark charcoal-rich material containing segments of burnt timber plank. Once cleaned, it became clear that this spread was collapsed debris from a burnt structure that had sealed a series of post holes filled with similar charred material, presumably forming part of a structure that had been at least partially burnt. The individual post holes identified included [164040], [164046], [164044], [164048], [1640122], [1640121], [12052] and [164008]. These were around 0.3–0.5m in diameter and 0.2–0.4m in depth, with the deepest tending towards the north-east and shallowest towards the south (Illus 5.30). They were all filled with a black-brown mottled sand with diffuse and indistinct boundaries, suggesting they had been dug out and dismantled leaving only backfilled deposits behind. The pattern of larger post holes formed a semi-circle that mirrored the arc of the shallow slot [164003]. Fragments of charred planks of oak and alder were found redeposited in the upper fills, and two further cut features, [164010] and [164016], were found to the south-east of the lower arc where they most likely represented truncated post holes but survived only to 0.05m in depth. A more substantial feature [12064], measuring 0.4m in diameter and 0.3m deep with a charcoal-rich fill (065) and a large flat stone at the base, may have served as a post pad. Together, this gave the impression of a structure that had been reworked and disturbed over several phases of construction/repair and was ultimately destroyed. Several additional features were also found

Illus 5.31
Structure 3 under excavation

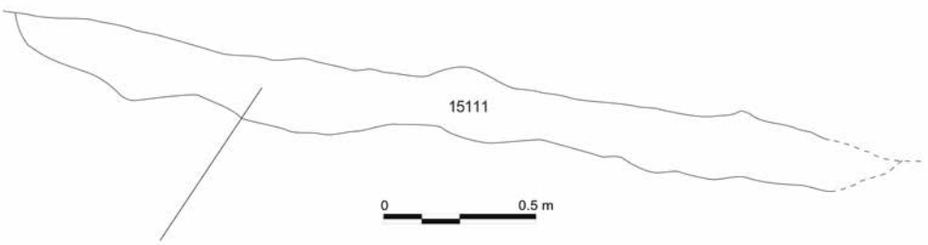
around the entrance of the structure, including a shallow post hole with a ramp or plank setting extending to the east [164007] and a U-shaped, shallow linear feature around 3m long, 0.45m wide and up to 0.25m deep [164018]. This linear feature could have been part of the structure but had a sterile yellow sand fill and therefore is probably unrelated to the building.

Structure 3 overlay both the inner and outer ditches, indicating that by the time it was constructed both ditches had been backfilled in this area and any banks/ramparts associated with the ditches had been removed. This extensive reworking made it difficult to resolve features and at least some structural features had been dug through the upper ditch fills and filled with similar material to the ditch. The south-east half of the structure had also not survived and may have been cut away by the outer ditch (though the upper slot [164003] appeared to cut the edge of the outer ditch and would challenge this interpretation – Illus 5.32). The other reason for the absence of the south-east side of the building relates to topography. The hillslope is notable in this area; there is a drop of around a metre in the ground surface from the outer edge of the inner ditch to the inner edge of the outer ditch, meaning that features could well have been truncated away on the downslope side of Structure 3 and/or features of the



Illus 5.32
Projected depth of Structure 3 cut features in relation to hillslope

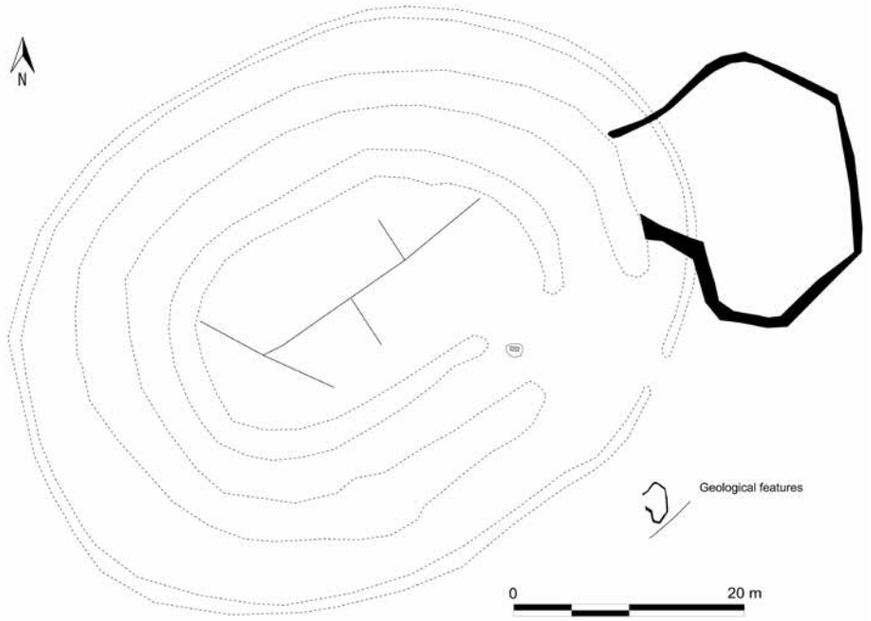
Illus 5.33
Miscellaneous features identified in the Craw Stane complex



SUERC-66390 1563±29 420-560 AD
SUERC-66391 1572±29 410-560 AD

Illus 5.34
Structure 4 floor layer under excavation and section

Illus 5.35
Frost-wedging evident in the 2012 trench



Illus 5.36
Plan of natural frost-wedging present within excavated area

building on the south-east side did not extend into the subsoil (Illus 5.32). Thus, though the evidence is admittedly not clear-cut, it seems most likely that Structure 3 post-dated both ditches.

Other structures are likely to have existed in the interior of the Craw Stane complex. For example, an arc of post holes found at the edge of the outer ditch may have been part of a structure. Four shallow post holes – [162009], [162007], [162005] and [162003] – were identified here and may be related to other pits/post holes found adjacent or cutting into the inner ditch in 2012 (Illus 5.33). A shallow curving slot [318] associated with the outer ditch may also represent parts of a highly truncated structure (Illus 5.33). The slot appeared to be the foundation for planks or small posts and curved towards the palisade post settings. The fill was full of charcoal and small stones likely to have been used for packing, suggesting it may have been a structure built up against the palisade/post-hole setting.

Structure 4 was identified in an area downslope from the Craw Stane entrance, indicating that settlement associated with the complex also extended outside the enclosing elements. The building survived as a sub-circular deposit around 3m north/south by 2.8m east/west that was interpreted as the vestiges of a highly truncated floor (Illus 5.28 and 5.34). The deposit appeared to be preserved by a deposit of hillwash on the east-facing slope of the Craw Stane field and the floor survived up to 0.22m in depth. A Late Roman amphora handle and two iron buckles from a horse harness or saddle girth straps were recovered from the spread, which consisted of silty sand with evidence for burnt turf and charred timbers. The charcoal assemblage was dominated by large quantities of oak from timbers but a small amount of hazel charcoal was also recorded. The remains indicate that Structure 4 was an oak built structure which may have had outer turf walls. Carbonised cereal grains of barley and hulled barley found in the floor layers suggest that the structure was used for food preparation or the storage of grain (Niehaus and Ramsay, Chapter 6).

An additional (but now dismissed) structure was identified in 2012. This consisted of what appeared to be a linear setting extending for around 23m WSW to ENE, with a transverse setting extending for around 6m midway along the linear setting to the south-east. These features proved difficult to resolve in plan and a number of box sections were dug to help clarify their character. On the surface, particularly in the northern portion, thin lines of pea gravel a few centimetres wide bracketed a medium-brown silty sand fill. When sectioned, the pea gravel could be seen extending down up to 0.35–0.70m into the subsoil, while the siltier infill appeared to terminate in a sharp edge at the base of this deposit. These could be interpreted as plank settings driven into the subsoil but on reflection it is more likely they are natural features and may represent frost-wedging of a kind found elsewhere on site in subsequent years (Illus 5.35 and 5.36). The transverse setting proved to be similar, with shallow cuts and sterile fills evident when excavated. The very regular plan of these 'settings' led to initial confusion about the nature of these

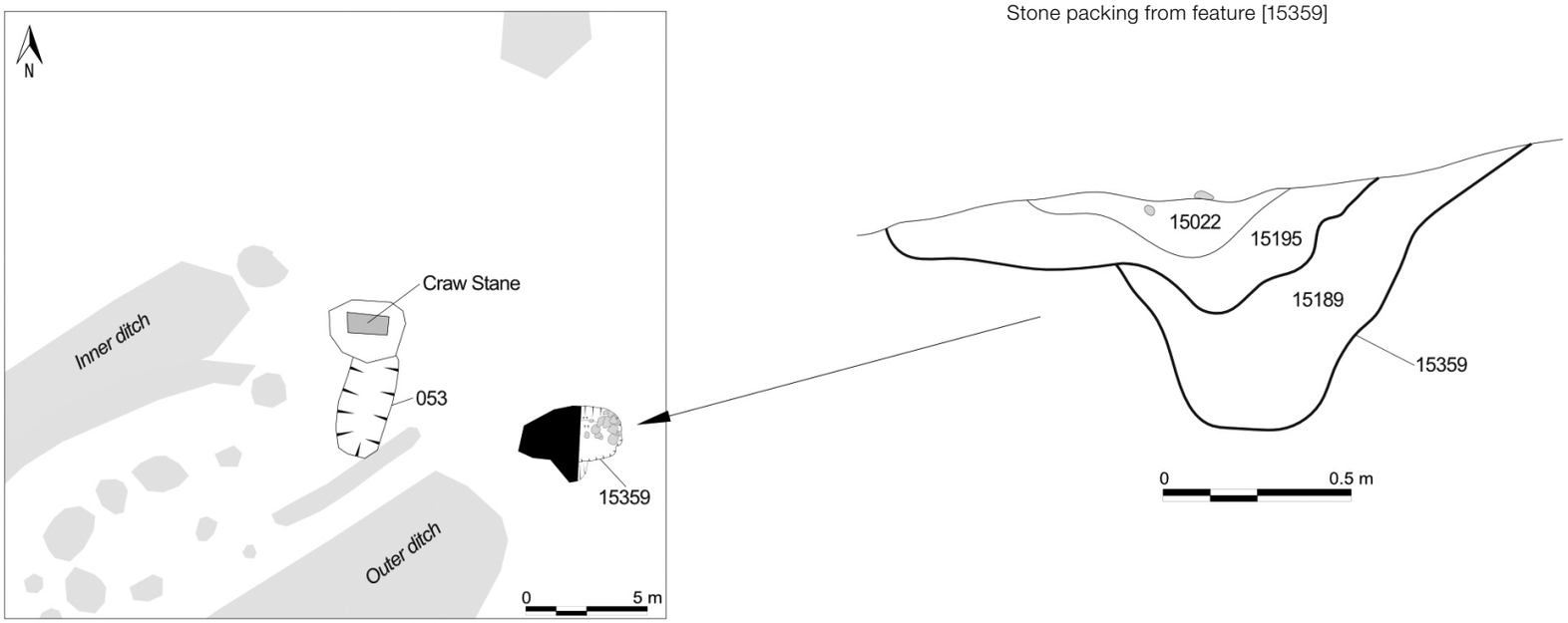
features. Attempts were made to try and identify a southern wall to the putative structure but it proved impossible to trace, with further box sections on the projected line of a southern wall line proving negative. While the linear features were very regular compared to other examples of natural frost-wedging found on site, they had similar sterile fills and were very different in nature to the beam slot associated with Structure 3.

Various pits and post holes were located in the same general area as the frost-wedging, particularly in the western part of the 2012 trench (Illus 5.33). These included feature [248], a large amorphous spread of brown silty sand (max 1.8m x 2.2m diameter) interpreted as a post setting that had been removed or dug out. When excavated, its fill (249) consisted of a shallow 'halo' at the top that obscured a much smaller cut filled with the same material around 0.7m deep and 0.5m wide. Fill (249) was a homogenous dark-brown silty sand with frequent charcoal inclusions and occasional pieces of burnt bone. No finds were made but the impressions of one or two posts were found at the base of the feature. The large 'halo' and homogenous fill implies that the posts had been dug out and purposefully removed. An isolated post hole and a scatter of other features were found nearby but no definite pattern to the layout of these features could be established. While the linear settings can be ruled out, the scatter of post holes and pits in the same area suggests that some form of structure or series of structures stood in this area.

5.4.7 The Craw Stane symbol stone and stone socket

The Craw Stane stands directly on the line of the entranceway of the outer enclosure and between the terminals of the outer and inner ditches. Its position is recorded here since the middle of the 19th century, though the stone is known to have been reset in concrete following storm damage in the 1930s. It is currently aligned south/south-west and oriented towards Structure 3 rather than the entranceway of the complex – though whether this reflects the original

Illus 5.38
Stone packing from feature [15359]



Illus 5.37
Craw Stane and stone socket [15359]

Illus 5.39
The base of feature [15359] with animal bone deposition

orientation of the stone remains uncertain. A shallow sub-rectangular cut feature [053] measuring around 2.2m x 1m was found extending to the east of the Craw Stane during excavations in 2012 (Illus 5.37). This survived only 0.03m in depth and may have been a feature associated with the stone falling and being reset in the 1930s.

In 2015, an oval pit [15359] was found at the terminal of the outer ditch, 4m south-east of the Craw Stane. The pit measured 1.3m north/south by 0.9m east/west and was 0.65m deep, with stone packing arranged tightly around a central sandy fill (15189). The packing stones had varied geologies that included angular fragments of red and yellow sandstone and river-worn or gravel-derived stones, measuring a maximum of 0.22m in size (Illus 5.38). The packing and size of the feature were distinct from any post holes found during the Craw Stane excavations, giving rise to the interpretation that this feature represented a socket for a standing stone. As the packing was concentrated on the north and east side of the feature, the standing stone was most likely contained within the southern part of the socket. Beneath the stone packing, a cattle jaw and small assemblage of animal bone were identified at the base of the pit on its southern side (Illus 5.39). A second later and shallower cut containing two fills represented clear disturbance of the standing-stone socket, and likely resulted from the falling and/or subsequent extraction of the stone. These upper fills were rich in charcoal and burnt bone and were similar in nature to the final fills of the outer ditch and palisade trench, suggesting that many of the major elements of the site came to an end as part of the same decommissioning event.

5.4.8 Other features

Feature [256] was a very large stratified pit found near the exterior edge of the outer ditch in 2012. The pit measured a maximum diameter of 2.25m and was around 0.9m deep, with the lower fills consisting of multiple lenses of sterile sands and sands with a higher organic/charcoal content (Illus 5.33 and 5.40). The upper fill of the pit consisted of redeposited sand, which in turn was cut by later features including a large pit or post-hole [382]. The fill of the later pit/post hole resembled the dumps of material found in the uppermost fill of the outer ditch.

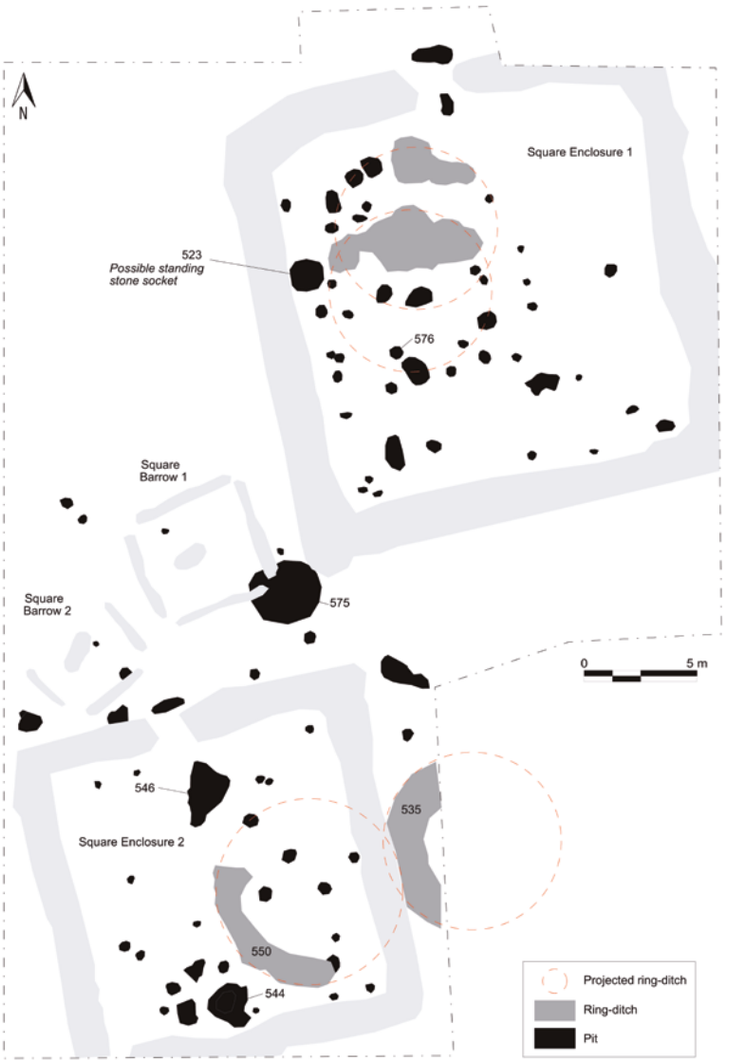
Other features included two oval pits [12305] and [162011] that were found in close proximity to one another and had both been cut by the outer ditch. The pits were large (up to 2.5m in length) but comparatively shallow in depth and had single homogenous brown sterile sand fills. Nearby, located between the outer ditch and the palisade trench on the west side of the complex, was an unusual, elongated pit [162013]. This feature was oriented north-west/south-east and measured around 4m x 1m and up to 1m deep (Illus 5.33). The profile in section was shallow for approximately 2m at the east end but steepened to form a flat-based U-shaped pit with steep sides at the western end. One of the fills

Illus 5.40
Massive pit [256] found adjacent to the outer ditch

Illus 5.41
The putative annexe enclosure identified as geological in nature. Craw Stane and enclosures to left of picture. Extensive plough marks can also be seen in this image

comprised an upper compact clayey sand fill (162014) with frequent charcoal deposits, including in situ fragments of larger diameter charred wood. The interpretation of this feature is uncertain but it could have been a bowl furnace for metalworking that had largely been emptied prior to its final backfilling.

A possible annexe enclosure evident in aerial photographs of the site (but not apparent during geophysical survey) was targeted as part of the 2015 excavations (Gondek & Noble 2011: fig. 8.5) (Illus 5.36 and 5.41). The putative enclosure initially showed up well after the first cleaning of the trench but became very difficult to identify thereafter. The enclosure measured around 20m north/south by 28m east/west and appeared to extend from the outer ditch downslope to the north. The feature was polygonal, with straight sides evident on the east, west and north, and curved ditches on the south side. From aerial photos it appeared to have been cut by the palisade and post setting but perhaps respected the outer ditched enclosure. Various slots through the line of the annexe enclosure boundary failed to show conclusive evidence



Illus 5.42
Prehistoric features within the cemetery area

Site	Lab No	Material	Context	Radiocarbon Age (BP)	δ13C (‰)	Calibrated date (95% confidence)
Rhynie, Cemetery area 2013	SUERC-52937	*Pinus sylvestris* charcoal	Large pit cut by Square Barrow 1; lower fill. Context 574; Sample 537	7941±30	-26.2	7030–6690 cal BC
Rhynie, Cemetery area 2013	SUERC-52931	*Pinus sylvestris* charcoal	Square Enclosure 2 lower ditch fill South section. Context 579; Sample 532	7723±27	-27.4	6620–6470 cal BC
Rhynie, Cemetery area 2013	SUERC-52927	*Salix sp.* charcoal	Pit [544] within Square Enclosure 2. Context 545; Sample 518	5415±27	-27.8	4340–4230 cal BC
Rhynie, Cemetery area 2013	SUERC-52921	*Pinus sylvestris* charcoal	Massive pit/post hole within Square Enclosure 2. Context 547; Sample 514	4651±28	-24.5	3520–3360 cal BC
Rhynie, Village 2014	Poz-69683	*Corylus cf avellana* charcoal	Cairn in Ashvale/2 South Road house; deposit just above natural. Context 2304; Sample 2302.	3030±35	-25.6	1410–1130 cal BC
Rhynie, Cemetery area 2013	SUERC-52939	*Betula sp.* charcoal	Ring ditch [535] cut by Square Enclosure 2. Context 536; Sample 540	3098±29	-26.8	1430–1280 cal BC
Rhynie, Cemetery area 2013	SUERC-52917	*Corylus cf avellana* charcoal	Standing stone socket within Square Enclosure 1; upper fill. Context 524; Sample 503	3092±30	-26.5	1430–1270 cal BC
Rhynie, Cemetery area 2013	SUERC-52926	*Alnus sp.* charcoal	Standing stone socket within Square Enclosure 1; lower fill. Context 549; Sample 516	3038±29	-29.3	1400–1210 cal BC
Rhynie, Cemetery area 2013	SUERC-52938	*Alnus sp.* charcoal	Post hole associated with ring ditch [535] cut by Square Enclosure 2. Context 581; Sample 538	2900±27	-26.9	1200–1000 cal BC
Rhynie, Cemetery area 2013	SUERC-52936	*Alnus sp.* charcoal	Post hole associated with ring ditch [525] within Square Enclosure 1. Context 577; Sample 536	2886±25	-26.7	1200–970 cal BC
Rhynie, Cemetery area 2013	SUERC-52940	*Corylus cf avellana* charcoal	Post hole [607] within Square Enclosure 2 may be associated with ring ditch [504]. Context 608; Sample 542	2850±29	-27.4	1120–920 cal BC
Rhynie, Village 2013	SUERC-52915	*Corylus cf avellana charcoal*	Ring ditch within garden of Nicoll Lodge, Rhynie village. Context 512; Sample 501	2811±29	-28.1	1050–890 cal BC
Rhynie, Cemetery area 2013	SUERC-52919	*Corylus cf avellana* charcoal	Upper ditch fill of Square Enclosure 2 East section. Context 503; Sample 509	2533±29	-26.6	800–540 cal BC
Rhynie, Craw Stane complex 2015	SUERC-66393	*Betula sp.* charcoal	Basal fill of inner ditch terminal. Context 15301; Sample 15025	2526±29	-26.5	800–540 cal BC
Rhynie, Cemetery area 2013	SUERC-52929	*Betula sp.* charcoal	Post hole [550] within Square Enclosure 2 may be associated with ring ditch [504]. Context 551; Sample 524	2508±29	-25.4	790–540 cal BC
Rhynie, Cemetery area 2013	SUERC-52925	*Corylus cf avellana* charcoal	Mid fill of Square Enclosure 2 East section. Stratigraphically earlier than Sample 509. Context 556; Sample 515	2455±29	-28.2	800–410 cal BC
Rhynie, Craw Stane complex 2017	SUERC-77953	*Betula sp.* charcoal	Outer ditch initial fill of first recut	2400±23	-25	730–400 cal BC
Rhynie, Craw Stane complex 2015	SUERC-66392	*Betula sp.* charcoal	Basal fill of inner ditch terminal. Context 15301; Sample 15025	2253±29	-26.4	400–200 cal BC
Rhynie, Craw Stane complex 2011	SUERC-35633	*Corylus cf avellana* charcoal	Ring ditch [014], fill 015	2250±30	-27.2	400–200 cal BC
Rhynie, Village 2014	Poz-67868	*Betula sp.* charcoal	Cairn in Ashvale/2 South Road house; old ground surface directly below cairn material. Context 2303; Sample 2301	2195±30	-28.7	370–180 cal BC
Rhynie, Craw Stane complex 2017	SUERC-77954	*Corylus cf avellana* charcoal	Outer ditch initial fill of first recut	2159±24	-26.6	360–210 cal BC
Rhynie, Craw Stane complex 2017	SUERC-77947	*Betula sp.* charcoal	Outer ditch initial fill of second recut	2147±26	-25.9	360–90 cal BC

Table 5.3
Prehistoric dates from REAP excavations arranged from oldest to youngest

for a ditch or any other enclosing feature, and phosphate analysis did not show any clear patterns of enrichment associated with the area. The conclusion was that the annexe enclosure was not an archaeological feature but rather one of geological origin.

5.5 Excavation results: the cemetery area

5.5.1 Prehistoric features

Excavations in 2013 revealed numerous prehistoric features in the cemetery area where two square enclosures had been identified through aerial photography in a field on the southern outskirts of the village (Illus 5.42 – see sections 5.5.3 and 5.5.4 for additional discussion of the enclosures). These included pits dating to the Mesolithic and Neolithic periods (Table 5.3) that are adding to a growing corpus of prehistoric pits in Aberdeenshire which have been dated through radiocarbon rather than artefactual association (Noble et al 2016a: table 9.1). One of these Mesolithic dates (SUERC-52937: 7030–6690 cal BC), from a large pit [575] cut by Square Barrow 1 (see Illus 5.42), is particularly interesting given the size of the feature which was around 3.5m in diameter and up to 0.46m deep. This may represent the floor of a sunken dwelling or similar structure, although the exact nature of the feature remains undetermined. There was also a residual Mesolithic date from a lower fill of the ditch of Square Enclosure 2 and a pit [544] found within the enclosure dated to the late Mesolithic (SUERC-52927: 4340–4230 cal BC; Table 5.3). Pit [544] was around 0.9m in diameter and 0.83m deep, and its rich fill of charcoal, ash and fire-cracked stone suggests it may have been a cooking pit or used for the disposal of domestic debris. A very large pit [546] lay at the centre of Square Enclosure 2 but proved to be Early Neolithic in date (SUERC-52921: 3520–3360 cal BC). This was an unusual feature – up to 2.4m in length, 1.5m in width and 0.7m deep – whose fills consisted of redeposited sands, possible burnt turf deposits and distinct charcoal lenses with charred branches in the upper fill.

All of the other prehistoric features in the cemetery area were dated to the Mid Bronze Age or later, including a series of very truncated ring ditches (Illus 5.42). Ring-ditch [535] was cut by Square Enclosure 2 and charcoal from the fill of the ring ditch was dated to 1430–1280 cal BC (SUERC-52939). One intriguing feature within the 2013 trench was a large pit [523] found within Square Enclosure 1 at the western edge of the interior (Illus 5.42 and 5.43). This measured almost 1.5m in diameter and survived to a depth of 0.74m. The basal fill had large packing stones concentrated in the western side of the fill and the feature was interpreted as the socket for a standing stone. Radiocarbon samples from both the basal fill (SUERC-52926: 1400–1210 cal BC) and an upper fill (SUERC-52917: 1430–1270 cal BC) suggest that the standing

Illus 5.43
Feature [523] interpreted as the socket for a standing stone, situated adjacent to the western ditch of Square Enclosure 1

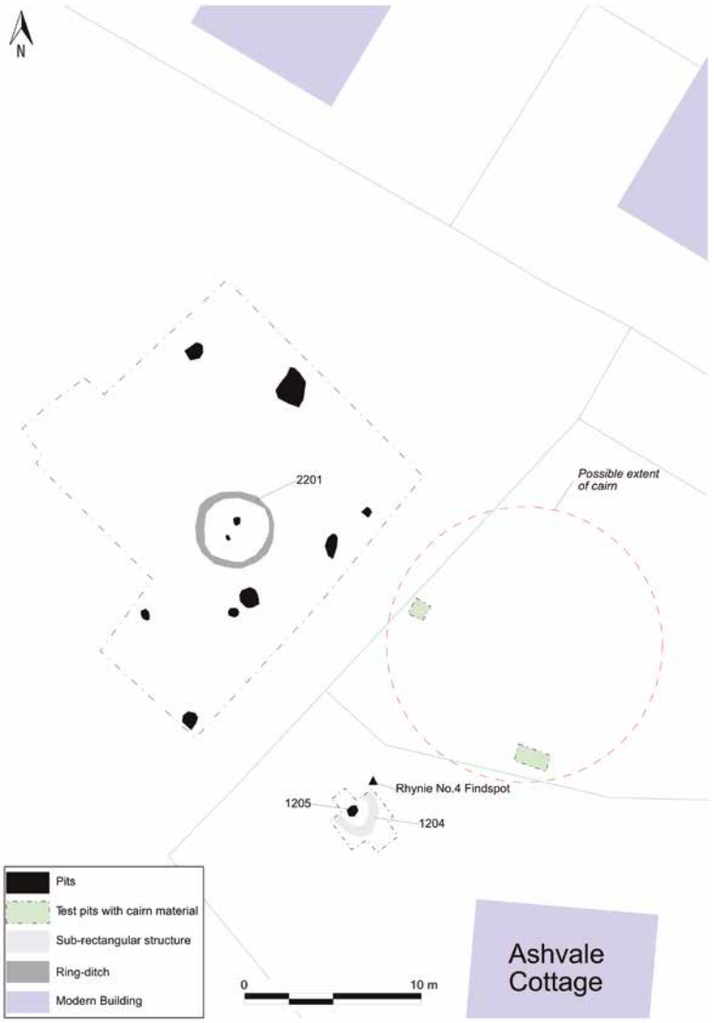
stone was erected in the Mid Bronze Age. Whether this was still standing when Square Enclosure 2 was constructed is uncertain.

Samples from the mid and upper fills of the eastern section of the ditched enclosure boundary in Square Enclosure 2 were dated to the Early Iron Age, providing radiocarbon dates of 800–540 and 800–410 cal BC (SUERC-52919 and SUERC-52925). While these could date the infilling of the ditch it seems more likely that they represent residual dates, as a Mesolithic date (SUERC-52931) was obtained from charcoal in the basal deposit underlying these two fills which itself must derive from residual material. A post hole/pit at the end of ring-ditch [550] was dated to the Early Iron Age (SUERC-52929: 790–540 cal BC), indicating that Square Enclosure 2 must post-date the two ring ditches and associated features.

5.5.2 Features around Ashvale Cottage

The 2014 excavations focused on Rhynie village and the findspots of the symbol stones Nos 2–4, particularly that of the lost Rhynie No. 4, which had previously been recorded as being in the grounds of a house known as Ashvale Cottage on the South Road (Illus 5.44). The stone was removed from this area in 1803 but, as noted in Chapter 2, may have already been moved from its original spot to this location by the time of its recording on the 1st Edition Ordnance Survey map. An excavation centred on the OS coordinates of the findspot revealed the remains of a sub-rectangular structure centred around a large pit. The pit [1205] was around 0.5m in diameter and 1.2m deep and had a single homogenous sand fill. The structure was L-shaped in plan and consisted of a foundation cut [1204] filled with sub-angular stones up to 0.2m in maximum dimensions and a sandy matrix. The stone matrix may have been the base of a turf wall that was at least 3m long east/west and 2m north/south; however, neither feature had suitable material with which to date their remains. While the spread could conceivably be associated with the Pictish stone, it seems more likely to be of a recent, and perhaps relatively modern, date.

To the north of the sub-rectangular structure [1204], a 1m x 2m test pit revealed a spread of angular stone with a charcoal-rich matrix. This feature was further investigated in the garden of the adjoining property, where another 1m x 2m test pit revealed a very similar stone spread up to 0.25m in depth (Illus 5.44 and 5.45). The spread overlay two earlier deposits, both likely to be earlier ground surfaces. The lower deposit returned a Mid to Late Bronze Age date (Poz-69683: 1410–1130 cal BC) and the layer immediately underlying the stone matrix provided a terminus



Illus 5.44
Features adjacent to Ashvale Cottage on the southern edge of the village, including the findspot of Rhynie No. 4 according to the Ordnance Survey 1st Edition map. Contains OS data © Crown copyright and database rights 2024 Ordnance Survey

Illus 5.45
Cairn material within village test-pits

Illus 5.46
Kite photograph showing barrow [2201] and location of the two test-pits that revealed cairn material and structure [1204] in the garden of Ashvale Cottage and the adjoining property

post quem of 370–180 cal BC for the spread (Poz-67868). The most likely interpretation of the feature is that it was the base of a denuded cairn, the majority of which was perhaps removed during the construction of the turnpike road in the 19th century. Rhynie No. 3, the warrior figure stone found in proximity to this location, is said to have been associated with a cairn (Logan 1829: 6) and the stone spread may represent the remains of that cairn or another monument.

In the field next to Ashvale House, a large open area excavation was conducted in 2014 (Illus 5.44 and 5.46). A trench of 18m x 20m dimensions was opened by machine, revealing a circular ring ditch [2201] around 4m in diameter, 0.4m wide and up to 0.3m deep. The feature had no entranceway and was interpreted as a burial mound, though no central burial was found. The only dating evidence was a flint flake found in the ditch fill. Several

Illus 5.47
Ring-ditch [511] found in the grounds of the Old Hospital during driveway works

small pits and one larger pit in the region of the ring ditch contained charcoal-rich fills; however, no diagnostic finds or obvious pattern to the features was identified.

A ring ditch was also investigated in the grounds of the Old Hospital (now a private residence) during works to install a driveway (NJ49912 26954). A large, scooped feature full of burnt material and stone was identified by the house owner, Alan McIntosh, in an exposed section that had been created by digging into a raised area of his garden (Illus 5.47). The cut [511] was up to 5.8m in length and 0.6m in depth and was filled with a charcoal-rich sand with rounded and angular boulders and small stones towards the base. The feature was dated to 1050–890 cal BC (SUERC-52915) and interpreted as a probable ring-ditch roundhouse.

5.5.3 Square Enclosure 1

Of the two square enclosures identified by aerial photography in 1994, the northernmost one was the largest (Illus 5.48). Square Enclosure 1 measured around 20m across and enclosed an area of around 16m^2 (Illus 5.48 and 5.49). The main enclosure ditch was sectioned in four areas – at both entrance terminals, at the northwest corner and near the possible Bronze Age standing-stone socket [523] (Illus 5.42 and 5.43) – and was found to be around 2m wide and up to 1m deep. All excavated slots identified a basal orange-brown fine sand suggestive of gradual silting and upper deposits of more homogenous sand that alluded to more rapid backfilling events. The fills were largely sterile and the ditch appears to have been recut at least twice in its history. A date from the uppermost fill (532) suggests the ditch had been largely backfilled by 560–660 cal AD (SUERC-52920: Table 5.4).

An entranceway around 1.5m wide was located on the north side of the enclosure and was defined by a hard-packed area of subsoil between the rounded terminals of the ditch. Immediately

Illus 5.48
Plan of the two square enclosures and barrows with sections of major features

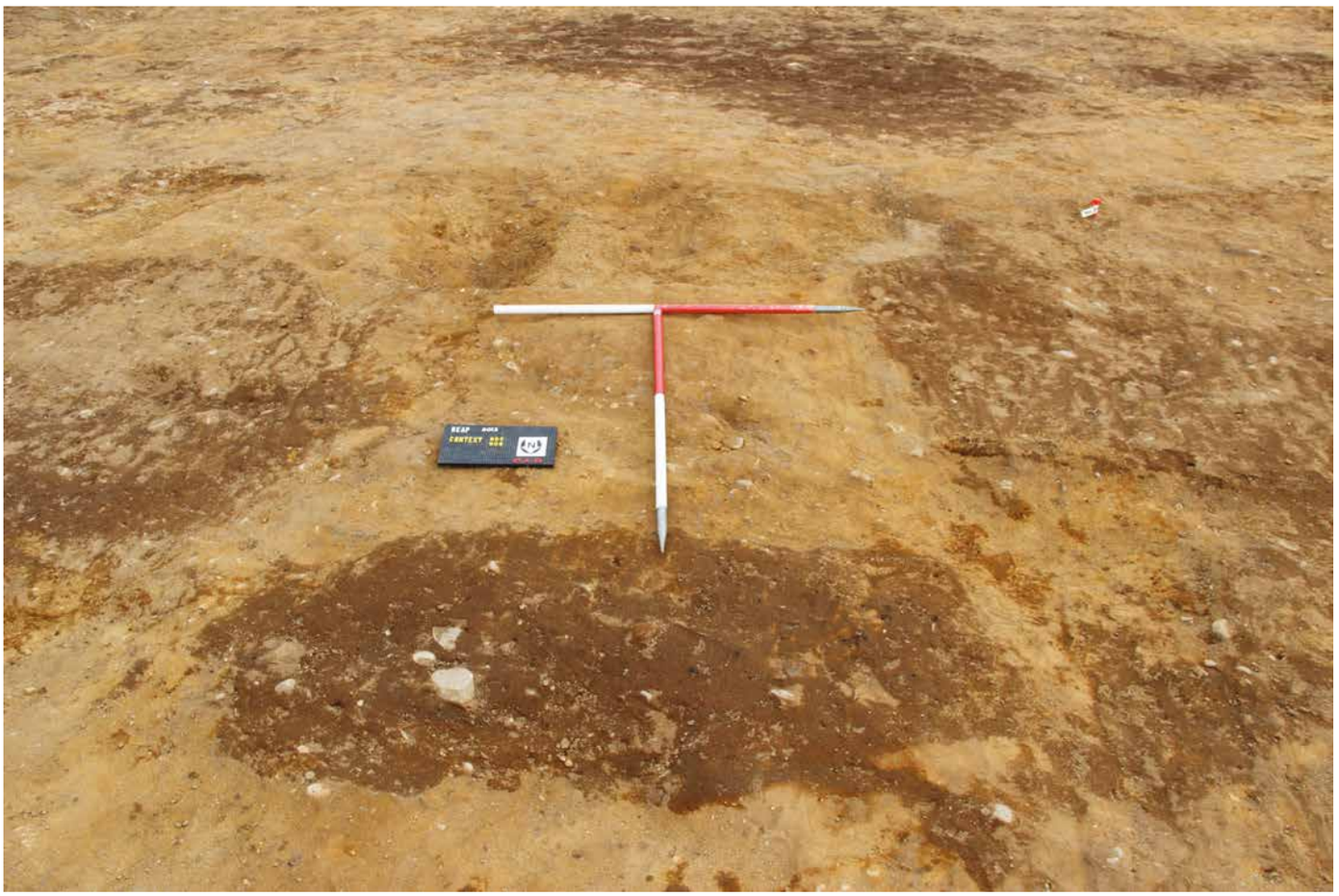
Illus 5.49
Kite photograph of Square Enclosure 1 with ring ditches evident inside the enclosure

Site	Lab No	Material	Context	Radiocarbon Age (bp)	δ13C (‰)	Calibrated date AD (95% confidence)
Rhynie, Cemetery	SUERC-52916	*Betula sp.* charcoal	Fill (522) of pit [521]	1519±29	-26.4	420–610
Rhynie, Cemetery	SUERC-52918	*Corylus* charcoal	Fill (522) of pit [521]	1578±29	-25.8	410–550
Rhynie, Cemetery	SUERC-52920	*Betula sp.* charcoal	Square Enclosure 1 upper fill (532)	1446±29	-24.7	560–660
Rhynie, Cemetery	SUERC-52935	*Human bone*	Square barrow 2 burial	1559±30	-21.6	420–570
Rhynie, Cemetery	MAMS-21252	*Human bone*	Square barrow 2 burial	1602±21	-19.3	400–540

Table 5.4
Early medieval dates from the cemetery area

in front of the entranceway was a short, shallow stretch of ditch [509] that survived to a maximum of 0.3m in depth, 1.9m in length and 0.7m in width. The presence of this ditch would have left only small gaps (*c* 0.8m at the west and 0.25m at the east) between the entrance feature and enclosure entrance, suggesting its function was to define, curtail or perhaps even close off access to the enclosure (Illus 5.48 and 5.50). The fill (510) of this short segment of ditch was a single, homogenous mid-brown sand.

The interior contained a range of features, few of which were demonstrably contemporary with the enclosure. This included two ring ditches and a range of pits and post holes, only a small section of which were sampled. Towards the centre of Square Enclosure 1, a large oval pit [521] around 1.2m in diameter was identified (Illus 5.48e). This had a distinctive fill of fire-cracked stone and ash that survived about 0.4m deep. This fill was very rich in charcoal but not diverse in composition, with only birch



Illus 5.50
The short section of ditch [509] at the entranceway of Square Enclosure 1

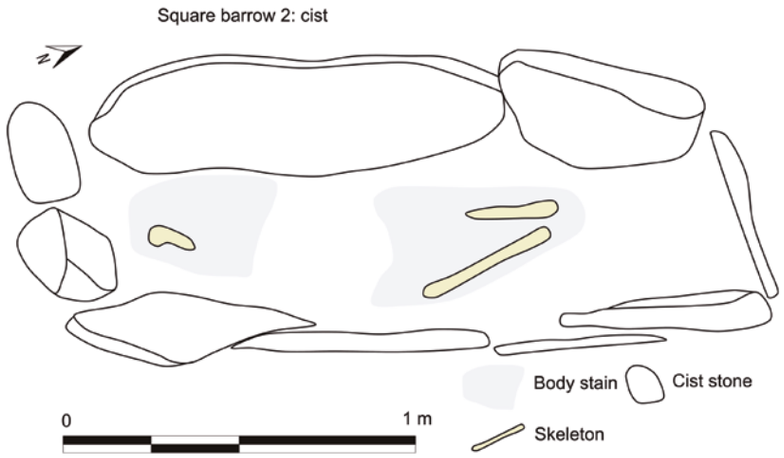
and hazel types present. The fragments of charcoal were relatively large and were predominately roundwood. Two samples from the fill produced radiocarbon dates of 410–550 and 420–610 cal AD (SUERC-52918 and SUERC-52916: Table 5.4).

5.5.4 Square Enclosure 2

The smaller square enclosure was around 16m across, with a 1.5m wide ditch defining an internal area of *c* 12m^2 (Illus 5.48). Two sections across the ditch on the south and east sides revealed that the ditch cut was around 1.7m wide and 0.5–0.6m deep, with up to five friable sand fills. Gradual silting was identifiable in the lower fills, while thicker deposits of more deliberate backfilling were evident in the upper parts of the ditch (Illus 5.48f and 5.48g). The fills were again relatively sterile and inorganic. As with Square Enclosure 1, a small section of ditch projected in front of a narrow entranceway at the northern side.

5.5.5 Square barrows

Immediately to the north of the entrance of Square Enclosure 2, two square barrows were identified following repeated cleaning of the sands and gravels in this area of the trench (Illus 5.48 and



Illus 5.52
Plan of the Square Barrow 2 cist grave

Illus 5.51
Kite image of the two square barrows under excavation

Illus 5.53
Section through the central grave of Square Barrow 1 with soil micromorphology sampling; traces of a possible log coffin are visible at the base of the cut

Illus 5.54
The stone cist in Square barrow 2 showing: a) the upper fill over collapsed capstones; b) collapsed capstones; c) the surviving skeletal remains within the grave

5.51). Square Barrow 1 was around 5m x 5m and was defined by four shallow ditches that survived around 0.12m in depth and to a maximum width of 0.4m. The central grave was difficult to identify, with multiple redeposited sands obscuring the edges of the grave cut. The grave was aligned WSW/ENE, and traces of what may have been a log coffin were evident in section at the base of the grave cut (Illus 5.53). The possible coffin was around 0.4m in width and survived as a shallow stain in the soil; however, soil micromorphology failed to identify any traces of decayed wood or wood impressions.

Square Barrow 2 was slightly smaller, around 4m across, with very truncated ditches surviving only on the south-west, north-east and south-east sides (Illus 5.48). A finely made stone cist was found in the centre of Square Barrow 2 (Illus 5.52 and 5.54). The grave cut [513] was sub-rectangular and slightly wider at the north-east end, with a relatively flat base and vertical sides (1.90 x 0.94 x 0.70m) that was aligned NNE/SSW and lined with flat stones. The cist stones were mainly formed of split sandstone in a blueish pink hue that can be obtained locally, with a similar stone available at the quarry at Quarry Hill around 1.5km to the south-west of the village. The capstones of the grave had collapsed, partly preserving the remains of a skeleton. The skeleton lay on a shallow layer of sand with a body stain visible where the bones had decayed. A layer of sand had infiltrated the broken capstones and overlay the skeleton, with an upper fill of sand overlying the capstones themselves. Intrusive material including a piece of medieval redware was incorporated into the fill immediately below the capstones.

The skeleton was poorly preserved but survived better in areas where the collapsed capstones had provided protection. Bones were lifted along with grave fill and surviving parts included the upper legs, part of the pelvis, upper vertebrae and part of the jaw. The body was extended on its back with legs and knees closely set together suggesting that the body had been wrapped prior to burial. Survival of some portions of the hand/wrist bone may indicate that the hands were crossed over the pelvis. The individual was clearly an adult and may have been female (Chapter 8). Isotopic analysis showed a predominately terrestrial diet and was consistent with a local origin for the individual (Chapter 8). More barrows/graves could have been present to the north; however, the north-eastern quadrant of the trench was never fully cleaned as the scale of the trench outstripped the available resources and time that funding allowed.

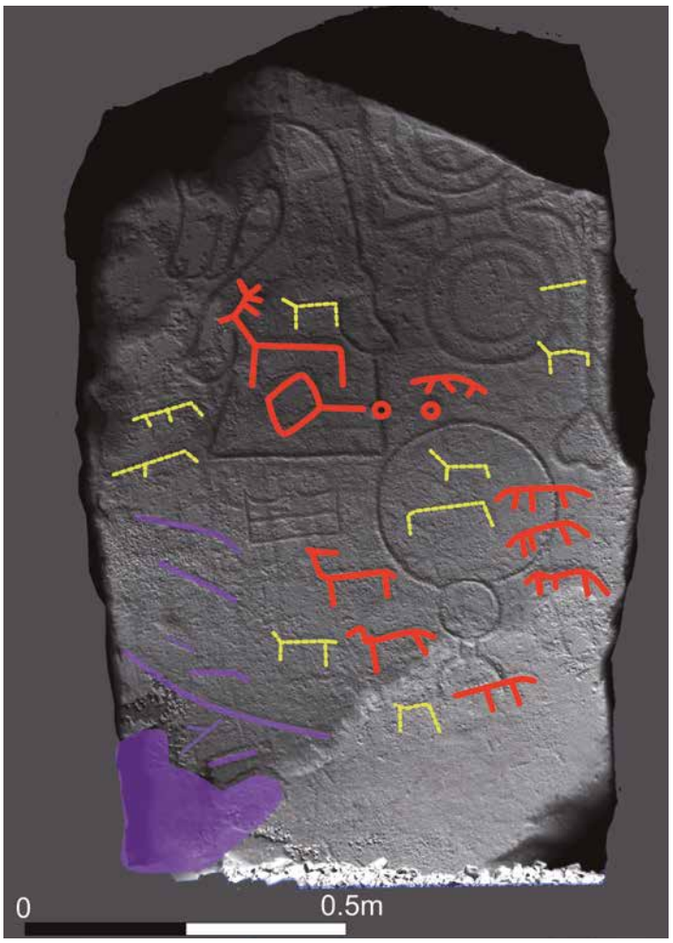
5.6 New motifs identified on Rhynie No. 5

Gordon Noble, Andy Hickie, Hamish Fenton and Joana Valdez-Tullett

During the project there were various uses of new visualisation technologies to examine the symbol stones from Rhynie. Photogrammetry study was utilised for a 2020 article on the first-millennium AD warrior carvings of eastern Scotland including that of Rhynie No. 3 (Hall et al 2020: 130–2, fig 4) (Chapter 2; Illus 2.11–2.13). The survey of the stone helped clarify some of the details of the carving. A more dramatic discovery through new visualisation techniques came in the final stages of the project write-up when several unusual motifs were identified on Rhynie No. 5. During photogrammetry processing of images of Rhynie No. 5 for the monograph, Andy Hickie and Gordon Noble identified a whole series of new motifs and independently, Hamish Fenton had also previously spotted these motifs (Illus 5.55 and 5.56). The combined work of these discoveries was subsequently brought together to provide analysis and commentary on the identified motifs and their potential date and parallels (this chapter, Chapter 11).

The newly identified motifs were found on the symbol side of Rhynie No. 5 (Illus 5.55), and were revealed through photogrammetry and various processing techniques including QGIS relief visualisation modelling, processing with Meshlab and RTI with the computer programme Blender. Although these motifs had not been previously referenced in publication, they are in fact visible in previous images of the stone including on conventional photography such as on Tom Gray's image of Rhynie No. 5 from 1990 (Illus 5.57). The motifs are also evident on an early rubbing of the stone made by J Romilly Allen during the preparation of the Early Christian Monuments of Scotland (ECMS) (1903) publication (Illus 5.58). The rubbing was presumably taken to form the basis of the outline image published by Allen and Anderson (1903: 183, fig. 198), but not published in the final ECMS volume.

Illus 5.55
Photogrammetry model of Rhynie No. 5 (Image by Andrew Hickie)

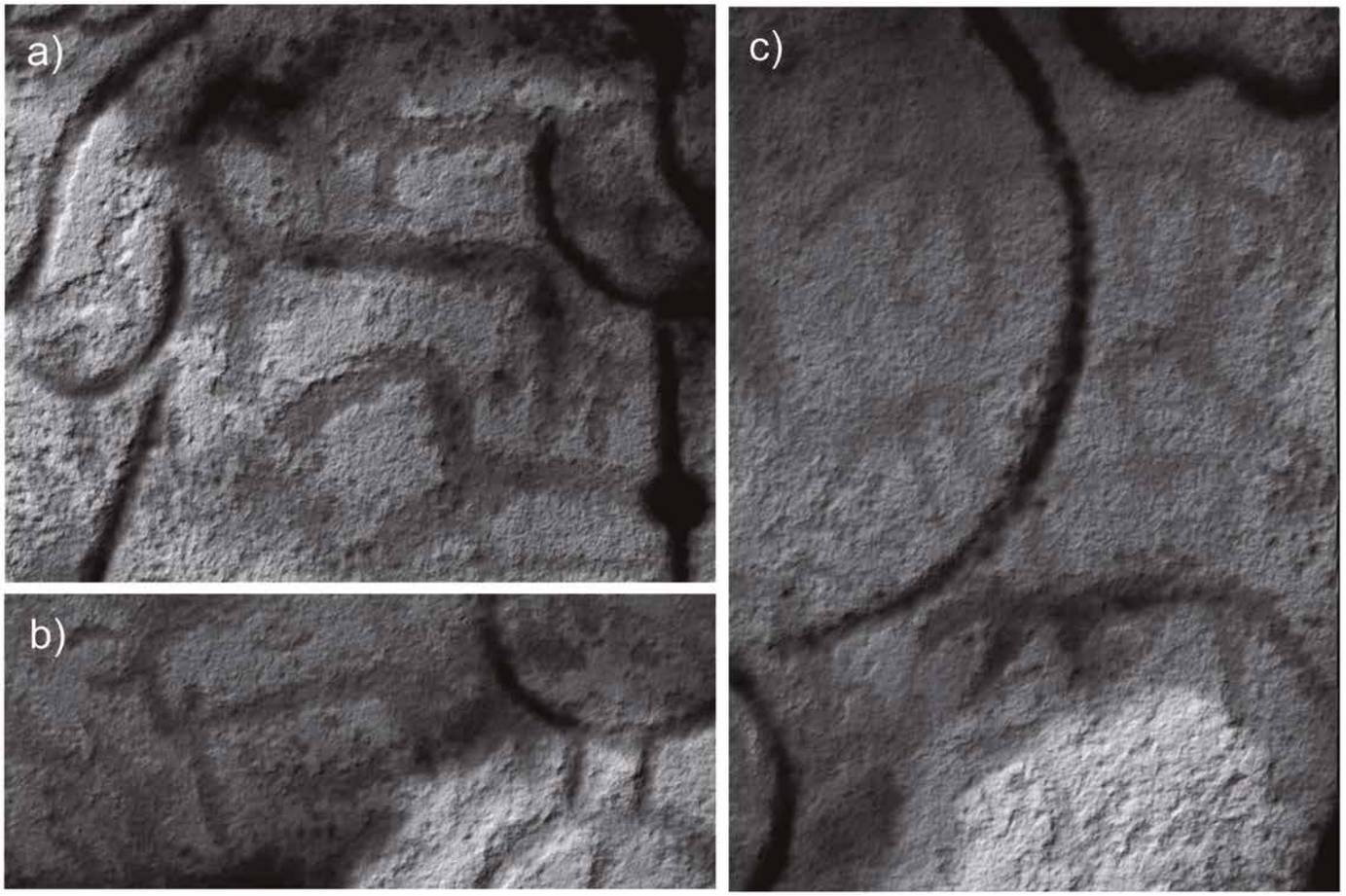


Illus 5.56
Photogrammetry model of Rhynie No. 5 with interpretation of the earlier rock art. Solid line vs dotted line indicates certainty, while purple lines/ shaded area on the left are modern or likely modern damage. Base image © Andy Hickie

The largest newly identified motif on Rhynie No. 5 appears to be a stag with antlers depicted in profile, consisting of a simple pecked line with the animal shown with its head facing left and two vertical lines representing its legs (Illus 5.56 and 5.59a). Two figures below could also be depictions of deer – they are too shown in profile and with a similar pose facing left (Illus 5.56 and 5.59b). While their antlers are not clearly represented, short pecked horizontal lines on top of their necks could be interpreted as smaller sets of antlers. Unlike the central stag they have short tails, which are typical of cervids and commonly represented in carvings of deer. The group of quadrupeds to the right are even more schematically depicted with a single top line denoting the head, body and tail and two to three downward projecting pecked lines depicting the legs (Illus 5.56 and 5.59c). The lack of anatomical detail in these animals makes it difficult to suggest the species to which they belong. The length and position of the tail could suggest these are horses, another common animal theme in rock art, but they can equally be interpreted as representations of canines, suggesting this could be a deer hunting scene. Other possible animal motifs are located to the left and below the mirror

Illus 5.57
Tom Gray photograph of Rhynie No. 5 – the early motifs can be seen on the photograph which was taken prior to the stone being moved into its current shaded shelter. Image © Historic Environment Scotland

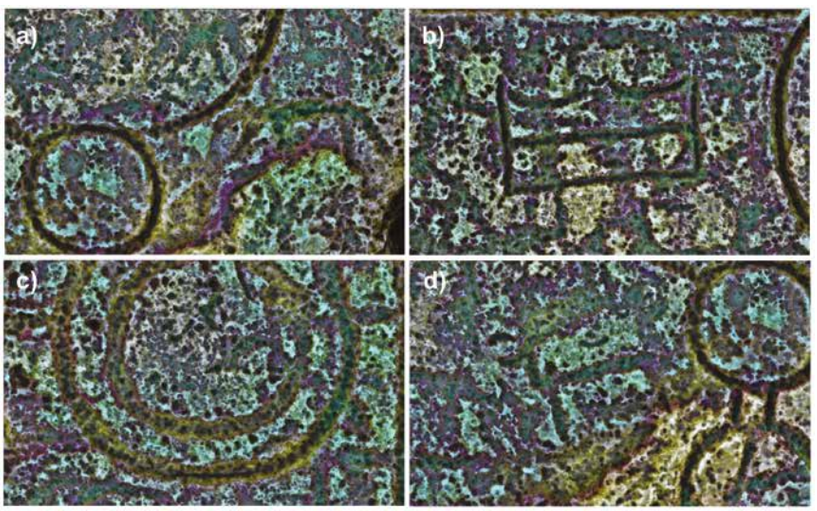
Illus 5.58
Photographic copy of rubbing showing face detail of Rhynie No. 5 Pictish symbol stone, St. Luag's Churchyard, Rhynie, *c* 1890–1903. Image © Historic Environment Scotland



Illus 5.59
Detailed photogrammetric processing of a) the stag b) deer c) quadrupeds cut by later Pictish mirror symbol carving. Images produced © Andy Hickie

symbol, but these are less certain. They are located towards an area of modern damage to the stone and its surface, including the broken left-hand edge and areas of linear scoring. These more modern marks intersect with at least some of these possible earlier designs making the certainty of forms on the left-hand side of the stone less clear.

In terms of their production, photogrammetry survey highlights that the conventional Pictish symbols were made using a metal point chisel. The mirror symbol is particularly sharply carved, with the impressions of the chisel very obvious in the photogrammetry visualisations (Illus 5.60a). Point chisel marks are also evident on the comb and to an extent on the double-disc and Z-rod (Illus 5.60b,c). On the lines the latter, however, were seemingly carved are much broader made with a rounder profile tool and the execution less precise than that of the beast head and the mirror and comb. This could potentially indicate that the beast head, the mirror and comb were carved by a different hand to that of the double-disc and Z-rod, that the two sets of carvings were created in different moments, or there was a change in tool type. The carving techniques for the zoomorphs are less clear as they appear to be much shallower or less well preserved. However, there are hints that a pointed tool, perhaps a point chisel,



Illus 5.60
Detailed photogrammetry analysis showing the tooling marks evident on the symbols: a) mirror and quadruped; b) comb; c) double-disc; d) one of the lower 'deer' figures. Images © Andy Hickie

may have also been used to make these. Such marks are most evident on one of the lower deer depictions (Illus 5.60d). In terms of phasing it seems likely that the zoomorphs are earlier than the symbols – the zoomorphs are much more faintly carved, and the mirror appears to cut through two of the quadrupeds, with no indication of a continuation of the line of the back of either quadruped across the outline of the mirror face.

5.7 Discussion

5.7.1 Recent history of the site

There is little doubt that the archaeology of the Craw Stane complex has been seriously compromised by modern agriculture. The location of the complex on a sandy knoll to the south of the modern village has left the site particularly vulnerable to modern agricultural practices; ploughmarks were very notable across the site and were significantly more obvious than the occasional ploughmarks evident in the cemetery area, where the topography is much flatter. The ploughzone study demonstrated this disturbance by showing that artefacts had made their way into the ploughzone and survived very poorly once there. This is particularly unfortunate, as nearly all the artefacts found on site came from either the uppermost fills of the outer ditch or the uppermost fills of the palisade and had derived from deliberative infillings in the majority of cases. Within the outer ditch, for example, the uppermost deposits where many finds came from were clearly deliberate backfill from surface middens and deposits. As a result, the main artefact-bearing deposits were found in closest proximity to the plough and, given the cumulative effects of ploughing, it is likely that significant artefacts and deposits have already been lost during the ploughing of the site from the 1970s to 1990s. Indeed, ploughing went on for around 20 years after the discovery of Rhynie Man and is likely to have led to significant loss even after that major discovery. Despite the relative artefactual richness of the site and the small percentage excavated (less than 14%), what survived to excavate from 2011–17 must be just a small portion of what was left behind upon abandonment of the site in the 6th century. The impact and loss at the site through agricultural practices therefore makes the findings at Rhynie all the more notable.

5.7.2 Prehistoric activity

Relatively few prehistoric features were found at the Craw Stane complex. These consisted of a ring ditch, fragments of a Bronze Age Beaker and a faience bead. More features were found at the cemetery and included a probable prehistoric barrow and a standing stone, which the later Square Enclosure 1 enclosed (though whether the putative stone was still standing at this point is difficult to ascertain). The area was clearly an attractive one for prehistoric settlement, with aerial photographic and geophysical survey data indicating the presence of multiple Bronze and Iron Age ring ditches close to and within the modern village (see Section 5.3).

5.7.3 The Craw Stane complex: ditched enclosures

Phasing the enclosing elements of the Craw Stane complex is difficult, given that both the ditches and palisade or post setting show clear evidence for having incorporated residual material (Chapter 8), and because the 5th–6th century AD is a notable plateau in the radiocarbon curve. However, the fact that Structure 3 was built over the backfilled inner ditch, and probably the backfilled outer ditch, suggests the ditches were an early component of the complex that were at least partly replaced by the timber enclosure in a secondary phase of the complex. This phasing is tentatively supported by the direct dating evidence presented in Chapter 8.

The inner ditch was the smaller of the two ditched enclosures and relatively few finds were recovered from its sandy fills. The inner ditch did show evidence for the use of turf – for example, the impressions of individual slumped turves at the base of the ditch in context (161056) – that may have lined the ditch in order to stabilise the sandy subsoils. Alternatively, these turf layers could have come from slumped or collapsed banks, or may reflect a combination of these elements. The outer ditch was a larger and more impressive feature and appears to have had a more complex development. The sections excavated in 2017 showed that the outer ditch had been recut at least four or five times, though other recuts may have occurred. Layers of clayey silt that likely represent layers of decomposed turf suggest that the outer ditch, like the inner, was also lined with turf at various points in the lifespan of the feature, presumably again to try and consolidate the loose sandy soils of the cut. The dumps of artefacts and the homogenous soil profiles found in the upper fills of the outer ditch indicate the upper part of the ditch was deliberately infilled at a late stage in its use. This may have occurred as part of site clearance and/or remodelling events, or perhaps even as part of the final abandonment of the site. Regardless, it appears that parts of the outer ditch remained at least partly open while others were completely backfilled. For example, if the reading of Structure 3 is correct, this must have been built when an area of the outer ditch was completely backfilled. Radiocarbon dates from elsewhere in the outer ditch, however, suggest it may have remained partly open until the end of the lifespan of the site – though again we face the issues of the radiocarbon plateau which is likely to obscure the true chronology of deposits. Given the presence of metalworking pits and furnace bases in the outer ditch on the northern and western parts of the site, it may have been that the outer ditch in these areas was deliberately left open as sheltered spots for metalworking. The ditch certainly appears to have had a complex use life through time and more ephemeral evidence of smaller-scale recutting and pit-digging events are likely to have been difficult to identify in the sandy fills.

In terms of artefactual evidence, finds-rich layers were found slumping into the outer ditch from both sides of the feature, suggesting metalworking activities took place in close proximity to the outer ditch and that it was used as a dump for waste products both before and during the late remodelling of the site (Illus 5.14). In contrast, the inner ditch showed little evidence for use, with few finds and generally more sterile fills suggesting that metalworking took place towards the periphery of the enclosures. Indeed, as noted above, metalworking appears to have been carried out in the outer ditch itself. Pit [1725] which cut into mid-ditch fills of the outer ditch, and a furnace bottom found in one of the 2016 slots on the west side of the enclosure complex, indicates that at times metalworking took place within the confines of the base of the outer ditch. Large dumps of moulds and other materials were also deposited in the ditch fills during the

lifetime of the site, perhaps as workshops were cleared out or a phase of work was completed. Throughout the history of the outer ditch, the feature may have also received dumps of material redeposited from elsewhere and from earlier activity. The zoomorphic mould cache, for example, came from a mid-fill layer within the ditch yet was associated with dates relatively early in the overall sequence – though once again the radiocarbon plateau makes this less than certain. There were much fewer finds in the outer ditch towards the terminals, with the exception of a crucible stand in a lower fill near the southern terminal (Illus 5.13h). Together, the evidence suggests that parts of the ditch were treated in different ways to others and that certain areas may have been backfilled later than others, with the ditch remaining open during the later history of the site at least towards the north-western areas of the interior. In contrast, both ditches must have been fully backfilled near the entrance when Structure 3 was built – see Chapter 8 for a consideration of the dating.

5.7.4 Palisade

The sections above propose that the ditches were an early component of the complex that were at least partly replaced or augmented by the timber enclosure in a secondary phase. It could be that the palisade or post setting was built at the same time as the two interior buildings (Structures 1 and 3) as part of a new investment in timber architecture at the complex, perhaps replacing the earthwork components of the ditches and banks and possibly more ephemeral internal buildings that utilised fewer earthfast components. The palisade or post setting certainly reflects a massive investment in resources. If the spacing of post holes was consistent around the whole circumference, it would suggest around 100 large timber posts were used in the post setting and many more within the palisade slot. The outer component of the palisade was clearly of complex carpentry, with both planks and squared posts utilised in the outermost boundary. Architectural elaboration of the palisade and post setting was evident at the entrance, with an elaborate gateway around 3m wide and facing the Water of Bogie giving access to the interior. Areas of silt and gravel that extended downslope from the entrance to the east may represent erosion from human and perhaps animal traffic entering and exiting the enclosure complex.

Given the very regular spacing of the interior palisade post holes, the foundation trench and the suggestion of a substantial gated entrance, it seems very likely that all the timber elements of the outer enclosure were a contemporary part of an integrated enclosure boundary. They likely represent the foundation elements of an outer timber wall with the inner posts perhaps supporting a box-framed rampart and possibly a breastwork/wall-walk. It certainly seems likely that the interior posts and plank wall would have been linked by longitudinal timbers, though any such beams would have been above ground and are unlikely to leave an archaeological trace on a plough-truncated site such as Rhynie. The timber enclosure encircled the knoll upon which the site was situated and would have formed a formidable boundary. The rampart may have been reminiscent of the inner rampart at Cairn More (Chapter 6) but even more complex in terms of its timber framing.

At the end of its life, the palisade appears to have been dismantled and some of the posts removed. The majority of the slots dug across the palisade identified a charcoal-rich upper fill with occasional artefacts that would appear to represent redeposited midden material infilling the voids left by the decayed or removed structural components of the palisade. For example, the upper fill (15176) at the entranceway to the complex can be seen to occupy a wide but shallow cut 0.3m deep (Illus 5.19e). Similarly, the 2012 palisade sections had upper fills (279/415) that seemed too wide to be simply decay cones from the rotting of timbers in situ (Illus 5.19c and d). It seems more likely that the profile of the palisade slot and associated fills and are evidence for the timbers having been dug out. Where post impressions occurred, these were located only in the lower sections of the palisade slot, implying that the posts had been removed leaving the 'ghosts' of the lower parts of the timber in place. In other sections, no clear post-pipes could be identified and the fill of the slot was heavily disturbed with mixed fills and uneven sides suggesting the posts had been removed in such a way as to leave no post impressions behind. Two examples in particular – posts [12236] and [164028] – showed clear evidence for the removal of the post and structured deposition of material within the post void, including high concentrations of animal bone and a set of metalworking tongs in the uppermost fill of [12236]. These suggest that the dismantling of parts of the palisade followed a structured process, with some of the post holes targeted for deliberate infilling events that perhaps marked the end of the timber structure in a formal way (for discussion of termination deposits in Anglo-Saxon buildings, see Hamerow 2006: 18, 27–8).

5.7.5 Buildings

In the later phases of the site, at least two timber buildings stood within the enclosure and other structures were located outside of the enclosure complex. Given the level of truncation encountered of the site, only the foundations of these buildings are retained and any above-ground traces have long since disappeared – with the exception of Structure 4, where an area of hillwash appears to have partly preserved traces of a floor surface. Structure 1 consisted of a rectangular arrangement of posts, with large post holes on two sides and more modest post holes on the south-west side. The posts on the south-east side appear to have been renewed at some point in the lifespan of the structure and could represent either the exterior wall posts of a building or the central roof supports of a building with turf or beam-supported outer walls. It is even possible that they are the remains of post-supported walls where the posts were more shallowly founded than inner roof-bearing posts, although the poor levels of preservation preclude any further detail.

Structure 3's location on the slope of the sandy knoll resulted in particularly severely truncation. Traces of an outer wall were found on the upslope side of the building but even here the slot for the outer wall survived to no more than a few centimetres in depth for the majority of its length. This shallowness meant that the outer beam/post slot of Structure 3 would probably not have survived another year or two of ploughing, and its identification was fortuitous. The slot may have held planks or posts for revetting a turf outer wall, and the building was likely clad in planks judging by the presence of burnt oak and alder plank fragments found in the inner arc of features. Based on the abundance of charcoal and the presence of these burnt plank fragments, it appears that Structure 3 was destroyed by fire.

The missing south-east side of Structure 3 made reconstructing the plan of the building difficult. Presuming the structure was symmetrical, projecting the line of the inner and outer arcs would suggest a horseshoe-shaped structure that would have measured approximately 6m x 9m internally. It would have broadly resembled the later, and larger, 8th-century Pictish 'bag-shaped' (horseshoe-shaped) buildings (S1 and S9) excavated at Portmahomack on Tarbat Ness. Here the excavator interpreted the inner posts of S1 as a cruck frame for a large building, with the perimeter slot acting as the foundation for a turf or stone wall that contained a stone or plank internal revetment (Carver et al 2016: 240). The post holes in the centre of the Rhynie structure are too closely set together to have been a cruck frame but they may have supported the roof of the building. If contemporary with the Craw Stane, the Pictish stone would have stood directly next to the building's entrance. The socket that may have contained the Rhynie Man or another stone was also located nearby.

Despite its preservation by hillwash, even less is known about Structure 4. It appears to simply be the remnant of a floor surface in which large burnt oak timbers were identified and from which a Late Roman amphora handle and two iron buckles were recovered. The fact that the floor lay directly on the subsoil may suggest that the topsoil had been stripped prior to the construction of this building. Burnt grain was found in the floor layer – a rare find for the Craw Stane complex – suggesting that the processing or drying of grain may have been carried outwith the enclosure complex. The geophysical results (Section 5.3) suggests that there may be other sub-rectangular buildings near the Craw Stane complex that would merit further investigation in future years.

5.7.6 Stone socket

The large pit-like feature with stone packing found just downslope from the Craw Stane was the only feature of this type found during the excavation at the complex. Its character differed from the large post holes of the palisade post setting and had much more obvious stone packing than any of those features. Its position towards the terminal of the outer ditch mirrors the position of the Craw Stane, which stands near to the terminal of the inner ditch. Given that the Craw Stane fell over in the 1930s and was re-erected at that time, this could be the original socket for the Craw Stane. However, it seems most likely that the original socket would have been reused when the stone was reset in concrete. It would also be highly coincidental for the new location to mirror that of the original only in respect to the inner rather than outer ditch. The most likely interpretation is that there were two standing stones near the entranceway to the complex but only one remaining today.

When found during ploughing, the Rhynie Man symbol stone was located downslope from the Craw Stane. It was suggested that, given the steepness of the field in this area, the stone may have been dragged by the plough 'from an original position on the crest of the hill shoulder, near the Craw Stane' (Shepherd & Shepherd 1980: 211). As no alternatives were identified over the course of the investigations, the feature uncovered in 2015 is the most likely candidate for a socket of the Rhynie Man, albeit two other Class I stones were found in the nearby church graveyard and it is possible that the socket relates to one of these stones (or of stones that no longer survive or have yet to be discovered). The upper fills of the stone socket contained charcoal and burnt bone of a very similar nature to the final fills of the outer ditch and palisade trench, suggesting that the Rhynie Man may have fallen or been deliberately removed at the end of the lifespan of the site. The overall narrative is therefore one in which the major elements of the site came to an end during the same episode of decommissioning.

5.7.7 The cemetery

Burials and human remains have been recorded in close association with some of these stones since the 19th century, and the modern Rhynie excavations would appear to support these finds. In 1836, two of the stones from the village (Nos 2 and 3) were removed during the construction of a turnpike road and a 'quantity' of human bones was found near the stones at this time (Logan 1829: 560). Logan also stated that Rhynie No. 3 was found in association with a cairn, and a cairn was discovered in the garden of Ashvale Cottage during the 2014 excavation. Three parallel cists had been revealed during the construction of Ashvale Cottage (Henderson 1907: 163), and the 2014 excavations identified a small ring ditch in the adjacent field, though no central burial was found. These findings indicate that numerous funerary monuments were disturbed and destroyed during the construction of the southern part of the modern village.

Around 200m south of these funerary features, the 2013 excavations had revealed two square enclosures and two square barrows with central graves. This might suggest a much larger cemetery existed here prior to its partial destruction by 19th- and 20th-century development of this part of the village. The square barrows are typical examples of barrows of the Pictish period and are towards the smaller end of the scale for barrows of this type (Mitchell & Noble 2017: 12). However, the two square enclosures next to the barrows are unusual and are only really paralleled by the square enclosure at Forteviot, Perthshire (Campbell et al 2019; Campbell & Driscoll 2020: 55–7). Dating the square enclosures proved difficult, although Square Enclosure 1 is known to be present in the period AD 560–660 when material of that date was backfilled into the ditch. Morphologically, the ditches of the square enclosures resembled the barrows of the ditches and the entrance arrangement of both is reminiscent of the closely set ditch terminals found at square barrow monuments. Thus, it seems likely that the square enclosures date to the same period as the square barrows. The geophysical survey results (Section 5.3) suggest there may have been at least one more large square enclosure and further smaller burial monuments in the near vicinity of the square enclosures and barrows excavated in 2013.

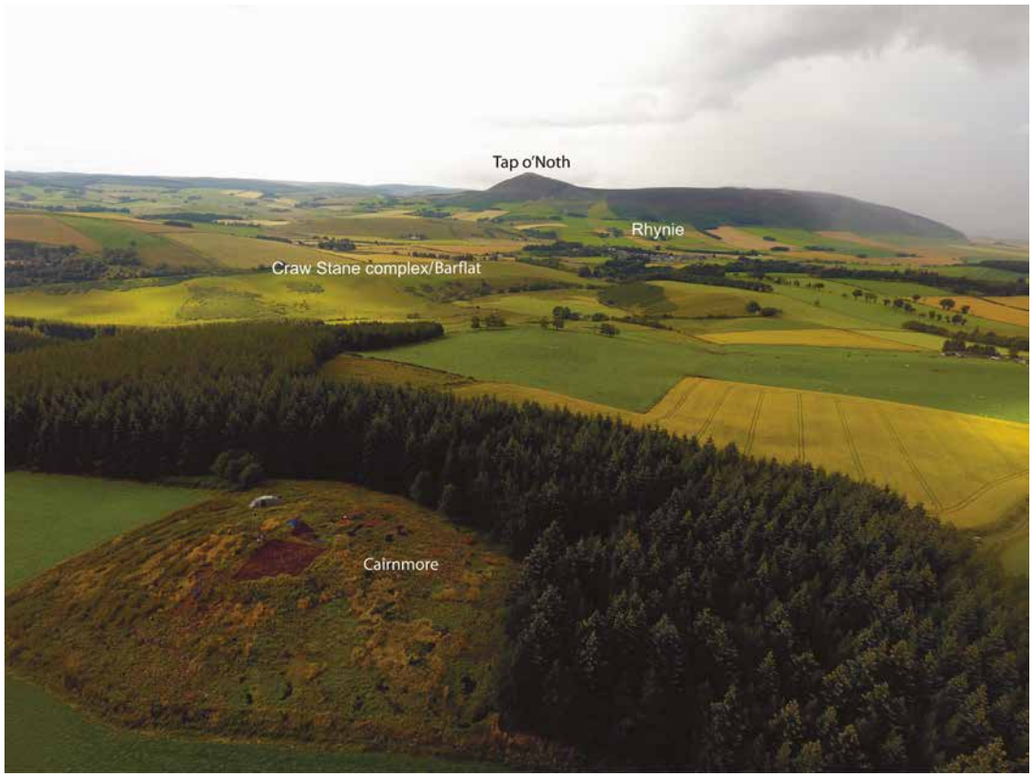
5.7.8 Rhynie No. 5

The discovery of a new set of carvings on one of the Rhynie stones was an exciting development for the project and shows the potential of new visualisation and recording techniques for understanding more about the Pictish symbol stone tradition and revealing hitherto unrecognised motifs and carvings. The simplicity of the designs, in addition to the extensive weathering of the grooves, makes them very difficult to detect, particularly in the shelter they

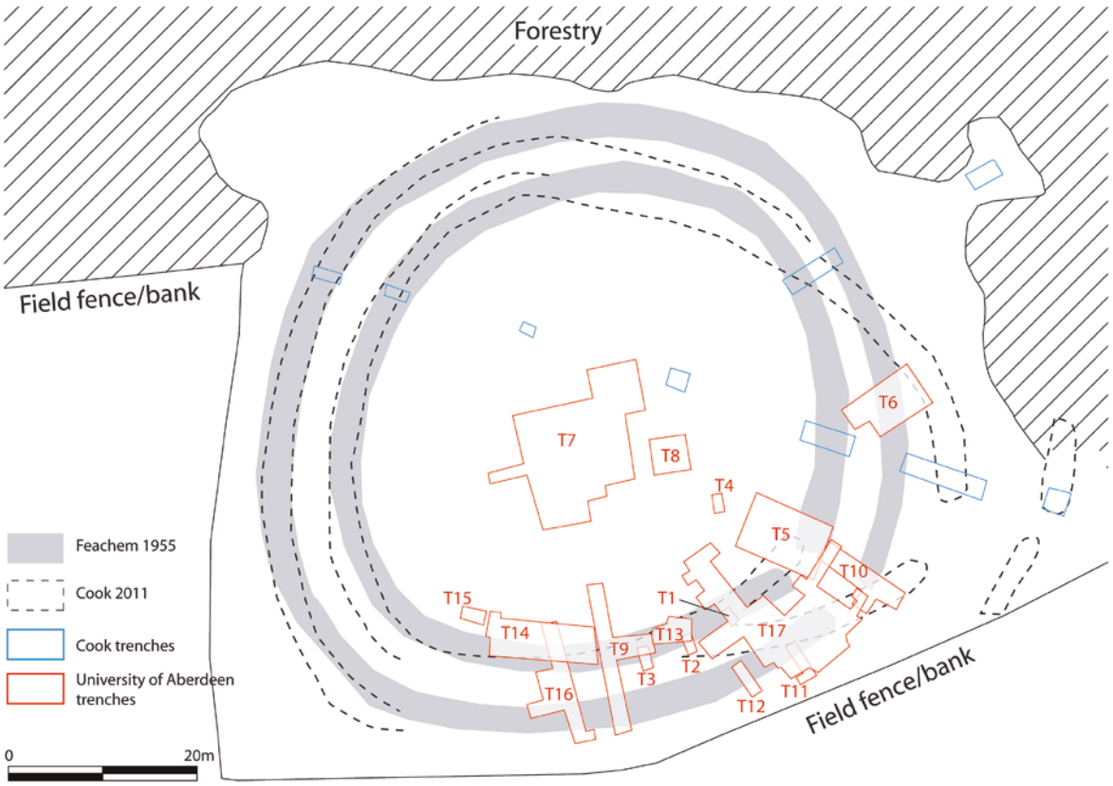
now sit. The presence of peck marks, however, and the regularity of the quadraped depictions on the right, reassures the authenticity of the depictions, ruling out fortuitous geological or accidental markings accounting for the designs. The weathering of the grooves, and the fact that the Pictish symbols appear to be superimposed on top of some of these animal figures, also shows that these markings cannot be modern graffiti, and they also appear on the late 19th-/early 20th-century rubbing of the stone by Romilly Allen which must have been made only *c* 12–25 years after the initial discovery of the monument (Illus 5.58). While the motifs on Rhynie No. 5 are an important discovery, placing these images chronologically and contextually is much more difficult – the parallels and dating for the motifs on Rhynie No. 5 are discussed in Chapter 11.

5.8 Conclusions

The investigations at the Craw Stane set the whole Rhynie Environs Project in motion with the exciting discoveries of the 2011 season allowing the project to grow and attract further research funding that enabled the project to grow in scale and ambition. The excavations at the Craw Stane have provided much needed context for the symbol stones from the Rhynie area and the discovery of the likely stone socket in the 2015 excavations provides a potential context for the Rhynie Man monument discovered downslope from the enclosure complex during ploughing in 1978. The strip-and-map approach of the project proved highly successful in characterising the archaeology of the Craw Stane complex with most of the deposits left in situ for future analysis. The programme of investigation led to the identification of multiple buildings within and outside of the complex and identified a rich assemblage of artefacts that illuminate the function and status of the enclosure complex (Chapter 7). The excavations also successfully characterised and dated the enclosing works and revealed the complexity of the outer enclosure – a complex timber setting that may have defined a sophisticated box rampart. Down by the village the excavations of 2013 revealed the traces of a contemporary cemetery including one partially preserved 5th–6th century burial within a square barrow and two intriguing square enclosures with unusual entrance arrangements. Geophysical survey has also mapped out some of the features that can form the focus of future investigation in the wider environs of the valley bottom. As well as the important findings made through excavation, the project also led to important new results through utilising new digital approaches to archaeological monuments – here the identification of a new series of motifs on Rhynie No. 5 is an excellent example of the potential for new technologies to lead to fascinating new information on long-studied monuments. Overall, amongst many new discoveries, the project has produced a rich dataset for considering the development of a major Pictish power centre during the Late Roman Iron Age through to the 7th century AD. The evolution of this complex and its parallels are explored in the final discussion chapters of the monograph (Chapters 11 and 12).



Illus 6.1
Cairn More looking north-west towards Tap o' Noth



Illus 6.2
Trenching at Cairn More 2018–22, along with Cook's trenches projected on to Feachem's plan

Chapter 6

EXCAVATION RESULTS: CAIRN MORE

Gordon Noble, James O'Driscoll and Edouard Masson-MacLean

6.1 Excavations at Cairn More 2018–21

As with Tap o' Noth, the site of Cairn More was targeted as part of the University of Aberdeen's Northern Picts: Rhynie Environs Project (2017–22), funded by HES. The investigation of Cairn More ran over four seasons from 2018–21 and was designed to address the research agenda outlined in Chapter 2. Principally, this sought to explore how the landscape of the Rhynie valley developed from the Iron Age to early medieval period, the chronological relationship between the enclosed sites of the valley, and the changing social and political makeup of the valley's settlement landscape through time. The excavations at Cairn More revealed a complex bivallate fort with composite wooden and stone ramparts and evidence for two associated buildings – one large internal structure and one just outside the outer rampart. Dates for the site suggest a 5th- to mid-7th-century AD chronology, overlapping in use with the enclosures at the Craw Stane (Chapter 5) and Tap o' Noth (Chapter 4) – for discussion of dating evidence, see Chapter 8.

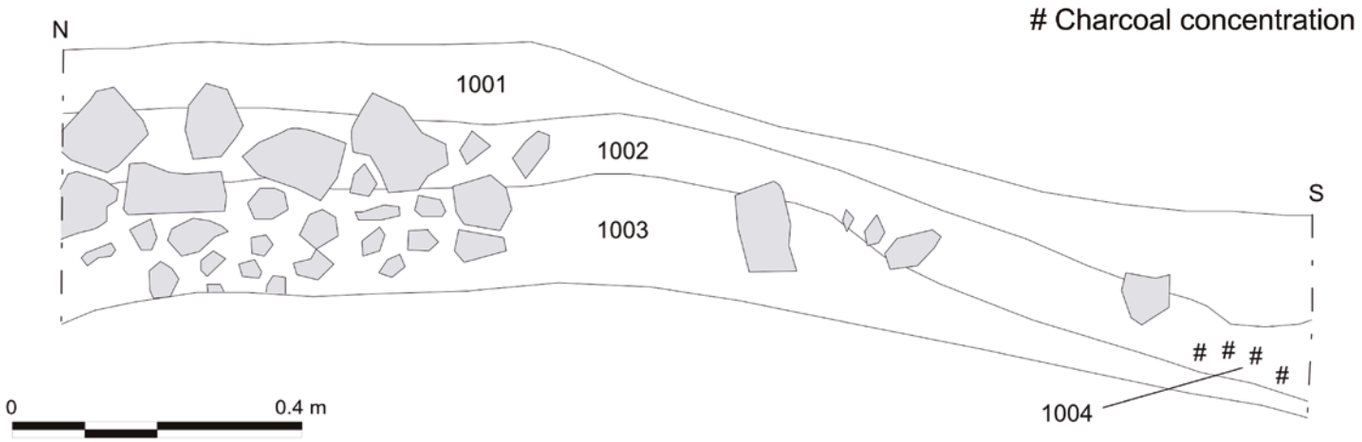
6.2 Site location and previous research

The fort at Cairn More sits on the shoulder of a hill that overlooks Rhynie village to the north-east. The fort encompasses a total area of 0.24ha and is defined by two stone ramparts that are only partially visible on the surface (Illus 6.1). The site has been known since at least the 1st Edition Ordnance Survey mapping programme *c* 1843–82, when a circular enclosure was depicted by a single rampart. Subsequent Ordnance Survey maps showed no further detail, and it was not until Feachem's (1966: 72) survey of the site in the 1960s that a more accurate account of its archaeology was documented. Feachem recorded the fort as comprising two closely spaced stone walls with an entrance at the south-east, though a later survey by Cook (2011b) suggested the enclosure system was more complex (see Illus 6.2). Cook's (2011b: 214) plan was broadly comparable with Feachem's work and corresponded with the north, west and southern sides on his record. The eastern section, however, showed the defences expanding into three widely spaced ramparts, creating a 'forecourt' at the posited entrance to the fort. In Cook's record (2011b: 216), the inner rampart measured up to 1.6m wide and 0.4m high, the middle rampart up to 4.5m wide and 0.3m high, and the outer rampart up to 1.3m wide and 0.2m high with a shallow outer ditch. The extent of overgrowth at the time of Cook's survey may have impacted the accuracy and reliability of the survey, and could explain the discrepancy in accounts.

Cook (2011b) opened a number of test trenches over the enclosing elements and interior, in order to obtain dating information which could produce a basic chronology for the construction and occupation of the fort. Only a short summary of the results of these excavations were published (see Cook 2011b: 216), which included two radiocarbon dates. The destruction layer above the middle rampart on the eastern side was dated to AD 430–630 (SUERC-32839: 1510±30;) and the 'foundation cut' of the third outer rampart provided a date of AD 410–550 (SUERC-32840: 1580±30). Two brooch moulds and a pin mould of probable early medieval date were also recovered from the latter context, suggesting that early medieval activity had taken place at Cairn More.

6.3 University of Aberdeen excavations

The University of Aberdeen began work at the site in 2018. Upon the first visit, the university team were not able to access the centre of the monument due to dense gorse and tree cover. Site preparation therefore involved the clearance of extensive overgrowth which had covered the monument for the past few decades – a mammoth task undertaken by Rhynie local, Fred Murray (Illus 2.5). The thick gorse roots and nearby forestry has caused significant damage to the archaeology and extant elements of the fort; however, once cleared, the visible remains corresponded broadly with Feachem's (1966: 72) plan of the site, with no obvious 'forecourt', third rampart or eastern entrance as identified by Cook



Illus 6.3
West-facing section of Trench 1 showing the rubble remnants of the inner rampart and charcoal spread (1004) towards the outer edge of the rampart

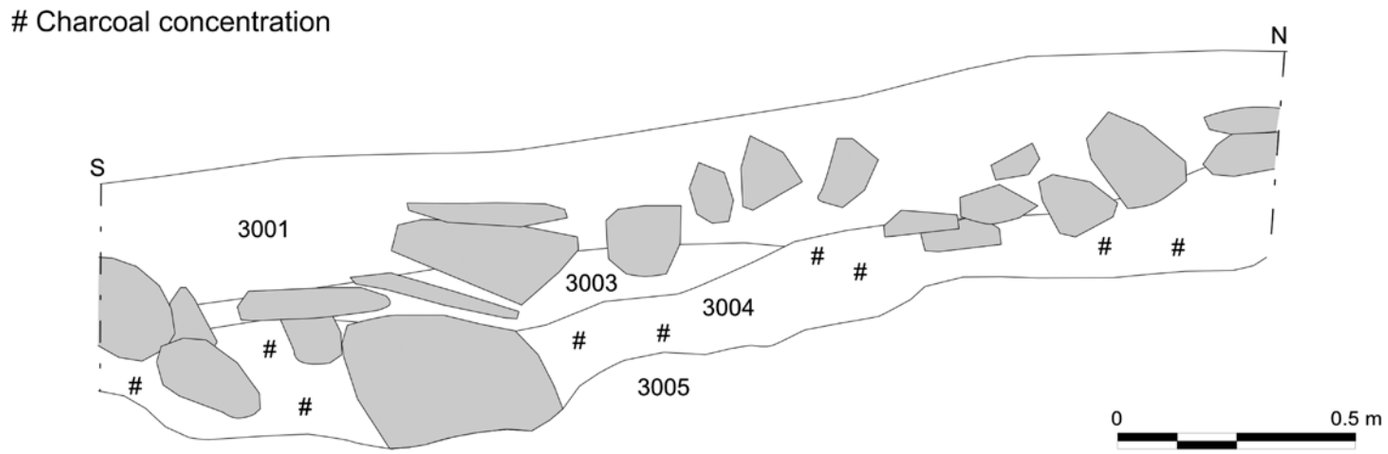
(2011b: 214). While Cook's earlier work has shown that there was evident early medieval activity at Cairn More, the dating and character of the fort itself remained to be fully confirmed. Cairn More's close spatial relationship with other early medieval forts in the area, specifically the Craw Stane complex and Tap o' Noth, made the site a key target in our attempts to understand the early medieval landscape of the Upper Strathbogie valley. However, it was also important to test the site to identify any other phases of use or construction. The Cairn More excavations therefore aimed to comprehensively date the enclosing elements of the fort and reveal their form and character, whilst also addressing questions of function by exploring the interior.

6.3.1 The enclosing elements

Excavations of the enclosing elements of Cairn More fort concentrated on establishing their chronology and development. It was unclear whether the fort had been built in the early medieval period, as suggested by Cook's (2011b) excavations, or was originally an Iron Age monument that had witnessed later reuse, as seems to be the case with a number of duns or homesteads in central Scotland (Noble et al 2020b). A series of trenches (Trench 1–3, 5–6 and 9–17) were positioned in order to characterise the form and chronology of the enclosing elements, though the 'third' rampart recorded by Cook (2011b) was not tested as it was not apparent on the ground even after the clearance of the hilltop (Illus 6.2).

6.3.2 The inner stone rampart

Trenches 1–3 were small test-pits opened in the first year of investigation, which simply aimed to identify and define the line of the inner rampart. They showed it to consist of an unstructured tumble of small to large stones of local geology, which were intermixed in places with a mid-brown clayey silt. Trench 1 was a 2.2m x 1m cutting that revealed the outer edge of the rampart. In this area, the rampart matrix surviving to a depth of only 0.3m



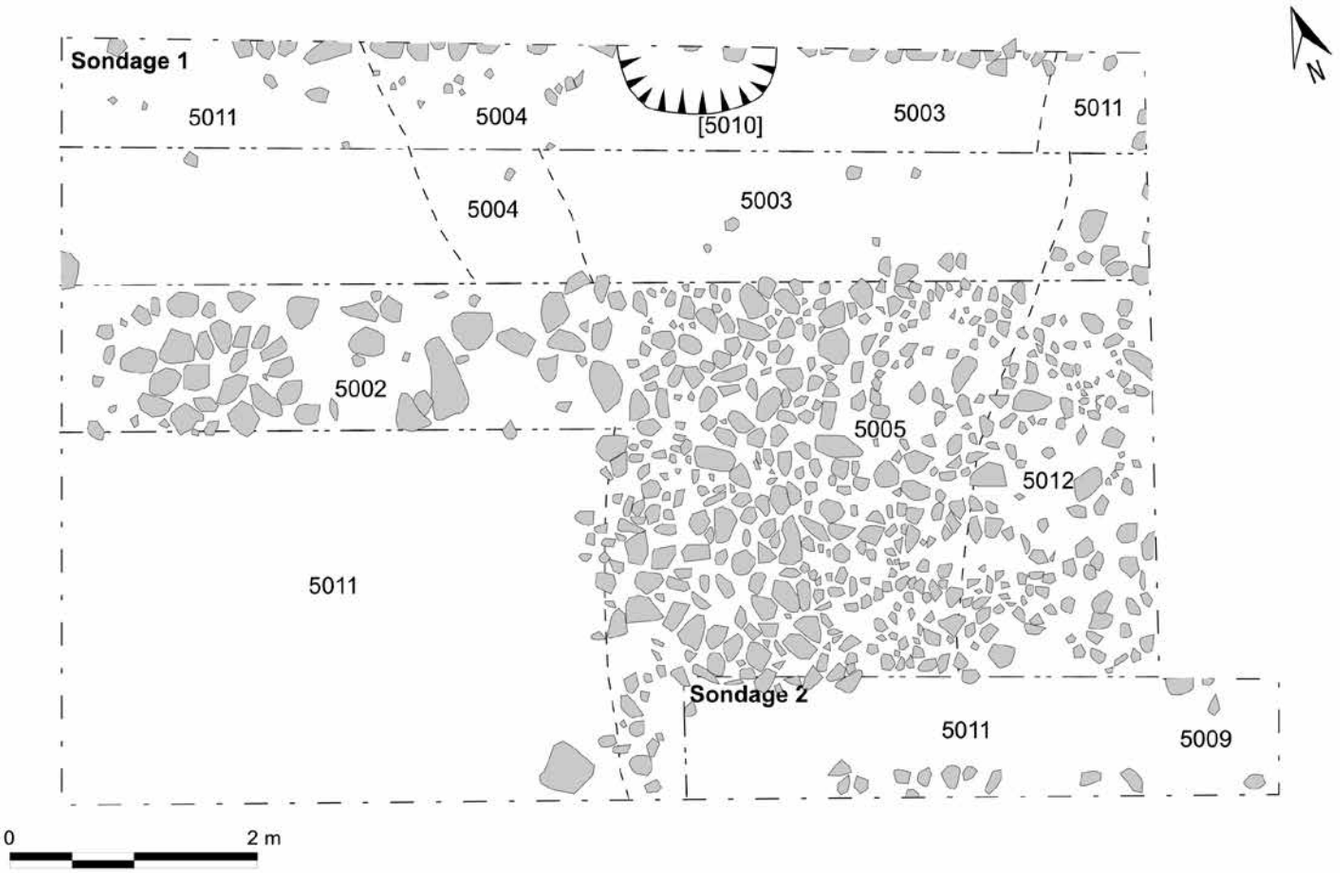
Illus 6.4
East-facing section of Trench 3 showing possible four courses of a possible outer facing on the south side

(1002/1003), suggesting it had been significantly robbed out (Illus 6.3). The soil matrix became richer in charcoal (1003) towards the base of the trench and a similar context was found mixed with heat-affected stones (1004) at the same level on the south-west edge. The latter may indicate the close proximity of a post hole of the character found elsewhere on the edges of the inner rampart (see below). Trench 2, a 2m x 1m cutting, exposed the core of the rampart but was not excavated further.

A third test pit (Trench 3 – 2.5m x 1m) revealed the core and outer edge of the rampart. Again, the excavation showed significant robbing of the rampart, which consisted of largely small stones intermixed with a loose, brown black silty sand (3003) that survived to a height of only 0.2m (Illus 6.4). However, a possible outer facing to the rampart was identified which comprised up to four basal courses of large, flat, angular stones with collapse downslope. The rampart sealed a light yellowish-brown silt with frequent amounts of medium-sized charcoal and burnt bone (3004). This deposit sat directly on the underlying natural.

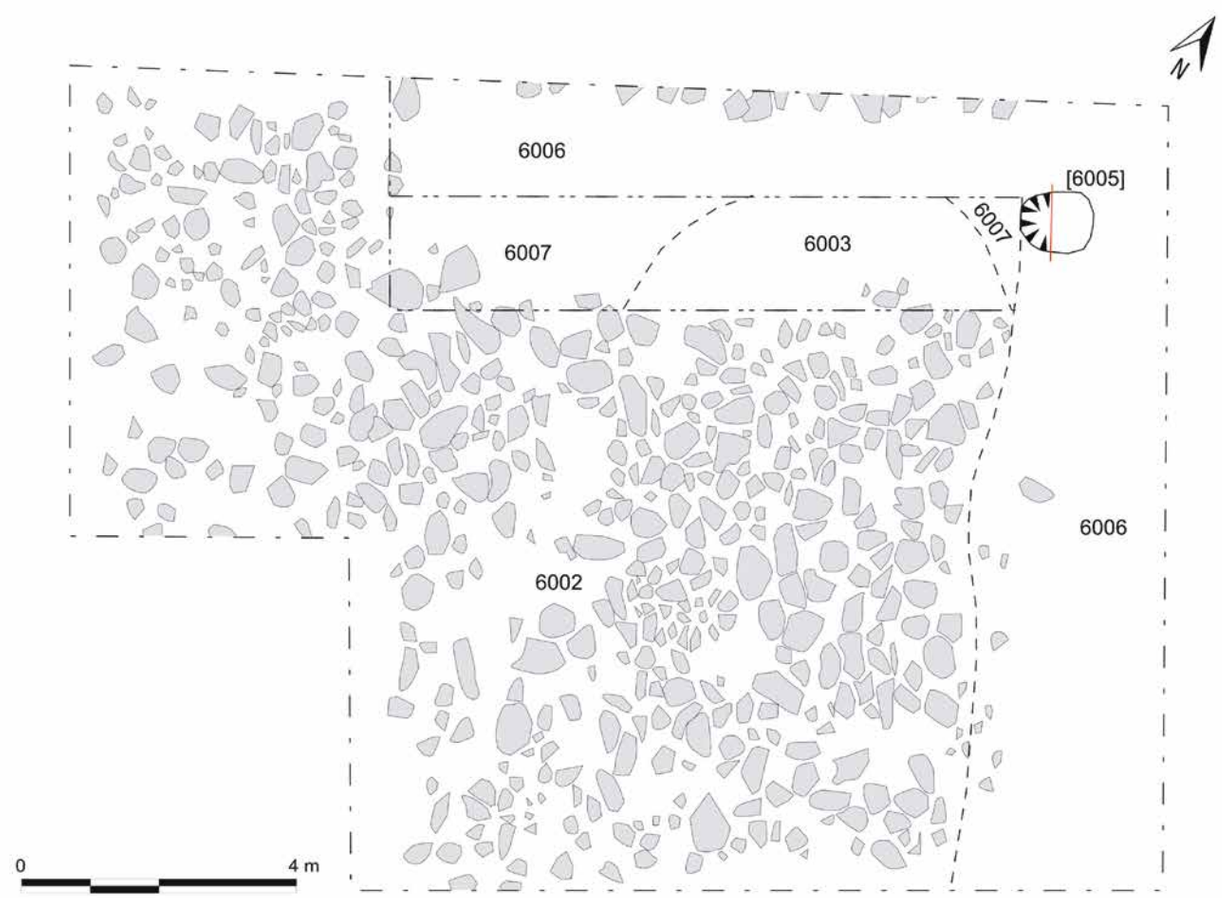
After identifying the general line of the inner rampart, a larger trench (Trench 5) was positioned over the 'entrance' on the south-eastern side of the fort which had been identified by both Feachem (1966: 72) and Cook (2011b: 214) (Illus 6.2). Trench 5 measured 9m x 6m and revealed an unbroken 6m stretch of rampart which survived as a 3m wide unstructured tumble of rounded and sub-angular field-gathered stone (5005), with probable wall collapse (5002) on the inner western side (Illus 6.5 and 6.6). A greyish-black silty layer (5003) was sealed by, and extended beyond, the limits of the rampart core (5005). Layer (5003) extended up to a post hole [5010] on the northern baulk of Trench 5 which measured 1.1m x 0.7m. Its upper fill (5007) consisted of a dark reddish-brown silt with occasional charcoal inclusions; however, the feature was not fully excavated due to time constraints and proximity to the trench edge. Its location next to the inner rampart may suggest it acted as a revetment post for the enclosing bank.

A charcoal-rich spread (5004) was identified extending towards the interior and beneath the possible wall collapse (5002). This consisted of a 0.2m deep yellowish-brown clayey silt intermixed with large charcoal and small fragments of burnt bone, and may represent a vestigial occupation deposit (Illus 6.5). A sondage through the rampart on the south-eastern side (Sondage 2) revealed a similar stratigraphy, with a 0.05m dark-brown silt lying underneath the rampart – though in this instance, this layer overlay a thin spread of redeposited natural intermixed with charcoal.



Illus 6.5
Trench 5 showing the general mass of stone (5011/5002) found around the inner rampart (5005)

Illus 6.6
South-facing section of Sondage 1, Trench 5



Illus 6.7
Trench 6 located over the outer rampart

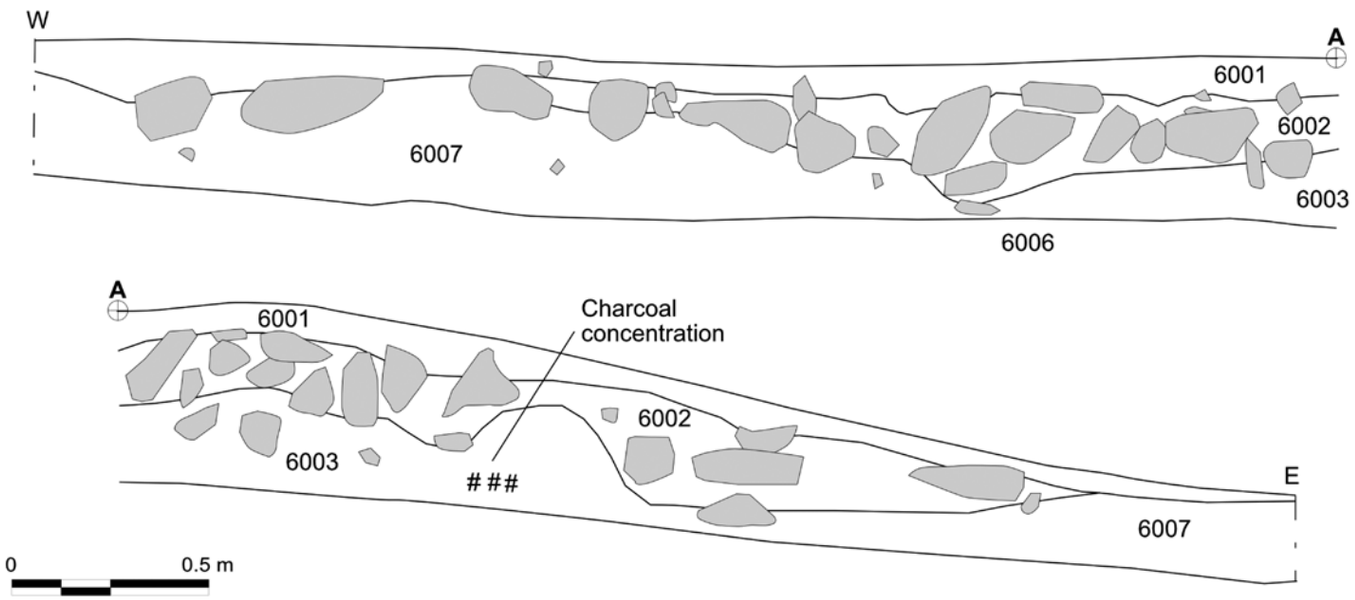
6.3.3 The outer stone rampart

Trench 6 was positioned over the outer rampart on the eastern side of the fort and measured 5m x 7m, with a small extension on the western side (Illus 6.2, 6.7 and 6.8). Removal of the topsoil (6001) revealed the core of the heavily disturbed rampart extending across the width of the trench. Identifying the limits of the original rampart was difficult, given the disturbance and truncation of the rampart core and a lack of obvious facing stones or kerb. However, the largest stones were concentrated in a *c* 3m wide section which ran in a north-east/south-west direction (6002). This was confirmed on the northern side of the trench, where a sondage revealed the rampart edge defined on either side by a mid-brownish-yellow clayey silt (6007) which overlay the natural. Underneath the rampart lay a charcoal-rich, mid-brown sandy silt (6003), probably hearth waste (Niehaus & Ramsay, Chapter 8) intermixed with small fragments of burnt bone, small to medium charcoal and two fragments of metal-working slag. Again, this deposit was approximately 3m wide and may provide another indication of the original width of the rampart. Just beyond the eastern edge of deposit (6003) was a probable post hole [6005] measuring 0.64m x 0.4m and 0.15m in depth, which contained a dark-brown silty clay with frequent charcoal inclusions.

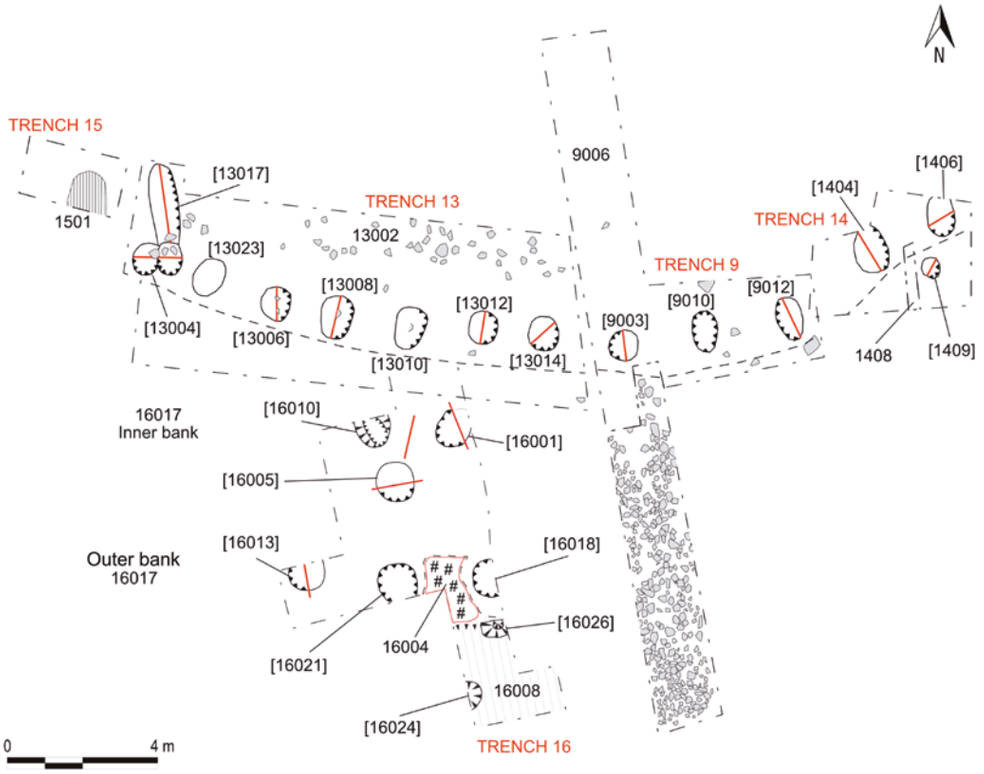
Trenches 10–12 were opened across the second rampart on the south-eastern side of the fort to further characterise and date this enclosing element (Illus 6.2). Trenches 11 and 12 were smaller interventions (each measuring 4m x 1m) designed to confirm the presence of the rampart in this area, before a larger trench (Trench 10) was opened which extended from the eastern edge of Trench 5. Trench 10 measured 10m x 2m, with a 2m x 2m extension at the south-east side (Illus 6.2). It exposed the denuded core of the outer rampart which measured approximately 3m wide and survived only 0.1m higher than the collapse (10001) between the inner and outer ramparts. There was a gap of approximately 6m between the edges of the inner and outer rampart on this side of the monument, with no obvious features between. The bank itself was not excavated.

6.3.4 Post arcs

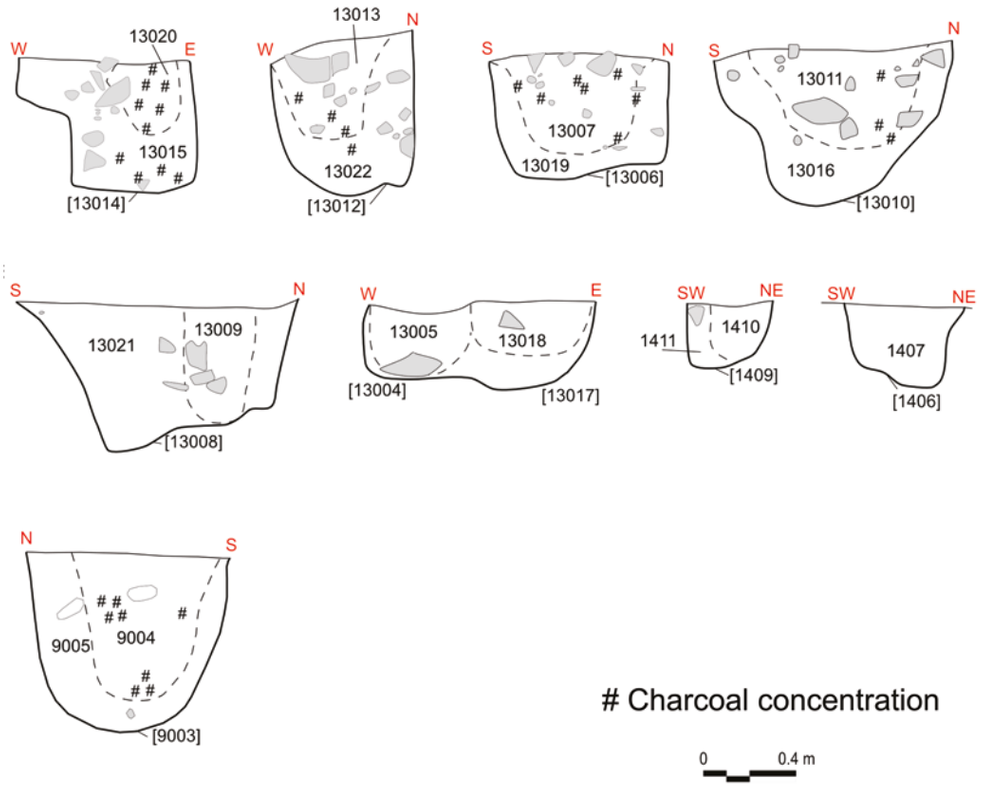
Six trenches (Trenches 9 and 13–17) were positioned at the southern side of the fort over the two ramparts and extended into the interior (Illus 6.2). Excavation in this area began with Trench 9, a 16.5m x 2m cutting that extended in a roughly north/south direction from the interior and over the ramparts, which appeared to converge in this area (Illus 6.9). After the identification of a large post hole [9003], a 4.5m x 2m extension was opened to assess if this represented part of a larger wooden palisade or if it was an isolated feature. Post-hole [9003] was around 1m in diameter and 0.75m deep, with vertical sides cut into the underlying natural and bedrock (Illus 6.10). It contained a central post-pipe (9004) comprising a charcoal-rich, mid-brown soft sandy silt about 0.5–0.6m wide and 0.69m deep, which was surrounded by stone packing (9005). Two further post holes [9010] and [9012] were spaced approximately 2m apart and were more oval in shape. Post-hole [9010] measured 1m x 0.85m and 0.7m in depth, while [9012] measured 1.1m x 0.8m and 0.65m in depth. Both had a similar fill to [9003], with charcoal-rich post-pipes surrounded by stone packing. [9010] showed a distinct step in its cut on the southern side that may have been a ramp to ease lifting the post into place. Though exposed, neither of the ramparts were excavated in Trench 9.



Illus 6.8
South-facing section of sondage through outer rampart in Trench 6



Illus 6.9
Trenches 9 and 13–16, showing post arcs



Illus 6.10
Examples of post-hole sections from Trenches 9, 13 and 15

Illus 6.11
Trenches 13 and 14 showing the arcing arrangements of post holes at the internal edge of the inner rampart

Trenches 13–15 were designed to build on the results discovered in Trench 9 and exposed up to ten further post holes (Illus 6.9). Trench 13 was positioned immediately to the west and measured 12m x 4m, with its length following the projected arc of posts along the edge of the inner rampart. This revealed six large post holes – [13004], [13006], [13008], [13010], [13012] and [13014] – spaced approximately 1.8m apart, with a possible seventh post hole [13023] recorded but not excavated (Illus 6.11). All post holes were of similar character, being circular or oval in plan, with a diameter ranging 0.5–1m and average depth of 0.5–0.6m (Illus 6.10). Their sides were concave to vertical with sharp breaks of slope, and each had a concave to flat base. All but [13004] showed evidence of a post-pipe, and [13008], [13010] and [13014] had evidence of ramps (Illus 6.12).

Post-hole [13004] was positioned at the western edge of the trench, adjacent to a linear feature [13017] which ran in a north-west/south-east direction (Illus 6.9 and 6.13). The linear feature measured 2.2m long, 0.55m wide and up to 0.4m in depth. Within [13017], a single dark-brown sandy silt fill with occasional burnt bone and frequent charcoal (13018) was recorded (Illus 6.10). It is difficult to interpret this feature with any certainty, though the large amount of charcoal in its fill suggests it held some wooden feature that was burnt in situ possibly before the construction of the arc of post holes, as post-hole [13004] clipped the edge of [13017]. One hypothesis was that it represented an elaborate feature associated with an unrecorded entrance. To test this, a 2.5m x 1.3m extension (Trench 15) was opened immediately to the west of Trench 13 to see if there was a corresponding break in the arc of post holes. However, the cut of another large post hole (1501) was revealed, inferring the arc of posts continued unbroken to the west.

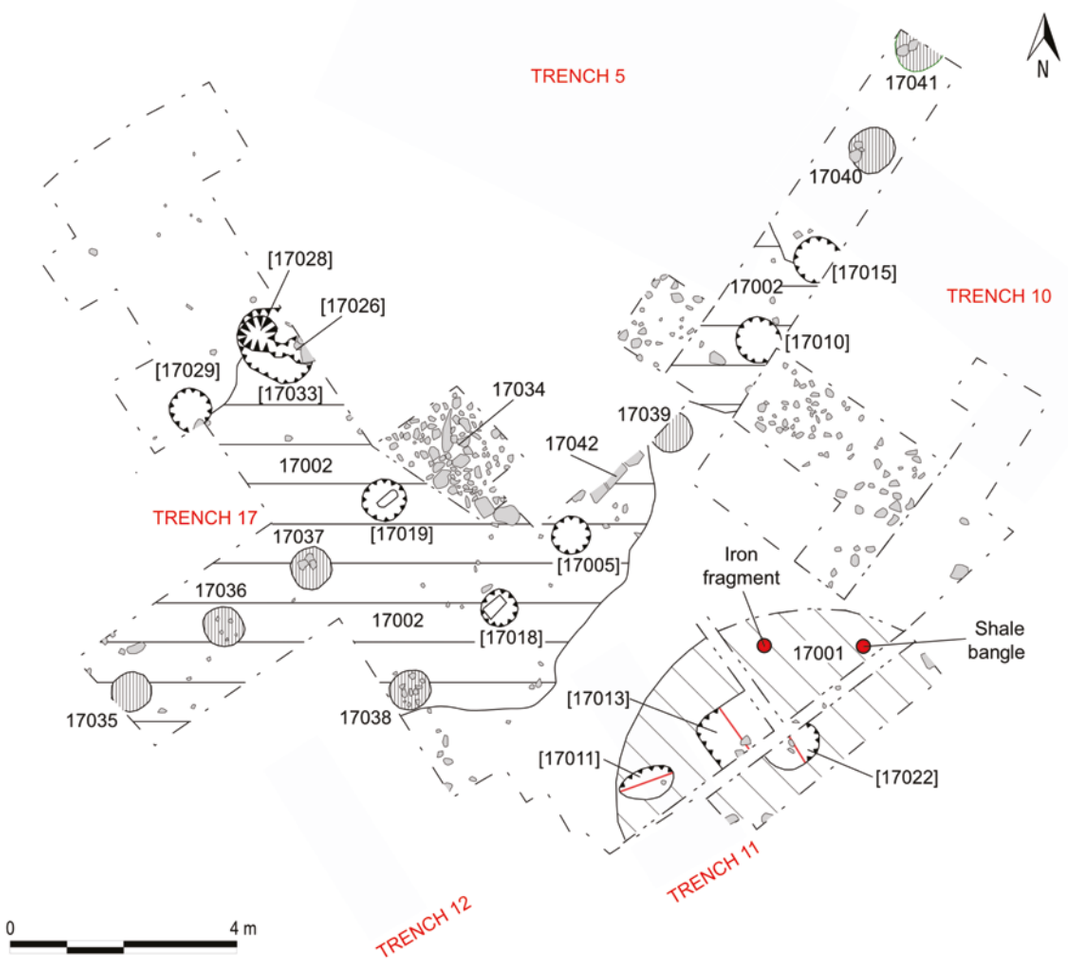
Illus 6.12
Post-hole [13008] with central packing and post-pipe and ramp on one side of the cut

Illus 6.13
Large linear feature [13017] next to post-hole [13004]

Trench 14 extended Trench 9 on its eastern side and identified two further post holes [14004] and [14006] spaced approximately 2m apart, confirming the continuation of the post-built feature in Trenches 9, 13 and 15 (Illus 6.2 and 6.9). The post holes were similar in character to those identified previously, being circular or oval in shape and up to 0.75m wide and 0.65m deep (Illus 6.10). They were both rock-cut, with a charcoal-rich post-pipe (14005) at the centre of [14004]. Post-hole [14006] also appeared to be ramped.

Trench 17 was a large, irregularly shaped cutting opened over the line of the inner and outer ramparts at the south-east of the monument (Illus 6.2 and 6.14). This trench was the first to fully reveal the complexity of the enclosing elements of Cairn More and aimed to expose the possible entrance identified by Feachem, although no clear trace of this could be found. The trench revealed three evenly spaced post-hole arcs that corresponded to the lines of the inner and outer faces of the inner rampart and the inner line of the outer rampart.

At the inner edge of the inner rampart, three post holes [17026], [17028] and [17029] partially cut through the patchy remains of an old ground surface (17002) that survived in the vicinity of all three post arcs (Illus 6.2, 6.14 and 6.15). The ground surface comprised a mid-greyish-brown sandy silt with moderate



Illus 6.14
Trench 17 plan

Illus 6.15
Drone shot showing Trench 17 with the post settings on the south-east stretch of the monument

Illus 6.16
Double post setting [17033]

amounts of burnt bone and charcoal that sat directly on the undisturbed mid-yellowish-orange natural subsoil. A double-post setting comprising post-holes [17026] and [17028] were found within a large shallow oval cut [17033] that measured 1.43m x 0.94m and 0.14m in depth and cut through (17002) and the underlying natural subsoil (Illus 6.16). Approximately half of post-hole [17026] was revealed during excavation, with the remainder extending into the trench edge. It was found to be circular in plan, measuring 0.56m in diameter and 0.69m in depth where excavated, and was rock-cut, with a steep break of slope, vertical sides and a flat base. It had a clear post-pipe (17025) consisting of a soft, mid-blackish-brown sandy silty with occasional burnt bone. The other post hole [17028] was positioned 0.22m to the north-west. It was a sub-circular rock-cut feature measuring 0.63m x 0.85m wide and 0.56m deep, with a single fill (17027) comprising a mid-greyish-brown sandy silt with occasional burnt bone, frequent charcoal and moderate amounts of medium to large angular stone. The close position of [17026] and [17028] might suggest that [17026] was a repair to this post arc. A third post hole [17029] was identified to the south-west which consisted of a circular cut into bedrock measuring 0.82m in diameter and 0.79m deep. It contained a packing fill of redeposited natural which surrounded a clear sub-rectangular central post-pipe (17031) comprising a mid-greyish-brown sandy silt with moderate amounts of charcoal, burnt bone and medium to large angular packing stones.

The middle post arc was revealed in Trenches 16 and 17 and comprised a series of large, evenly spaced rock-cut post holes of similar size and shape to those of the innermost post arc (Illus 6.2, 6.9, 6.14 and 6.17). Trench 16 revealed three post holes near to the outer edge of the inner rampart, two of which – [16001] and [16010] – were approximately in line with the innermost post arc (Illus 6.9). All three post holes had a large circular rock-cut *c* 0.7–1m in diameter and 0.9–1m in depth and contained clear post-pipes, with that of [16010] very obviously squared in plan. The post would have been around 0.2–0.25m square, with the post-pipe continuing to the very base of the post-hole cut (Illus 6.18). Another large rock-cut post-hole [16005] was seemingly located between the middle and outer palisades (Illus 6.9). It was of a similar character to the other post holes in the trench, around 1m in diameter and 1.3m in depth, with evidence for a post-pipe and packing fill. In Trench 17, four post holes – [17019], [17035], [17036] and [17037] – of the middle post arc were revealed (Illus 6.14), though only one was excavated. Post-hole [17019] was circular in plan, measuring 0.84m in diameter and 0.97m in depth, and had been rock-cut with a rectangular post-pipe apparent in plan.

The outer post arc was first identified in Trench 16, when three large post holes spaced approximately 2m apart were revealed – [16013], [16018] and [16021] (Illus 6.9 and 6.19). All three had been cut into bedrock, contained clear post-pipes, and measured 0.7–1.1m in diameter and up to 1.05–1.35m in depth. A further eight post holes were revealed to the east in Trench 17 – [17005], [17010], [17015], [17018], [17038], [17039], [17040] and [17041] – four of which were excavated. Post-holes [17005], [17010], [17015] and [17018] were spaced 1.3–1.8m apart and were of a similar size, shape and character (Illus 6.14). They measured 0.72–0.88m in diameter and 0.71–1.05 in depth and all showed evidence for having held posts, with [17005], [17010] and [17018] retaining clear evidence of squared timbers (Illus 6.20). Variations in the underlying geology, however, meant that some of the post holes were cut into a smooth sandstone bedrock, while others had been cut into more irregular bedrock with multiple bedding planes and were less well defined.

Illus 6.17
Trench 16 looking south with the middle and outer post settings evident

Illus 6.18
Post-hole [16010] with squared post impression

Pre-excavation.

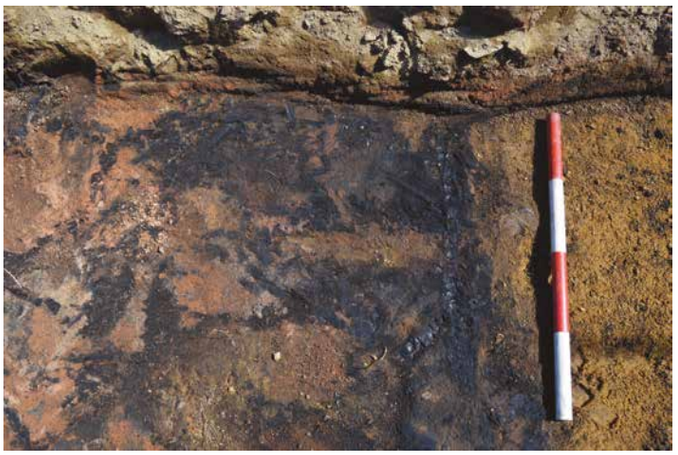
Mid-excavation showing central packing stones.

Mid-excavation, highlighting the large size of the post-holes.

Post-excavation.

Illus 6.19
Post-hole [16021] at various stages of excavation

Illus 6.20
Post-hole [17018] with clear rectangular post-pipe



Illus 6.21
Heavily burnt layer (16008)

Illus 6.22
Remains of wattlework (16004)

Illus 6.23
Feature [16024] underneath burnt layers (16004) and (16008)

6.3.5 An earlier enclosure?

In Trench 16, a number of features were recorded underneath the core of the outer rampart. These included a 0.02–0.07m thick layer of loose, bright reddish-pink silty clay intermixed with bands of charcoal-rich silt and significant quantities of charred roundwood fragments (16008). This was directly sealed by, and extended partially beyond, the inner edge of the rampart (Illus 6.21). Downslope, (16008) sat directly over fragments of charred wattlework (16004), suggesting that (16004) and (16008) formed part of a burnt wattle and daub fence/wall panel that may relate to a pre-fort structure or possibly an earlier phase of fort construction (Illus 6.22). It is unlikely that this delicate wattlework would have survived for long unless it had been quickly sealed. The wattlework itself had sealed two earlier shallow features [16026] and [16024], both of which were rock-cut with single fills containing occasional charcoal flecking (Illus 6.23).

6.3.6 The interior

The dome-shaped interior of the fort may have restricted settlement to the flatter summit at the centre of the defences. This is tentatively borne out in the archaeological record, where no evidence of habitation was found in the small 2m x 1m test pit (Trench 4) on the south-eastern side of the interior, or in the areas of Trenches 5, 9, 13 and 15 that abutted the inner edge of the enclosing elements. Trench 14 did reveal a smaller post-hole [14009] inside the inner rampart; however, this appeared to represent activity prior to the construction of the defences. While much of the interior remains to be investigated, the only area to produce any unequivocal evidence for settlement was the summit, explored in Trenches 7 and 8 (Illus 6.2, 6.24 and 6.25). Trench 7 was excavated over two seasons in 2018 and 2019 and comprised a 12m x 9m area, with a 5.5m by 3.5m extension at the north-east, a 5m x 2m extension at the south-west and a

Illus 6.24
Trench 7 with large central hearth, areas of cobbling and wall fragments

Illus 6.25
Plan of features within Trench 7

3.5m x 1m extensions at the west. The trench partially exposed what we interpret as a large building with a central hearth at the summit of the interior.

6.3.7 The building: structural features

The building at the summit was defined by a series of deposits and possible structural features, which suggest that it covered an area approximately 18m east/west by 10m north/south. A cobbled/stony surface comprising small angular and sub-angular stones (7103) survived in large patches within this area, and ranged from 0.05–0.15m in thickness. It did not appear beyond the limits of the possible walls of the structure at the north-east (7108), south-west (7133) or east (8004), which suggests that it could represent ground preparation prior to the construction of the building.

The preservation of the building's walls varied considerably, and the archaeology had undoubtedly been truncated by a variety of factors including tree roots, gorse, animal burrows and clearance. The best-preserved section of walling was revealed at the eastern side in Trench 8, where a 1.8m wide concentration of medium to large sub-angular stones (8004) formed a probable wall core. A surface of cobbled stones (8003) found in the vicinity of the wall may be equivalent to the foundation surface (7103). At the north-east in Trench 7, another stretch of probable walling (7108) survived as a 2m wide curving concentration of large, relatively flat, sub-rectangular stones. This directly overlay a light yellowish-brown silty sand with frequent small stones (7117), which may represent the edges of the foundation surface (7103). The south-west wall (7133) was defined by a similar concentration of large sub-angular stones approximately 2.2m wide. The foundation surface (7103) abutted the edge of these large stones, with the wall itself (7133) built on the natural subsoil. A considerable amount of disturbance in the form of animal burrows was noted in this area. No obvious wall was recorded on the western side of the summit, but there was a clear end to surface (7103). This could be interpreted as a possible entrance to the structure, though it could equally represent an area of the wall which has been severely truncated and robbed out.

Considering the potential size of the structure, only a handful of post holes large enough to support a roof were identified – though it must be noted that a large portion of the trench was not bottomed and the archaeological deposits were significantly damaged and disturbed by roots and animal burrowing. A possible post pad (7009) identified in the 2018 season comprised large sub-rectangular flat stones arranged in a sub-circular setting approximately 0.68m in diameter and was positioned approximately 2m south of the hearth (7104) (Illus 6.26). Just over 1m to the west of this lay a small pit or post hole [7129] that measured 0.51m x 0.37m and was 0.23m in deep. Its fill (7130) comprised a dark-brown, soft sandy clay with occasional burnt bone and frequent charcoal. Directly opposite these features on the northern side of the hearth were two further post holes [7121] and [7123]. Both were substantial features, with post-hole [7121] comprising a circular cut approximately 0.68m in diameter and 0.57m in depth, with vertical sides and a rounded base. A post-pipe consisting of a dark greyish-brown silt with frequent charcoal (7120) was surrounded by packing stones intermixed with a mid-yellowish-brown sandy silt (7122) that had later been covered by a mid-greyish-brown clayey silt upper fill (7119). Post-hole [7123] was positioned approximately 2m to the south-west of this feature and measured 0.58m x 0.47m and 0.25m deep. It was filled with a soft, mid-brown sandy clay mingled with frequent charcoal and burnt bone (7124). It is possible that these post holes formed part of an internal support structure for a roof to the large building on the summit, though post-hole [7123] seems to have been covered by the foundation deposit (7103) and probably represents an earlier phase of activity on the summit.

Illus 6.26
Post-pad (7009)

A series of other putative features were identified at the north-west of the trench, including the cut of a shallow pit or truncated post hole [7125] measuring 0.48m x 0.57m and 0.13m deep, with a dark-brown clay fill with occasional charcoal inclusions (71026) (Illus 6.25). Just under 2m to the west, a small post hole [7128] measuring 0.18m in diameter and 0.2m in depth and containing a fill of dark grey sandy silt with moderate charcoal inclusions (7127) was identified. Between these two features lay a linear spread [7115] of medium-sized angular stones mixed with a mid-grey-brown sand with occasional burnt bone and charcoal (7114). It was 0.23m long, up to 1.4m wide, and was cut 0.28m into the underlying natural. Further features included a possible post pad (7109) on the western edge of the trench, which measured approximately 0.38m in diameter and cut feature [7111]. Feature [7111] was approximately 1.2m in diameter and 0.04m deep, and contained a fill of mid-greyish-brown black sandy silt intermixed with moderate to frequent amounts of charcoal (7112). Most of these features seemed to truncate the foundation cobbling and therefore could have been associated with occupation of a large building on the summit.

At the centre of the building were the remains of a large hearth [7104] which measured 2.1m east/west by 1.35m north/south (Illus 6.27). The hearth was covered by a large spread of sub-angular stones (7002) which appeared to be field clearance, with cultivation of the interior perhaps explaining the poor preservation on site. The hearth was defined by five large longitudinal angular stones on its southern, western and eastern edges. These

Illus 6.27
Hearth [7104] with detail of knife-marks on the largest hearth stone

stones were on average 0.6m long and 0.1m wide, with the exception of the kerbstone on the western side which was particularly large, measuring 1.25m long and 0.3m wide. Knife sharpening marks were identified on this stone (Illus 6.27). A series of deposits within and surrounding the hearth (7003/7005/7006) may be associated with its use. The uppermost deposits (7003) and (7005) were thin spreads of mid-brown clayey silt, 0.08m and 0.05m thick, intermixed with occasional small fragments of burnt bone, moderate amounts of charcoal and frequent amounts of medium-sized angular stones. These layers were sealed by the spread of stone (7002) and were contained within the upper levels of the hearth. Fills (7003) and (7005) sat on a series of flat hearth stones which in turn lay on a lower soil deposit consisting of a mid-brownish-grey clay mixed with charcoal and burnt bone (7006). This lower fill was approximately 0.04m deep and may represent an earlier hearth.

Removal of the stone concentration (7002) on the southern side of the hearth revealed another spread of material (7106). This consisted of a 0.05m thick deposit of soft, dark grey clay intermixed with occasional charcoal and burnt bone that sat directly on the cobble foundation (7103). This sequence suggested that the hearth was built and used when the large building was first constructed. A second, more extensive occupation deposit (7113) that also sat directly on (7103) was identified during the 2019 season. Deposit (7113) comprised a 0.1m thick greyish-brown clayey silt with burnt bone and charcoal inclusions. While this survived best on the north-eastern side of the hearth underneath stone spread (7002), it was also identified in patches within the tentative limits of the large structure. It may have also extended into Trench 8, where a somewhat similar deposit of mid-yellowish-brown sandy clay mingled with burnt bone and charcoal (8005) was identified. It seems likely that this deposit, and any other floor layers or deposits, had been truncated by later activity on the hilltop that included phases of cultivation and tree planting.

6.3.8 External structure

Within Trench 17, the partial remains of a house floor (17001) were identified just outside the outer rampart, perhaps having been built directly against the outer rampart if they were contemporary (Illus 6.2, 6.14, 6.28 and 6.29). This floor layer was at least 6m in diameter and comprised a 0.12m deep, dark brownish-black clayey silt with frequent charcoal and moderate amounts of burnt-bone inclusions. The majority of the revealed floor was excavated and dry-sieved, though only a fragment of a shale brooch and an iron object were recovered. Two narrow baulks were left in situ at the centre of the deposit (17001) to facilitate micromorphology sampling. There were no structural features such as post holes or stake-holes associated with this floor, implying the walls were likely made of turf or utilised other non-earthfast construction techniques.

Cut into the floor layer (17001) and the underlying natural were three pits/hearths – [17011], [17013] and [17022] (Illus 6.14 and 6.29). A shallow, lozenge-shaped hearth pit [17011] positioned near the south-eastern edge of the house floor measured 1.22m x 0.63m in maximum length and width and 0.12m in depth, with gradual sloping sides and a concave base. The heat of the hearth had discoloured the underlying natural in this area to a reddish-orange. The hearth had a single fill (17012) comprising a firm, dark reddish-black silty clay with occasional burnt bone, moderate amounts of small angular stones and frequent amounts of charcoal.

Illus 6.28
House floor (17001) located outside the main enclosure complex

Illus 6.29
Hearths associated with house floor (17001). Left [17013], right [17011]

Two additional central features [17013] and [17022] may also represent hearths associated with the use of the house. The largest of these was [17013], a 1.06m x 1.46m sub-rectangular feature with a gradual break of slope, concave sides and a flat base cut 0.21m into the underlying natural subsoil which again was discoloured, this time to a dull reddish-pink. Its fill (17014) consisted of a charcoal-rich, soft clayey silt with large pieces of burnt branches and wood, occasional burnt-bone inclusions, and a small number of small- to medium-sized angular stones. Some bright orange pockets of clayey silt were also intermixed with this deposit, which may represent burnt turf or daub. Abutting [17013] to the east was another probable hearth [17022]. It was sub-circular in shape, measuring 1.13m x 0.85m in maximum length and width, and was cut 0.35m into the underlying natural subsoil which was similarly discoloured to a dull reddish-pink. It had a single charcoal-rich fill (17023) comprising a firm, dark black clayey silt with occasional burnt bone and moderate amounts of coarse pebbles. As with (17014), patches of bright orange-red clayey silt mixed with the fill may represent burnt turf.

6.4 Discussion

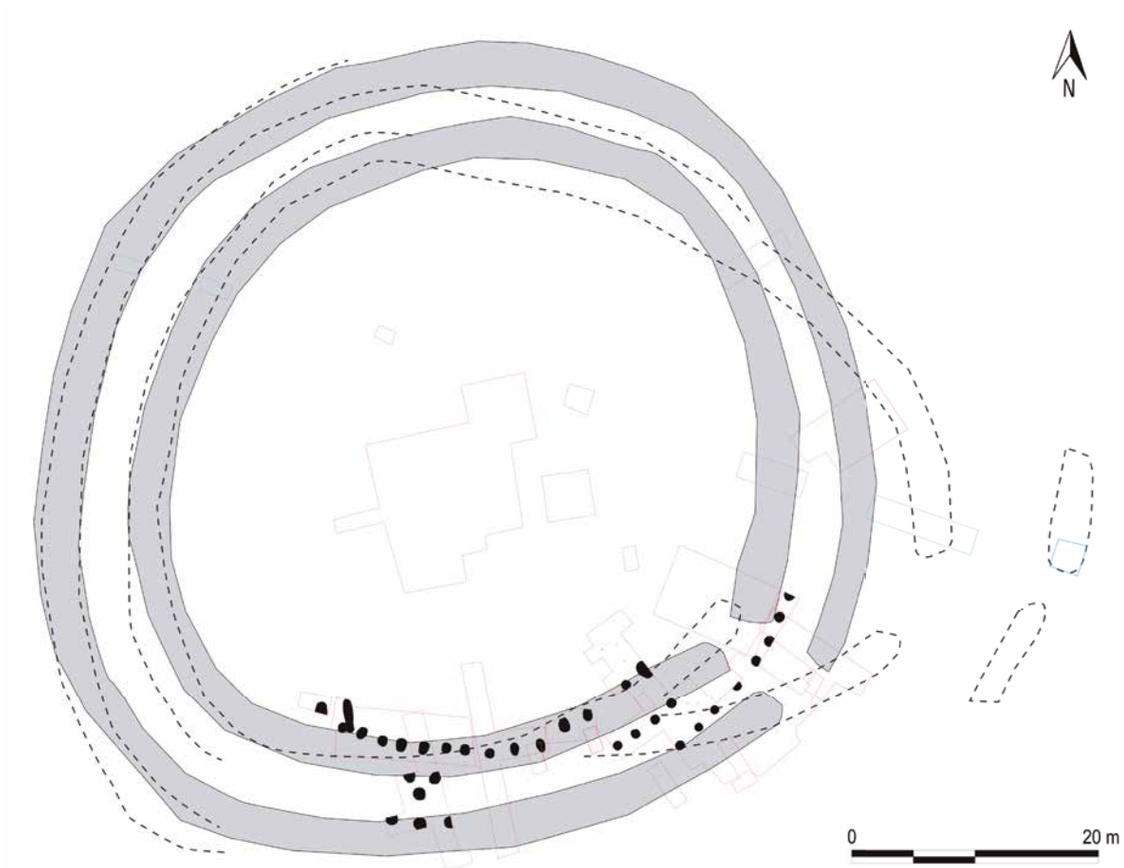
The Cairn More excavations sought to comprehensively date the enclosing elements of the settlement and reveal their form and character. In this respect, the various seasons of investigation were successful, having firmly dated the site to the early medieval period and, more specifically, to the 5th to early 7th century AD (Chapter 8). The survey work of Feachem (1966: 72) and the investigations by Cook (2011b: 215) had led to some doubt over the overall form of the Cairn More enclosures. The current work suggests that Feachem's plan, drawn prior to the engulfing of the site by forestry plantation and gorse, is the more accurate. The site appears to have comprised a bivallate enclosure with at least one large building at the centre. The ramparts appear to have been complex wooden and stone features, whose walls stood around 2–3m wide with the inner rampart having both inner and outer posts bracing what may have been a largely rubble core. In the

outer rampart, only the inner face appears to have incorporated wooden posts. Due to the level of disturbance at the site, it was sometimes hard to define where the edges of the rampart ended and the stone collapse/spreads began, but the general adherence of the post arcs to the edges of the rampart cores suggests the post arcs and ramparts were contemporary rather than forming different phases of enclosure. If these features did represent different phases of development, for example palisades pre-dating stone rampart, the adherence of the plan of the ramparts to the line of the post arcs suggest that the ramparts must have immediately replaced the post arcs and conformed largely to the same plan.

The favoured interpretation here is that the posts were incorporated into the facing of the ramparts. Where identifiable, the posts broadly follow the Feachem plan as projected on a modern map, with the exception on the south-east where the post arcs would suggest a sharper curve to the enclosure boundary (Illus 6.30). No post arc was evident on the outer side of the outer rampart, though this might be expected given the ease with which wooden components could be set alight through fire-setting against the outer face of the enclosure complex in acts of conflict (eg Noble et al 2022).

The timbers held in each arc would have been substantial features, with some post holes over a metre in diameter and cut up to 1.4m into the bedrock. The significant length of the posts is also suggested by the presence of ramps, and it is clear that at least some of the posts were squared, indicating they were large prepared timbers. If contemporary with the ramparts, the posts are likely to have been joined by planks or drystone walling (see below). There was only limited evidence for facing for each rampart (eg in Trench 3) but it is possible that the majority of good-quality building stone has been thoroughly robbed from the site and reused in the substantial field walls that enclose the modern plantation (and perhaps in nearby buildings too). The evidence for field clearance in the interior of the monument and the difficulty tracing the outlines of the internal building also suggest extensive disturbance.

The timber elements of the ramparts are a striking feature of what could otherwise be taken as a relatively modest monument from surface inspection alone. The evidence for squared timbers and posts spaced around 2m apart suggests that a very significant investment in resources and labour was required to build the Cairn More enclosure complex. The spacing of the posts in the inner line where the largest number of posts were revealed would indicate that over 80 posts would be needed for the inner post revetment alone, not including the timber needed for transverse cross-beams and planking, or any structures on top of the rampart. The incorporation of



Illus 6.30
Location of post holes in relation to Feachem's plan of the then upstanding remains. The three post settings are a good match for being revetment to the inner side of the outer rampart and both sides of the inner rampart. However, there is no clear evidence for an entrance at the south-east

earthfast timbers within ramparts is relatively unusual in Scotland but the outer wooden elements of the Craw Stane complex (Chapter 5) provide a contemporary parallel. Ramparts of this type are known in Central Europe as *Pfostenschlitzmauern* (Lock & Ralston 2022: 169; Ian Ralston, pers comm), where they are characterised by one or two vertical lines of wooden posts with inner planking or drystone walling. Their cores tended to be constructed from earth or rubble, which filled the void between the two timber-revetted drystone wall faces. In some cases, the back of the rampart could be supported by a ramp of earth (see discussion Lock & Ralston 2022: 166–70). Where two timber faces were present, transverse cross-beams between the rampart wall faces may have been used to provide extra bracing and support for the rampart core. The vertical posts at the face of ramparts may have also extended above the rampart to create a breastwork surmounting the wall. Considering the presence of post-hole ramps at Cairn More, which infer the vertical timbers were long and substantial, it is possible that such elements could well have existed here.

Pfostenschlitzmauern-style ramparts are not widely known in Britain and Ireland, where timber-framed and timber-laced ramparts are better represented. One parallel other than the Craw Stane complex is Dunnicaer in Aberdeenshire, which had a timber-framed rampart with some earthfast elements around the edge of a sea stack or promontory fort (Noble et al 2020a). However, the character of the Dunnicaer evidence was not of the scale and regularity of what was present at Cairn More. Other Pictish parallels include Green Castle, Portknockie (Ralston 1980, 1987) and Burghead, Moray (Noble & Evans 2022: 108–11), the latter of which had elaborate timber-framed ramparts of an exceptional scale. At *c* 0.28ha, Green Castle would have defined a similar enclosure space to Cairn More, though it does not provide a parallel in terms of its topographic position or setting.

Closer in character to Cairn More, at least in morphology if not in detail, are the small number of hilltop or hillslope thick-walled 'ringfort' type enclosures found in Aberdeenshire.[1] In the 2000s, the Royal Commission developed a classification system for the fortifications of Aberdeenshire which placed Cairn More alongside the inner walled enclosures identified at Maiden Castle and other similar sites such as Keir Hill, White Hill and Barmkyn of North Keig (RCAHMS 2007: 101; Cook 2013: 338, table 3). Maiden Castle comprised two successive enclosures whose earliest phase was a 4.5m thick stone wall some 0.6m in height, which was later reinforced by the addition of two banks and ditches that abutted the edge of a steep drop to the east (Cook 2011a: 25). The enclosures had a total area of approximately 0.08ha and while no obvious entrance to the walled enclosure was identified, a cobbled entrance on the southern side of the outer ramparts and ditches was uncovered during excavations (see Cook 2011a: 27). The excavations by Cook dated both internal and external activity to the early medieval period: within the interior of the fort, samples from an occupation deposit returned a date of cal AD 530–640 (SUERC-22160) and a post hole produced an early medieval glass bead. A possible rectangular enclosure or structure was also identified abutting the inner face of the walled enclosure. During excavation it was noted that the inner rampart was built on deposits that abutted the walled enclosure, suggesting that the outer enclosing elements were a secondary phase. However, radiocarbon dating revealed that these must have been built in relatively close sequence, as charcoal from underneath the inner rampart and middle fill of its associated ditch was dated AD 420–610 (SUERC-15908) and AD 500–650 (SUERC-15909). Further investigation of two cobbled areas immediately east and south of the fort produced at least four early medieval crucible fragments, a fragment of early medieval imported glass and a stone bead dating to a similar period to the fort, attesting to high-status activity within the fort environs.

As a result of these features, Maiden Castle draws particularly strong comparisons to Cairn More. Its internal walled enclosure is broadly similar in scale to the large walled structure identified at Cairn More, and its two surrounding ramparts and ditches are comparable in size with the stone ramparts surrounding the domed hill. While the enclosing elements at Cairn More are more complex in terms of having additional timber elements, the trenches at Maiden Castle may have been too narrow to reveal any comparable features. Indeed, the narrow trenches in Cook's earlier excavations at Cairn More failed to identify the massive posts of this palisade. Both Cairn More and Maiden Castle are broadly contemporary and show evidence for onsite production of prestige goods and the importation of exotic material culture. Of further interest is the clear evidence for extra-mural activity at both sites, inferring that the settlement and its associated activities were not defined by the limits of the enclosing elements of the forts themselves.

Elsewhere in Aberdeenshire, the RCAHMS survey identified a small number of potentially similar sites to Maiden Castle and Cairn More, though the dating for these has shown diverse results, with only some revealing activity in the early medieval period. Of the other examples in the typological group identified by RCAHMS (2007: 101) and Cook (2013), Hill of Keir has been shown to have evidence of reuse in the early medieval period but appears to have been an Iron Age enclosure in its first incarnation (Noble et al 2020b). Evaluation of the enclosure at Barmkyn of North Keig, Aberdeenshire, suggested this enclosure was also Iron Age in date (Noble et al 2020b). Dating of other 'ringfort type', thick-walled enclosures in eastern Scotland has produced similarly mixed results, with examples in Perthshire producing clear evidence for Iron Age construction (eg Black Spout – Strachan 2013) – though several of these have also revealed evidence for early medieval use or reuse (eg Aldclune, Queen's View and Litigan – Taylor 1990; Hingley et al 1997). In Angus, excavations at sites such as Rob's Reed and the three examples on Turin Hill (Noble et al 2020b) suggest Middle Iron Age to early Roman Iron Age construction and activity. Thus the sites at Cairn More and Maiden Castle remain unusual examples of early medieval enclosures, with few clear parallels identified to date and none with the scale of resource expenditure apparent at Cairn More.

The enclosure at Cairn More contained at least one building, with structural evidence comprising earthfast posts and post-pads and an area of cobbling that appears to have been used as foundations. This covered an area of at least 18 by 10m, suggesting that the building was of a substantial size. The size of the hearth (2.1m long, but an uncertain width) and the exterior walls (which measured up to 2.2m wide) also indicate that the building was an imposing feature in the summit interior. The floor layers appear to have been largely truncated, though multiple surviving deposits of hearth waste and perhaps two successive hearths suggest a significant lifespan for its use.

In addition to this larger building, what is likely to have been a more modest and perhaps specialised building was found outside the enclosure, possibly abutting the outer rampart on the south-east side of the settlement. This was around 6m in internal diameter (assuming the building was circular) with up to three hearth pits. These were of a different character to the large stone-built hearth at the centre of the interior building, and their pit-like nature may suggest they functioned as bowl furnaces for metal-working, though no direct evidence of this was found. No other structures were conclusively identified during the investigation at Cairn More, but the excavations did largely target the enclosing works and central interior area. The wattle work discovered in Trench 16 could conceivably have come from a pre-rampart house or structure and some of the charcoal analysis suggests hearth material under the ramparts, again implying some settlement prior to the construction of the ramparts (Niehaus and Ramsay, Chapter 8). The metalworking evidence identified by Cook in association with what was interpreted as a third rampart could also have been structural elements and/or activity associated with extra-mural settlement, suggesting that more settlement features remain to be explored at Cairn More.

The material culture from Cairn More was meagre in comparison to that recovered from the Craw Stane enclosure, though Cairn More had been heavily affected by later disturbance of the site through cultivation and tree planting, which had removed floor layers and greatly reduced the ramparts. In addition, nothing in the way of 'artefact traps', such as ditch deposits or deep midden layers were identified in the excavations conducted by the University of Aberdeen. It is certainly possible that middens survive at the site, and the fact that Cook's excavations identified metal-working moulds from outside the enclosure points to an area where future investigations could be fruitfully targeted.

6.5 Conclusions

The investigations at Cairn More was one significant part of characterising the wider landscape setting of the Craw Stane complex during the Rhyne Environs project. The research on the wider setting has illuminated the extent to which the Craw Stane complex was just one node within a landscape of power in the first millennium AD (Chapter 12). The community response to the excavations at Rhynie were uniformly impressive, but the single-handed undertaking of the clearance of the site to allow the investigations of Cairn More to take place by local resident Fred Murray was particularly notable. The Cairn More excavations aimed to comprehensively date the enclosing elements of the fort and reveal their form and character, and explore the interior. Despite the seemingly better preservation of the site than the Craw Stane complex, agricultural impacts had undoubtedly taken a toll on this site. Nonetheless, the excavations revealed a complex bivallate fort with very impressive post revetments to the stone-built ramparts that enclosed the interior settlement. Two buildings were identified – one large interior structure with a hugely impressive hearth-setting and an exterior floor layer that phytolith and micro-algae analysis has shown was a turf-walled building that may have had a thatched roof (Chapter 8). Dates for the site suggest a 5th- to mid-7th-century AD chronology, overlapping in use with the enclosures at the Craw Stane and the use and decline of Tap o' Noth as a major regional centre. The relationship between the three sites in the first millennium AD will form the focus of the final chapter (Chapter 12).

Chapter 7:

THE FINDS FROM THE CRAW STANE COMPLEX, TAP O' NOTH AND CAIRN MORE

GEMMA CRUICKSHANKS

WITH CONTRIBUTIONS BY EWAN CAMPBELL, MARY DAVIS, LEANNE DEMAY, FRASER HUNTER, JAMES GERRARD, FIONA MCGIBBON, ANDREAS RAU AND ALISON SHERIDAN

7.1 Introduction

A remarkable assemblage of artefacts was recovered during excavation projects in the Upper Strathbogie valley, particularly at the Craw Stane complex, Rhynie where over 1,200 finds provide a wealth of evidence for craft production, wider contacts and daily life (Table 7.1). Metalworking evidence dominates the picture, revealing the production of jewellery and other items at all three sites, along with rare evidence of silver casting and complex precious metal refining at the Craw Stane complex. Imported items include Romano-British ceramic vessels, Late Roman amphorae and glass vessels from Mediterranean, Germanic and Atlantic trading networks, illustrating wide-ranging connections. Handmade pots, querns and gaming pieces add evidence of everyday activities to the more eye-catching finds.

Group	Craw Stane complex	Tap o' Noth	Cairn More
Ceramic moulds	380	22	3
Ceramic crucibles	350	4	4
Iron slag	140	6	-
Tuyères	26	-	-
Copper alloy	24	2	-
Ironwork	67	8	
Worked stone	67	10	-
Shale bangle	-	-	1
Amber beads	2	-	-
Glass bead	3	3	-
Glass working	4	1?	
Glass vessel	8	1	-
Handmade pottery	28	46	1
Imported pottery	90	36	-
Total	1,189	138	9

Table 7.1
Summary of the main artefact categories found at the Craw Stane complex, Tap o' Noth and Cairn More. Numbers refer to individual fragments. For minimum numbers of certain objects, like moulds and vessels, see separate reports

The first part of this chapter presents all the evidence for metalworking (Sections 7.2–8), followed by metalwork (Section 7.9), stone (Sections 7.10–12), glass (Section 7.13), handmade pottery (Section 7.14) and then imported material (Section 7.15 and 7.16). Catalogue entries for illustrated and diagnostic objects are within the text and a full catalogue is in the archive. The dimensions in all catalogue entries are in millimetres (mm). Abbreviations used: L length, W width, T thickness, H height, D diameter, SF small find number, C context, XRF X-ray Fluorescence analysis results.

7.2 Ceramic Moulds

7.2.1 Introduction

A large assemblage of non-ferrous metalworking moulds was recovered from the Craw Stane complex, comprising 380 ceramic and 12 stone fragments (see Section 7.3). A further 22 moulds were found at Tap o' Noth and three from Cairn More. The products of these moulds include unparalleled running boar and hound figurines and a range of jewellery, notably penannular brooches, barrel pins for penannular brooches, handpins, nail-headed pins and a spiral finger-ring (Table 7.2). A range of features such as elaborate decoration, reserved areas to hold enamel and varying construction techniques illustrate a high level of skill and artistry. The following report summarises the technical aspects of the moulds before discussing the products. Catalogue entries for illustrated moulds are provided; a full catalogue of all fragments is in the archive. Finds are all from the Craw Stane complex unless otherwise stated.

Group	Type	Fragments			MNO		
		CS	To'N	CM	CS	To'N	CM
Figurine	Boar	5	-	-	4	-	-
	Hound	8	-	-	6	-	-
	Bear?	1	-	-	1	-	-
	Unclear	2	-	-	-	-	-
Jewellery	Penannular brooch	4	-	1	4	-	1
	Brooch pin (barrel pin)	8	-	-	7	-	-
	Handpin	11	1	-	9	1	-
	Nail-headed pin	4	-	-	4	-	-
	Finger ring	2	-	-	1	-	-
	Ring/ hoop fragments	12	-	-	9	-	-
Mount/ fitting	Triple-disc mount	2	-	-	2	-	-
	'Axe'-shaped	7	-	-	7	-	-
	Bead fitting	-	-	1	-	-	1
	Decorated strip	5	-	-	4	-	-
	Cylinder/ collar	1	-	-	1	-	-
	Plate fragments	10	-	-	-	-	-
	Strip fragments	16	-	-	-	-	-
Bar/ rod fragments	Rod (round section)	60	-	-	-	-	-
	Bar (square section)	18	4	1	-	4	1
	Rod/ bar (unclear section)	14	-	-	-	-	-
Indeterminate	Complex	19	-	-	8	-	-
	Straight edge	31	-	-	-	-	-
	Curved edge	2	2	-	-	2	-
	Corner	8	-	-	-	-	-
	Ingate	14	-	-	-	-	-
	Keying	22	-	-	-	-	-
	Unclear	53	2	-	-	-	-
	Possible mould fragments	41	13	-	-	-	-
Total		380	22	3	67	7	3

Table 7.2
Summary of mould assemblages from the Craw Stane complex (CS), Tap o' Noth (To'N) and Cairn More (CM). Where possible, the minimum number of objects cast (MNO) was estimated for each site

7.2.2 Technology

Terminology

Metalworking moulds are complex objects with a similarly complex range of terminology associated with them. The terminology here follows that used by Ewan Campbell in his study of the large mould assemblage from Dunadd (Lane & Campbell 2000: 201–3). Individual sides of the mould are 'valves', and the funnel-shaped inlet for the liquid metal is the 'ingate' which connects to the object matrix or casting surface via a channel known as a 'runner'. A series of recesses on one valve correspond to matching projections on its pair, known as 'keying' to securely align the two valves. 'Upper' and 'lower' valve refer to the position of the valves when made and often relate to the back and front of the object being cast, though identification is not always straightforward.

Fabric

The ceramic moulds were made from fine silty clay with very few or any inclusions. Two main groups were identified, with Fabric A finer than slightly sandier Fabric B, but they are likely to represent two ends of a spectrum of natural variations within similar clay deposits. Indeed, the clay shares characteristics such as natural inclusions with the sandstones and siltstones used to make metalworking moulds and vessels, suggesting it was associated with the same local source (see Fiona McGibbon, Section 7.10). It was clearly an excellent choice given how well it has held some very intricate forms and decoration. The survival of large portions of moulds, including intact valves, also attests to how suitable this material was for withstanding the pressures of casting hot metal and cleanly removing the object.

Construction features

Identifying lower and upper valves is challenging. Few of the moulds have a recognisably flatter outer surface, as was identified in lower valves at Dunadd where this was interpreted as arising from being pressed against a flat stone during production (Lane & Campbell 2000: 202). This may indicate the metalworkers at the Craw Stane complex did not use a flat surface beneath the moulds, suggesting differing local practices. Keying mechanisms varied from neatly cut triangular notches to more ephemeral oval impressions, along with shallower, rounded-triangular depressions somewhere between the two. The Group D zoomorphic figures have intense levels of keying along the bottom edge, reflecting a great deal of concern over keeping the valves securely aligned during casting. One of the penannular brooch moulds (SF220; Illus 7.6 and 7.7) has a raised cross in the centre of the frame, a distinct keying technique also seen on penannular brooch moulds from Trusty's Hill and Clatchard Craig (Campbell 2017: 41; Close-Brooks 1986: illus 23: 51–2). SF220 is the only mould with such a distinct keying pattern; the range of triangular and oval mechanisms on the rest of the assemblage can be readily paralleled on many early medieval assemblages, including the aforementioned Dunadd and Clatchard Craig, and also Mote of Mark (Laing & Longley 2006: 39), Portmahomack (Spall 2016: D96) and Eilean Olabhat (Armit et al 2008).

Within the assemblage ingates are concave, with no obvious difference between upper and lower valves where distinguishable. The ingate on SF162153 preserves a fingerprint, suggesting they were shaped by hand rather than with a former. Runners have a rounded section, probably created using a rod as a former, though some moulds have no discernible runner between the ingate and the casting surface. Orientation is consistent within object types: pin tips, the centre of brooch frames and the backs of animals are all at the ingate. There is no evidence that multiple pins or brooches were cast using the same mould, as they were at Mote of Mark, for example (Laing & Longley 2006: 59, fig 23: 1130 and 62, fig 25); only single object impressions are present on valves. Where the back and front of an object is obvious, for example with the handpins, the back of the object tends to be on the lower valve (see Table 7.4).

7.2.3 Products

Zoomorphic figurines

The most remarkable group of moulds recovered from the Craw Stane complex were for casting small zoomorphic figures of running boars and hounds or wolves (Illus 7.1 and 7.2), and a possible bear or badger (Illus 7.3). A total of 16 moulds represent casting of at least four boars, five hounds and one bear. While they are a distinct and coherent group, variations in their details have allowed them to be categorised into four sub-groups (A–D). Two were too fragmentary to be categorised (SF162169, SF162131). All apart from the possible bear were retrieved from the same fill of the outer ditch (C162054/F15004), suggesting that the majority may have been from a single workshop, perhaps even part of a single event of casting.

Unusually, seven valves are intact with two more almost complete. All comprise an oval valve with the animal aligned horizontally and ingate with short runner leading to the animal's back. Keying comprised triangular notches and was extensive in some areas, particularly on the bottom edge of the mould where a double row of keying indicates there was a third part to these valves. Though the third part has not survived, it could be reconstructed from features of the outer valves and experimental casts from a 3-D printed replica of refitting pair SF162102 and SF162107. While the outer valves have a typical arrangement of positive keying on one side and negative on the other, the inner row of keying along the bottom is positive on both sides and would not have locked together without an additional piece. The inner component therefore must have had negative keying on both sides, and presumably created the gap between the animals' legs. It was notable that the experimental replicas emerged with no gap under or between the animals' legs, because the replica moulds did not include the missing third component of the mould. This detail has been a crucial factor in understanding how these figurines may have been used, discussed below.

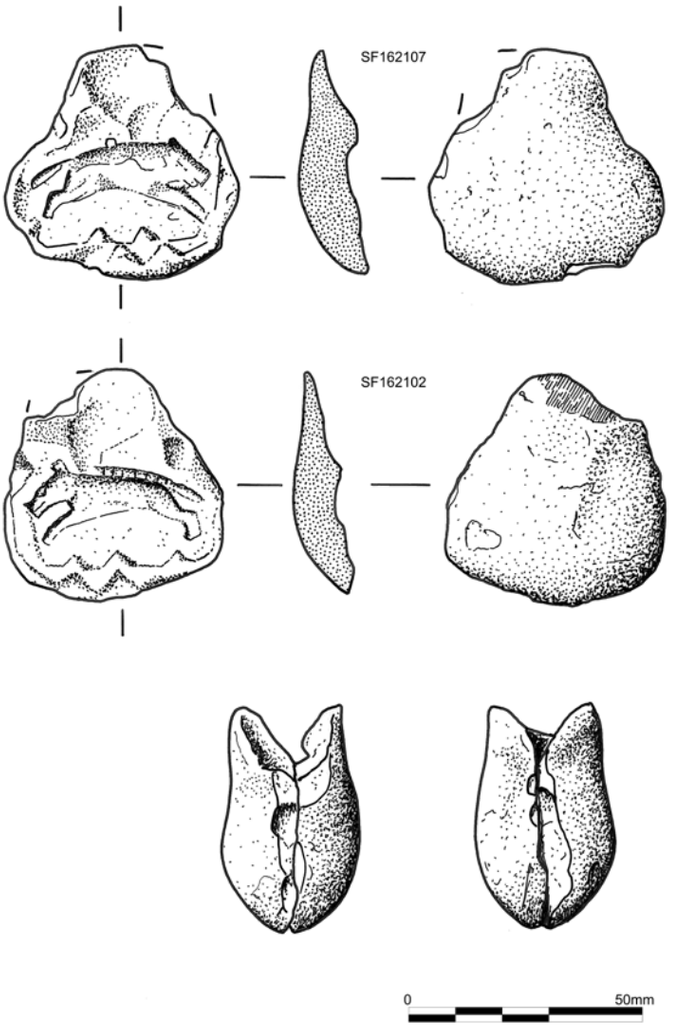
Find	Group	Facing	Keying	Valve
162102	A	L	-	lower
162107	A	R	+	upper
162164	A	L	-	?
162073	B	L	-	lower
162117	B	L	-	lower
162044	C	L	-	?
162072	C	L	-	lower
162076	C	L	-	lower
162083	C	L	-	lower
162095	C	R	-	?
162121	C	L	-	lower
162069	D	L	-	lower
162162	D	R	+	upper
162131	-	R	?	?
162169	-	?	+	?

Table 7.3
Summary of zoomorphic moulds, comparing the direction the beasts face with nature of keying and whether the valve is upper or lower

Of the 14 moulds complete enough to determine which direction the animal was facing, 10 face left and four face right (Table 7.3). All the left-facing animals have negative keying and all but one of these was a lower valve, where determinable. In general, lower valves are thought to survive more readily as they tend to be more robust, and the upper valve was more likely to be broken when extracting the object (Lane & Campbell 2000: 202, table 5.1). The pattern here is consistent with that. Most of the animals here, therefore, seem to have been cast in the same orientation – facing left on the lower valve.

Groups A and B: boars (A: SF162107, SF162102, SF162164; B SF162073, SF162117)

Group A comprises three valves, including the rare find of an intact refitting pair (SF162102 and SF162107; Illus 7.1 and 7.4). They are characterised by down-turned tails, ears represented by holes (which would create projecting ears) and squared snouts, clearly distinguishing them as boars. Some of the better-preserved moulds also display



Illus 7.1
Illustration of refitting pair of moulds (SF162102 and SF162107) for casting a boar figurine

traces of a crest along the boar's head and back. The two Group B valves are intact and both face left, indicating they were from separate pairs. They share the same ear and snout shape as Group A, distinguishing them as boars, but have no obvious tail and more outstretched front legs. Group B also have more keying along the bottom edge. The Group A and B moulds provide evidence of at least four boars cast, in two subtly different forms.

Group A

- SF162102 Almost intact (a flake missing) left-facing running boar with down-turned, pointed tail and small hole to create pointed ear. Partner of SF162107. Negative triangular keying around edge. Valve 47 x 48 x 14. Beast L 37, H 19. C162054. Illus 7.1
- SF162107 Almost intact (flake missing) right-facing running boar – partner of 162102. Valve 51 x 48.5 x 13.5. Beast L 36, H 18. C162054. Illus 7.1
- SF162164 Rear end of a left-facing running boar with down-turned tail. Negative keying. Valve 36 x 28 x 13mm. C162054. Illus 7.2

Group B

- SF162073 Intact left-running boar mould with hole for ear, no tail. Negative keying. Valve 52 x 43 x 13. Beast L 35, H 15. C162054. Illus 7.2
- SF162117 Intact left-facing running boar mould hole for ear. Negative keying. Valve 50 x 48 x 19. Beast L 37, H 16. C162054. Illus 7.2

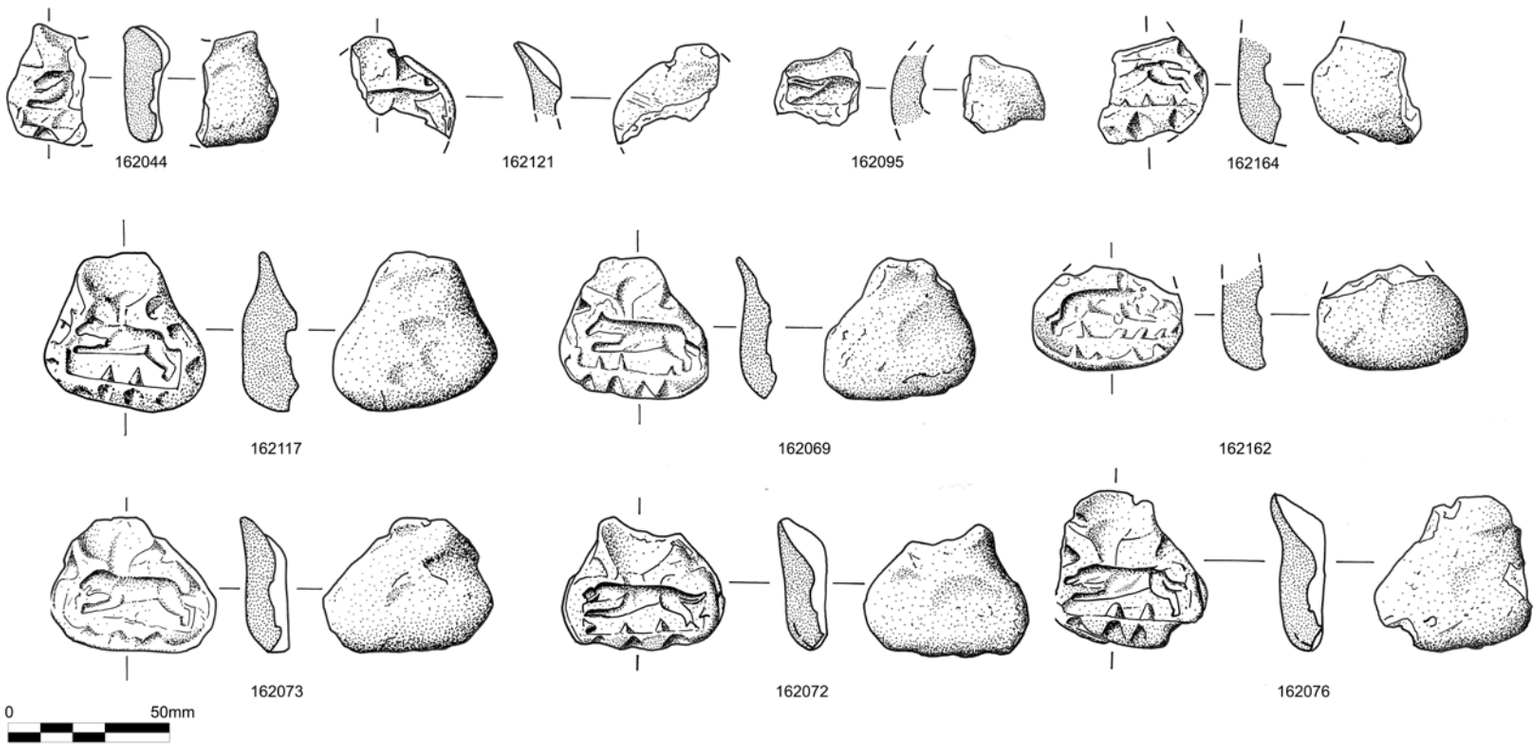
Groups C and D: hounds or wolves (C: SF162076, SF162072, SF162095, SF162083, SF162121, SF162044; D: SF162069, SF162162)

The six moulds in Group C have upturned tails and triangular ears which lie back against the beast's head, giving the appearance of a hound or wolf (Illus 7.2). They also have narrower snouts and appear to have their mouths partly open. All the valves show hounds running to the left, apart from SF162095 which is facing right, indicating at least five hounds were made.

Two Group D valve fragments share some characteristics with Group C, suggesting they are hounds, but are distinguishable by more frequent and sharper triangular keying. Protruding ears instead of flat ears on Group D perhaps gives them a more cat- or pine marten-like appearance, but the overall form is so similar to the hounds they are more likely to be a variation of those. They are likely to be a refitting pair but not quite enough survives to confirm.

Group C

- SF162044 Fragment showing head of a left-facing running beast with ear flat to head. Valve 23 x 35 x 14mm. Negative keying around edge. C162054. Illus 7.2
- SF162072 Intact left-facing running hound with slightly upturned tail (but lower than 162076). Negative triangular keying around edge and two positive keys under the beast's stomach. Outer surface fairly flat. Valve 49.5 x 49 x 12mm. Beast L 37, H 15. C162054. Illus 7.2
- SF162076 Intact valve showing left-facing running hound with upturned tail, flattened ear and mouth slightly open.



Illus 7.2
Illustration of moulds for casting zoomorphic figurines. Alan Braby

Wide triangular notched keying along outer edge, and further row of positive triangular keying inside that. Outer surface flat. Valve 51 x 39 x 12mm. Beast L 39, H 15. C162054. Illus 7.2

- SF162083 Fragment from the rear end of a left-facing beast with upturned tail. Negative triangular keying on edge. Valve 32.5 x 28 x 13mm. C162054.
- SF162095 Fragment showing the rear end of a right-facing running beast with upturned tail. Valve 26 x 24 x 10mm. C162054. Illus 7.2
- SF162121 Fragment comprising rear end of a left-facing running beast with upturned tail. Single negative notch to the right of the ingate. Valve 29 x 43 x 13mm. C162054. Illus 7.2

Group D

- SF162069 Almost intact left-facing running hound. Head end damaged. Negative keying. Possible partner of 162162. Valve 47 x 44 x 13. Beast L 36, H 14. C162054. Illus 7.2
- SF162162 Right-facing running hound on rectangular plate. Positive keying. Possible partner of 162069. Valve 47 x 31 x 12.5. Beast L 20, H 13. C162054. Illus 7.2

A further two fragments (SF162169, SF162131) are too small to distinguish which of groups A–D they belong to.

Bear

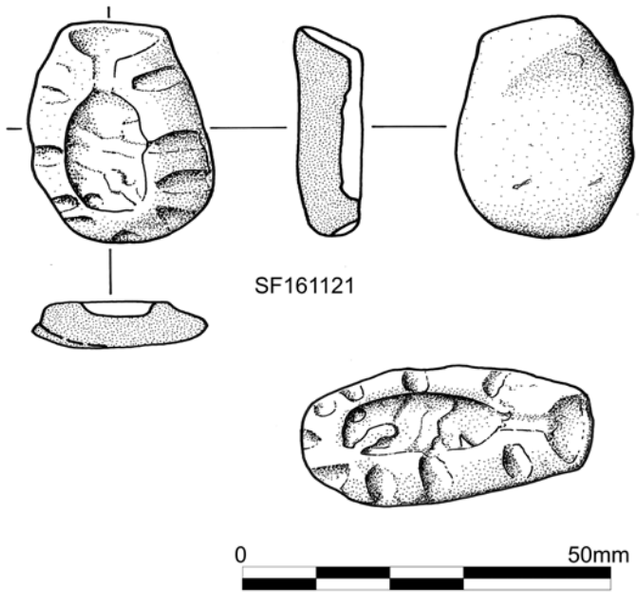
A smaller intact mould valve (SF161121; Illus 7.3) resembles a bear (or perhaps a badger). The bear is standing but unlike the other zoomorphic moulds it is not obviously running and is around half the size. It is aligned vertically with the ingate leading to its rear rather than back. It is also from a different context, though still within the outer ditch (C161003/ F15004).

- SF161121 Intact oval mould with impression resembling a bear (or badger?) facing left. Ingate leads to rear. Eight small oval negative keys around edge. Valve 39 x 23 x 9. Beast L 21, H 10.5. C161003. Illus 7.3

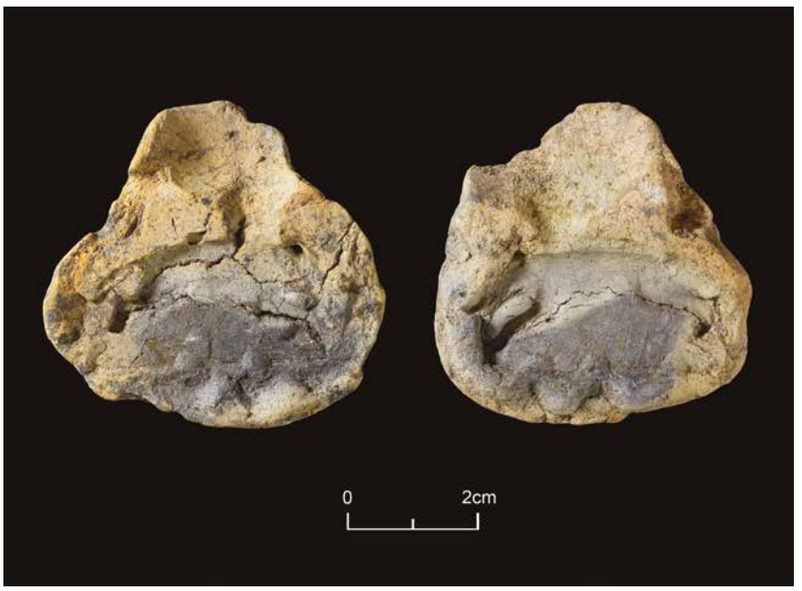
Zoomorphic moulds: discussion

Animal figurines, particularly of boars, are not uncommon in the Iron Age, Roman and early medieval periods (eg Durham 2012: 3.35.1 and 3; Foster 1977), but certain features of this assemblage set them apart. A refitting intact pair of moulds (SF162102 and SF162107; Illus 7.1, 7.4 and 7.5) confirms they were three-dimensional figures rather than one-sided plates which could have been attached as mounts. An obvious parallel for such figures can be found in boar mounts for early medieval helmets, like the example from Benty Grange in Derbyshire (Bruce-Mitford & Luscombe 1974). Similar boar figurines along with other characteristic mounts from Uppåkra in Sweden were also interpreted as helmet fittings (Larsson 2007). However, no means of attachment are apparent for the animals here, such as an underlying plate (as at Benty Grange) or rivet holes at the feet. The style of the Craw Stane complex animals is also quite different. They are in a running pose with outstretched legs, and possess a remarkable naturalistic quality compared to the static and more naive appearance of many of the examples mentioned above, which tend to be sitting or standing. The boars cast at the Craw Stane would have been less than half the size of the Benty Grange boar which, along with their outstretched pose, suggests they would have been too subtle for a showy function like a helmet crest.

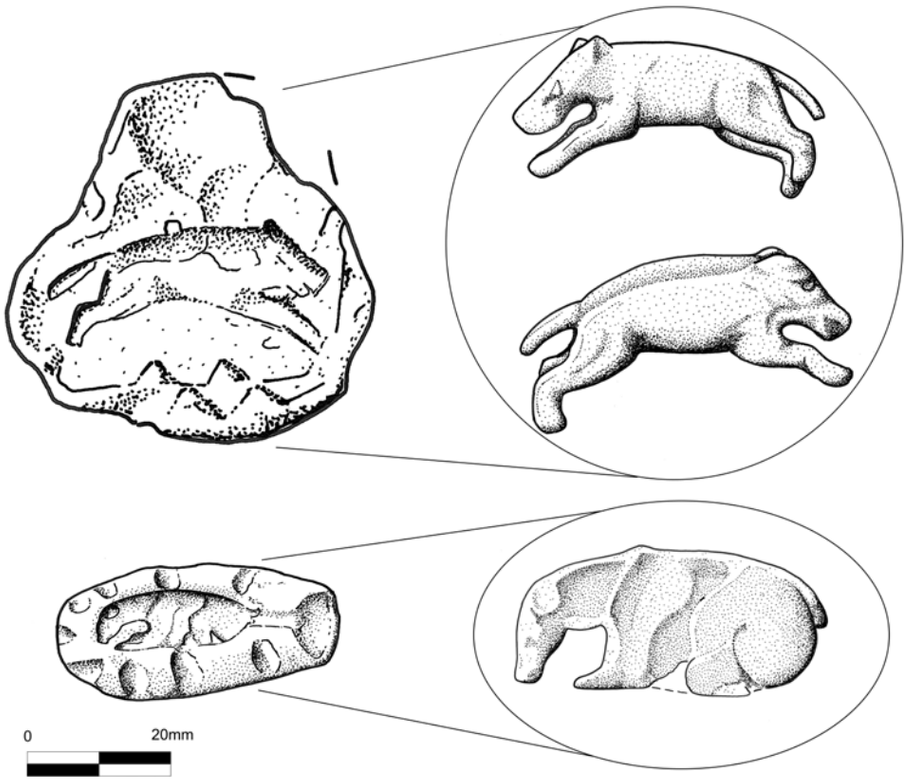
The refitting pair of moulds (SF162102 and SF162107) were 3-D printed by artist Dr Jennifer Gray of Edinburgh College of Art in 2019, allowing a replica boar to be cast which was a useful process for a number of reasons. It can be difficult to visualise



Illus 7.3
Illustration of a ceramic mould (SF161121) for casting a bear figurine



Illus 7.4
Photograph of refitting pair of moulds (SF162102 and SF162107) for casting a boar figurine. Leanne Demay/National Museums Scotland



Illus 7.5
Reconstruction drawings of boar and bear figurines, based on moulds SF162102, SF162107 and SF161121. Alan Braby

what cast objects looked like when we only have the negative, often fragmentary, impressions remaining. The cast replica shows more details of the beast than are apparent on the mould. For example, a tusk on the lower jaw can be seen, extending over the upper jaw. The muscular detail is also more visible. Such small details highlight how accurate and naturalistic these animals were. The craftworker/s who created these were clearly very familiar with the form of such animals and incredibly skilled at replicating their likeness in miniature.

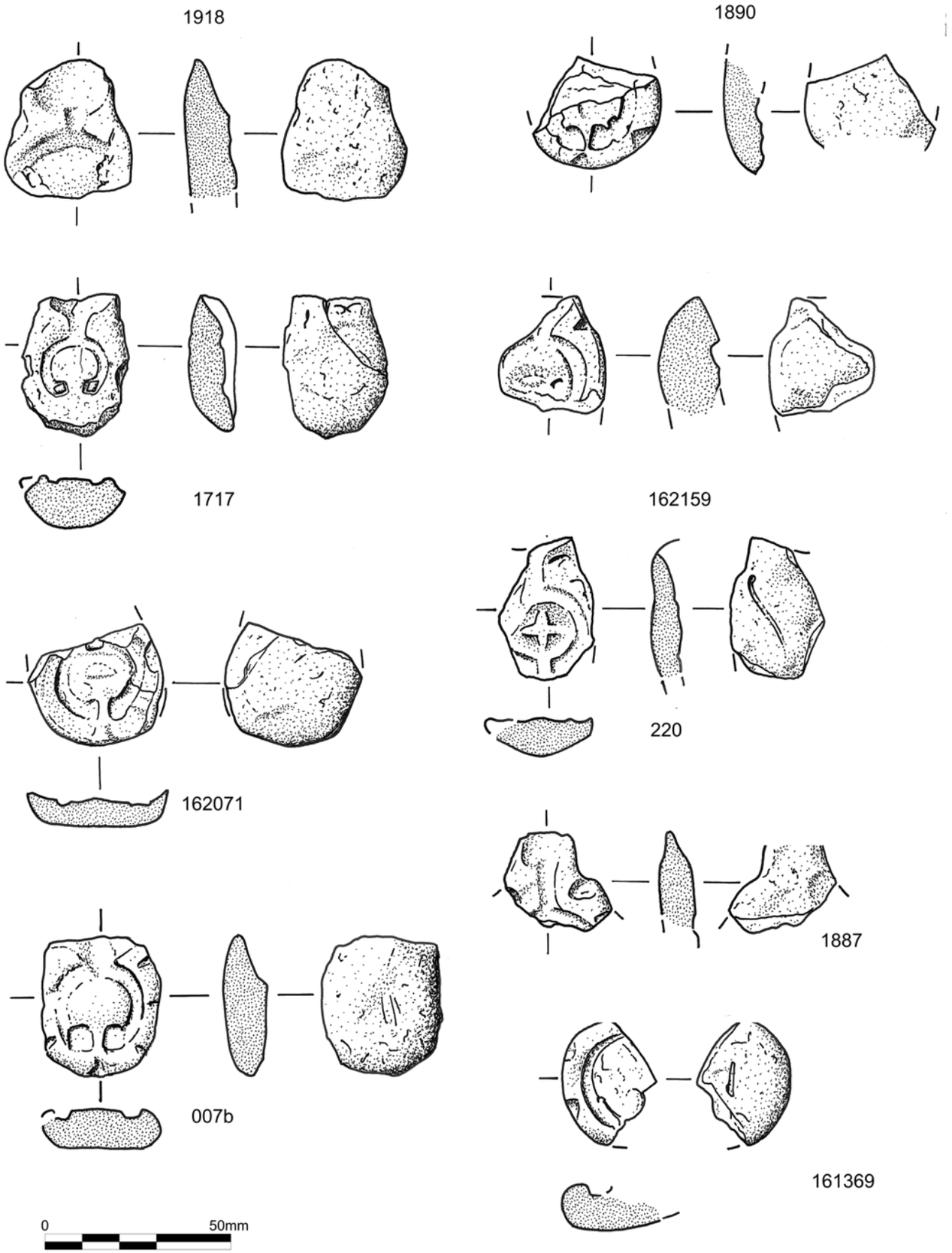
As noted above, casting the replicas also confirmed that the inner row of keying on the mould valves must have secured a third, inner mould component. This third part would have separated the animals' legs, possibly allowing them to stand up by themselves. Crucially, no indication of any means of fitting the animals to anything else is evident, making any role as a fitting attached to a helmet or other object less likely. As standalone figurines, their exact function remains elusive. The choice of animals suggests a hunting theme and while their creation in a set could suggest a gaming role, no parallels are known. Votives or toys are also possible, but the lack of surviving parallels leave this open for interpretation.

In a local context, depictions of animals including boars, wolves and bears, are known on Pictish carved stones of this period. For example, boars are carved on the Knocknagael and Dores stones, wolves or dogs on stones from Ardross and Golspie and a bear on a stone found at Old Scatness in Shetland (Fraser 2008: nos 113, 108, 118.1, 140 and 198.1 respectively). However, their forms differ in two main ways. Firstly, the animals cast here are in an active, running pose, whereas those carved on stones tend to be in a stationary or walking position and only the bear mirrors that pose. Second, the carved stone versions are usually adorned with spirals, lending them a more abstract appearance (though their overall form is still natural, and decoration may have been added to the cast objects later).

Jewellery

Penannular brooches

Five moulds for small penannular brooches were identified (four from the Craw Stane complex and one from Cairn More), all different forms (Illus 7.6 and 7.7). The smallest of the group (SF1717) is only 18mm in external diameter and would have had diamond-shaped recesses on its terminals. A mould for a slightly larger (23mm external diameter) but similar brooch with diamond terminals was found at Cairn More (SF007b). A comparable brooch (21mm D) known from Castlehill, Ayrshire was made from copper alloy with surface tinning, presumably to mimic silver (Blackwell et al 2017: 110: fig 9.6). The type is not well attested, though the terminal motifs bear similarities to more elaborate forms, including the lozenges on some of the Type G



Illus 7.6
Illustration of ceramic moulds for casting penannular brooches and selected rings/hoops. Alan Braby

Illus 7.7
Photograph of ceramic moulds for casting penannular brooches (clockwise from top: SF220, SF1717, SF162071, SF1890). Leanne Demay/ National Museums Scotland

(Graham-Campbell 1976: 279; Fowler 1963) brooch terminals from Dunadd (Lane & Campbell 2000: 110, illus 4.12: 840).

Brooch SF220 was a plain form with straight-ended, expanded flat terminals, consistent with Fowler's Type H (1963). This valve was recovered from the fill of a post hole which had been burnt in situ then removed (C237). The feature is notable for also producing a deliberately broken set of iron metalworking tongs (Section 7.9; Illus 7.38; SF207; see also Chapter 5) and clustered groups of animal bone, suggesting it was a structured deposit. This recognisable brooch mould is therefore likely to be part of the suite of objects chosen for deposition. Both brooch forms SF1890 and SF162071 have knobbed terminals, with SF1890 also collared. Neither are easily ascribed to a known type. Closely identifying brooch types from mould fragments is particularly challenging when one side can be different from the other.

It is noteworthy that the five valve fragments for small penannular brooches are all different forms. They also display a range of keying techniques, including the unusual raised cross on SF220 which can be paralleled on single examples from Clatchard Craig and Trusty's Hill (Campbell 2017: 41; Close-Brooks 1986: Illus 23: 51–2), but in general is not a technique widely known. SF162071 has a raised oval key in the centre, probably created from a finger impression on the lower valve. Such a technique was employed on some of the brooch moulds at Dunadd (Lane & Campbell 2000: 202). The small brooch mould assemblage therefore shows great variety in form and manufacture.

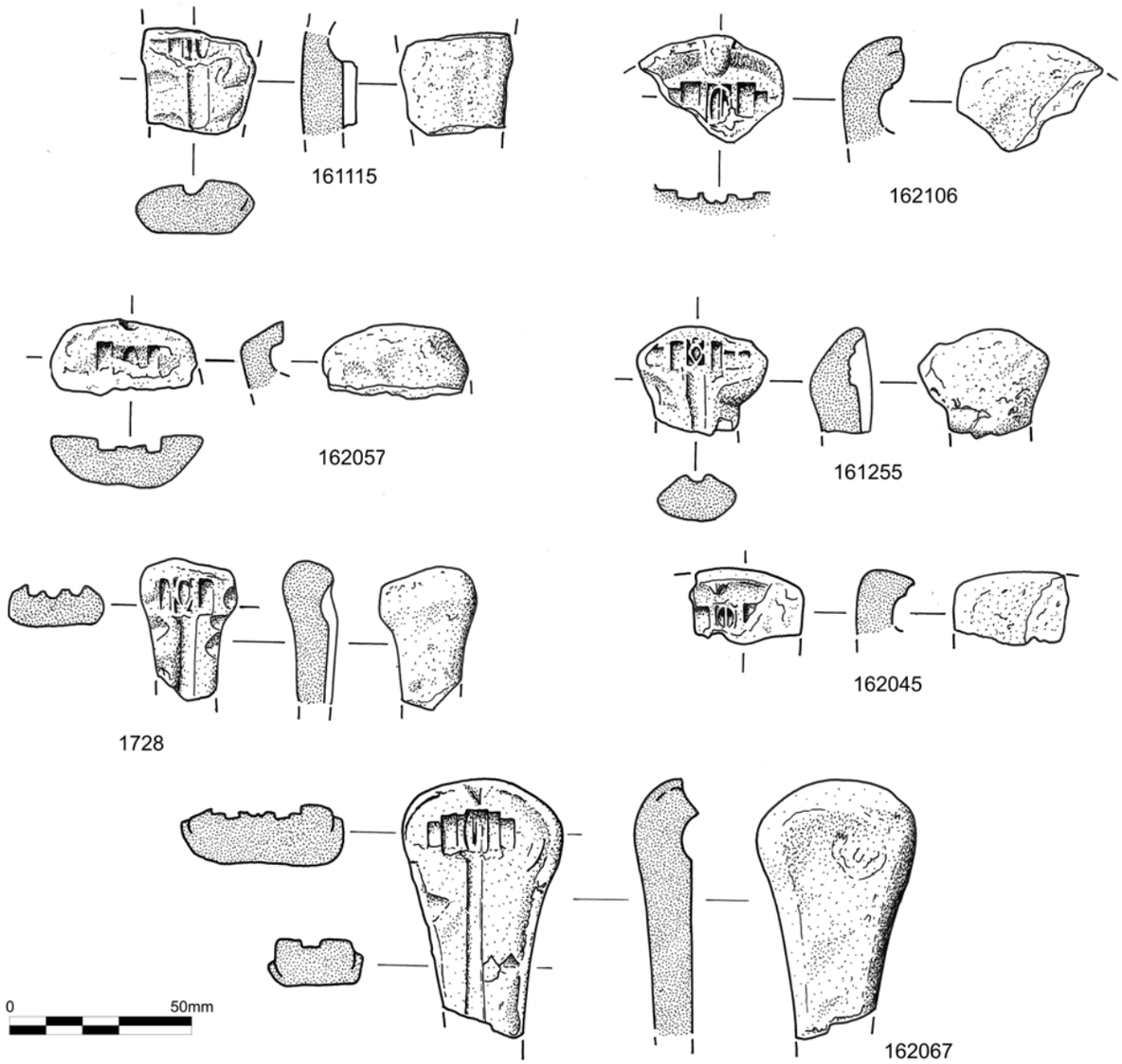
- SF220 Part of a plano-convex upper valve for a small penannular brooch mould with part of ingate and runner. Most of the hoop is preserved, with two flattened, plain terminals with straight ends. Fowler's type H (1963). In the centre of the brooch is a raised cross-shaped key. Valve 38 x 25 x 9mm. Hoop external D 23, T 2; terminal W 4. C237. Illus 7.6
- SF1717 Almost intact?upper valve for a small penannular brooch with expanded terminals bearing diamond-shapes. Valve 35.5 x 27 x 15mm. Hoop D 18, T 1; terminals W 3. C1702. Illus 7.6
- SF1890 Part of a penannular brooch mould, showing expanded, collared terminals. Missing ingate end. Negative triangular keying around the edge. Valve 36.5 x 29 x 11mm. Hoop D 26; T 2, terminal W 5. C1704. Illus 7.6
- SF162071 Most of the upper valve of a penannular brooch mould, missing top of hoop and pouring gate. Knobbed terminals, an oval positive key in the middle and some faint triangular keying around the edge. Valve 36 x 32 x 10mm. Hoop D 26, T 4; terminal W 6. C162054. Illus 7.6
- Cairn More SF007b Intact lower ceramic mould valve for a small penannular brooch. Dished ingate leads directly to the middle of the brooch frame, with diamond-shaped terminals. Fine triangular notches as negative keying around the edge and the underside is fairly flat (though the valve is fairly thin, which is more typical of an upper valve). Valve 36 x 31 x 12; brooch ext D 23, hoop T 3.5; terminal 6 x 7. C309. Illus 7.6

It is evident from the barrel pin moulds that larger, more elaborate penannular brooches were being cast too, though no definite moulds for such brooches were identified. There is, however, part of a failed casting for the terminal of a zoomorphic penannular brooch (Section 7.9; SF161211), confirming their manufacture here, and one mould fragment (SF161150, not illustrated) bears some resemblance to a similar sized brooch terminal but is too fragmentary to be certain. Given that only a small percentage of the Craw Stane complex has been excavated, there may well be more larger brooch moulds remaining to be found there.

Brooch pins (barrel pins)

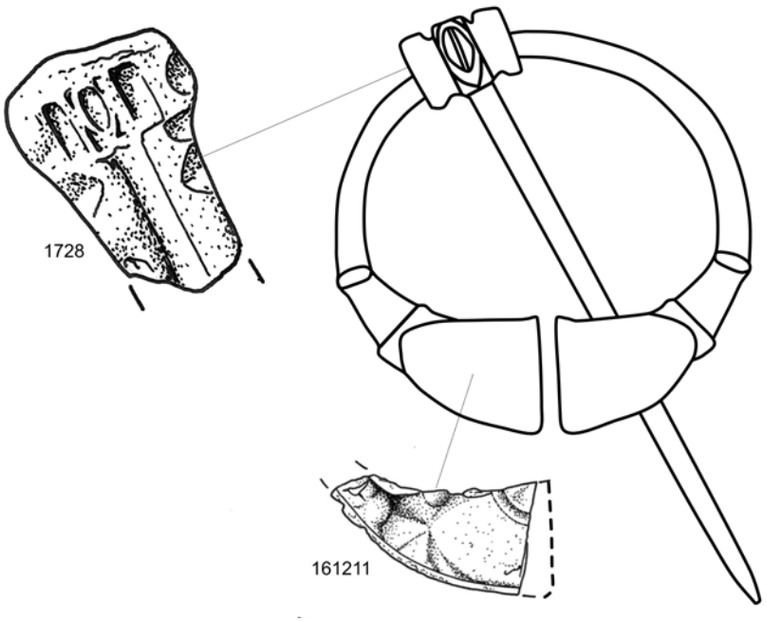
Eight moulds for the production of ornate 'barrel pins' were identified (SF236, 1728, SF161115, SF161255, SF162045, SF162057, SF162067 and SF162106; Illus 7.8 and Illus 7.9). Such pins were attached to large penannular brooches, for example Fowler's types H, G and F (1960; 1963). All of the barrels comprise three elements. The outer two elements are discs with a rectangular section, while the central element is more complex and varied but tends to be a similar disc decorated with a raised oval boss, sometimes embellished with a longitudinal rib (SF162045 and SF162106). SF162057 appears to have an entirely oval central element, while a recessed diamond shape was added to SF161255. They differ in size too. The five complete barrels vary in width between 13 and 26.5mm. The varying forms and sizes indicate at least seven are from different barrel pins.

Four of these pin moulds display negative keying (SF236, SF1728, SF161115 and SF161255) and three are positive (SF162045, SF162057 and SF162106). No ingates are present, indicating they were located at the tip of the pin. Only mould SF162067



Illus 7.8
Illustration of ceramic moulds for casting barrel pins. Alan Braby

Illus 7.9
Photograph of ceramic moulds for casting barrel pins (L–R: SF1728, SF162067). Leanne Demay/National Museums Scotland



Illus 7.10
Reconstruction of the type of penannular brooch the barrel pins could have been attached to

has a substantial length (55mm) of pin present, which is rectangular in section, suggesting that some of the mould fragments for slender bars were from barrel pin moulds. Finished pins tend to transform from rectangular to round section soon after the barrel, implying the pins were rounded off after manufacturing (a similar pattern was noted at Gurness (Close-Brooks 1987: 27)).

Three have narrow, rounded indents either side of the barrel pin. It seems likely this held a short rod during casting to create the hole through the centre of the barrel, or perhaps a thin wedge to create a split in the side of the barrel to allow attachment to the brooch frame.

Evidence for the production of barrel pins is rare. The only other evidence from Scotland is a single mould from Gurness, Orkney (Hedges 1987: 159, fig 2.85: 827), which has a head width of 16mm and a central barrel element embellished with a lentoid motif. Such pins would have fastened some of the larger varieties of penannular brooches which often had elaborately decorated terminals, sometimes zoomorphic in form (Fowler 1963: 105–6; Kilbride-Jones 1936: 126). Various dates for such brooches have been proposed, between the late 2nd century AD (Kilbride-Jones 1936: 133) and 5th to 7th centuries AD (Close-Brooks 1987: 304). This group was retrieved from upper fills of the outer ditch, with dates ranging from cal AD 260–540, providing a valuable new date for their manufacture.

- SF236 Mould fragment with traces of barrel pin head visible but mostly obscured by spalling. Valve 95 x 27 x 17. Pin L 85, shank T 4, head W 16. C161048.
- SF1728 Barrel pin mould valve with negative triangular notched keying along the edges. Tip and ingate missing. The barrel has two rectangular-sectioned discs either side of a central disc embellished with an oval boss. Rectangular-sectioned pin. Valve 38 x 26.5 x 11mm. Pin L 34.5, T 3; barrel W 4. C1703. Illus 7.8
- SF161115 Mould displaying part of the shank and barrel from brooch pin. The barrel comprises three discs, the central one embellished with an oval boss. Traces of oval negative keying on one edge. Valve 31.5 x 29 x 14mm. Pin D 4; barrel W 16. C161003. Illus 7.8
- SF161255 Mould preserving the head and part of the rectangular-sectioned pin of a barrel pin. Barrel comprises three rectangular-sectioned discs, the central one decorated with a diamond. Narrower grooves either side of the barrel would have held a rod to create the hole through the barrel. Negative keying, rounded notches. Valve 36 x 28 x 18mm. Shank D 3.5; barrel W 13. C161048. Illus 7.8
- SF162045 Mould valve preserving part of the casting surface for the head of a barrel pin. Central disc of barrel is decorated with an oval boss bisected by a longitudinal line. Valve 31 x 23 x 14mm. C162054. Illus 7.8
- SF162057 Abraded, spalled mould fragment with end of a barrel visible. Rectangular-sectioned discs either side of a central oval impression, probably from an oval boss on a disc if similar to the others. One positive key on the end (possibly oval, but spalled). Valve 40 x 20 x 15mm. Barrel W 16. C162054. Illus 7.8
- SF162067 Well-preserved barrel pin mould, missing the pin tip and ingate. Barrel comprises three discs with slight gaps between faces and a raised oval with central line on the centre disc. Narrower notches either side of the barrel held a

rod to create the hole through the barrel when cast. Three triangular notches around the edge of the valve were keying. Luting survives around the edge. Single negative key on end. Valve 71 x 44 x 18mm. Pin L 55, W 5; barrel W 18, D 11. C162054. Illus 7.8

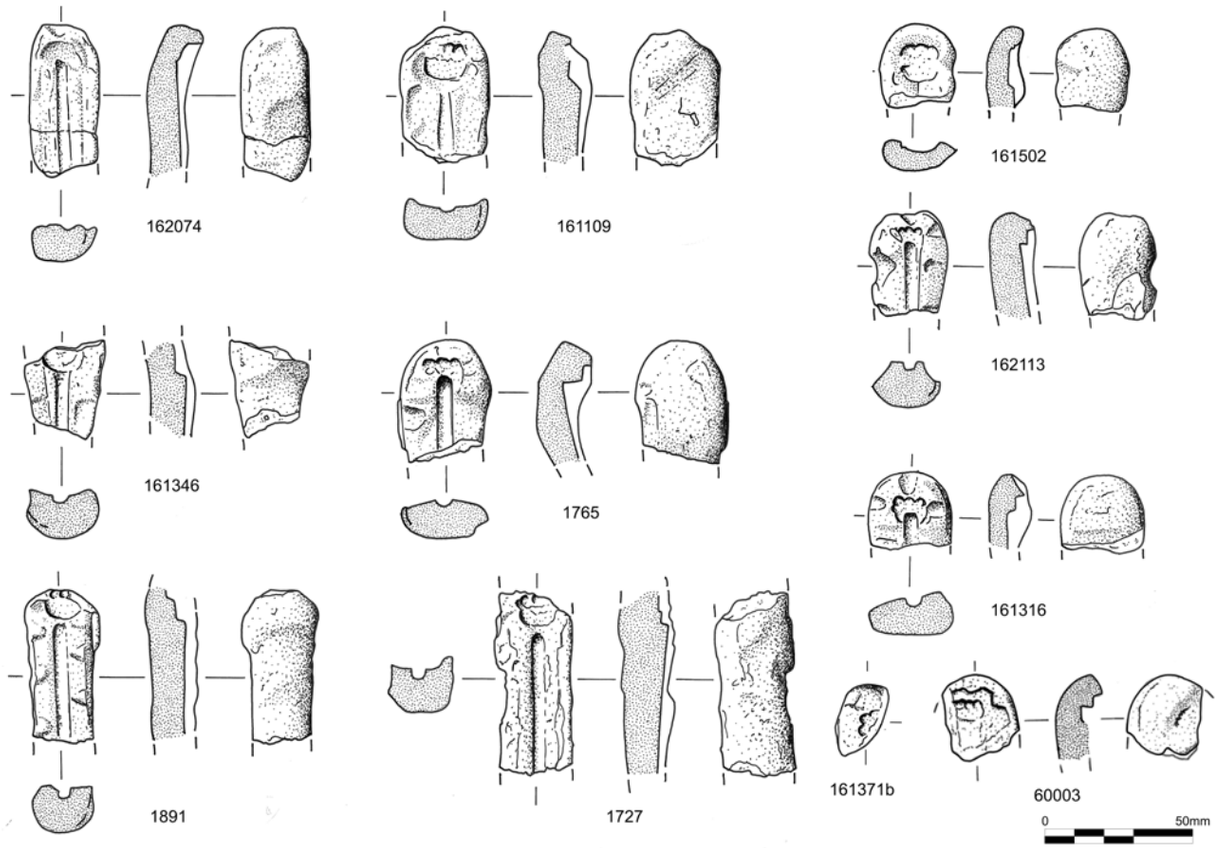
- SF162106 Mould showing part of the head of a barrel pin comprising three rectangular-sectioned discs, the central one decorated with an oval boss bisected with a vertical line. Notches either side of the barrel held a rod during casting. Positive oval key on the end. Valve 41 x 29 x 16mm. Pin L 26.5, barrel W 10.5. C162054. Illus 7.8

Handpins

A group of 11 moulds from the Craw Stane complex and one from Tap o' Noth were for casting handpins, including both three- and four-fingered types (Illus 7.11 and 7.12). None of the valves are intact; all are missing their tips and several are also missing part of their heads. Six were for casting the back of handpins and six for the front, with differing numbers of fingers and head-widths indicating they represent a minimum of nine individual pins from Craw Stane and another one at Tap o' Noth. Heads vary in size with the smallest only 8.5mm wide and largest 15mm. Their construction is consistent, with valves for the backs of pins always showing negative keying on a convex surface and positive keying on a concave surface for the fronts (Table 7.4). The forms therefore suggest the back of pins were on the lower valves.

Find	Context	Object	Fingers	Head W	Keying	Surface
1727	1703	Front	3	12	-	Concave
1765	1703	Back	3	13	Negative	Convex?
1891	1704	Front	?4	13	Positive	Concave
161109	161037	Front	?4	15	Positive	Concave
161163	161003	Back	3	13.5	Negative	Convex
161316	161048	Back	3	10	Negative	Convex
161346	161048	Front	-	12	Positive?	Concave
161371b	161048	Back?	?	?	Negative	Convex
161502	161062	Front	3	11.5	-	Concave?
162074	162054	Back	-	12	-	Convex
162113	162058	Back	3	8.5	Negative	Convex
To'N 60003	6012	Front	3+	9+	Positive	Concave

Table 7.4
Summary of key features of handpin moulds from the Craw Stane complex and Tap o' Noth



Illus 7.11
Illustration of handpin moulds from the Craw Stane complex and Tap o' Noth (SF60003). Alan Braby

Illus 7.12
Photograph of handpin moulds (L–R: SF161163; SF1727; SF1765).
Leanne Demay/National Museums Scotland

Handpins are an iconic artefact of early medieval Britain and Ireland with a sparse but widespread distribution. Examples are known in copper alloy and silver and they usually display intricate decoration, including enamelling, on the palm and sometimes the fingers, edges and even the shank. No decoration is visible on the moulds here, suggesting this was achieved after casting the basic form. Notable handpins from Scotland include silver examples from the Gaulcross and Norrie's Law hoards (Stevenson & Emery 1964; Noble et al 2016b; Graham-Campbell 1991).

Despite their widespread distribution, manufacturing evidence is relatively scarce and currently restricted to Scotland. Including the 12 here, 22 moulds for handpins are known from eight sites (Table 7.5), though some are less certain than others. The Craw Stane complex has produced the largest assemblage of handpin moulds, with half of the known examples. Tap o' Noth and Clatchard Craig are the only other mainland sites to produce handpin moulds, though identification of the latter is not certain (Close-Brooks 1987: 160 and illus 24: 87).

Site	ID	Fingers	Head W (mm)
Berie, Lewis	1184	4	20
	1294	?	16
	1622	?	17
Clatchard Craig, Fife	87	3	10
Eilean Olabhat, North Uist	165	4	14
	166	?	8
Gurness, Orkney	819	3	10
Scatness, Shetland	23713	3	12
	23779/ 23783	3	11
Scalloway, Shetland	5454	3	10

Table 7.5
Summary of other handpin moulds from Scotland and their basic features. ID refers to find or catalogue number used in respective publications (Heald 2005: 298, fig 27; Close-Brooks 1987: 160 and illus 24: 87; Armit et al 2008: 83; Hedges 1987: 158, fig 2.84: 819; McDonnell & Milns 2015: 412, pl 7.11.14–16; Campbell 1998: 171).

Where determinable, the other handpin moulds from Scotland have a similar range of forms and sizes to this assemblage. Most are three-fingered, with only two moulds for four-fingered pins known from Eilean Olabhat and Berie (Armit et al 2008: 83, illus 31; Heald 2005: 298, fig 27) and head-widths range between 8 and 20mm.

Handpin moulds from recent excavations vary in date. Fragments from two substantially intact moulds from Scatness, Shetland (McDonnell & Milns 2015: 412, pl 7.11.14–16) were recovered from Structure 21 which was in use during the first four centuries AD (Dockrill et al 2015: 123). Two from Eilean Olabhat on North Uist were from a structure dating to between the 5th and 7th centuries AD (Armit et al 2008), while one from Scalloway in Shetland was residual but was suggested to be 5th–6th centuries AD in date based on stylistic features and the dating of other fine metalworking evidence on the site (Campbell 1998: 171). The moulds here were retrieved from various fills of the outer ditch, with a range of radiocarbon dates spanning the late 4th to 6th centuries AD. The evidence presents a concentration of evidence around the 4th to 5th centuries AD, though a longer period of manufacture is likely. There is no clear chronological difference to the number of fingers or width of head. Decorative elements and variations in form on finished pins may be more informative in this respect, but such details are not evident from the moulds.

- SF1727 Mould for the front of a three-fingered handpin, missing part of fingers and pin tip. Round-sectioned shank. No keying visible. Valve 60.5 x 26 x 18. Pin L 58, shank D 3, Head W 12. C1703. Illus 7.11
- SF1765 Mould for the back of a three-fingered handpin, missing lower half of round-sectioned pin shank. One oval negative key on edge. Valve 36 x 30 x 17. Pin L 28, shank D 4, head W 13. C1703. Illus 7.11
- SF1891 Mould for the front of a handpin with sub-square-sectioned shank. Only two fingers survive, but their placement suggests there were once four. Neat, evenly spaced positive triangular keying along both edges. Valve 50 x 26 x 19. Pin L 50, shank D 2.5. C1704. Illus 7.11
- SF161109 Mould for the front of a handpin mould. Only one finger survives, its position suggesting there were originally four. Shallow, round-sectioned shank. Faint raised triangular keying on both edges. Valve 44 x 31 x 18.5. Pin L 36, head W 15, shank D 4.5. C161037. Illus 7.11
- SF161163 Mould for the back of a handpin with three fingers. Shank impression is sub-square. Ephemeral negative keying. Valve 52 x 27 x 20. Pin L 39, shank D 3, head W 13.5. C161003. Illus 7.12
- SF161316 Mould for the back of a three-fingered handpin, with small head. Negative oval keys on edge. Valve 26 x 28 x 15. Pin L 17, shank D 3, head W 10. C161048. Illus 7.11
- SF161346 Mould for the front of a probable handpin with both ends, including fingers, missing. Faint positive keying on edge. Round-sectioned shank. Valve 33 x 26 x 15. Shank D 4, head W 12. C161048. Illus 7.11

- SF161371b Rounded end of mould valve with small part of lobed impression, probably representing two fingers and top corner of palm of a handpin. Single triangular negative key. Valve 26 x 13 x 15mm. Casting surface W 9. C161048. Illus 7.11
- SF161502 Mould for the front of the head of a three-fingered handpin. No keying visible and shank missing. Valve 27 x 24 x 11.5. Head W 11.5, H 12. C161062. Illus 7.11
- SF162074 Mould for the back of a projecting-headed pin, most likely a handpin (though fingers are missing). Shank impression is shallow but appears round-sectioned. Some clay luting from sealing the valves survives around the edge. No keying visible. Valve 51 x 24 x 14. Pin L 42, head W 12, shank T 4. C162054. Illus 7.11
- SF162113 Mould for the back of a three-fingered handpin with sub-square-sectioned shank, smaller than others. Triangular negative keying on edges. Valve 35 x 26 x 14. Pin L 27, shank W 4, head W 8.5. C162058. Illus 7.11
- To'N SF60003 Mould fragment with part of the head of a handpin, preserving 3 'fingers' in a straight line (may have been more). Casting surface is flat, with raised, positive keying around the edge. Shank and 'palm' are missing, but probably the front of the pin (given lack of shank impression). Exterior is convex. Pale orange fine clay. Valve 29.5 x 27.5 x 11mm; 'hand' W at least 9mm. Illus 7.11

Nail-headed pins

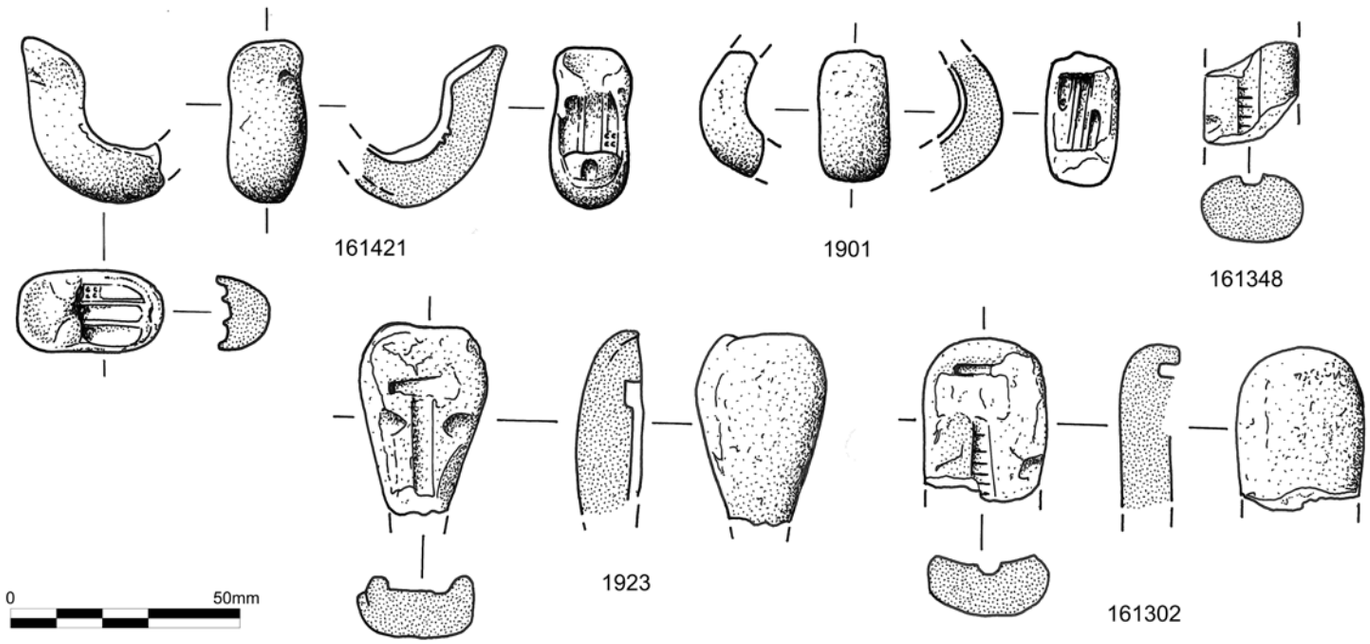
Two moulds were for casting nail-headed pins (SF1923 and SF161302; Illus 7.13) and two mould fragments showing corrugated shanks may be from the same type of pin (SF161348 and SF162114). The presence of corrugation on SF161302 indicates this form of decoration was cast in, rather than incised later (as it was on pin SF15018; Illus 7.30 and 7.32). Nail-headed pins are discussed in more detail in the metalwork report (Section 7.9).

- SF1923 Showing flat head and part of plain shank of a nail-headed pin mould. One oval and one triangular negative key on each side. Convex outer surface. Valve 41 x 26 x 14. Shank L 23. C1714. Illus 7.13
- SF161302 Nail-headed pin mould showing part of flat head and corrugated shank with spalling in between. Flat exterior surface and one possible negative key. Valve 34 x 28 x 18. Pin L 26, shank D 3, head W 6.5. C161048. Illus 7.13
- SF161348 Corrugated pin shank, broken at both ends. Six grooves visible. One small negative key on edge, both faces convex. Valve 17.5 x 22 x 13. Shank L 16, D 4. C161048. Illus 7.13
- SF162114 Pin shank mould, broken at both ends. Two ridges towards one broken end suggest part of the shank was corrugated. Valve 33 x 24 x 16. Shank L 23, D 5. C162054.

Finger-ring

Two mould fragments are probably from producing one decorated spiral ring (SF1901 and SF161421; Illus 7.13), though the pieces do not refit. The ring would have given the impression of being a wound band, appearing as three joined parallel bands from one side, or showing the 'terminals' on the other side. It was clearly the metalworker's intention to give the impression of a spiral, rather than a ring with three parallel bands all the way round. The mould would have been a complex one and must have required a central portion and ends as well as the curved outer.

The internal diameter of this ring would have been 19mm – consistent with that of a finger-ring. Spiral finger-rings as a basic form have a long history (Clarke 1971: 26) including notable early



Illus 7.13
Illustration of moulds for finger-rings and nail-headed pins. Alan Braby

medieval silver examples from the Norrie's Law and Gaulcross hoards (Stevenson & Emery 1964; Noble et al 2016b; Graham-Campbell 1991). However, examination of many of them suggest they were forged to shape, usually from a cast preform (Jenna Martin & Fraser Hunter pers comm). Was this an experiment using a mould made from an impression of a wound spiral ring? It potentially provides a glimpse of metalworking innovation and experimentation at the Craw Stane complex.

- SF1901 Part of a curved mould for a spiral strip, showing central band with (one rounded, one tapered) on each side from opposite directions. Decorated with an incised line along the edge in places. Valve 27 x 16 x 11; total T 8.4, band T 3. C1704. Illus 7.13
- SF161421 Part of a complex mould comprising ingate, curved outer edge and concave casting surface for three parallel convex bands decorated with lines beside their edges and a group of four dots on one of the outer bands. Valve 43.5 x 18 x 12mm. Internal D of cast ring 19; band T 4; total T 13. C161048. Illus 7.13

Ring/hoop fragments

A group of 12 mould fragments were for rings or hoops of some sort. Some may have been penannular brooches, but plain rings could have been used in a range of other fittings. Six fragments preserve the ingate but are missing the opposite side where brooch terminals would be. The others are more fragmentary. The original diameter could only be estimated for three: 24mm, 27mm and 30mm (SF1887, SF1888 and SF1918; Illus 7.6), with hoop thickness between 2mm and 4mm. This is consistent with the three penannular brooch moulds with known diameters of 23mm to 26mm and hoops between 2mm and 4mm thick. Two of the group appear to be from larger hoops (SF1741 and SF161164) but are too fragmentary to elucidate further details. All were from fills throughout the outer ditch.

Catalogue of illustrated examples (others are in the archive):

- SF1887 Mould fragment with ingate, runner and top of casting surface for a hoop. A negative triangular key either side of ingate. Valve 26 x 28 x 11.5mm. Hoop estimated external D 24, T 2. C1704. Illus 7.6
- SF1918 Mould fragment with ingate, runner and top of hoop casting surface. Possible negative key on edge of face. Valve 36 x 34 x 15.5mm. Hoop estimated external diameter 30, T 3. C1726. Illus 7.6
- SF161369 Part of discoidal mould fragment with two negative triangular keys on edge of face and part of the casting surface for a hoop. Centre has spalled. Valve 33 x 24 x 14. Hoop T 2. C161048. Illus 7.6
- SF162159 Abraded mould fragment with part of ingate and casting surface for hoop. Small triangular negative key next to ingate. Valve 11.5 x 29 x 27. Hoop T 3. C162054. Illus 7.6

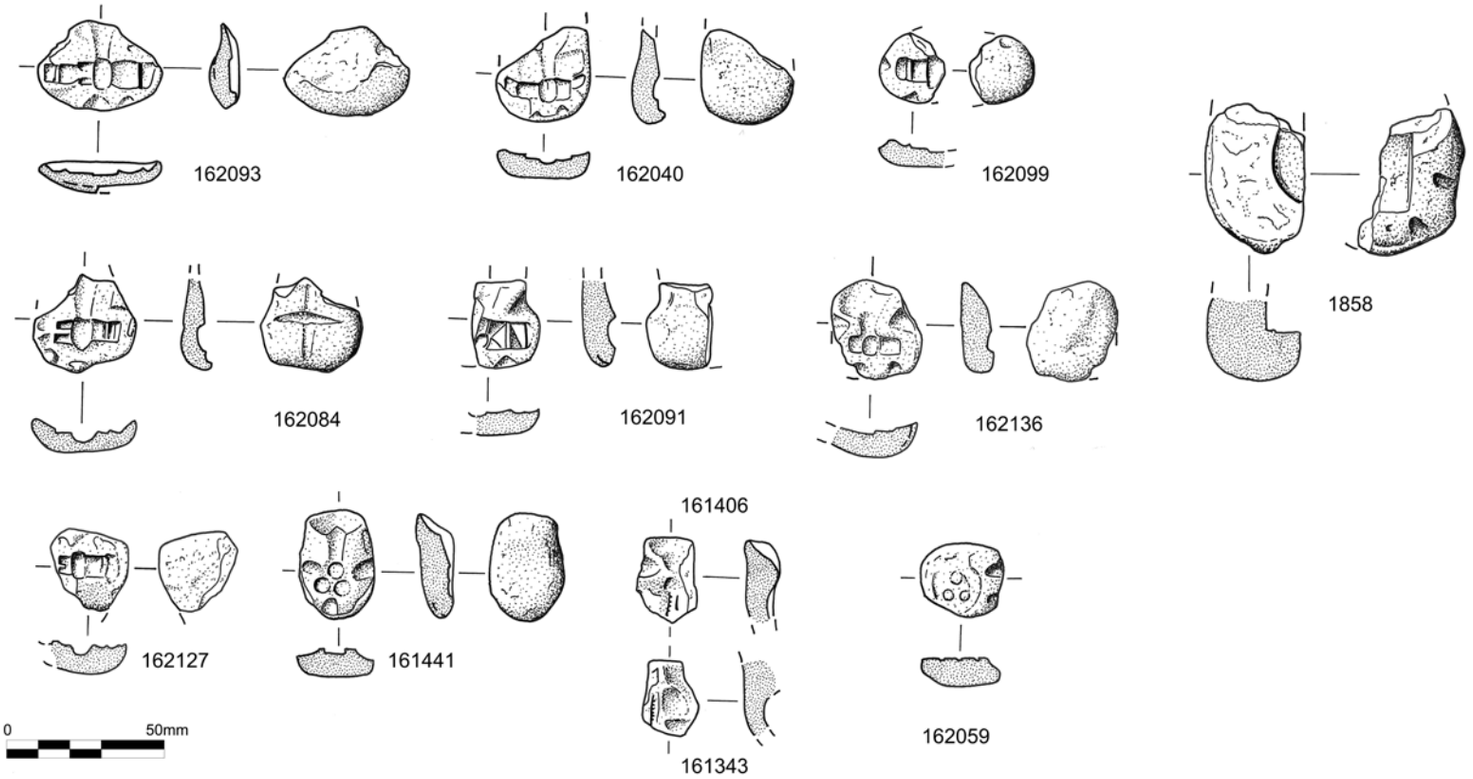
Mounts and fittings

This category comprises 41 moulds for objects which appear to be components of larger items or fragments of flat sheet or strips which seem likely to be mounts. A few groups are discussed below but many are too fragmentary to categorise them more closely. Parallels for the objects produced with these moulds remain particularly elusive, exacerbated by their probable function as small parts of larger composite objects.

'Axe' mounts

Seven moulds are termed 'axe-mounts' because of their resemblance to axe heads, but not all their features are consistent with such a theme. Four of the moulds are complete or almost complete (SF162040, SF162084, SF162093, SF162136; Illus 7.14), confirming that there were no other components, such as a pin shaft, attached during casting. They were all undecorated (when cast) and all comprise an oval central element with blade-like projection on the right, but the left side varies. Two have a pair of short prongs on the left (SF162084 and SF162127), three have a narrower and/or shorter 'blade' (SF162040, SF162099, SF162136), one seems to have both a narrower blade and prongs on the left (SF162093) and one is missing the left side (SF162091). The cast objects would have varied in length between 13mm and 26mm. The prongs are unusual and suggest those ends may have been driven into another material or were perhaps tightened around something like a leather strap. Axe-headed pins are known, such as the fine iron example from the Craw Stane complex (Illus 7.30–1), though there are no indications on these moulds that the 'axes' were attached to a shank. For example, one would expect evidence of a rod fitting beneath the oval boss to create a socket during casting (as with the barrel pins). Although they seem to be variations of the same thing, they all differ in detail and size and all seven are likely to be from different mould pairs. All were recovered from the same fill of the outer ditch (C162054), suggesting a single casting event. The outer surface of mould valve SF162084 was clearly marked with a knife-cut cross, the only mould in the assemblage to be marked in this way.

- SF162040 Almost intact mould, missing part of the ingate. Casting surface comprises a central oval boss with asymmetric blade-like projections on either side. Positive keying along bottom edge. Valve 30.5 x 9 x 10; casting surface L 17, W 8. C162054. Illus 7.14
- SF162084 Almost intact mould with part of runner but ingate missing. Casting surface comprises a central oval boss with blade-like projection on the right, and two prongs on the left. Semicircular positive keying around edge. There is an incised 'X' on the outer surface of the mould. Valve 32 x 29 x 9. Casting surface L 20, W 8. C162054. Illus 7.14
- SF162091 Part of the ingate and right side of valve with trace of oval centre and ?facetted blade to the right. Valve 27 x 19.5 x 10. Casting surface L 16.5, W 6. C162054. Illus 7.14
- SF162093 An intact valve with ingate leading to casting surface comprising central oval boss with convex sided blade-like projection on the right and two short prongs leading to a narrower 'blade' on the left. Negative triangular keying along the bottom edge and two notches either side of the 'axe' which are likely to be keys. Valve 40 x 28 x 9.5. Casting surface L 25, W 10. C162054. Illus 7.14
- SF162099 Part of the left side of a mount similar to the others in this group, showing part of the central oval boss and blade with a negative key on the end of the blade and along



Illus 7.14
Illustration of ceramic moulds for mounts and fittings. Alan Braby

the bottom edge. Valve 22 x 20 x 10; Casting surface L 13 x 6.5. C162054. Illus 7.14

- SF162127 Part of a valve preserving a central oval boss with blade on the right and two short prongs on the left. Possible positive triangular key on the edge. Valve 26 x 25 x 2. Casting surface L 19, W 6. C162054. Illus 7.14
- SF162136 Almost intact valve with ingate and short runner leading to central oval boss with asymmetric 'blades' either side. Neat triangular keying either side of ingate and along bottom edge. Valve 30.5 x 28 x 12. Casting surface L 15.5, W 5. C162054. Illus 7.14

Bead fitting

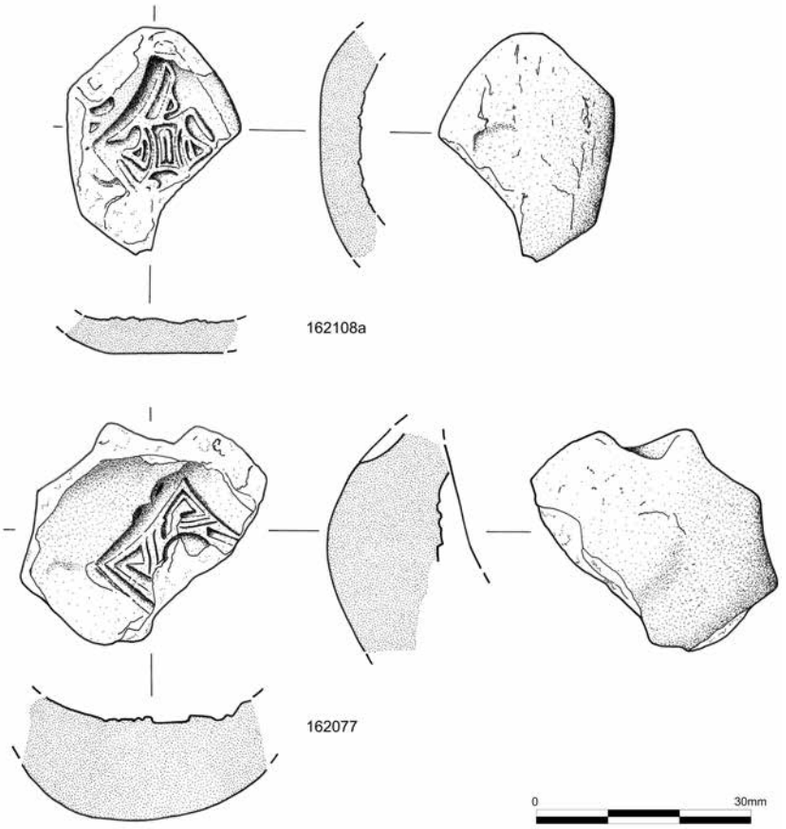
An intact mould valve from Cairn More (SF014; Illus 7.17) preserves a concave oval impression with protrusions either side suggesting a rod was placed there to create a perforation. Only one side of this object is visible due to the presence of only one valve but if the object was symmetrical it was a bead-shaped object, probably a bead fitting rather than the type of bead strung on a necklace. One possibility is that it was a type of pommel fitted onto the end of a knife or dagger tang, though a range of other uses are possible.

- SF014 An intact ceramic mould valve, oval in shape with plano-convex section. Concave ingate at one end with short cylindrical channel leading to the casting surface for an oval object. Two short cylindrical protrusions on either side of the oval may have held a rod to create a perforation through the oval, suggesting it was some sort of bead fitting. Negative keying around the edge in the form of triangular notches. Valve L 41, W 34, T 15; oval object 15 x 11.5 x 7mm. C309. Illus 7.17

Triple-disc mounts

Moulds SF161441 and SF162059 are variations on a theme: both are for probable mounts with three small discs arranged in a triangle (Illus 7.14). SF161441 is an intact mould which would have produced a small trilobate object, presumably to attach to some other item. The three discs on SF162059 are within a larger disc and the rest of the mould is missing, suggesting it could have had another component present, such as a pin shank. On both objects the triple discs are raised on the mould, indicating they would have left recessed discs on the metal object – perhaps to fill with enamel inlay? Similar motifs are known on Pictish stones, such as on the Rothiebrisbane stone, Aberdeenshire, Balneilan stone, Moray (Fraser 2008: 41, 44 and 103: 149) and on the terminal of a silver chain from Parkhill, Aberdeenshire (Henderson & Henderson 2004: 87, illus 109).

- SF161441 Intact oval mould valve with three small, joined recessed discs arranged in a triangle. Ingate, runner and three negative keys present. Valve 33 x 23 x 12. Casting surface 11 x 11. C161048. Illus 7.14
- SF162059 Sub-circular mould valve with casting surface showing three central circular depressions arranged in a



Illus 7.15
Illustration of moulds for decorated mounts. Alan Braby

Illus 7.16
Photograph of moulds for decorated mounts (SF162108 and SF162077). Leanne Demay/National Museums Scotland

triangle, within a disc. No ingate or runner preserved and therefore may have had other component, eg a pin shank. Two negative keys on one side of disc. Valve 26 x 23 x 10. Disc D 15, small discs 3.5. C162047. Illus 7.14

Decorated strip and plate fragments

Two moulds in the assemblage stand out for their elaborate decoration, though remain a challenge to parallel (SF162077 and 162108a; Illus 7.15 and 7.16). Both are from the end of decorated strips with a slightly convex section and one (SF162108a) is angled. The curved profile suggests they are not decorated penannular brooch terminals but some sort of decorative mount which was fitted onto a curved object such as a vessel. For example, intricately decorated mounts are known on hanging bowls such as the example from Lullingstone, Kent (Goldberg 2015: 170, fig 162) and similar function can be envisaged here. The decoration is difficult to discern and does not fall within known early medieval decorative styles, such as interlace. Neither mould preserves the ingate or edges, further inhibiting closer identification.

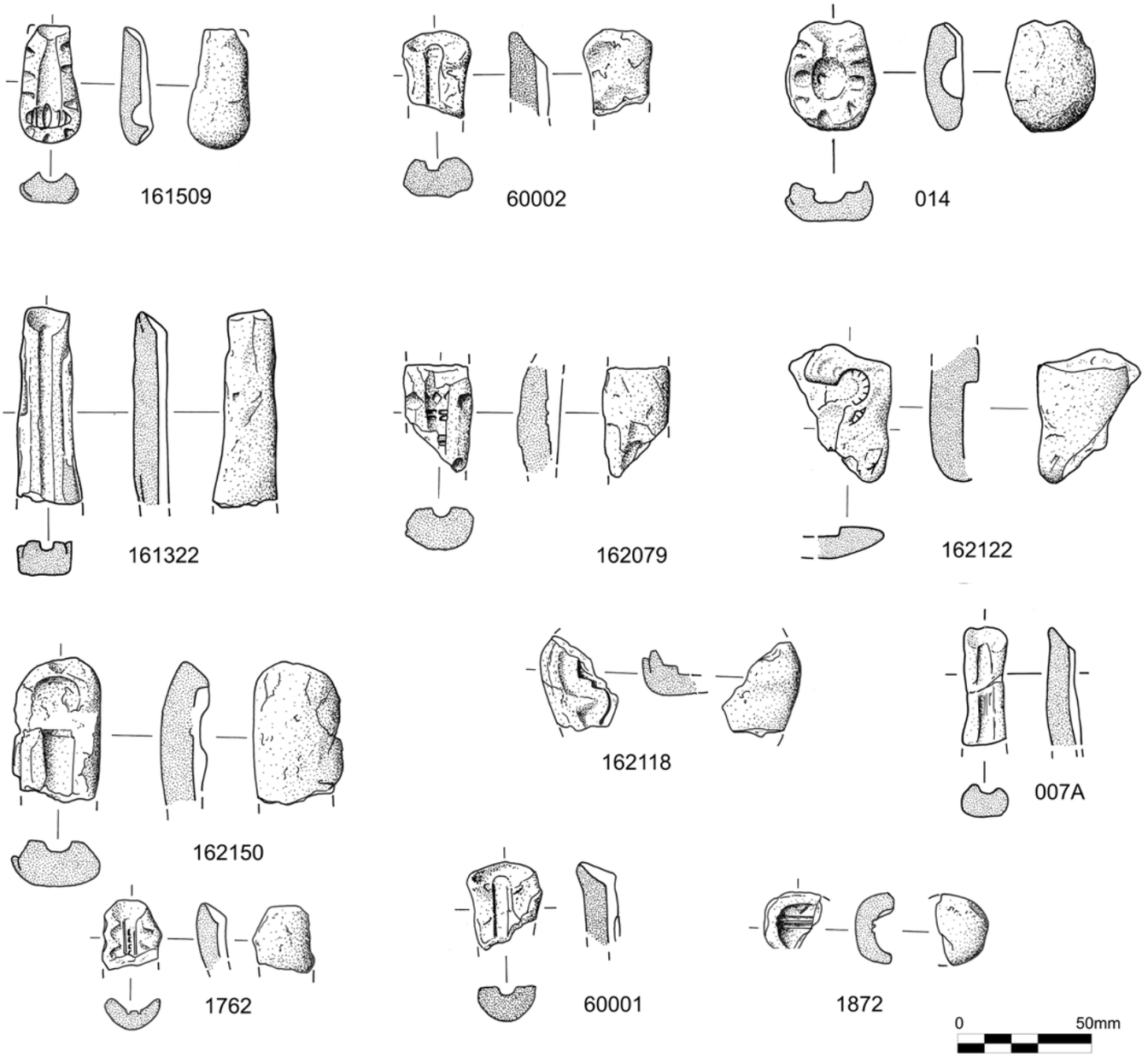
- SF162077 Mould fragment with casting surface for the terminal of an intricately decorated, slightly convex strip terminal. The decoration comprises angular lines, with open triangles in the corners and the edge of possible circular boss on the broken edge. Valve 29 x 22 x 16.5. Casting surface 14 x 12. C162054. Illus 7.15
- SF162108a Casting surface shows the angled end of a decorated strip which would have been slightly convex. Decoration is not very coherent but creates a series of small rectangular and triangular cells. Valve 30 x 21 x 12. Casting surface 15 x 12. C152054. Illus 7.15

Three other moulds were for producing fine strips with simple decoration comprising a line of raised dots (SF1762 and SF161343; Illus 7.14), one also with incised lines parallel to the edges (SF161406). Their function remains unclear.

- SF1762 Ingate and part of mould for a fine strip decorated with ridges along both edges and raised dots down middle. Positive triangular (almost scalloped) keying around the edge. Valve 24 x 24 x 13. Casting surface 11 x 3. C1703. Illus 7.17
- SF161343 Fractured mould fragment with part of casting surface for a thin strip decorated with a line of raised dots. Possible positive keying. Valve 23 x 18 x 11. C161048. Illus 7.14
- SF161406 Fragment of ingate and start of casting surface for thin strip decorated with a line of small raised dots. Negative sub-triangular key to side of ingate. Valve 27 x 17 x 11. Strip W 2. C161047.

Cylinder

A single mould (SF1858; Illus 7.14) was for producing some sort of cylinder or collar. The valve is not intact, and there may have been more complex components present.



Illus 7.17
Illustration of various moulds from the Craw Stane complex, Tap o' Noth and Cairn More. Alan Braby

- SF1858 Robust mould fragment with edge of cylindrical impression. Valve 46.5 x 33 x 27. Estimated D of cylinder 28-30, depth 9. C1702. Illus 7.14

Plate and strip fragments

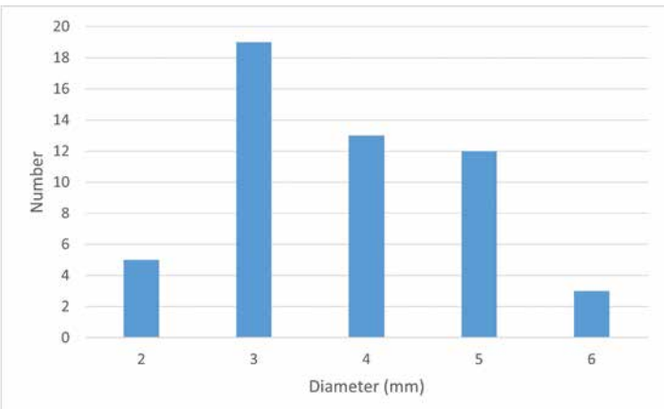
Some fragments could only be identified as part of plates (10) or strips (16). Seven plate fragments have curved edges, two preserve a corner and one was unclear. Of the strips, nine have parallel edges, six taper in width and one is unclear. All were undecorated but could be from the back of decorated mounts. Eleven moulds in this group preserved keying: five positive and six negative. Catalogue entries are in the archive.

Bar/rod fragments

Some 92 mould fragments show only traces of rods (round section) or bars (square/rectangular section) but cannot be categorised further (summarised in Illus 7.18 and Table 7.6 with full catalogue entries in the archive). Two-thirds (60/92) of these are for rods (all from the Craw Stane complex), varying in diameter between 2mm and 6mm with an average of 3.75mm. Most (42/60) are missing both ends. The other 18 fragments preserve one end, always the ingate. This is consistent with the handpin and nail-headed pin moulds where in all cases the heads were at the bottom of the mould. The handpin and nail-headed pin moulds recovered here have diameters ranging between 2mm and 5mm, with an

average of 3.5mm, consistent with the rod moulds. It is therefore likely that most of these rod moulds were shanks for pins with decorated heads. The two intact nail-headed pins in the assemblage have lengths of 103mm and 130mm, while the handpins from Norrie's Law and Gaulcross hoard have lengths of 80–150mm (Laing 1993: 77–8). If we assume an average of 115mm for a pin shank, the combined lengths of the Craw Stane rod moulds (1363.5mm) could represent 12 complete pin shank valves or 6 finished pins. This is obviously a very rough estimate but provides some idea of the scale of production. While 60 rod mould fragments seem a lot, most could potentially be from the same moulds we have identified pin heads from.

Two refitting pairs were identified. SF1873 and SF1893 are matching lower and upper valves respectively, comprising the ingate and part of a rod before breaking. SF1875 and SF1892 preserve the ingate and part of a rod from the same valve. While SF1875 and SF1892 were retrieved from the same fill of the outer ditch (C1704, F15004), SF1873 and SF1893 were from different fills (C1703 and C1704 respectively), illustrating some of the redeposition which created the complex ditch fills.



Illus 7.18
Summary of 60 rod mould diameters (mm) from the Craw Stane complex

The 23 fragments of moulds for bars vary more in size than the rods, with maximum widths ranging between 3mm to 10mm with an average of 4.8mm. Of these moulds 18 are from the Craw Stane complex, four from Tap o' Noth and one from Cairn More. Four taper in width while the others have parallel edges. The most intact preserves the ingate and a bar impression 63mm in length and 4.5mm in width (SF161322; Illus 7.17). All four from Tap o' Noth have the ingate present and none refit, indicating at least four different objects were cast with these. Some, particularly those with parallel sides, could be from casting ingots like SF161035 (Section 7.9), though there would be no need for ingot moulds to be bivalve, as the one-piece stone ingot moulds attest. The most intact barrel pin mould (SF162067, above) shows they were cast with rectangular-sectioned shanks, and some of the more slender bar mould fragments are likely to be from those or similar objects.

Find	Context	Dimensions (mm)
211	202	32 x 5 x 5
1835	1702	20 x 5 x 3
1855	1702	14 x 3 x 1.5
1917	1726	23 x 10
161148	161003	14 x 3 x 1.5
161177	161037	27 x 3 x 2.5
161193	161037	25 x 8
161213	161003	19 x 3
161322	161048	63 x 4.5
161372	161048	22 x 4
161422	161048	31 x 4
161433	161048	33 x 4
161442	161048	33 x 4 x 3
162112	162058	15 x 4.5 x 1.5
161238 x 2	161037	unclear
161288 x 2	161003	14 x 6
To'N60001	6012	21.5 x 4 x 1.5
To'N60002	6013	22 x 3 x 2
To'N60006a	6012	8 x 2
To'N60008a	6014	14 x 3
CM007b	309	36 x 6

Table 7.6
Summary of moulds for bars from the Craw Stane complex, Tap o' Noth and Cairn More. Dimensions = length x width x thickness of bar impression, where measurable

Illustrated bar moulds:

- SF161322 Long tapering mould for a square-sectioned bar with intact pouring gate at one end, the other broken. Ingot or large brooch pin mould. Some of the clay luting from the upper valve remains around the edge. Valve 73 x 24 x 14; object L 63, T 4.5mm. C161048. Illus 7.17
- To'N 60001 Top end, preserving the concave ingate, leading to a narrow, rectangular-sectioned casting surface for a slim bar, other end missing. A groove running parallel to the main casting surface suggests it was impressed twice or misaligned? The mould surface is concave, with sub-triangular positive keying around the edge. The exterior is convex and smooth. Probably an upper valve. Very fine pale orange clay. Valve 29.5 x 27 x 15; bar L 21.5, T 4 x 1.5mm. C6012. Illus 7.17
- To'N 60002 Top end of a ceramic mould valve preserving a flat ingate, leading to a narrow, rectangular-sectioned casting surface for a slim bar, other end missing. The mould surface is convex, with sub-triangular negative keying around the edge. The exterior is fairly flat and smooth. Probably a lower valve. Very fine pale orange clay. Valve 32 x 26 x 15; bar L 22, T 3 x 2mm. C6013. Illus 7.17
- CM 007a One end of a narrow ceramic mould valve with

slightly dished pouring gate at one end leading to a sub-rectangular-sectioned matrix, for a pin or ingot. Other end missing. Fine orange micaceous fabric. No obvious keying, but some luting survives around the edge. Outer face is flat, suggesting it is more likely to be a lower valve. L 43, W 14, T 11; bar L 36, W 6mm. C309. Illus 7.17

A further 14 bar or rod mould fragments did not preserve clear sections to enable further categorisation.

Indeterminate

A significant portion of the assemblage comprises fragmented pieces which are a challenge to identify. Some only preserve part of a straight (31) or curved (2) edge, or a corner (8), while others have just an ingate (14) or keying (22). Some 53 fragments are indeterminate but show enough form to indicate moulds, and a small number (41) are similar in fabric to the moulds but preserve no shaping and can only be classified as 'possible mould fragments'.

Amongst these are some which were evidently for more complex items, though their function remains unclear. A selection of these have been illustrated to aid future comparison and identification. Even though SF161509 (Illus 7.17) appears to be an intact valve, the object it cast is unknown. The channel leading to the bossed 'head' seems too wide to be a runner and therefore must be part of the object. Perhaps there was a central component making it a hollow conical form with ornate terminal? Others are more fragmentary. SF161150 (Illus 7.19) is included here because it displays a tantalising resemblance to a large flat penannular brooch terminal, similar to those from Norrie's Law, but not enough survives (such as the inner edge) to be certain.

- SF1872 Circular mould valve with concave impression for domed or spherical object decorated with two ridges around centre. Unclear if the triangle on the side of the dome is part of decoration or was keying to hold a central component of the mould. Valve 25 x 21 x 14; Dome D 18mm. C1703. Illus 7.17

Illus 7.19
Photograph of a mould for casting a flat curved object, possibly a penannular brooch terminal (SF161150). Leanne Demay/National Museums Scotland

- SF161150 Mould showing part of a flat object impression. Gently curved edge turning straight at corner. Positive keying. Valve 37 x 26 x 15mm. Casting surface 27 x 10.5mm. C1702. Illus 7.19
- SF161509 Almost intact mould for conical object with decorative expanded head with protruding oval bosses. Positive keying around the edge. Valve 45 x 23.5 x 12.5; object L 31, max W 17mm. C161062. Illus 7.17
- SF162079 Tapering circular-sectioned rod impression displaying two bands of double ridges and some possible raised bosses. Valve 39 x 25 x 17; object L 26, D 5–7. C162054. Illus 7.17
- SF162118 Curved edge of a mould with stepped corner impression. Positive triangular key. Valve 38 x 25 x 18.5mm. C162054. Illus 7.17
- SF162122 Small mould fragment showing part of possible lobed object. Positive keying. Valve 28 x 18 x 9; object 15 x 6mm. C162054. Illus 7.17
- SF162150 Part of a mould for a rectangular-sectioned bar with expanded discoidal terminal, partly damaged by spalling. Substantial quantities of clay luting survive around the edge. Other end and ingate missing. Valve 54 x 34 x 19; object L 44, T 10; 'head' D 15mm. C162054. Illus 7.17

7.2.4 XRF RESULTS

A sample of 20 moulds was analysed with qualitative surface XRF (Table 7.7). Unlike crucibles, moulds rarely retain metal droplets or residues and XRF results are often poor. Only minor levels of metal were detected on the moulds. All produced zinc, usually with lead and/or copper also present. While the results here suggest most of the moulds were used to cast copper alloys, there are

Find	Type	Cu	Zn	Pb
220	Penannular brooch		x	x
1759	Rod	x	x	x
161150	Penannular brooch	x	x	x
161255	Barrel pin	x	x	x
161291	Rod	x	x	x
161311	Indeterminate	x	x	x
161315	Rod	x	x	x
161316	Handpin	x	x	x
161387	Rod/bar	x	x	
161416	Curved plate		x	x
161421	Finger ring		x	x
161509	Indeterminate	x	x	
162046	Plate/sheet		x	x
162059	Mount		x	x
162073	Zoomorphic	x	x	x
162076	Zoomorphic	x	x	x
162077	Ornate strip		x	x
162093	'Axe' mount	x	x	
162102	Zoomorphic	x	x	x
162106	Barrel pin	x	x	x

Table 7.7
Summary of mould XRF results

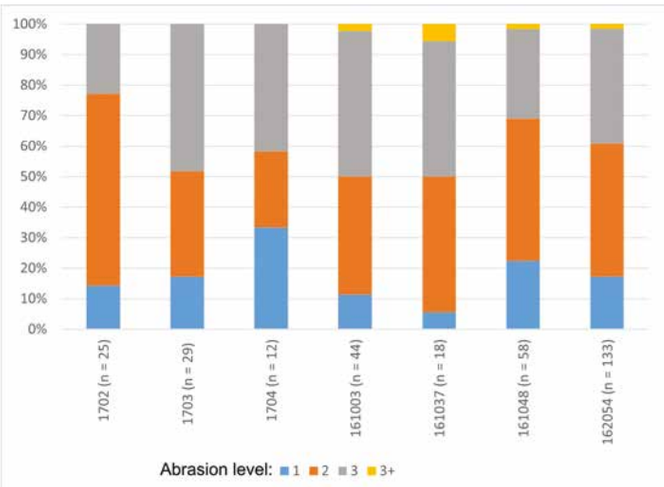
often small quantities of base metals present in silver too. Studies have shown how interpreting such low readings, particularly on moulds, is fraught with difficulties (eg Barnes 1983; Dungworth 2000; Kearns et al 2010). These results are therefore best seen as inconclusive.

7.2.5 Taphonomy and Distribution

Craw Stane

The overwhelming majority of mould fragments from the Craw Stane complex (368/383) were retrieved from fills within the outer ditch (F15004). Three moulds were from the inner ditch (F203), two from post holes (C161009 and SF162058) and ten were unstratified.

Around a third of the moulds (136), including all the zoomorphic figurines and 'axe' mounts, were recovered from one of the fills (C162054) around the mid-levels of the outer ditch. The radiocarbon dates from this fill are some of the older (*c* AD 340–540), indicating the fill is a redeposited dump of earlier material and that non-ferrous metalworking took place in the early phases of the site's use. In contrast, only eight of the 372 crucibles were found in this fill, suggesting the different types of debris were discarded separately.



Illus 7.20
Summary of mould fragment abrasion in different ditch fills at the Craw Stane complex

The broad level of abrasion on each fragment was recorded in order to examine deposits which may have moved around more compared to primary deposits of metalworking debris, with 1 being unabraded and 3+ being very abraded. Most fragments show low (158) or medium (147) levels of abrasion and only nine are very abraded. When examined across contexts producing ten or more mould fragments (almost all upper fills, apart from C1704, a mid-fill), there is not a great deal of difference, even in contexts which are known to be redeposited based on radiocarbon dating (C161003 and C162054) (Illus 7.20). This suggests there was limited movement of the debris after its initial deposition and a similar level of redeposition between fills.

Tap o' Noth

Twenty-two mould fragments were recovered from Tap o' Noth: two (SF1109a and b) from the Trench 11 platform and the others (and four crucible sherds – see Section 7.4.4) from the Trench 6 platform. The Trench 11 pieces (SF1109a and b) were found in the vicinity of a hearth in an upper floor layer (C11002) interpreted as the final use of that platform. In Trench 6, the handpin mould (SF60003), three thin bar moulds (SF60001, SF60002 and SF60006A) and an unidentified fragment (SF60006B) were recovered from the upper fill of Hearth 1 [C6012; F6015], while fragments of moulds for a thin bar (SF60008A), curved object (SF60008B) and unidentified fragments (SF60008C) were found in the fill of Hearth 2 [C6014; F6013]. Five unidentified mould fragments (SF60012) were retrieved from the upper floor layer (C6003) associated with the use of Hearths 1 and 2. Both platforms also produced a small quantity of ironworking debris (Section 7.6).

Cairn More

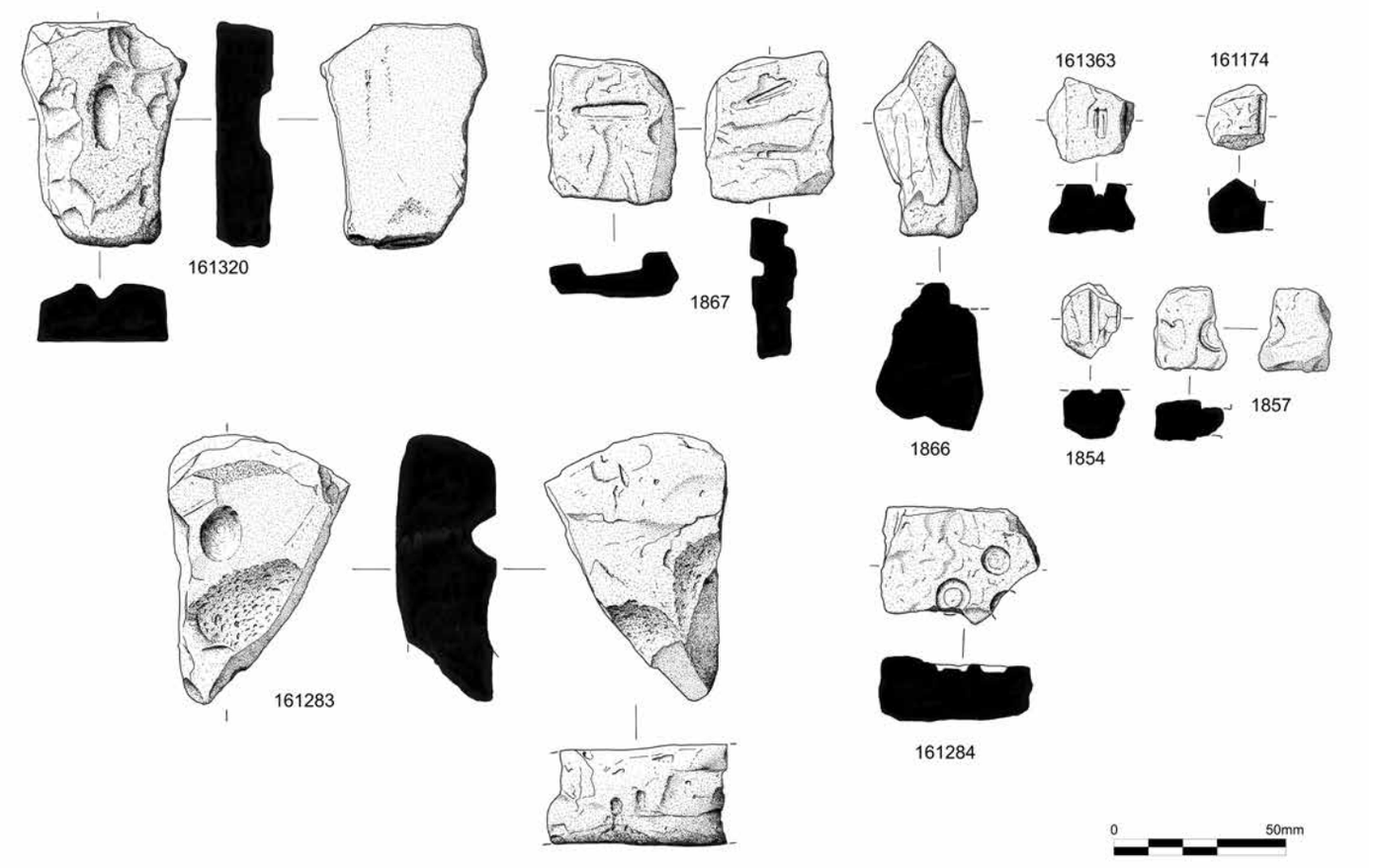
The three mould fragments were from Murray Cook's excavation at Cairn More (Cook et al 2010), all found in the fill of a cut feature (C309) outwith the main fort area along with four refitting crucible sherds (Section 7.4.5). The fragments were scattered, not in a discrete deposit, but their good condition suggest a primary deposit. The absence of non-ferrous metalworking debris in any of the other trenches suggests the craft was undertaken on a much smaller scale than at the Craw Stane and largely outwith the enclosures, or at least at the periphery. However, if the debris was concentrated in a small area, this could easily have been missed given only a portion of the interior was targeted for excavation.

➢ See Section 7.8 for broader metalworking discussion.

7.3 Stone Moulds

A group of 12 objects are one-piece open moulds (Illus 7.21 and 7.22), unlike most of the ceramic moulds, which were bivalve in form. Five have bar-shaped recesses carved into them, implying they were ingot moulds (SF1854, SF1867, SF161174, SF161199, SF161363). Only four of the ingot recesses are preserved in their entirety. Two on SF1867 are 28.5mm and 40mm long, while two very similar but short recesses on SF161199 are 9mm in length. Widths across all the ingots varies between 4mm and 8mm and all tend to have rectangular sections and rounded ends. Some, like SF1867, have neatly carved ingot shapes while others are cruder, particularly SF161363 which has an uneven interior, suggesting it was unfinished. The two intact bar moulds would have produced ingots weighing 7.3g and 30.4g of silver or 6.2g and 25.5g of bronze.

Other mould forms include disc (SF1857), half-disc (SF1866), conical (SF161283), oval (SF161320), convex/dish and ring (both SF161320). Three moulds appear to be unfinished, suggesting they were being manufactured on site. Two display the start of a circular shape (SF1904, SF161283), and another is unclear (SF1723). Therefore, apart from the bar ingots (which themselves vary), no two stone mould shapes are the same. Two moulds had additional functions, with SF161320 also having a whetted facet



Illus 7.21
Illustration of stone moulds from the Craw Stane complex. Alan Braby

Illus 7.22
Photograph of stone moulds from the Craw Stane complex (SF161284, SF1867, SF161363). Leanne Demay/National Museums Scotland

from use as a whetstone, and SF1904 (Illus 7.48) displaying scratches consistent with use as a working surface. It is unclear on both examples which function came first.

Nine of the moulds were manufactured from fine-grained Devonian sandstone, one is siltstone, one gritstone and one microgranite. All were available locally. Aside from the mould recesses the stones were unmodified, apart from a possible chiselled edge on SF161283, suggesting it had been detached from a larger block before carving the mould.

Ingot moulds are a common form of non-ferrous metalworking evidence in Scotland from the Early Iron Age through the early medieval period (Heald 2005: 71). This is in contrast to areas south of the border where stone examples are scarce before the second half of the first millennium AD (Bayley 1991: 118; Webley et al 2020: 25). From Scotland, stone ingot moulds have been recovered from a range of sites, including Traprain Law, East Lothian (Cree 1924: 275), Whithorn, Dumfries and Galloway (Hill 1997: 402), Brough of Birsay, Orkney (Curle 1982: 46) and Dunadd, Argyll (Craw 1930: 120; Lane & Campbell 2000: 192). Only Dunadd with 19 examples and Traprain with 15 have produced more stone ingot moulds than the Craw Stane complex, with the scale of excavations there arguably much smaller-scale than either of these two sites.

All the stone moulds were recovered from the outer ditch [15004]: eight from the upper fill (C1702, C1703, C161003, C161037), three from the layer beneath that (C161048) and one from a mid-level fill (C1704). This concentration of stone moulds in the upper fills of the outer ditch mirrors the distribution of the other metalworking debris.

- SF1723 Unfinished mould? Gritstone pebble with one edge missing and rounded notch extending from the broken face. Edge of this notch is faintly, regularly stepped, suggesting it was carved. Probably broke during manufacturing. 61 x 48 x 32. C1703.
- SF1854 Ingot mould. Fragment of heat-affected, fine-grained arkosic sandstone with all original edges and base missing. Flat upper surface is bisected by a rectangular-sectioned groove, ends missing. L 45, W 36, T 29; groove L 31, W 5, depth 3. C1702. Illus 7.21
- SF1857 Unfinished mould – disc. Flat, sub-square, fine-grained arkosic sandstone fragment broken through a fairly neatly disc-shaped depression on one face. The disc has vertical sides, a flat base, and is deeper at the edges, which would have created a disc with lip around one face (or it wasn't finished). Depression D 20.5, depth 6; 47 x 42 x 24. C1702. Illus 7.21
- SF1866 Mould – half-disc. Fragment of fractured, pale pelitic schist with the edge of an irregular carved, half-disc. L 115, W 87, T 56; L 62, depth 15. C1702. Illus 7.21
- SF1867 Ingot mould. Sub-rectangular, flat, fine-grained arkosic sandstone fragment used on both faces. One face has a neat bar-shaped depression (40 x 8 x 9) with rounded ends, vertical sides and a flat base. The other has a more crudely-executed thin bar-shaped depression (28.5 x 4 x 6) and part of a second similar depression running into a spalled area (which possibly happened during creation). 84 x 75 x 19. C1702. Illus 7.21
- SF1904 Unfinished mould (circular) and sharpener. Fragment of fine-grained arkosic sandstone slab with several parallel scratches across the centre of one face from use as a sharpening stone. The same face shows the edge of a pecked circular depression on broken edge – possibly intended as a mould? 81 x 76 x 31; bowl depth c.7mm; estimated original diameter of bowl (if circular) 100mm. C1704. Illus 7.48
- SF161174 Ingot mould, probably. Small, worn fragment of heat-affected, fine-grained arkosic sandstone with all edges broken. Edge of a carved linear, flat-based recess on one broken edge. 34 x 33 x 32; groove L 22, W 6, depth 3. C161037. Illus 7.21
- SF161199 Ingot mould. Fragment of heat-affected, fine-grained sandstone with two small round-ended linear depressions. 46 x 36 x 40; L 9, W 5, depth 6; L 9, W 5, depth 5. C161003.
- SF161283 Mould – conical and?unfinished. A sub-triangular fine-grained sandstone slab fragment with two broken edges and one curved (possibly shaped by chiselling). Upper surface is flat and smooth with a deep, smooth conical depression worn into it. Alongside this is a shallow pecked depression extending off both broken edges. 155 x 102 x 58; hollow D 28, depth 15. C161048. Illus 7.21
- SF161284 Mould – dish and ring. Sub-rectangular fine-grained sandstone fragment with two depressions worked onto one face (plus possible edge of a third on broken edge): a neat circular dish (D 15.5, depth 4.5) and a recessed ring (ext D 19, T 4.5, depth 4.5) with edge partly missing. 92 x 66 x 35. C161003. Illus 7.21
- SF161320 Mould – oval and whetstone. Sub-rectangular, fine-grained arkosic sandstone fragment with smooth elongated oval depression on one side (40 x 25 x 7). The other side is very smooth and slightly concave from use as a whetstone. 130 x 96 x 33. C161048. Illus 7.21
- SF161363 Mould – ingot, unfinished. Sub-square siltstone fragment with a small rectangular depression carved onto one face (17.5 x 8 x 4). Deeper at the edges, which would have created a small bar with lip/ ridge around one face or, more likely, unfinished. 50 x 49.5 x 29. C161048. Illus 7.21

7.4 Ceramic Crucibles

7.4.1 Summary

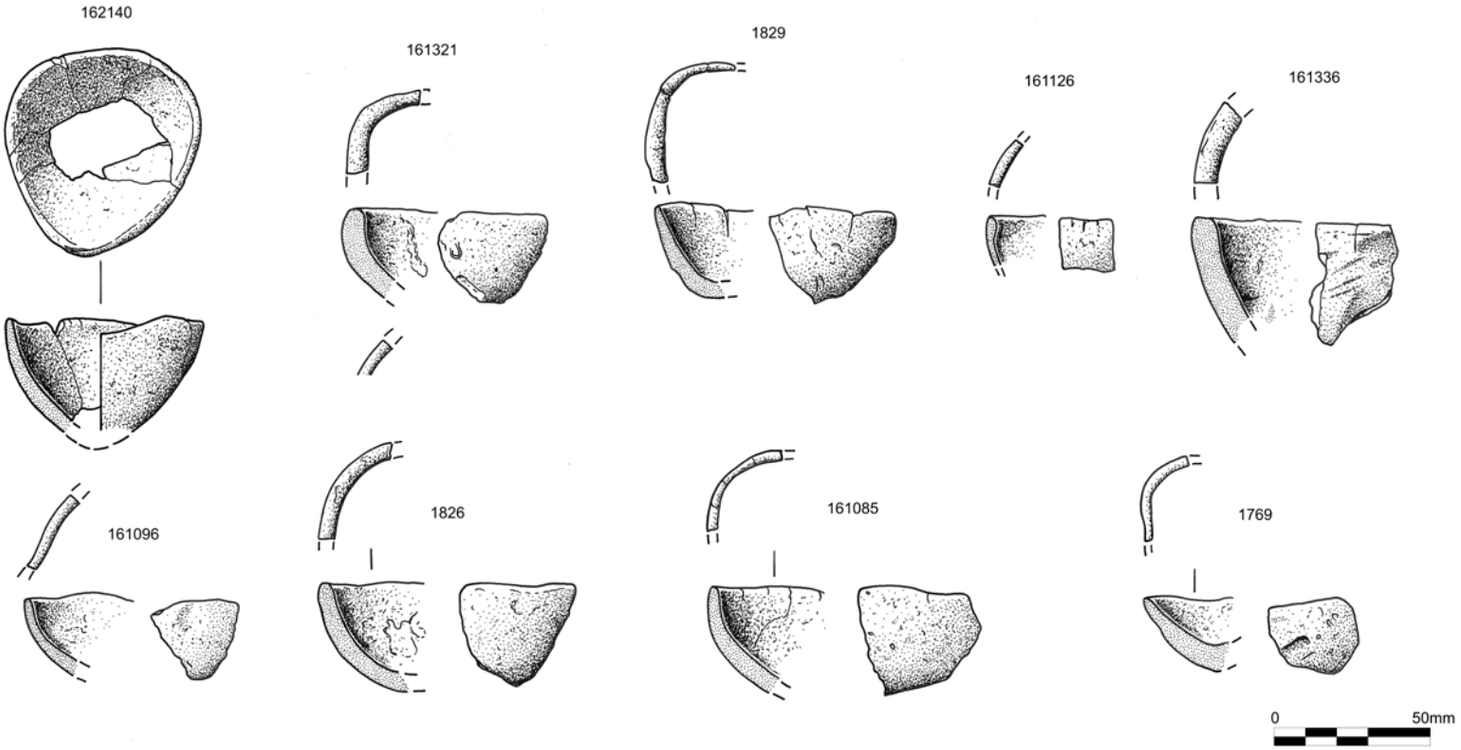
A large assemblage of crucibles was recovered at the Craw Stane complex, comprising 246 sherds and 104 fragments (under 10mm with no surviving diagnostic features), weighing a total of 942g. Tap o' Noth and Cairn More produced four crucible sherds each. Plain round and triangular crucible forms are present in a range of sizes and fabrics. X-ray fluorescence (XRF) analysis of a sample of 69 sherds indicates copper alloys were predominantly being cast; a single sherd adds to the evidence of silver casting on site. While the Craw Stane crucibles had been dumped and then redeposited, mainly in the upper fills of the outer ditch, the Tap o' Noth sherds were found around a probable metalworking hearth and the refitting sherds from Cairn More suggest a primary deposit.

7.4.2 The Craw Stane complex Crucibles

Forms

Of the 246 crucible sherds, 146 have rims, six are bases and 94 are body sherds. Identifying crucible form is challenging with such fragmentary material, especially as many now display heat-distortion. Only one crucible is complete enough to preserve its full original profile; it was triangular in form (SF162140; Illus 7.23). A further ten rim sherds have tightly curved corners and 28 rim sherds are straight in plan, suggesting they too were from triangular crucible forms. Forty-two rims sherds are curved and 21 slightly curved, suggestive of crucibles which were round in plan. Many were too small or distorted to be certain, and often only represented between 5–10% of the crucible's original circumference.

Wall thickness varies (3–16mm with an average of 6mm) with both smaller, fine walled crucibles or more robust examples found in triangular and round forms. Wall and rim forms range across a spectrum from parallel-sided walls with rounded rims, to walls which taper in thickness from base to rim. Again, no correlation can be seen between vessel form in plan and the wall/rim form. Only two sherds had slightly flattened rims, one with a parallel wall (SF161338, Illus 7.23) and the other with a tapering



Illus 7.23
Illustration of crucible sherds from the Craw Stane complex. Alan Braby

wall (SF15007), both from triangular crucibles. Such subtle variations in wall and rim form suggest the involvement of multiple different craftworkers and the variety here may suggest several hands created them.

The lack of spouts, lids and handles on the forms of crucibles used at the Craw Stane complex is striking compared to slightly later assemblages such as at Dunadd (Lane & Campbell 2000: 134–47). This absence of distinctive features, coupled with the large assemblage and small sherd size, makes estimating the original number of crucibles very challenging. That they were recovered mainly from excavating a relatively small portion of a large feature (the outer ditch at the Craw Stane complex) also makes such an exercise impossible.

Fabric

Four main fabric groups (A, B, C and D) were identified, with four sub-groups (Ai, Bi–iii), by examining the composition of each sherd under magnification. Many groups were clearly distinct from each other, but some sherds had features of more than one sub-group and were more difficult to assign. It is possible the sub-groups could represent the extreme ends of natural variation within the clay source. Metalworking ceramics such as crucibles and moulds had to be expertly made in order to conduct heat, but not crack, and it is likely that visible natural variations in their clay source would have been taken into account.

- Fabric A: A very fine clay lacking any grit inclusions. Sub-group Ai is a distinct dark grey colour.
- Fabric B: Sandier clay than A, with frequent quartz grit inclusions. Three sub-groups were noted: Bi has notably finer grits, Bii is paler in colour, and Biii is paler and has more frequent quartz inclusions.
- Fabric C: Fine clay with a wider range of darker rock particles than B
- Fabric D: Fine sandy clay, notably more micaceous than the other groups. Frequent quartz inclusions.

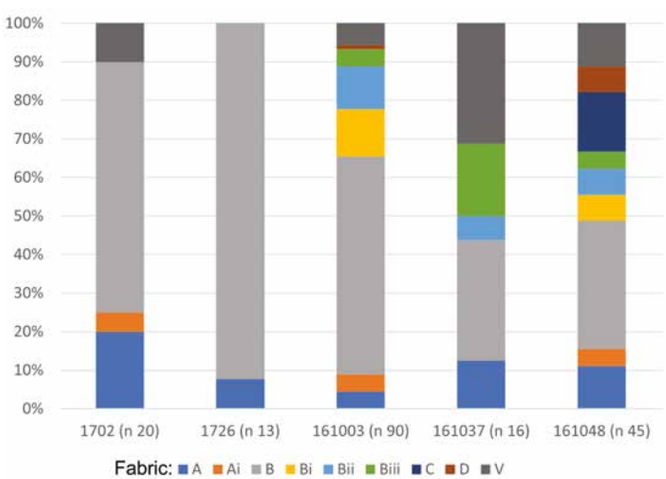
A fifth group, V, represents sherds where the fabric is too vitrified to determine which of the four main groups they belong to.

Table 7.8 shows the distribution of crucible fabrics across the main site contexts at the Craw Stane complex. The vast majority were recovered from the upper fill of the outer ditch and much smaller quantities from other ditch fills or features elsewhere on site. A closer look at contexts within the upper ditch fills (Illus 7.24) shows some minor variations in fabric types present, though the broader range of fabrics in C161003 and C161048 may simply be a reflection of the larger number of crucibles found in those contexts. There are hints of patterns which suggest dumps of debris from separate crafting events; for instance all nine sherds in fabric C were recovered from outer ditch upper fill C161048. However, the nine sherds of Fabric D were retrieved across three different contexts in the outer ditch upper fills (C161003, C161037 and C161048). Recutting and redeposition within the ditches therefore makes identifying dumps of material relating to separate events challenging.

Fabric group	Context						Total
	Outer ditch			Inner ditch	Other	Unstrat	
	Upper fills	Mid fills	Lower fills				
A	16		4			1	21
Ai	7						7
A/B	6	1	1				8
B	90	2	11			1	104
Bi	14	1					15
Bii	19						19
Biii	9						9
C	9						9
D	4				1		5
V	22	6		25	1	2	56
Indeterminate	93	1	3		1		98
Total	289	11	19	25	3	4	351

Table 7.8
Distribution of crucible fabric groups by context group from the Craw Stane complex. (Those with indeterminate fabric are almost all small fragments rather than sherds)

Some 28 sherds have fine impressions visible on one or both faces, indicating the clay was occasionally tempered with hair. These sherds are in fabric groups A, B and C; it is not a technique associated with a specific fabric. All stratified instances were recovered from the upper fills of the outer ditch (mainly C161003 and C161048, but also C1702, C1704, C161037, C161062 and C162001). Where dated, these deposits (C161003 and C161062) appear to be redeposited from earlier activity, suggesting hair impressions are restricted to this earlier phase of metalworking ceramics. Only one other crucible shows evidence of organic tempering (SF161420), with grass or straw impressions on the surface.



Illus 7.24
Fabric composition in outer ditch upper fills (contexts with over 10 crucible sherds only)

Function

Non-destructive surface X-ray fluorescence was undertaken on a sample of 69 crucibles to identify which metal alloys were being cast (details of XRF methodology and full results are in the archive). The flattest area of the object's surface was analysed, to allow better focusing of the X-ray beam. The crucibles were analysed on areas with visible residues in the first instance; on those without such residues the inside surface was analysed. Small fragments (<10mm) had one analysis, larger fragments two or more. Variations in the thermodynamic properties of different metals means the results give only a broad indication of casting alloys used (Barnes 1983; Dungworth 2000).

A range of metallic elements was detected: copper, tin, lead, zinc and silver. Crucibles could have been used more than once, with different metals each time (though the limited evidence of relining here suggests this may not have been common). The XRF results may therefore represent an amalgam of metals rather than a single alloy. Copper alloys dominate, with varying quantities of lead and zinc present. Lead and zinc are particularly volatile elements (Dungworth 2000; Kearns et al 2010) which leads to their over-representation in the spectra, but they were clearly regular components of the alloys being cast. Several crucibles produced very large lead peaks compared to other elements (eg SF237, SF1782, SF1826), all of which display distinct pale-yellow/toffee-coloured residues, not the red residues so often associated with copper-alloy casting. This suggests quite a different alloy or process was being undertaken in these crucibles, though they do not differ in size or form. It is unclear exactly what the ceramic crucibles with high lead signatures were used for, but a role in metal cleaning or refining, as discussed for the stone metalworking vessels (Section 7.5), seems likely.

Traces of silver were detected on four crucible sherds (SF161156, SF161274, SF161394 and SF151407) and a more notable peak on SF161347 (which was also the only sherd where XRF detected bromine traces consistent with silver corrosion). Traces of silver can inadvertently be present in ores or recycled metals, but the larger quantity on SF161347, along with a fragment of silver-casting waste (SF1823), indicates some silver was being cast at the Craw Stane complex.

Four sherds have tong impressions: SF1747, SF1769, SF1833 and SF1915 (all from upper ditch fills C1702, C1703 and C1726, apart from SF1915, which was from the lower fill (C1726) of a pit [1725] cut into the ditch). This confirms the crucibles were removed from the hearth using metal tongs, which left their imprint in the hot, malleable crucible fabric. A set of iron tongs was actually recovered from the site (Section 7.9; Illus 7.38) but it is unfortunately missing the jaws, meaning we cannot compare them with the marks found on the crucibles.

Reuse, repair and failure

A small number of sherds show evidence of likely failure in use (34 sherds) in the form of deep cracks through the crucible walls (10), residues coating broken edges (10), and intensely vitrified, porous and/or distorted fabric (16). That only *c* 14% of crucibles were used to destruction could suggest the smiths were skilled at controlling hearth temperature, the crucibles were expertly made or there was no shortage of new crucibles, meaning they seldom needed to be used repeatedly. All possibilities suggest a high level of skill and/or production.

Some 21 sherds show clear evidence of relining, with 16 possible further examples obscured by residues or with only a small patch surviving. Relining is a feature regularly identified on crucible assemblages though it remains unclear if additional linings were simply repairs or for some other function, such as reducing thermal shock (Hunter 2021a, 106). That such a small number of crucibles were relined here further suggests crucibles were not in short supply.

Catalogue of illustrated crucibles from the Craw Stane complex

- SF1769 Crucible sherd with tapered rim, expanding towards broken base. Fabric V. W 31, H 34, T 10mm; 7g. XRF: Zn. C1703. Illus 7.23
- SF1826 Rounded rim sherd with even wall thickness and curved plan suggesting a rounded form. Yellow/toffee-coloured residues inside and patches of red on exterior. Some residues over broken edge suggest failure in use. Fabric A, with some fine hair impressions on exterior. W 39, H 42, T 7mm; 11g. XRF: Cu, Zn, Sn, Pb. C1726. Illus 7.23
- SF1829 Crucible sherd with tapered tip, even wall thickness and curved plan. Some deep cracks in fabric suggest failure in use. Fabric Ai. W 44, H 36, T 6mm; 10g. C1702. Illus 7.23
- SF161085 Rounded rim sherd with wall thickness expanding towards base. Tight curve suggests it's the corner of a triangular crucible. Red and yellow residues coat most of the exterior. Fabric Bii W 40, H 39, T 3mm; 11g. XRF: Zn, Cu, Pb. C161003. Illus 7.23
- SF161096 Heat-distorted, rounded rim sherd with wall thickness expanding towards base. Rusty residues adhere to the exterior. Fabric Bi. W 30, H 29, T 4mm; 4g. C161003. Illus 7.23
- SF161126 Rounded rim sherd with even wall thickness and slightly curved plan. Hair impressions on fabric. Fabric A/B. W 17, H16, T 3mm; 1g. C161003. Illus 7.23
- SF161321 Rounded rim sherd with even wall thickness and fairly tight curve in plan, suggesting it could be the corner of a triangular crucible. Dull yellow residues adhere to the interior and part of the exterior, with hair impressions visible on the bare ceramic. Fabric A. W 35, H 31, T 7mm; 9g. C161048. Illus 7.23
- SF161336 Rounded rim sherd with even wall thickness and curved plan. Fabric D. W 28, H 43, T 9mm; 11g. XRF: Zn, Cu, Pb. C161048. Illus 7.23
- SF162140 Refitting sherds forming an almost complete triangular crucible with tapered rim and parallel-sided walls. Small portion of base missing. Brown residues in patches across all surfaces could be post-depositional. Fabric V. W 60, H 40, T 4mm; 37g. XRF: Zn, Pb, Cu. C162054. Illus 7.23

7.4.3 Taphonomy

The level of abrasion of each sherd was noted in order to examine how much the sherds may have moved around post-deposition (this was only recorded for sherds, not fragments). Three levels of abrasion were recorded, with most of the assemblage showing very little:

	Context						
	Outer ditch			Inner ditch	Other	Unstrat	Total
Abrasion	Upper fills	Mid fills	Lower fills				
1	158	8	9	1	1	2	179
2	40	1	7				48
3		1					1
Total	198	10	16	1	1	2	228

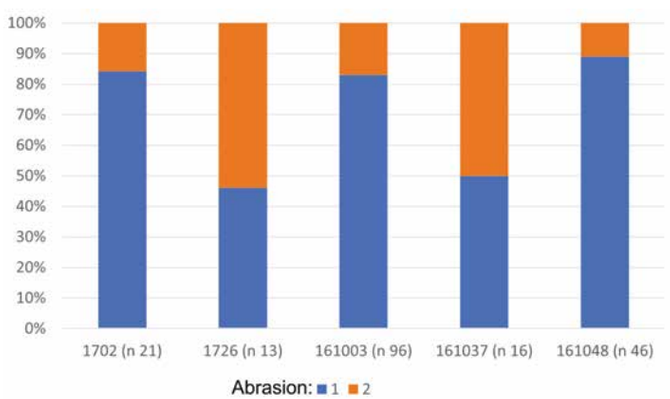
Table 7.9
Level of abrasion by context group

- Level 1: Broken edges still sharp with only occasional rounding or abrasion to faces (179 sherds)
- Level 2: Most edges slightly rounded with abrasion to faces (48 sherds)
- Level 3: Very worn with rounded edges and extensive surface abrasion (1 sherd)

While radiocarbon dating of the ditch sequences indicates significant quantities of metalworking debris were redeposited into later ditch fills from earlier activities (eg C161003 and C162054), the minimal degree of abrasion on most sherds suggests they are not likely to have been moved multiple times after initial deposition and were likely to have been used in a workshop area close to the ditch.

Table 7.9 shows the distribution of different abrasion levels between different context groups with Illus 7.25 presenting the outer ditch upper fills in more detail. The quantity of crucible sherds from C1726 and C161037 is small compared to C161003, but the sherds are generally more abraded. This suggests the sherds within C1726 and C161037 have been moved around more and represent a background scatter of material rather than a deliberate dump.

Refit analysis was undertaken for crucible sherds within each fabric group. Finding definite refitting sherds is challenging with crucibles as they often became distorted by the intense heat of the hearth and, particularly if they failed during use, edges can also become



Illus 7.25
Level of abrasion within outer ditch upper fill deposits (contexts with over ten sherds present)

obscured by residues. Only one definite refitting pair was identified (SF161083B and SF161155), both from the upper fill of the outer ditch (C161003). Another pair of sherds (SF161075 and SF162008) are so similar they are very likely to be from the same crucible, though they do not refit. Both are from the upper fills of the outer ditch (C161003 and C162001). The lack of refitting sherds suggests the assemblage is a small portion of a large dump of metalworking deposits, reflecting its excavation from slots through the ditch and perhaps truncation of the uppermost deposits through ploughing.

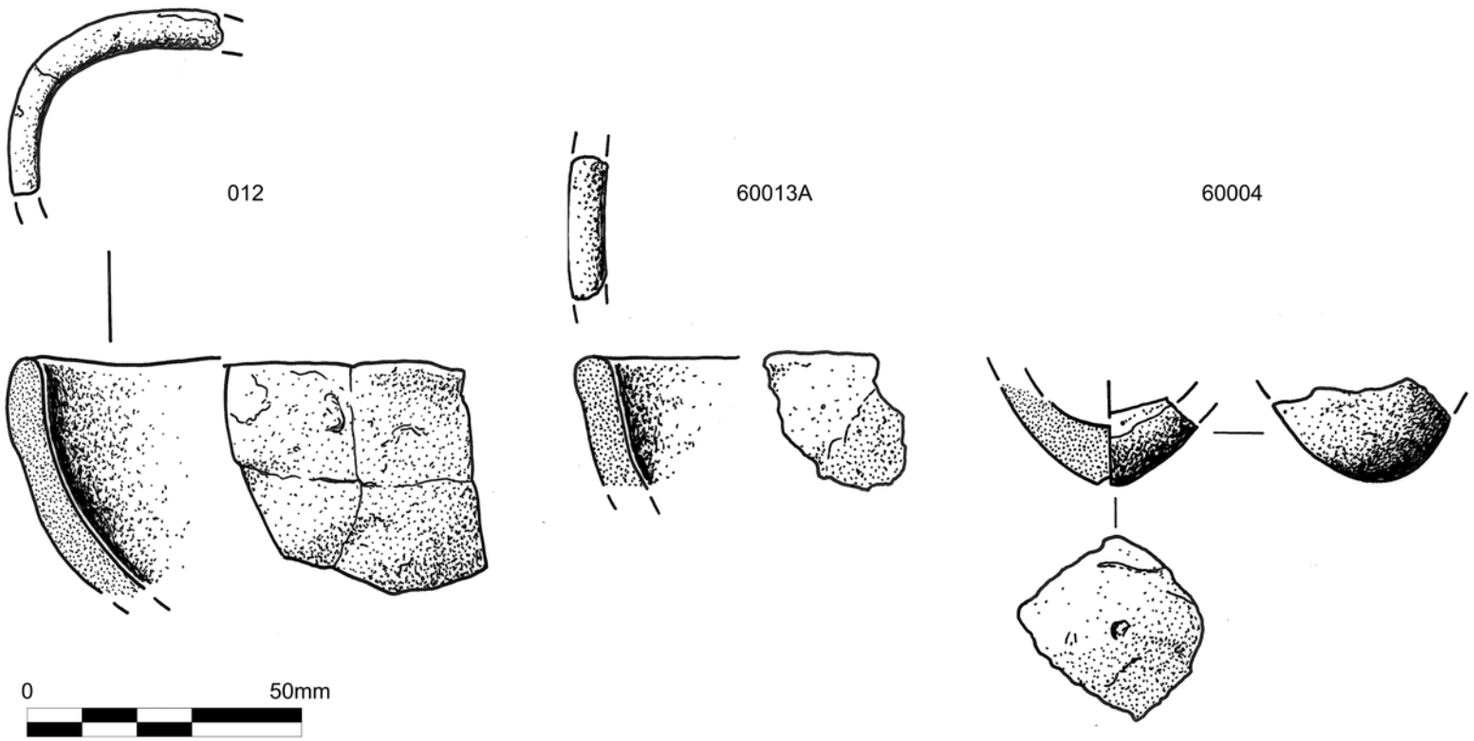
7.4.4 The Tap o' Noth Crucibles

Four crucible sherds were found on Tap o' Noth, representing a minimum of two vessels: one fairly thin-walled triangular form (SF60013A) and the other a more robust, round form (SF604, SF60004 and SF60013B), though the sherds do not refit on the latter and could therefore represent three separate similar crucibles. The sherds were all retrieved from the Trench 6 platform in association with other metalworking debris, including moulds and ironworking slag. Two (SF604, SF60004) were recovered from the upper fill of Hearth 1 [C6012; F6015] and the other two (SF60013A and B) from the upper floor layer (C6003) associated with the use of Hearths 1 and 2.

- SF604 Ceramic crucible rim sherd, curved in plan, thickening to the base, with rounded rim. Not enough of the rim survives to determine if round or circular. Grey fabric, with paler interior. No visible residues. Fine organic hair-like impressions on exterior. XRF: Zn, Pb. H 35, W 23, T 7mm. C6012
- SF60004 Rounded base of a ceramic crucible. Grey/brown fabric, darker on the exterior. Interior has mainly spalled. Some cracking and distortion of fabric, but no residues adhering. W 30 x 26.5, T 7mm. XRF: Zn, Cu. C6012. Illus 7.26
- SF60013A Ceramic crucible rim sherd with straight wall, almost no curve (suggesting it was triangular in plan) and a slightly flattened rim. Fine grey/brown fabric with a few fine hair-like impressions on the exterior. No visible residues. Some cracking next to broken edge suggests it may have failed. H 22.5, W 20, T 5.5mm. XRF: Zn, Pb. C6003. Illus 7.26
- SF60013B Ceramic crucible rim sherd with curved wall (in plan and profile), suggesting it was a medium-sized circular form, with rounded rim. Grey/brown fabric, darker on exterior than interior. No residues adhering. Some minor cracking around the rim but no signs of failure. H 25, W 23.5, T 6mm. XRF: Cu, Zn, Pb. C6003

7.4.5 The Cairn More Crucible

Four refitting sherds from a triangular crucible (SF012; Illus 7.26) were found during Cook's excavation at Cairn More, in the fill of a feature outwith the main fort area (C309, Trench 3) which also produced three moulds. They were found spread across the trench rather than in a discrete deposit (Cook et al 2010: 13), though their condition (and that of the moulds, two of which are intact valves) strongly suggests this is a primary deposit.



Illus 7.26
Illustration of crucible sherds from Tap o' Noth (SF60013A and SF60004) and Cairn More (SF012). Alan Braby

- SF012 Four refitting sherds from a medium-sized triangular crucible with sloped walls and rounded rim. Fabric is not particularly highly fired and no residues adhere, suggesting it was not heavily used, perhaps not at all. Thin layer of fine redder clay over around half of interior and a small area of the exterior. Fabric is fine pale brown-grey with occasional very fine linear impressions, probably hair. H 43, W 46, T 6mm. XRF: Cu, Zn. C309. Illus 7.26

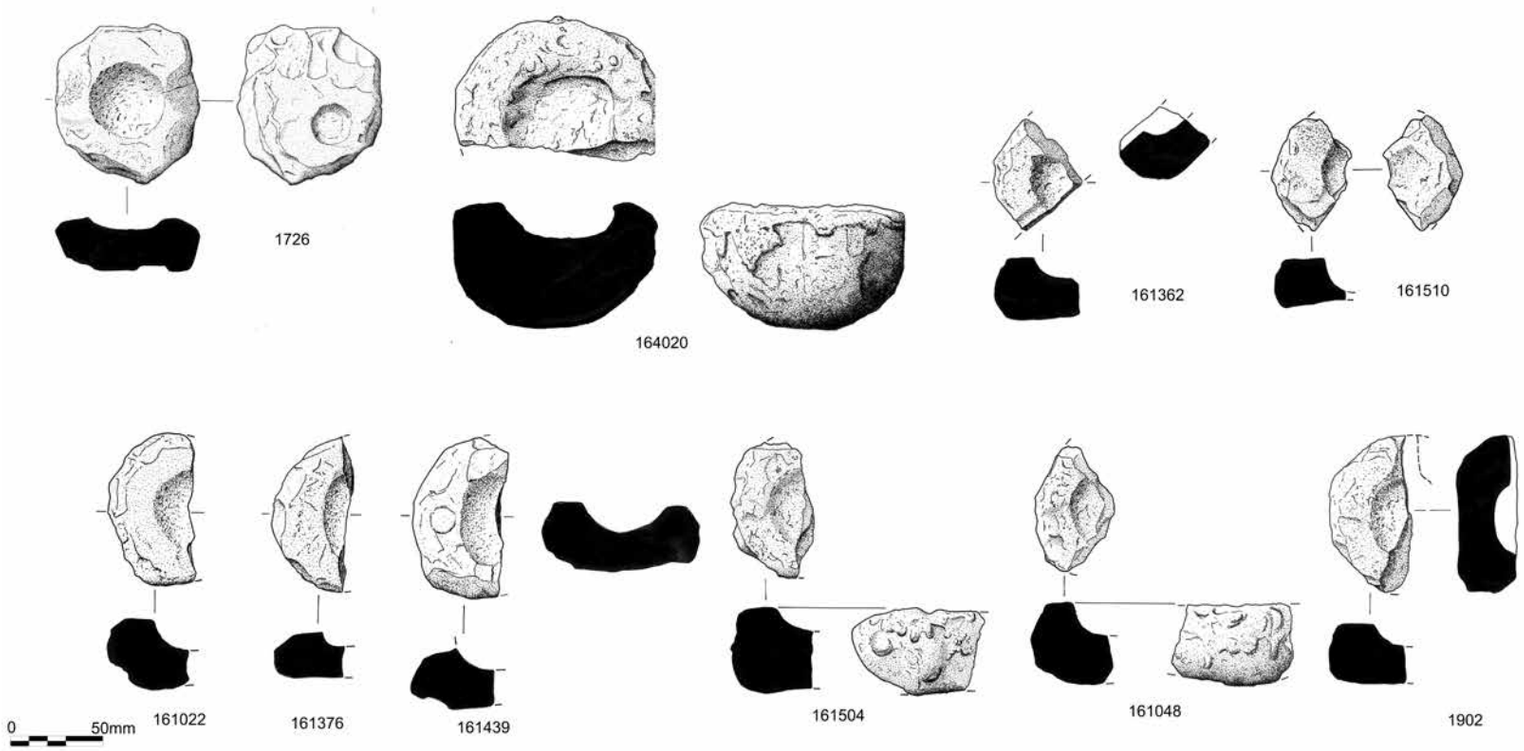
7.4.6 Crucibles Discussion

Round and triangular crucibles have a lengthy history. Various forms of triangular or pyramidal crucible were common throughout the Iron Age, but most commonly with V-shaped sections (eg Tylecote 1986: 99 Type 2). The use of triangular crucibles continues into the 7th century AD too, on sites such as Dunadd where they were used with lids (eg Lane & Campbell 2000: 135, illus 4.40 Type C). Simple rounded crucibles, often with a conical profile but sometimes shallower and more bowl-like, are similarly long-lived (eg Tylecote 1986: 99 Type B3; Lane & Campbell 2000: 135 illus 4.40 Type E). The seemingly basic forms found at the Craw Stane complex, Tap o' Noth and Cairn More, with a lack of complex features such as lids, spouts and handles, are in stark contrast to the complex objects being cast, as seen from the mould assemblage and the presence of silver-casting debris. This raises wider questions about the transition between the 5th- to 6th-century AD non-ferrous metalworking crucibles discussed here and those seen in the 7th century at sites like Dunadd (Lane & Campbell 2000: 135). Is the elaboration of crucibles related to a change in technology (eg different heating techniques requiring the metal to be covered), or was it for performative or aesthetic reasons? Spouts are common on round crucibles throughout the Iron Age (it would have been difficult to pour without a spout or corner) and handles also occasionally attested. The plainness of the crucibles here is perhaps their most striking feature.

While these plain crucible forms give the impression of a relatively homogeneous assemblage, the small details reveal more. Minor differences in fabric, temper and shape may seem insignificant, but reflect deliberate decisions based on the experience and preferences of the craftworker. Other details, such as whether the crucible walls taper or run parallel to rounded tapered rims, may almost have been subconscious acts, created by the muscle-memories of craftworkers trained in different workshop traditions. The Tap o' Noth and Cairn More crucible sherds would not have stood out in any way within the Craw Stane assemblage. However, while similar in overall form, their contexts differ. The Craw Stane crucibles were found dumped in the upper fills of the outer ditch and are likely to have been redeposited once or several times after that. In contrast, the Tap o' Noth sherds were found around hearths, probably where they were used, and the Cairn More sherds all refit, suggesting they too are in a primary deposit.

7.5 Stone Metalworking Vessels

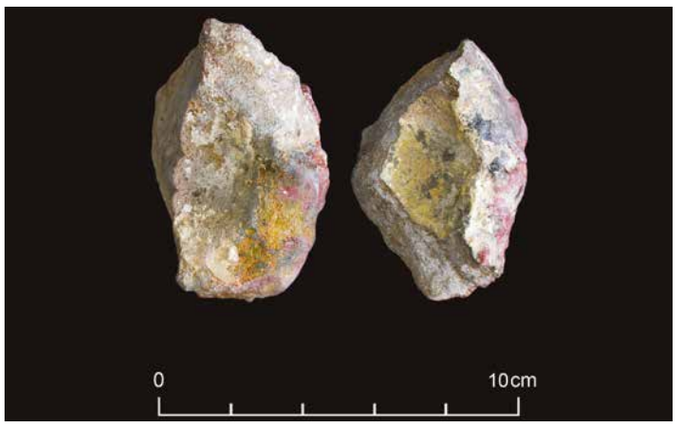
Some 23 fragments of simple sandstone vessels were discovered at the Craw Stane complex, most of which were heavily coated in metalworking residues (Illus 7.27). Two pairs of refitting fragments are present, leaving a maximum number of 21 vessels, all



Illus 7.27
Illustration of stone metalworking vessels from the Craw Stane complex. Alan Braby

SF	C	% surviving/ fragment dimensions (mm)	Key dimensions (mm)				Residues		Refits	Illus	XRF
			D	H	BD	BDe	Colour	Position			
1726	1703	100	115	44	60	11	None – unused		-	y	-
1794	1703	Fragment (24 x 23 x 14)					Red glassy		-	-	y
1847	1703	<25		43	>20		Chalky pale yellow and dark red/grey glassy	Chalky yellow in bowl. Dark red/grey on rim, edge and part of base	-	-	y
1902	1704	50	86	34	41	12	None - unused		161362	y	-
161022	161003	50	85	39	43	14	None - unused		-	y	-
161048	161003	25	100	45			Chalky pale yellow and dark red/black glassy	Yellow in bowl and on rim; red/black on rim, edge and patches on base	-	y	y
161054	161003	Fragment (42 x 26 x 24)					Black, red and cream		-	-	y
161080	161037	20	95	40		24	Chalky pale yellow and dark red glassy	Yellow in bowl and on rim; red on rim, edge and patches on base	-	-	y
161087	161003	Fragment (37 x 27 x 18)					Brown-dark red glassy		-	-	y
161194		Fragment (35 x 26 x 13)					Black and red	Black on rim, red on edge	-	-	y
161323	161048	20	90	41	12	11	Red, yellow and dark green	Variously over interior, rim and exterior	-	-	y
161349	161048	Fragment (34 x 26 x 16)					Dark red and pale brown/yellow		-	-	y
161359	161048	*c* 5-10		19			Black and dark red glassy	Black on interior and rim; Dark red exterior	-	-	y
161362	161048	25	90	37	30	12	None – unused		1902	y	y
161376	161047	50	86	33	40	13	None – unused		-	y	y
161383	161048	Fragment (21 x 15 x 7)					Red/black glassy		-	-	y
161411	161048	20		33		10	Multicoloured: red, green yellow, cream	Variously over interior, rim, exterior and part of base	161504	-	y
161439	161048	50	90	38	48	16	None – unused		-	y	-
161447	161048	20	90	30		14	Chalky cream and dark red enamel with copper-rich droplets	Cream on interior and rim, red and copper exterior and base	-	-	y
161504	161062	50	100	46		8.5	Chalky cream and dark red	Cream on interior. Rim exterior and base are dark red	161411	y	y
161510	161062	25	100	38		18	White/yellow chalky and red and clear glassy	White/yellow on interior and rim. Red/ clear on base and exterior	-	y	y
161516	161049	50	100	47	35	9	Cream-orange	Interior	-	-	y
164020	161042	50	115	65	62	17	Pale yellow chalky	Upper and sides	-	y	-

Table 7.10
Summary of metalworking vessels key features. Full catalogue entries are in the archive. BD bowl diameter, BDe bowl depth. Illustrated examples are on Illus 7.27



Illus 7.28
Photograph of stone metalworking vessels (L–R: SF161504 and SF161048). Leanne Demay/National Museums Scotland

very similar in size and form. All were manufactured from blocks of fine- or medium-grained arkosic (Devonian) sandstone which were roughly flaked around the circumference to give a vertical or bifacial edge, mainly leaving the naturally cleaved flat surfaces on the 'rim' and base. A shallow circular dish was pecked into the upper surface. It was possible to estimate the original vessel diameter of 14 fragments, giving an average of 96mm within a range of 85mm to 115mm. Vessel heights vary between 34mm and 65mm. As they all have the same basic description, their key features are presented in Table 7.10, and full catalogue entries are in the archive.

Six fragments from five vessels (SF1726, SF161022/SF1902, SF161362, SF161376, SF161439) lack vitrified residues but are the same stone type and form, indicating they are unused examples. Fiona McGibbon noted during examination of the worked stone assemblage that one of the unused vessels (SF161376) had bands of

fine- and coarse-grained sandstone, making it a less consistent matrix than the others and providing a possible reason for its abandonment.

Even small fragments can be included in this group with some certainty owing to the thick colourful residues coating most of their surface. A distinct pattern of residues was noted on most, with chalky pale-yellow residues in the bowl and around the rim, and dark red/black enamel-like residues on the rim, around the sides and often extending in patches onto the base. One vessel (SF161447) also has copper-rich droplets adhering to the sides and base. Qualitative surface X-ray fluorescence (XRF) analysis was undertaken on 18 fragments (Table 7.11). The most striking feature of the results is the consistently high levels of lead (Pb) across all analyses but marginally more so on the chalky yellow residues in the interior compared to the glassy red/black residues on the exterior. Copper (Cu) is also present in varying levels, along with minor levels of zinc (Zn) and tin (Sn). One vessel (SF161516) also showed the presence of silver (Ag). Other elements were also present on unused vessels and are therefore likely to be present in the stone itself.

Though a role in non-ferrous metalworking was assumed from the residues, understanding the exact function of these vessels has proved challenging and further investigation will continue beyond the work for this monograph. It is unlikely they were stands for ceramic crucibles, since they display significantly more (and different) residues than the ceramic crucibles themselves. Their capacity does not vary significantly from the largest ceramic crucibles, making it improbable they are simply larger versions of the ceramic crucibles for melting greater volumes. They were also heated from above and show little or no evidence of heat on the base, unlike ceramic crucibles which were heated from beneath or fully enclosed in the hearth, adding further evidence to their differing function.

The chalky yellow residues are visually and analytically consistent with lead oxide or litharge, produced during cupellation. The cupellation process involved precious metals being refined by mixing with a controlled quantity of base metal, usually lead. There are several different types of cupellation depending on whether metals were being refined from ores or debased alloys (Dungworth et al 2022: 96–7). During cupellation the added lead, under oxidising conditions, converts to lead oxide and then acts as an oxidising agent, transforming any remaining base metals within the silver to oxides and leaving the silver unaltered (Tylecote 1986: 60). Successful completion leaves a nodule of silver once all the oxidised base metals have been removed. The discarded/leftover oxides are also known as litharge and could be removed in a range of ways, including as plano-convex lumps called 'litharge cakes', skimmed off while in a hot liquid state (oxides float above silver) or volatalising at high temperatures, leaving little trace (Bayley 1992: 46). Distinguishing between the debris of primary and secondary cupellation primarily relies on the presence of copper in the litharge, which is present in secondary cupellation, but not primary owing to the presence of copper (and other metals) in debased silver alloys.

		Element								
SF	**C**	**Pb**	**Cu**	**Zn**	**Sn**	**Ag**	**Fe**	**Ti**	**Zr**	**Sr**
1794 exterior (red)	1703	xxxx	xx	x	x		x	x	x	x
1847 interior	1703	xxxx	xx				x			
1847 exterior	1703	xxxx	xxx	x	xx		x	x	x	x
161048 exterior (red)	161003	xxxx	xx	x	x		x	x	x	
161048 interior	161003	xxxx	x		x		x			
161054	161003	xxxx	x	x	x		x		x	x
161080 upper (red)	161037	xxxx	xx	x	x		x	x	x	x
161080 interior (yellow)	161037	xxxx	x		x		x		x	
161087	161003	xxxx	xx	x	x		x	x	x	
161194		xxxx	xxx	x	x		x			
161323 upper (coppery)	161048	xxxx	xx		x		x		x	
161349	161048	xxxx	x	x	x		x			x
161359 upper (red)	161048	xxxx	x	x	x		x			
161362 (unused)	161048						xx	x	x	x
161376 (unused)	161047						x	x	x	
161383	161048	xxxx	xxx	x	x		x		x	
161411 upper surface	161048	xxxx	x		x		x		x	x
161447	161048	xxxx	xxx		x		x		x	
161504	161062	xxxx	x		x		x		x	
161510	161062	xxxx	x	x	x		x		x	
161516 interior	161049	xxxx	xxx	xx	xx	xx	x	x	x	

Table 7.11
Summary of qualitative XRF analysis of stone vessels. xxxx = very high, xxx = high, xx = low, x = minor

The composition of the residues here is consistent with secondary cupellation, suggesting the vessels might have been cupels. If so, the extensive residues over the top and down the sides of the vessels imply the base metal oxides were skimmed from the top. No exact parallels have been found for the use of stone vessels as cupels. In England during the Roman period, cupellation hearths tended to be used, with a shift to ceramic cupels in the Saxon period (Bayley 1992: 50). By the post-medieval period, cupels were specifically manufactured from combinations of bone or plant ash, which would absorb the base metal oxides (Bayley 1992: 53). The equipment involved in cupellation has therefore changed through time and the fine-grained sandstone vessels here seem like a variation on the ceramic cupels found in southern Britain.

However, research and experimental work by Stephen Merkel has cast doubt on the effectiveness of such open vessels, referred to as 'heating trays', for true cupellation and suggests another form of small-scale metal refining or cleaning is more plausible (Merkel 2016 and pers comm). Rather than solely used as an oxidising agent, lead could have been added as a flux or lubricant to help remove silicates such as sand, clay or ash from precious metals, known as 'cleaning' rather than refining (Merkel 2016: 219). This enabled the reuse of small scraps of casting debris. However, this process could still (perhaps inadvertently) remove small amounts of base metals too, thus refining as well as cleaning. Untangling the range of different non-ferrous metalworking processes from such remains is clearly challenging, partly because the processes were highly complex, sometimes overlapped and probably varied between workshops but also because of the range of terminologies used by different specialists. We can be certain the stone vessels here were not used simply for melting metal as most of the ceramic crucibles were. Some form of precious metal refining or cleaning is probable, but the exact nature remains unclear.

Evidence of cupellation, parting and other forms of precious metal refining in early medieval Scotland is scarce, probably in part due to how challenging it can be to recognise the debris. Some of the larger ceramic crucibles, including 'dog dish' forms, from Mote of Mark, Kirkudbright, were interpreted as possible cupels or parting vessels (Laing & Longley 2006: 26). If that was indeed their function, such ceramic forms would be challenging to distinguish amongst a large fragmentary assemblage of varying forms of crucibles and moulds without a thorough programme of XRF analysis.

Seven of the vessels survive as half, while a further three represent a quarter, all broken through the middle. Only one, unused, is intact (SF1726). While examining the lithology of the stone assemblage, Fiona McGibbon noted that there were no signs of heat-cracking or discoloration to the stone matrix despite the thick layers of metalworking residues coating the surface, and that the stones had broken through the layer of residues after cooling. Only one (SF161510) has residues overlying some spalling on the vessel's base, suggesting it may have been damaged during (or before) use. Perhaps they would no longer have functioned with such a thick layer of residues and were deliberately 'decommissioned'. Deliberate fragmentation and structured deposition of artefacts is a well-known tradition in later prehistory, as is the ritualised treatment of metalworking residues (Webley et al 2020: 185–6). The treatment of these vessels may represent a continuation of that practice.

7.6 Ironworking Debris

7.6.1 Overview

Just over 3kg of ironworking debris was recovered during excavations at the Craw Stane complex, Rhynie and 179g from Tap o' Noth (summarised in Table 7.12). Evidence of both smelting and blacksmithing was present at the Craw Stane along with possible fragments of bog iron ore, while fragments of bloom and undiagnostic iron slag were recovered from both sites. The ironworking debris from Craw Stane was mainly redeposited in fills of the outer ditch, whereas at Tap o' Noth the debris was found in floor and hearth deposits on platforms in Trenches 6 and 11, indicating the location of ironworking activity there. Early medieval ironworking, especially during the 4th to 6th centuries AD, as here, is poorly understood. Smelting evidence is particularly elusive, making the fragments of smelting slag from Craw Stane a significant addition to our understanding of the craft during this period.

Process	Slag type	Weight (g)	
		Craw Stane	Tap o' Noth
Iron smelting	Smelting slag	1610.6	
	Bog ore, possible	282.2	
Bloom processing?	Bloom, possible	20.8	52.2
Blacksmithing	Smithing hearth base	998.3	
Undiagnostic iron slag	Undiagnostic iron slag	215.8	120.1
Total (g)		3127.7	172.3

Table 7.12
Summary of ironworking debris assemblage

7.6.2 The Assemblage

The material was washed, visually examined and catalogued using common terminology (eg Crew & Rehren 2002; McDonnell & Milns 2015; Paynter 2002; Spearman 1997) based on characteristics such as density, surface morphology and inclusions. A summary of the categories follows and a full catalogue is in the archive.

Smelting slag

Around 1.6kg of smelting slag was recovered from the Craw Stane complex. The fragments are typically large with frequent voids and charcoal inclusions/impressions throughout. Most fragments are typically amorphous in form but one fragment (C037) could be part of a larger, dense plano-convex accumulation of iron slag known as a 'furnace bottom'.

Bog ore

Three fragments of possible bog ore were recovered (SF15066, 161354B and PLX47) from the Craw Stane complex. The granular texture is very similar to bog ore but the colour is pinker than usual, leaving its identification uncertain. Bog iron ores form from accumulating iron minerals in areas of slow-moving water, such as bogs, and are likely to have been readily available across Scotland. Such ores were the primary ore sources exploited for ironworking throughout the Iron Age in Scotland and remained

an important resource well into the medieval period (Cruickshanks 2017: 261; Hall & Photos Jones 1998: 54).

Bloom

Three fragments of dense, magnetic, corroded iron-rich slag (Craw Stane SF1841 and Tap o' Noth SF1106) are probably fragments of bloom. Bloom was the desired product of iron smelting and would undergo further refining before being a suitable quality for blacksmithing.

Smithing hearth base

Four smithing hearth base fragments (SF1710, 161303, 161347 and 161347) were all from the Craw Stane complex. Smithing hearth bases form from accumulating slag and iron particles dislodged as hot iron is moved in and out of a blacksmith's hearth. SF161347 is intact and SF161351 is almost intact, weighing 395g and 367g respectively, while the other two are fragments.

An unfinished iron object (SF161402) and iron offcut (SF161289) (Section 7.9), both recovered from the outer ditch (C161048) add to this evidence of blacksmithing.

Undiagnostic iron slag

As is usually the case, many fragments are too small or fractured to determine which stage of the ironworking process they are derived from. Thirteen fragments weighing a total of 215.8g were recovered from the Craw Stane complex and four fragments weighing 120.1g from Tap o' Noth.

7.6.3 Discussion

Most of the ironworking debris from the Craw Stane complex was recovered from fills of the outer ditch (2.5kg) with smaller quantities retrieved from the upper fill of the palisade slot (C15007) (72g), post-hole fills (C15094 and C15009) (185g), ring ditch (C015) (29g), beam slot (C239) (180g) and topsoil (120g). The assemblage is therefore entirely redeposited; no certain ironworking features (eg smelting furnaces or smithing hearths) were noted, possibly because of plough truncation across the site and potentially due to recutting of the ditch profiles, though a lot more redeposited ironworking debris may have been expected if there had been a substantial amount of ironworking activity on the site. A burnt feature within the ditch was interpreted as a possible furnace (see Chapter 5), but no ironworking debris was retrieved from it, leaving its function unclear. Identifying exactly where the ironworking activity took place is therefore challenging. Conversely, the fragments from Tap o' Noth were found in floor deposits and hearths, providing a clearer picture of where the craft took place. One of the fragments of undiagnostic iron slag (SF60007) was found in Trench 6, Hearth 1 (C6012), while others were from deposits associated with the upper platform's hearth in Trench 11 (C11002, C11004 and C11005). At both sites the ironworking debris was associated with non-ferrous metalworking debris too.

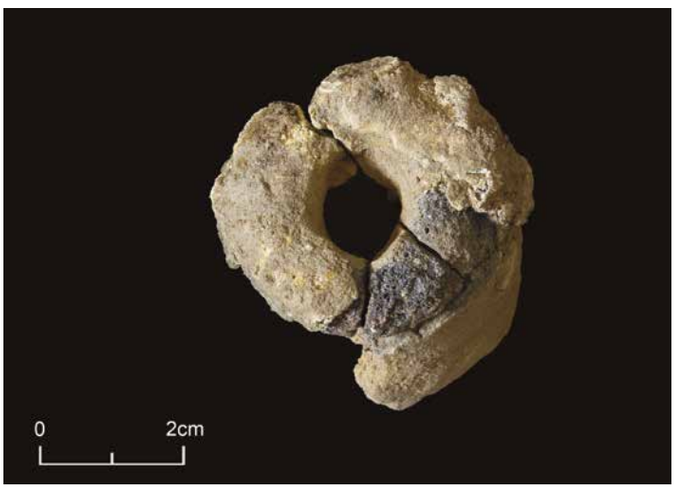
Understanding the scale of any craft is essential if we are to gain an insight into more detailed aspects of the site's function and connections. For example, there is a great difference between repairing personal tools and manufacturing sophisticated status objects or producing large quantities beyond the needs of the settlement. Ascertaining this is not straightforward, especially where the debris is found scattered in secondary deposits and only a small sample of a site has been excavated, as with both sites under discussion here. Even taking those caveats into account, however, the quantities of ironworking debris here are small, especially in contrast to the non-ferrous metalworking assemblage from the same excavated area. This implies ironworking was not a major activity within the boundaries of the Craw Stane complex and is likely to have only been undertaken sporadically at a low scale; perhaps mostly to produce and repair tools for non-ferrous metalworking.

Nonetheless, these small assemblages are highly significant additions to our understanding of early medieval ironworking in Scotland. Sites of this date are rare and, as a consequence, so is ironworking evidence. The current picture of ironworking in Scotland shows a peak of production centred on roundhouse settlements in the Moray Firth area between the 4th century BC and first two centuries AD followed by a gap before large-scale ironworking reappears, mainly on ecclesiastical settlements from the 7th century AD onwards (Cruickshanks 2017; 2018, 2019). When ironworking does reappear, smelting is much rarer than blacksmithing, suggesting the earlier stages of the process had moved elsewhere, probably away from settlements and closer to ore and fuel sources, where we are less likely to discover them (Stirling & Cruickshanks forthcoming). Both sites, but the smelting evidence from the Craw Stane complex in particular, therefore begin to fill some of this gap in our evidence and reveal a continuation of the association between ironworking and wealthy sites seen in the Roman Iron Age, such as Birnie and Clarkly Hill, both Moray, and Culduthel, Inverness (Hunter in prep a; b; Hatherley & Murray 2021).

7.7 Tuyères

GEMMA CRUICKSHANKS

A group of 26 fragments (total 616.6g) of ceramic tuyère were recovered from fills of the outer ditch (C1703, C161003, C161048, C161062 and C164032 with 13, 6, 5, 1 and 1 fragments respectively) at the Craw Stane complex (Illus 7.29). Tuyères were objects made to protect bellows tips from the intense heat of a metalworking hearth and were typically made of stone or ceramic in a range



Illus 7.29
Photograph of tuyère fragment SF161201. Leanne Demay/National Museums Scotland

of disc or cylindrical forms. All the examples here are ceramic, most displaying glassy and/or bubbled vitrification on the end which was closest to the fire.

The perforations tend to be cylindrical, though some are now oval (eg SF161201), probably distorted by heat. Where enough of the perforation survives to estimate original diameter, this ranges between 18mm and 25mm. Most are small fragments, but a few preserve enough of the outer edge to establish they were cylindrical forms, usually with a sub-square section. On some, eg SF1701 and SF1744, the outer edge steps in after the vitrified zone on the end, illustrating where it slotted into the hearth's wall. Four fragments in SF161201 refit to form the complete end, creating a rather narrow, tube-like tuyère, or perhaps the narrower end of a wedge-shaped form.

Tuyères were used in both ironworking and non-ferrous metalworking, and probably other crafts where bellows were required to reach higher temperatures. Three (SF1701, SF1744 and SF161100) are coated in red glassy residues, suggesting they were used in a non-ferrous metalworking hearth. They are fairly common finds amongst metalworking debris, though small fragments are easily missed. It has been noted on other sites that tuyères often have extra quartz temper added to the fabric to withstand the intense heat in what is the hottest part of a hearth, for example at Dunadd (Lane & Campbell 2000: 147) and Birnie (Cruickshanks & Dungworth in prep). This feature was not noted here, suggesting the clay was good enough to withstand such temperatures without additions.

Selected catalogue (full catalogue in the archive)

- SF1701 Two refitting fragments of cylindrical ceramic tuyère with red glassy vitrification on exterior, showing slight step in where it slotted into the hearth wall. Edge of perforation on opposite face. 36.5 x 25 x 18mm; 14.1g. C1703
- SF1744 Eleven fragments of vitrified ceramic tuyère comprising orange fired clay with convex red/grey porous outer edge, showing slight step in where it would have slotted into hearth wall (additional layer of clay adhering there may be from hearth wall). Three fragments preserve the concave edge of a cylindrical perforation (estimated 18mm diameter). Total 42.4g. C1703
- SF161201 The end of cylindrical tuyère with three of four fragments refitting to form the complete tip. Orange-brown friable ceramic. L 35, ext D 35, internal D of perforation 15 x 11mm. 32.8g. C161003. Illus 7.29
- SF161235 Fragment of orange ceramic, transitioning to grey towards the outer face which is coated in red-grey glassy vitrification. Likely to be part of the outer edge of a cylindrical tuyère. 41 x 37 x 21mm. 26.9g. C161003
- SF161279 Part of the edge of a cylindrical tuyère embedded within a mass of vitrified ceramic. Probably square sectioned with rounded corners, perhaps showing part of blocked hole but very distorted. 446g. C161048
- SF161309 Small fragment of fired orange clay with glassy vitrification on one face and the edge of a rounded concave rim on one edge, suggesting a cylindrical tuyère. 24 x 20 x 13mm. 4.5g. C161309
- SF164013 Reddish-orange fired clay tuyère with one face coated in glassy black vitrification and the edge of a perforation (originally around 25mm D). No outer edges survive. 23.8g. C164032

7.8 Metalworking Discussion

This large, rich metalworking assemblage holds a wealth of information about the range of skills and resources the metalworkers at the Craw Stane complex, Tap o' Noth and Cairn More possessed, providing an insight into the craft of metalworking in 4th to 6th centuries AD in north-east Scotland for the first time. Understanding the nature and scale of the craft, particularly at the Craw Stane complex, is key to understanding the function and status of these sites and interrelations between them.

7.8.1 Resources

Access to a wide range of resources is demonstrated by the metalworking evidence. While the few fragments of bog iron ore could have been locally sourced for ironworking, non-ferrous metal sources were more complex to obtain. XRF analysis of crucibles and casting debris illustrates a range of copper alloys and silver were being worked while analysis of the stone metalworking vessels demonstrates that alloys were probably being cleaned or refined on site by heating with small quantities of lead.

The presence of zinc (Zn) in crucible residues and casting debris indicates the melting of metals which included recycled Roman alloys, such as gunmetals (Cu, Zn, Sn) and leaded gunmetals (Cu, Zn, Sn, Pb). These alloys were dominant in northern Britain during the Roman Iron Age, though they can vary in composition owing to the repeated recycling of older metalwork (Dungworth 1997). By the period the Craw Stane metalworkers were operating, recycled Roman metalwork would have been part of the general pool of metal sources available.

Lead was required for the cleaning or refining processes undertaken in the stone vessels (Section 7.5). There is no local source of lead, indicating this resource had to be brought from further afield. Lead isotope analysis of residues on the stone vessels could pinpoint the lead source and would be a useful avenue for future research.

A regular source of fuel, probably wood charcoal, would have underpinned all metalworking activity in the past but we know very little about the charcoal industry during this period. Recent analysis of wood charcoal from ironworking furnaces at Culduthel has demonstrated the wider impact this activity had on local woodland during the Iron Age (Marinoni 2023). Though non-ferrous metalworking would require far less charcoal than an iron smelting furnace, the scale of activity at the Craw Stane would still have required a regular supply and environmental evidence suggests a range of woodland resources would have been available in the local environs (Chapter 8).

In addition to metals and fuel, local sources of suitable clay and stone were exploited to create moulds, crucibles, tuyères, hearth and furnace linings. Although locally sourced, these materials would still have been carefully selected though the details are complex and vary between sites. For example, research by Daniel Sahlén (2013) on later prehistoric ceramic technology in Scotland

showed that although local clays were selected, on some sites, such as Traprain, different local sources were used for the production of crucibles compared with other ceramic objects, but on other sites the same source was used, perhaps revealing varying levels of skill or knowledge of this resource. A wide range of tools and equipment would have been required, like the iron tongs (SF207; Illus 7.38) found at the Craw Stane complex, along with other metalworking accoutrements like iron hammers and punches, bellows made from hides, and bone or wooden modelling tools for fashioning moulds.

An in-depth knowledge of a wide range of raw materials, whether locally sourced or acquired through longer-distance trading, was therefore required for metalworking to take place, particularly at the level of skill and production demonstrated at the Craw Stane complex. Access to these resources would also have had to be consistent to maintain the scale of production demonstrated here.

7.8.2 Products

Copper-alloy objects were being produced at all three sites, iron was being worked at the Craw Stane complex and Tap o' Noth and silver items also at the former. The well-preserved moulds, particularly at the Craw Stane complex, provide the best insight into the metalworkers' products. Naturalistic animal figurines, elaborately decorated mounts and a range of ornate jewellery, including different types of penannular brooches, handpins, nail-headed pins and finger-rings were being created, illustrating the technical skill and artistry of these metalworkers. As well as finished objects, ingots were being cast as stock for metalworkers, either for use there or to trade.

XRF analysis of a selection of moulds proved inconclusive, leaving uncertainty over which items were made of copper alloy and which with silver, though handpins and spiral rings are possible candidates for silver based on known examples. An unfinished penannular brooch terminal indicates at least some were copper alloy.

It is always more challenging to know what ironworkers were making since, unlike non-ferrous metal casting, iron forging did not involve the use of moulds. Only rare offcuts and unfinished items provide clues. In this case a possible unfinished key and an offcut are the only glimpses of the blacksmith's work. While remarkable examples of ironworking are present among the finished iron objects, not least a pattern-welded knife and the intricate axe-headed pin, we cannot be certain where they were made. However, given the level of metalworking skill shown at the Craw Stane complex local production is a distinct possibility.

7.8.3 Scale of Production

Nearly 1,000 fragments of metalworking debris were recovered at the Craw Stane complex, mostly from the outer ditch fills, of which only around 10–15% was excavated. The site is also plough truncated, and the true scale of metalworking was likely to be far greater than this assemblage. The ceramic moulds give the most accurate indication of how many objects were produced, since they were only used once and minor variations can help determine the minimum number of objects cast. A minimum of 67 objects were produced from the Craw Stane mould assemblage with a further seven from Tap o' Noth and three from Cairn More. We cannot be certain that the same concentration of debris would be found around the whole ditch, and even if so, a proportion of fragments could be from the same moulds already represented, but a conservative estimate suggests production of between 500 and 600 individual objects at the Craw Stane complex.

Estimating a minimum number of crucibles was far more challenging, given the homogeneous nature of the assemblage. The 246 sherds recovered at the Craw Stane complex is comparable to 263 found at Dunadd, which were estimated to be from a minimum of around 60 vessels (Lane & Campbell 2000: 205, Table 5.3). If we assume a similar correlation at the Craw Stane, then the *c* 60 crucibles closely match the estimated 67 moulds (though crucibles could have been used more than once).

Production of high-status objects on such a scale would have placed the Craw Stane complex in a powerful position, with the ability to display wealth and trade with, or perhaps bribe, others when desired. Craft production on a large scale is a common feature of high-status sites of all ages; production created wealth, and those who were in control must have been in a very influential position.

It is more difficult to estimate the scale of production at Tap o' Noth and Cairn More, which produced more typical assemblages of a few scattered pieces. Based on the snapshots we have from excavated areas, production was at a much smaller scale, though the objects being cast were just as fine, with a handpin mould from Tap o' Noth and a penannular brooch and bead-fitting mould from Cairn More. However, while a large area of Tap o' Noth has now been investigated, the sample of platforms (fewer than 20) versus the estimated total (more than 800) emphasises we have a very small proportion of the surviving assemblage from such a vast hillfort settlement.

While non-ferrous metal production was demonstrably on a large scale, particularly at the Craw Stane complex, the ironworking evidence is much more sparse. This is in stark contrast to slightly earlier, but similarly high-status, craft-production sites in the Moray Firth area which have produced large iron slag assemblages of several hundred kilogrammes, as at Culduthel and Birnie (McLaren & Dungworth 2021; Cruickshanks & Dungworth in prep). A broader study of ironworking evidence from Scotland revealed a shift away from intensive production on settlements at some point in the early medieval period (Cruickshanks 2017), with a recently discovered isolated bloomery dating to the 7th century–8th century AD at Glenlee in Dumfries and Galloway providing the first clear evidence of this (Stirling & Cruickshanks forthcoming). The lack of extensive iron smelting evidence at the Craw Stane complex may imply that part of the process had already moved away from settlements by the 4th century AD. Given the former presence of a bog near Rhynie village, it could be that more intensive ironworking was situated somewhere near the bog ore source.

7.8.4 Context and distribution

Most of the metalworking debris (94%: 827/878 fragments) was recovered from fills of the outer ditch [15004] of the Craw Stane complex, particularly fills C161003, C161048 and C162054 (240, 153 and 144 fragments, respectively). When diagnostic fragments are examined across the different fills a few patterns are notable.

Group	Type	Outer ditch fill								
		1702	1703	1704	1726	161003	161037	161048	161049	162054
Iron	Smelting slag	1	3			1		6	3	
	Blacksmithing debris		1			2	2	3	1	
	Undiagnostic		4			5	1	4	3	
Non-ferrous	Crucibles	24	10	2	17	165	30	63	5	8
	Cupels		3	1		4	1	9	1	
	Casting debris		1			11		2		1
	Casting debris (silver)				1					
	Stone ingot mould	4	1					3		
	Mould – handpin		2	1		1	1	3		1
	Mould – barrel pin		1			1		1		3
	Mould – zoomorphic					1				15
	Mould – 'axe' mount									7
	Mould – all other	35	26	13	8	41	16	54	6	107

Table 7.13
Summary of diagnostic metalworking debris (number of fragments), including main categories of diagnostic moulds, from outer ditch fills (only those producing over 10 fragments of metalworking debris are shown here)

Table 7.13 shows that while these three fills have produced the largest quantities of metalworking debris, their assemblages vary in composition. C161003 produced far more crucible sherds than C162054, which had a much higher proportion of moulds while C161048 had a wider range of all debris. Stratigraphically, C161003 is the latest fill, but the radiocarbon dates have shown it to have some of the earliest dates (AD 260–540, AD 330–540), implying this material was redeposited from an earlier dump. C162054 was located in the middle to later levels of the ditch and showed similarly early dates (AD 340–540). Therefore the ditch fills are complex, and the metalworking debris had clearly been redeposited, probably more than once, making it very challenging to now untangle and identify potentially separate metalworking events.

There are hints of separate events when the main categories of mould are examined across different fills. For example, all the moulds for boar and hound zoomorphic figures and the 'axe'-shaped mounts come from C161054, while handpin and barrel pin moulds were more dispersed. Perhaps this implies the zoomorphic and 'axe' moulds were from one distinct metalworking event (or even for a specific composite object?), while pins and brooches were being cast more regularly over a longer period. It also suggests that although the dating for C161054 has shown it to be redeposited, it may be less disturbed than other fills.

The differing characters of the metalworking debris assemblages from fills C161003 and C162054 point towards some control over where certain types of debris were deposited. Crucibles and moulds would have been used together but were separated for deposition here. A similar pattern has been noted recently by the author when examining non-ferrous metalworking assemblages from Upper Largie in Argyll (2nd–1st centuries BC) and at Berst Ness on Westray, Orkney (dating yet to be confirmed but probably in the first half of the first millennium AD) (Cruickshanks & Hunter 2023; Hunter & Cruickshanks 2014). Such control over where debris is placed hints at more than practical concerns, for there seems no logical reason to dump the fragments separately. Metalworking, metalworkers and metalworking debris were associated with a range of superstitions and beliefs even in recent history (eg Stewart 1890: 393–4) and several studies have explored such links in prehistory too (eg Budd & Taylor 1995; Giles 2007; Haaland 2004; Halkon 2013; Hingley 1997). The glimpses of controlled deposition at the Craw Stane complex may well reflect some of these opaque traditions relating to metalworking which we know frustratingly little about.

7.8.5 Parallels

In short, no other site of this date in Scotland has produced a metalworking assemblage of the same scale and character as that from the Craw Stane complex. Contextualising this remarkable assemblage is therefore a challenge and requires casting the net a bit further, both geographically and chronologically. But first we can start close to home with Tap o' Noth and Cairn More. Both sites have produced much smaller metalworking assemblages, but with many similarities. The crucible forms, mould construction features, fabrics and types of objects being cast at the three sites are consistent as a group and could easily pass as a single assemblage. There is no reason to believe that this material could not have been produced by the same craftworkers, or at least within the same local workshop traditions. These assemblages provide a rare opportunity to examine how craftworkers between three contemporary, but different, neighbouring sites may have interacted and how production was organised.

The Craw Stane complex certainly seems to have been the focus for metalworking activity. Were the craftworkers permanently based there though? Or did they live at Tap o' Noth, with its extensive settlement evidence, visiting the Craw Stane complex for metalworking events? Or perhaps the metalworkers were permanently based at the Craw Stane and only occasionally

visited the other sites for smaller bouts of metalworking. The metalworking at each site need not be contemporary but it is difficult to untangle the relative chronology of metalworking at the three sites in finer detail at present.

There are so many variables involved in understanding how the craft could have been organised, including whether the metalworkers were engaged permanently or seasonally, or what nature of arrangement there was between masters and apprentices. The specifics remain unclear, but what we do know is that there was a common workshop tradition, implying sharing and collaboration between these three sites (see Chapter 12 for discussion on the inter-relatedness of the three sites).

While other large-scale metalworking sites are unknown in 4th- to 6th-century AD Scotland, some smaller assemblages are known, particularly from the later part of that period. A structure dating to between the 5th and 7th centuries AD at Eilean Olabhat, an island promontory site on North Uist, produced an assemblage of 86 mould fragments, including a handpin mould and 120 crucible fragments from an estimated minimum of 13 vessels (Armit et al 2008). XRF analysis discovered silver was being cast in at least five of the crucibles (Armit et al 2008: 83). As at the Craw Stane complex, the crucibles here were predominantly fairly plain triangular forms. The structure was interpreted as a domestic structure, probably occupied by a single family, then used as a metalworking area after abandonment for a short time.

Possible contemporary assemblages from the Northern Isles, such as at Gurness broch on Orkney, and Scatness and Scalloway brochs on Shetland, are complicated by how challenging it is to date material closely from long-lived broch villages. Four mould fragments, including a handpin mould, eight crucibles and a 'heating tray' from Scalloway were thought to date to between the 5th and 6th centuries AD based on stylistic features and associated finds (Campbell 1998: 171). One of the crucibles was used for casting silver. Around 115 moulds, including handpins and penannular brooches found in a discrete dump, and 24 crucible fragments were found at Scatness (McDonnell & Milns 2015: 411), but can only be narrowed down to the first four centuries AD in date. Gurness broch produced around 20 moulds, including one for a penannular brooch barrel pin and eight crucibles (Close-Brooks 1987). Dating these finds is challenging, as is interpreting the nature or status of those sites at the time they were used for metalworking. It seems likely that some of this metalworking is contemporary with the Craw Stane complex, but the sites are otherwise difficult to compare. Parallels between the Northern Isles sites and Tap o' Noth are a little easier to envisage, with their smaller assemblages from later phases of structures within a larger settlement presenting a similar image of activity which was not the central focus of the site, as it seemed to be at the Craw Stane complex.

More numerous parallels emerge in the two centuries after the Craw Stane complex was abandoned, with elite secular centres like Clatchard Craig, Dunadd and Mote of Mark producing a range of non-ferrous metalworking evidence and fairly large assemblages (Close-Brooks 1987; Lane & Campbell 2000; Laing & Longley 2006). Clatchard Craig (Fife) in particular shares many similarities with the Craw Stane complex's metalworking assemblage. Around 60 mould fragments (mainly for penannular brooches, where diagnostic), three crucible sherds and a silver ingot were retrieved (Close-Brooks 1986). Recent re-dating of the site indicates a short-lived occupation in the 7th century AD (Noble et al 2022). Interestingly, one of the crucibles recovered was a shallow, round open form and XRF analysis detected high levels of lead on the surface (Noble et al 2022: 165: SF107), suggesting it could be a refining or cleaning vessel like the stone vessels from the Craw Stane complex. Though later in date, the quality of the moulds, the presence of silver-working evidence and a possible refining vessel are a close parallel to the Craw Stane complex.

At the same time, monastic centres such as Iona, Whithorn and Portmahomack all began producing metalwork, often on a large scale, from the 7th century onwards (Campbell & Maldonado 2016: 90; 2017; Cruickshanks 2018; Hill 1997; Carver et al 2016: D6.5, D92–6, D108–9). Recent excavation and rediscovery of St Moluag's monastery on Lismore has also produced a non-ferrous metalworking assemblage of similar size to the Craw Stane complex from a fairly small excavated area, including penannular brooch moulds and evidence of silver and gold casting (Ellis 2019; Cruickshanks in prep).

Further afield, closer parallels can be found in Ireland, for example at the early medieval settlement of Garranes, particularly Lisnacaheragh ringfort, constructed in the 5th century AD (O'Brien and Hogan 2021; Ó Ríordáin 1942). During excavations in 1937 (Ó Ríordáin 1942) a large assemblage of over 2,500 crucible fragments was found, along with around 30 moulds, mostly concentrated in Area D which was interpreted as a specialist metalworking area. The moulds included stone forms for casting bar ingots and semi-spherical objects and ceramic moulds for casting personal ornaments, including penannular brooches and ringed pins (Comber 2004: 33–7); a far smaller mould assemblage than the Craw Stane's but closely similar in function. The crucibles provide a very close comparison, with two main forms present: relatively small, plain triangular ceramic vessels and larger, semi-spherical open forms made of stone (Ó Ríordáin 1942: figs 24–5). The stone crucibles are the closest parallel yet found for the stone metalworking vessels from the Craw Stane. As at the Craw Stane complex, Lisnacaheragh's stone vessels were also heated from above (whereas the ceramic forms had been heated from below and around the sides).

Like at the Craw Stane complex, only one ceramic crucible produced XRF results showing silver as a main element, while several others contained traces of silver (O'Brien and Hogan 2021: 274). The presence of high levels of lead in red enamel-like residues on several crucibles (unclear which type) was interpreted as evidence for enamel or glass production, though it was noted that it was not possible to determine if this was 'accidental or intentional' since such residues can also be produced as a byproduct of non-ferrous metallurgy.

Though one should be cautious when comparing geographically distant sites, the date, scale and nature of metalworking evidence from Lisnacaheragh provides an intriguingly close parallel to the Craw Stane complex. Our understanding of sites like Lisnacaheragh has benefitted from surviving early texts in Ireland which outline many aspects of life in the early medieval period. For example, early Irish texts note that metalworkers, specifically blacksmiths, coppersmiths and silversmiths, were an essential

component of higher-status settlements (Kelly 1988: 62–3). The metalworkers themselves could be high-status individuals, particularly master-smiths, with examples known to have worked directly for kings or were even kings' sons (Scott 1990: 187). Other early texts mention groups referred to as *Cerdridge*, thought to refer to communities of bronzeworkers operating within a specific area (O'Brien and Hogan 2021: 306). Added to the archaeological evidence, these references illustrate just how powerful metalworkers could be at the elite end of the scale.

This selective summary highlights how few other sites with non-ferrous metalworking in Scotland can be dated to the 4th and 5th centuries AD in particular. While a connection between large non-ferrous metalworking assemblages and wealthy, powerful, even royal sites is a common theme, sites with smaller assemblages are more challenging to interpret and the nuances in scale, skill level and status hard to untangle. In conclusion, the scale and range of the non-ferrous metalworking assemblage from the Craw Stane complex, along with other evidence such as imported vessels, decorative metalwork and sculptured stones, clearly demonstrate this was a major craftworking site, whose assemblage finds clear parallels with high-status hillforts of the 7th century AD or later and also with Irish royal centres such as Garranes. The evidence from Tap o' Noth and Cairn More was probably produced from the same workshop tradition, though the status and scale of activity on those sites is less clear.

Group	Type	Craw Stane complex			Tap o' Noth		TOTAL
		Iron	Copper alloy	Silver	Iron	Copper alloy	
Personal (12)	Pin	2	2			1?	5
	Buckle	4					4
	Belt fitting	1					1
	Toilet instrument		2				2
Weaponry (1)	Pommel		1				1
Tool (15)	Tongs	1					1
	Knife	3			1		4
	Fine tool	3			1?		4
	Handles	4					4
	Unidentified tool				2		2
Mounts (7)		4	2			1	7
Fittings (12)	Nails	4			1		5
	Rove	1					1
	Tack	1					1
	Wall anchor?	1					1
	Collar	1					1
	Looped fitting	3					3
Metalworking evidence (19)	Part-worked bar		2				2
	Casting debris		13	1			14
	Failed casting		1				1
	Unfinished key	1					1
	Offcut	1					1
Fragments (35)	Bar	16			1		17
	Rod	7					7
	Strip	6			2		8
	Sheet	1					1
	Unidentifiable	2					2
Other (2)	Amulet?		1				1
	Plate with textiles	1					1
Total		68	24	1	8	2	103

Table 7.14
Summary of metalwork assemblages from the Craw Stane complex and Tap o' Noth

7.9 Metalwork

GEMMA CRUICKSHANKS AND EWAN CAMPBELL, WITH THE POMMEL CAP BY ANDREAS RAU

7.9.1 Introduction

An assemblage of 93 metal artefacts was recovered from the Craw Stane complex, comprising 68 wrought iron, 24 copper alloy and one silver object, with a further 8 iron and two copper-alloy objects from Tap o' Noth (Table 7.14). Several exceptional finds are present, including a sheet copper-alloy mount decorated with a face, an intact iron axe-headed pin and a pattern-welded iron knife. Two nail-headed pins and a rare iron projecting disc-headed pin with evidence of enamelling broaden the evidence for personal ornaments. Fragments of casting debris, including a rare piece of silver-casting debris and the failed casting of a zoomorphic penannular brooch terminal add to the evidence of metalworking here. While most of the metalwork was retrieved from the outer ditch fills, notable exceptions include both nail-headed pins and the axe-headed pin from the palisade, a fine set of iron tongs deliberately deposited in a post hole and two buckles from an external floor layer, hinting at patterns of deliberate deposition less evident in artefacts of other materials.

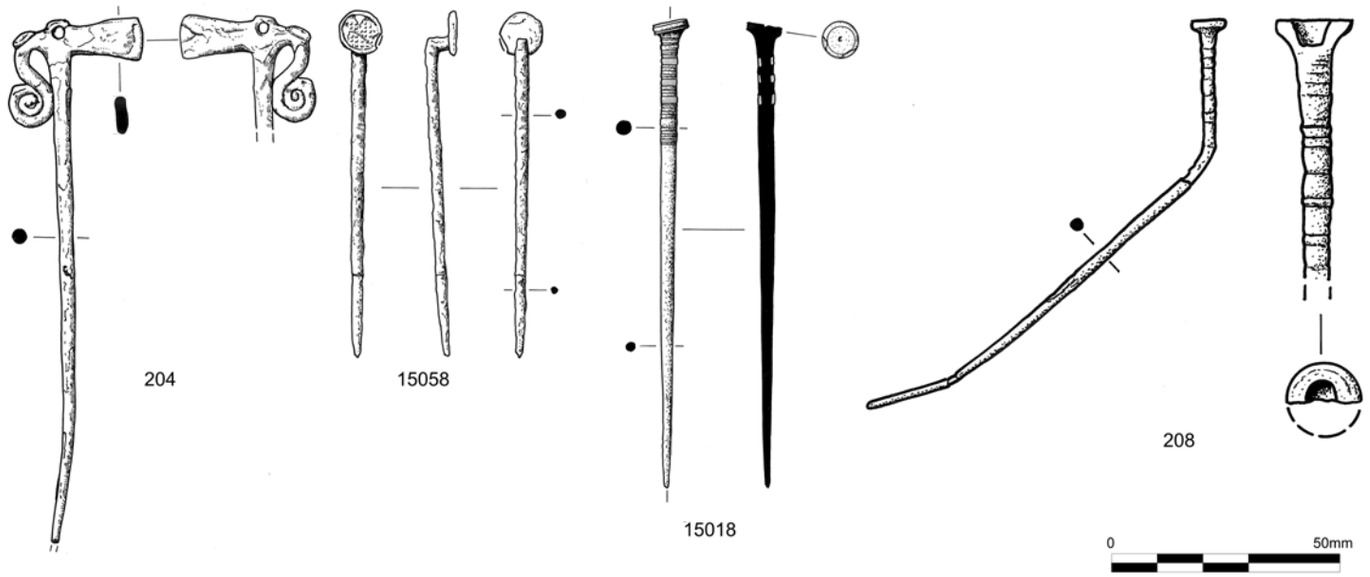
All the metal objects underwent X-radiography and conservation, including cleaning of corroded iron objects, which aided identification. Non-ferrous metal objects were analysed with X-ray fluorescence (XRF) to determine their alloy. Catalogue entries for most of the assemblage are included below. Certain items, such as bar and rod fragments or casting debris, are summarised with full catalogue entries in the archive.

7.9.2 The Assemblage

PERSONAL ITEMS

Pins: iron axe-headed pin

A finely made iron axe-headed pin (SF204; Illus 7.30 and 7.31) is one of the most striking finds in the assemblage and is unique in early medieval Scotland. While clearly emulating an axe in shape, it is embellished with a fine S-spiral with coiled terminal on one side and a small loop at the top. X-radiography shows the spiral was formed separately then welded on (or was re-joined after breaking). While the loop may suggest this object was suspended,



Illus 7.30
Illustration of iron (SF204 and SF15058) and copper-alloy (SF208 and SF15018) pins from the Craw Stane complex. Alan Braby

perhaps as a pendant, it is worth noting that many forms of dress pin in the Iron Age and early medieval periods have ring-heads or perforated heads. This feature was probably functional, allowing a securing cord to be attached at tip and head (eg Wilson 1983: 347 and fig 146) or for the attachment of a chain between a pair of pins (eg Rogers 2009: 62, fig 1.26: 552, 556 and 558).

Miniature versions of axes have a very long history, from examples used in Bronze Age children's burials (McLaren 2016) to axe-shaped hairpins from Late Roman sites, particularly temples (Cool 1990: 168, fig 11.2). A range of model axes are known from Iron Age, Romano-British and continental contexts, continuing in popularity into the early medieval period (Kiernan 2009; Meaney 1981: 148–59; Williams et al 2014: 173, fig 13). An obvious parallel for this object is the 'Rhynie Man' Pictish stone, featuring a carved figure carrying an axe with long thin shaft and slender blade closely similar to this one (Illus 12.3). The thin shaft bears similarities to iron-hafted axes of the Anglo-Saxon period, including a famous example from the royal ship burial at Sutton Hoo (Bruce-Mitford 1983: 833–43, fig 597). The type has been interpreted as a form of poleaxe used to sacrifice bulls in pagan royal rituals (Dobat 2006) (See discussion in Chapter 12). The Craw Stane axe pin is therefore likely to have been an object with symbolic significance and its placement in the fill of the palisade was perhaps a deliberate deposit.

- SF204 Finely made iron axe-headed pin, intact apart from its very tip. The circular-sectioned shank tapers gradually with a slight curve. Its head comprises a flat, expanding axe blade on one side and fine 'S'-curve with spiral terminal on the other. There is a small loop at the top (2mm D), in line with the shank. Total L 118; shank D 2.5–3.5; blade L 16, W 6–10; spiral L 20.5, T max 2.5; 7.7g. C218. Illus 7.30

Pins: Iron projecting disc-headed pin

A second iron pin is just as unusual, though not as visually striking at first glance. SF15058 (Illus 7.30) has a projecting disc head. Careful conservation revealed a fine grid-like pattern of raised dots, reserved triangles and a thin raised border around the disc. The raised dots may have been intended as keying for enamel, which would have covered the area between the border and reserved triangles. No traces of enamel survive and the shank is not entirely rounded in section, suggesting it might not have been finished. Unlike the two nail-headed pins and the axe pin, which

Illus 7.31
Photograph of axe-headed pin (SF204)

were clearly finished objects and were all retrieved from the palisade, this pin was found in the upper fills of the outer ditch, where most of the craft debris was recovered.

Its unfinished state adds to its significance, as this implies it was made, or at least partly made, at the Craw Stane complex. Whether it was completed or not, it adds to the evidence for innovative and experimental metalworking here.

- SF15058 Mostly intact iron pin with projecting disc head. The disc head has a raised border, within which is a grid of raised dots with two possible reserved triangles protruding from the edge. The tapering shank has a square section, with corner aligned with head, giving the impression of a diamond-shaped section. Total L 77; shank T 3; head D 9; 2.2g. C15194. Illus 7.30

Both the iron pins are exquisite examples of early medieval blacksmithing. It would have been far simpler to cast such forms in non-ferrous metal in ceramic moulds. Iron could not be cast at this date; it could only be heated enough to soften it, allowing it to be forged into shape through careful hammering, twisting and punching. The disc-headed pin combines intricate smithing with the unusual combination of enamelling on iron.

Such decorative iron personal ornaments are rare, but not wholly unknown in early medieval Scotland. An iron thistle-headed pin from 5th- to 7th-century AD deposits at Trusty's Hill, Dumfries and Galloway, has fine copper-alloy inlay on the shank (Cruickshanks & Hunter 2017: 47) and a disc-headed pin with copper-alloy elements to the head and shank was found in deposits dating to between the 4th and 7th centuries AD at Howe, Orkney (Ballin Smith 1994: 217–8, fig 130). It is worth noting how easily such pins could be dismissed as corroded iron nails or similar without X-radiography and conservation. Even taking this into account, they are rare – indeed rarer than silver pins. While these ornate iron pins display an exceptional level of metalworking skill, it is difficult to know how they were viewed more generally, particularly in comparison to the wealth of elaborate non-ferrous decorative metalwork present in the early medieval period. Perhaps their value was more symbolic, particularly with the axe-headed pin, while others are more a display of skill or the result of experimentation.

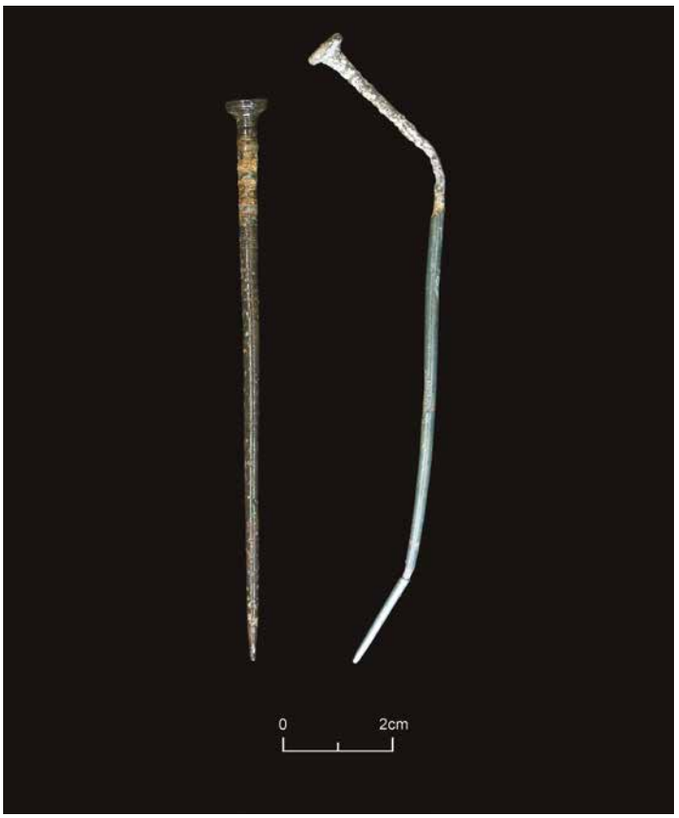
Pins: copper-alloy nail-headed pins

Two copper-alloy nail-headed pins are the same 'type' but reveal differences in form and construction. SF208 is longer than SF15018 (Illus 7.30 and 7.32) (130mm and 103mm respectively) but they both share the basic nail-headed form and have decorative corrugation on the top portion of their shanks. However, this decoration has been achieved in quite different ways, with incised lines and inlaid silver strips on SF1508 and cast-in corrugation on SF208; two different metalworking techniques to achieve a similar aesthetic. A very fine circumferential line with faint, tiny central dot on the head of SF15018 was probably compass drawn. The head of SF208 is now damaged but contains a hollow coated in lead solder (confirmed with XRF) which is likely to have once secured an inlaid stud, perhaps of glass, garnet or amber. These relatively simple forms of pin were therefore embellished in different ways which would have stood out, whether by the shine of silver inlay or the sparkle of a glass stud.

SF208 is notably less well preserved than SF15018, though both were found in the upper fills of the palisade slot (C218 and C15007). The longer shank of SF208 was bent in two places prior to deposition and a chunk out of the side of the head is missing – perhaps damaged while prising out the inlaid stud? SF15018 was deposited in as-new condition with complete, straight shank and fine glossy patina. In contrast, the pitted, corroded surface of damaged and bent SF208 suggests it could be redeposited or have lain exposed longer than SF15018. The two pins have very different biographies.

Nail-headed pins are a well-known early medieval pin form in metal and bone and are widely believed to have roots in the Late Roman world (Stevenson 1955b: 286; Laing & Longley 2006: 145). Many are from poorly-dated contexts, but with a notable concentration around the 7th to 9th centuries AD (Foster 1989: 99), including a decorated example from Buiston crannog, Ayrshire, with a blue glass inset in its head (Laing 1993: 80, 136). The Craw Stane examples, and associated production evidence, provide an important secure date between the 4th and 6th centuries AD for the type – earlier than the traditional floruit. This earlier dating is consistent with the lack of hipping on the shanks.

Production evidence is scarcer than the pins, with only four other sites producing mould fragments: Dunadd and Dunollie in Argyll (Lane & Campbell 2000: 125; Alcock & Alcock 1987: 140, illus 9: 86) and Mote of Mark and Whithorn in Dumfries and Galloway (Laing & Longley 2006: 62, illus fig 25; Hill 1997: 401,



Illus 7.32:
Photograph of nail-headed pins (SF208 and SF15018). Leanne Demay/ National Museums Scotland

illus 10.84). The Craw Stane complex is therefore the first site outwith this western cluster to produce evidence of manufacturing metal nail-headed pins and the only site to produce moulds with evidence of cast-in decoration (Section 7.2.3).

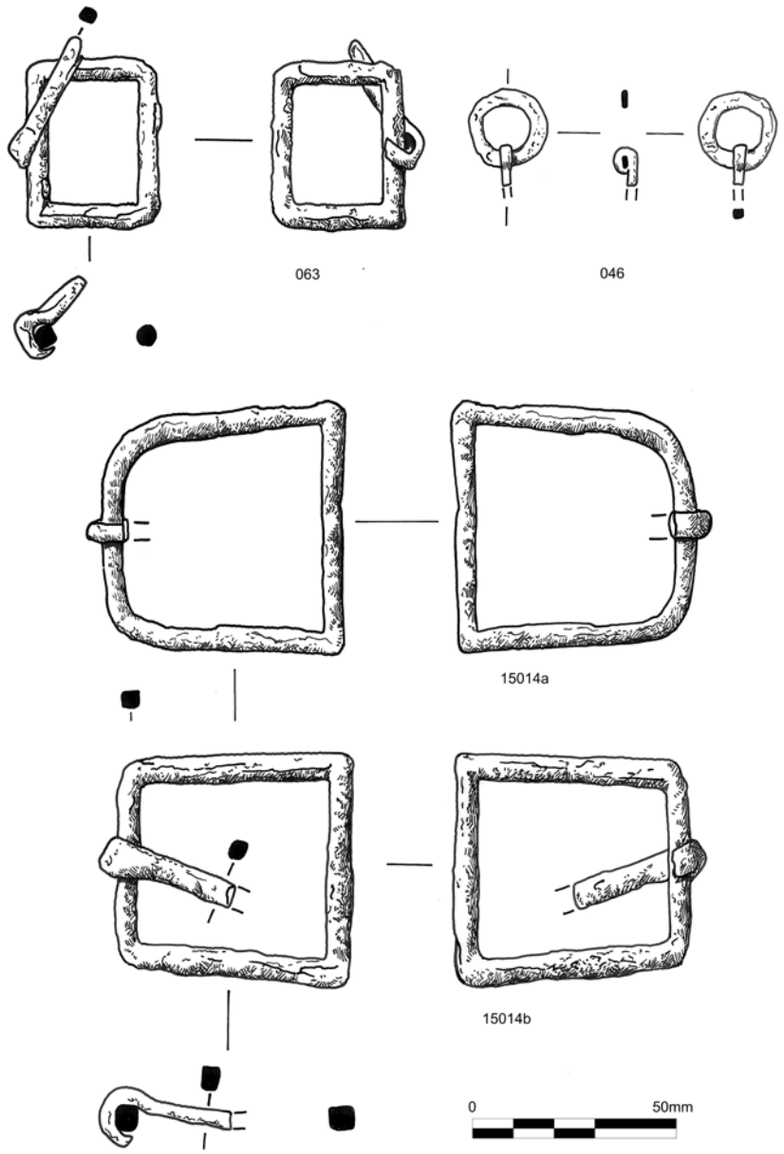
- SF208 A mostly intact, decorated copper-alloy nail-headed pin with long shank now bent in two places and part of head missing. The head has a circular hollow in the top which most likely held an inlaid stud. The upper part of the shaft is pitted with corrosion, but there are traces of cast-in corrugation decorating extending around 20mm from the head. Original (straight) length *c* 130mm; head D 8 max shaft D 4, 3.9g. XRF shank: Cu, Pb, Sn, trace Zn and Ag; XRF head inset Pb, with Cu, Sn. C218. Illus 7.30
- SF15018 An intact, decorated copper-alloy nail-headed pin with straight, tapering, circular-sectioned shank and flat, disc head. The head has two fine incised lines around the edge, creating the illusion of being lipped, and a faint incised line near the edge on the upper surface. A tiny indent in the centre of the top suggests the circumferential line was compass drawn. The upper portion of the shank (24mm) is decorated with groups of finely incised concentric lines which surround three bands of paler inlaid metal. each *c* 2mm wide. Total L 103; head D 8, max shank D 4. 6.2g. XRF shank Cu, Pb, Sn, trace Zn; XRF inlay, Cu, Pb, Ag, Sn. C15007. Illus 7.30

One possible pin fragment (SF518) was recovered from Tap o' Noth, resembling part of a projecting ring-headed pin of some sort but is too fragmentary to identify further. Recent synthesis of the type has shown plain projecting ring-headed pins were in use from between the 4th to 2nd centuries BC until the first few centuries AD, with more decorative forms developing around then (Hunter 2020a: 133–7). This possible example was found in a floor layer of T5 platform structure.

- SF518 Small corroded fragment of copper alloy resembling the beginning of a projecting ring-head and very top of shank. Closer identification is not possible. 12 x 7 x 4mm. XRF: Cu, Pb, Sn. C5101

Buckles

Three rectangular iron buckles (SF63, SF15014a and SF15014b) and a possible annular buckle (SF46) were discovered (Illus 7.33).



Illus 7.33
Illustration of iron buckles from the Craw Stane complex. Alan Braby

SF15014a and b are notably large, a feature which is often used to suggest a role in fastening straps on horse gear rather than personal use (Clark 2004: 55). They are slightly different in shape and size but were found together and are similar enough to be considered a pair. No traces of mineralised leather survive on the iron, suggesting they were not still attached to a leather strap, and both pins were broken. The buckles were recovered from the floor layer of exterior Structure 4 (C15112), and were radiocarbon dated to between the early 5th and mid-6th centuries AD. SF63 is a smaller rectangular buckle and SF46 comprises a flat, annular hoop with looped-around iron pin, both have broken pins. The smaller sizes of SF46 and SF63 makes them most likely to have been personal belt buckles, though other uses are possible.

Buckles are rare in early medieval Scotland compared to England with rectangular forms even rarer (Marzinik 2003: 25, type I.6b). At least one of the square iron buckles from Whithorn is from an early medieval phase (Hill 1997: illus 10.99: 44.4). Such buckles are known in the Roman period (Manning 1995: 146) and in the Late Roman period they were strongly associated with male military identity. The inspiration for these examples could have come from the Roman world as readily as the Anglo-Saxon one, but the rarity of buckles and related belt fittings in an early Insular context suggests the habit did not really catch on.

- SF46 Flat rectangular-sectioned iron ring with part of a sub-square-sectioned pin looped around before breaking.

Ring D 23; W 5, T 2.5; shank loop D 8, T 3. C025. Illus 7.33

- SF63 Intact rectangular buckle frame with looped-over, broken pin, both with sub-round section. L 41, W 33, T 5. Pin L 35. C026. Illus 7.33
- SF15014a Large square iron buckle frame with neat corners at the wider end, rounded at the other, creating a wide D-shape. The frame has a circular section. Rounded end preserved the loop of a square-sectioned pin, now lost. L 62, W 65, T 5.5; loop D 12.5, T 5. C15112. Illus 7.33
- SF15014b A slightly smaller, squarer version of (a). More survives of the pin (around half). L 57, W 57, T 6; loop D 13 x 8. C15112. Illus 7.33

Belt Hook?

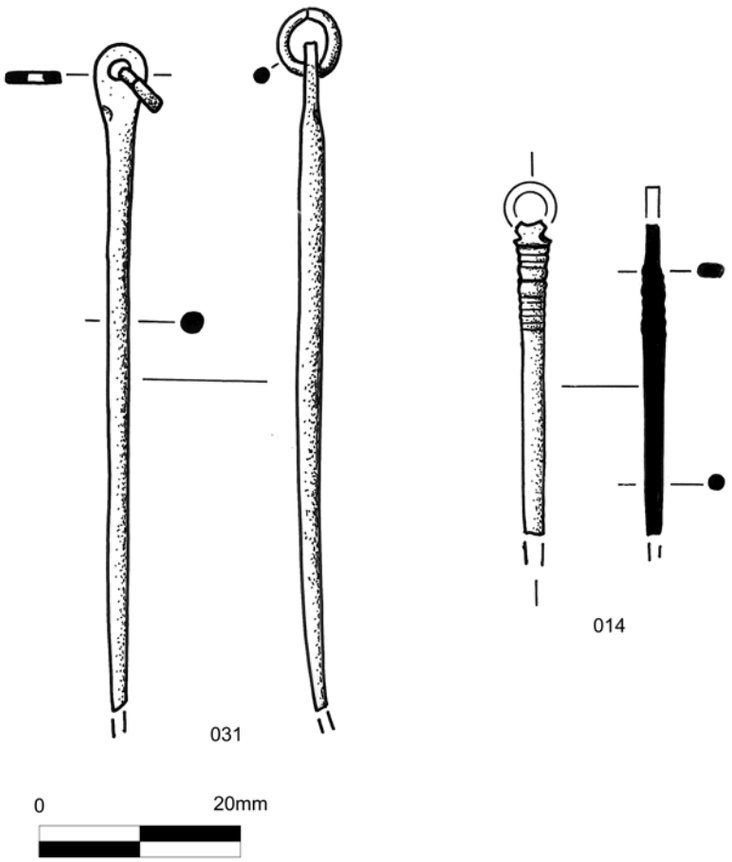
A small iron strip (SF162013) with neatly rounded and bent end is reminiscent of a type of simple belt hook recognised on Roman Iron Age sites in Scotland (Hunter 2021b: 180–1). These hooks had one end (missing here) clenched into a leather strap, while the other acted as a hooked fastener. The traces of mineralised organic material, probably leather, support this identification. It was recovered from an upper fill in the outer ditch (C162001).

- SF162013 Short iron strip with one rounded end bent at 90°, the other missing. Traces of pale-yellow mineralised organic material on both sides. L 22, W 10. C162001

Toilet Instruments/pins

Two similar pins (SF14 and SF31; Illus 7.34 and 7.35) were recovered from a destruction layer (C025) within the upper fills of the outer ditch. SF31 is a simple, tapering, undecorated form with small loose ring through its perforated head, while what remains of SF14 bears decoration around the top of its shank. There are two main possibilities for their function and origins: toilet instruments or Anglo-Saxon dress pins.

A cautious approach is required when searching for parallels for an object as simple in form as SF31. Similar items have been found in association with other personal ornaments in early Anglo-Saxon graves and are thought to be dress pins dating to the late 5th/early 6th century AD (eg Ross 1991: 193 and fig 5.14 b: Type XV.ii). However, two very similar objects from Sculptor's Cave, Moray, were interpreted as probable nail picks based on their association with a range of other toilet instruments and lack of similar pins in the Roman Iron Age (Hunter 2020a: 144–5, illus 5.46: 749 and 751). Missing its loop, it could also be easily mistaken for a sewing needle. Without associated artefacts, this form is therefore a challenge to interpret.



Illus 7.34
Illustration of toilet instruments or pins. Alan Braby

Illus 7.35
Photograph of toilet instruments or pins (SF014 and SF031). Leanne Demay/ National Museums Scotland

SF14 was found in the same context (C025) and shares several similarities with SF31, namely its condition, size and perforated head, though SF14 is incomplete. It differs in bearing decorative grooves around the top of its shank and notches at the base of its head. This form also has parallels in Anglo-Saxon pins (eg Cook & Dacre 1985: 24; MacGregor & Bolick 1993: 218; Ross 1991: fig 5.8 b–d), though this is less certain with the top of its head missing. That SF14 and SF31 were found in the same context and have perforated heads may suggest they were part of a set. If Anglo-Saxon – and this interpretation remains tentative – this would be the first such set from Scotland, providing further evidence of the wide range of contacts the occupants of the Craw Stane complex had.

- SF14 Copper-alloy pin with grooved decoration around the top of the shaft, comprising two wider bands with a band of five narrower circumferential grooves below and four above. The top of the shank flattens before two notches demarking the head, now broken. Traces of patina on the broken edge suggest the head broke over the base of a perforation. The lower part of the shank is also missing. Length 31mm, thickness 1.5–2.5mm. 0.6g. XRF: Cu with Pb, Sn, Zn, trace Ag. C25, slot 6. Illus 7.34
- SF31 Copper-alloy pin with plain, circular-sectioned shank tapering to broken tip. The flattened head is pierced and holds a small loose ring. L 69, D 2; head W 5, ring D 7mm. 2.1g. XRF: Cu with Pb, Sn, Zn, trace Ag. C025, slot 6. Illus 7.34

Weaponry: pommel cap

ANDREAS RAU

The only certain evidence of weaponry here is a pommel cap, probably from a sword (SF161184; Illus 7.36 and 7.37). Originally thought to be silver (Noble & Evans 2022: 119 fig 3.20), XRF analysis confirmed it is copper alloy. A pommel cap's function was to secure the upper guard to the tang on the end of a sword or dagger handle.

The pommel cap belongs to a group of early medieval pyramidal sword pommel caps that W. Menghin (1983: 308–9 list 2.a.) summarised as the Chessell Down-Friedrichsthal type. These generally hollow pieces cast from copper alloy do not have external rivet eyes on the narrow sides (like Menghin's Brighthampton-Ciply type), but paired or single rivet holes, which are located on the narrow sides in the base of the pyramidal pommels.

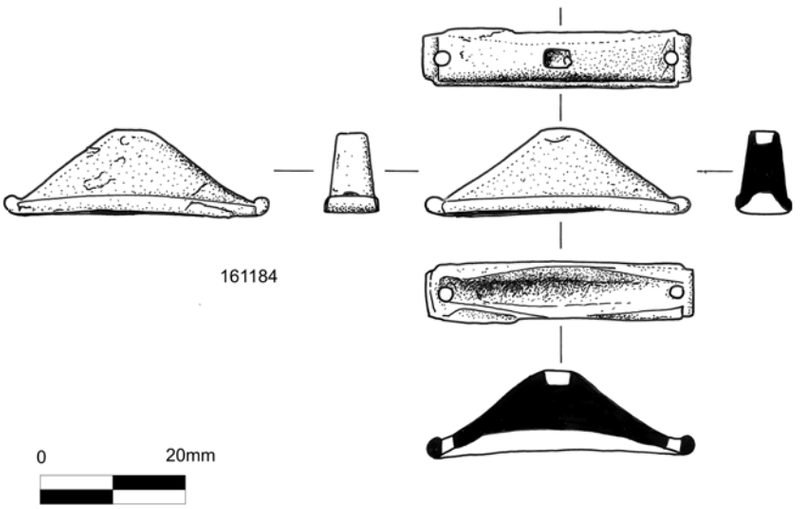
The lengths of the specimens listed by Menghin are between 35–57mm, mostly between 40–50mm. With a length of 36.5mm, the Rhynie pommel cap is at the lower end of this range. Still, there is nothing to suggest that it cannot be categorised as a sword pommel cap, especially as similarly small, riveted pommels (ie, riveted to the tang) are known from contexts of the late 5th and 6th centuries with lengths between 20–35mm (Menghin 1983: 76).

Menghin's dating to the 'first half of the 6th century' (Menghin 1983: 64) has not yet been altered (cf Miks 2007: 156). Such pommels are lacking in Scandinavia from the deposits of military equipment from Kragehul, Nydam IV and Porskær, which have yielded substantial material from the second half of the 5th century and also contain other forms of simple small pyramidal pommels (cf Nørgård Jørgensen 2008: 169–70). However, at Skedemosse on Öland, there are at least two pommel caps (lengths 43 and 45mm) from the first half of the 6th century, probably from a deposit contemporary with the Norwegian Snartemo group (Bemmann 1994). They are readily comparable with SF161184 and are joined by a smaller pommel (length 39mm) with a very similar shape riveted onto the tang (Hagberg 1967: 65; Pl 9 [upper row]). The eponymous depot find from Friedrichsthal also points to a date in the 6th century due to the combination of a silver sword pommel of the Brighthampton-Ciply type, three silver and three bronze scabbard chapes of the Snartemo-Fairford type and a golden cloisonné-decorated mouth plate (cf Eggers & Stary 2001: 144; Pl 378).

Dating corresponding pieces from early Anglo-Saxon Britain is difficult, particularly as in comparison with the simple pyramidal pommels with central perforation or pyramidal pieces with external rivet eyes no secure context is available for the Chessell Down-Friedrichsthal type (cf Høilund Nielsen 2013: 183).

How the small square recess of 3 x 3mm on the top of pommel cap SF161184 is to be interpreted remains uncertain. This could have been a socket for an inlay (eg red enamel), but this would be a unique element on the otherwise undecorated piece. Perhaps the mould was originally intended to produce a similarly shaped pommel with central perforation, which was supposed to be riveted on the tang, but it was decided in a later step (maybe after much mass was poured into the mould during casting?) to rivet the piece laterally onto the upper hilt plate instead. This, however, remains speculative.

It cannot be determined whether the holes at the edges were already created in the mould or were drilled afterwards. Furthermore, although the piece gives the impression of having been finished, there are no traces of use-wear such as signs of rivet heads at the rivet holes (Fraser Hunter pers comm). It therefore remains possible that this piece indicates the production of such pommel caps on site.



Illus 7.36
Illustration of pommel cap. Alan Braby

Illus 7.37
Photograph of pommel cap (SF161184). Leanne Demay/National Museums Scotland

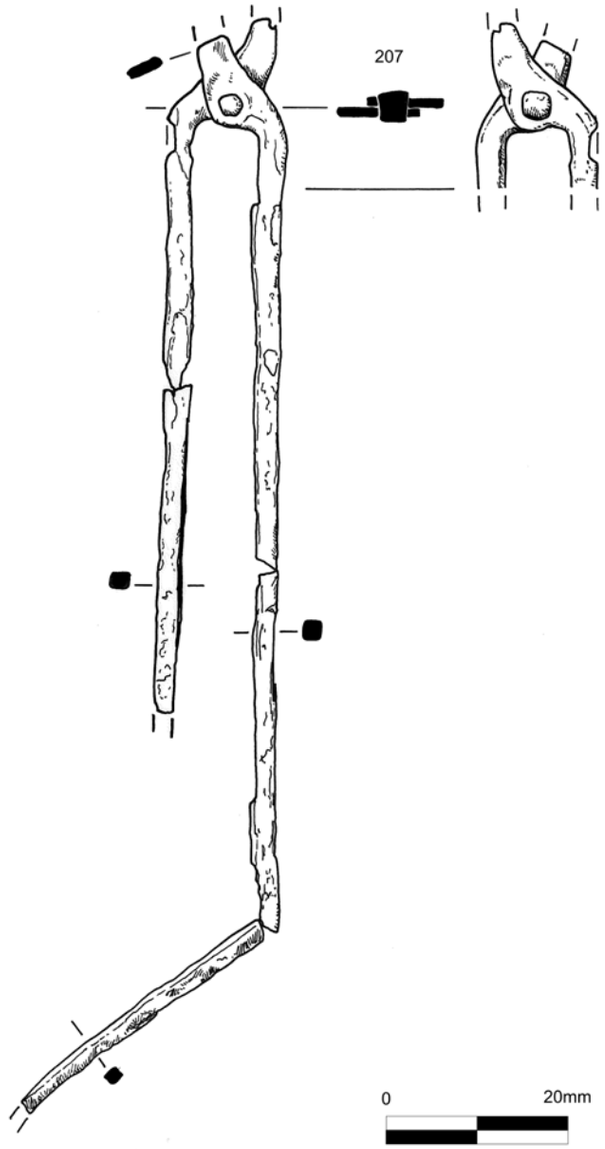
- SF161184 Copper-alloy pommel cap. Broadly triangular with flattened sides. The bottom edge has a decorative lip and rounded projections on the corners. A square socket in apex (3 x 3mm) may have held an inset. There are two small perforations – one on each bottom corner (D 2mm) and a concave longitudinal groove in the underside. Fine patina across surface. H 11.5, W 36.5, T 8; 9.5g. XRF: Cu with Pb, Sn, trace Zn, Ag. C161003. Illus 7.36

Tools

Tongs

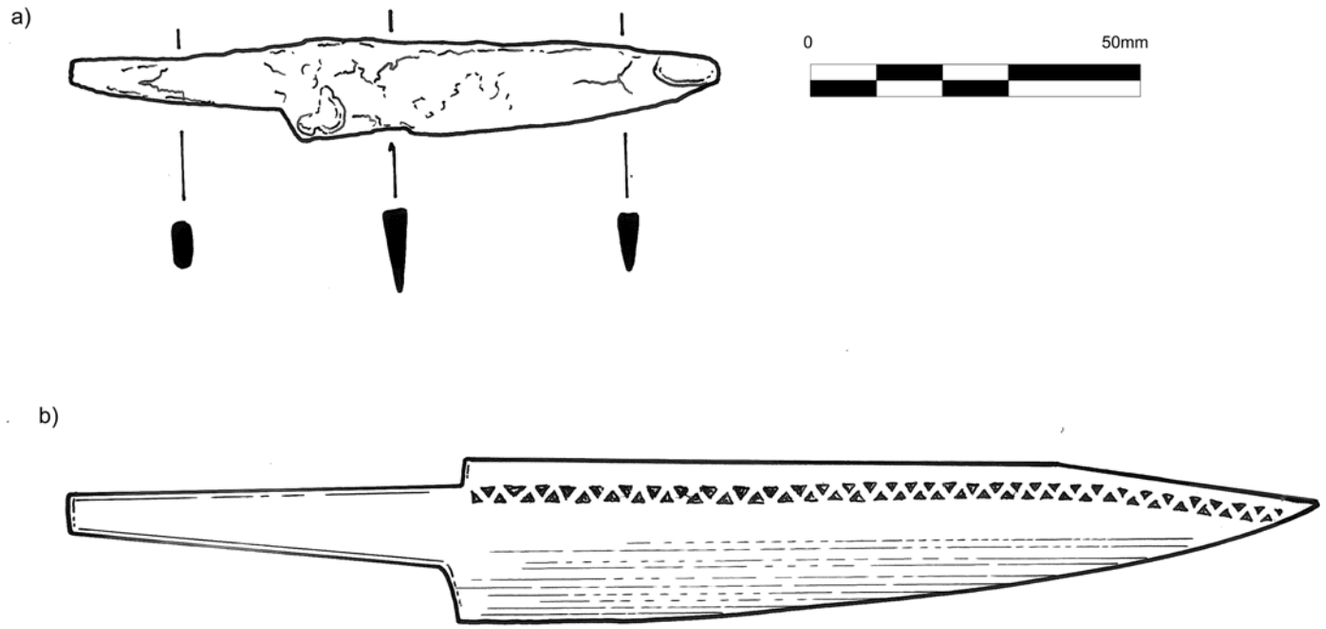
A fine set of tongs like SF207 (Illus 7.38) would have been an essential tool for a metalworker. The size of these suggests they were used for tasks such as moving crucibles in and out of the hearth and when pouring liquid metal into moulds. Longer, more robust sets would have been required during iron production. Several of the crucibles here retain marks from being gripped by such tongs (Section 7.4), though since the tips of the jaw are missing we cannot compare their size with the marks. Both pincers and part of one handle had been broken off and the other bent, both in antiquity and most likely deliberately. The tongs were then placed in a post hole (C237) along with a group of animal bone after the burnt post had been removed. This combination of deliberate damage and careful placement strongly suggests the tongs were part of a structured deposit. It is easy to envisage how a pair of tongs, symbolic of metalworking even today, were chosen for deposition in this manner on a site where metalworking played such a major role.

Despite their essential role tongs are not particularly common finds, though tong marks are noted in large crucible assemblages, such as at Dunadd (Lane & Campbell 2000: 205), providing a useful proxy for how common they once were. Their form is functional and changes little from their development to the present day (eg see Manning 1989: 6–8 and plates 2–4; and Goodall 2011: 7–8 and fig 2.4, for similar Roman and medieval forms). Of particular note are similar Roman tong sets within the Waltham Abbey hoard, all of which had been broken and bent prior to deposition as the Craw Stane set were (Manning 1989: 7).



Illus 7.38
Illustration of iron tongs. Alan Braby

- SF207 Mostly intact pair of fine iron tongs, missing part of one rectangular-sectioned handle, the other in two parts and bent. Head is fastened with a circular rivet and tips were broken off. Maximum L 200; handles W 4–6, T 3; rivet head D 5; perforation D 2mm. C237. Illus 7.38



Illus 7.39
Illustration of patter-welded knife (SF161506) with detail of pattern welding from X-radiograph (b). Alan Braby

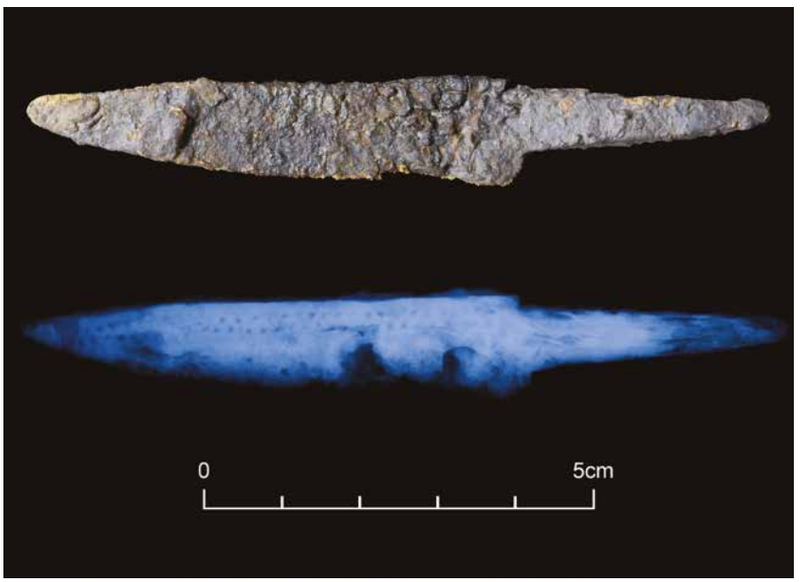
Knives

Three knives were recovered from the Craw Stane complex, including a remarkable example with pattern-welded blade (SF161506; Illus 7.39 and 7.40) retrieved from a fill in the outer ditch (C161054). The change in angle on the blade's back categorises it as an 'angle-backed' knife (Ottaway 1992: 561: Type A). Such knives are typical of the early medieval period, with distinct versions of the form known as '*seax*', after the old English word for 'knife'. While *seax* and larger *scramaseax* are icons of the Anglo-Saxon world, the general angle-backed form is more widespread and should be seen as broadly characteristic of the period rather than a culturally specific form.

The knife appears undecorated. It was only through X-radiography that a fine, decorative zig-zag pattern along the blade's back could be seen. Even after careful conservation, this is no longer visible on the blade itself. The zig-zag shows on the X-ray as a similar density to the blade, but lies within a band of lower-density iron. The decorative use of different iron alloys in blades like this is known as pattern welding, a highly skilled technique.

Pattern welding has not been identified in early medieval Scotland before, making this challenging to contextualise. Since the pattern is only visible on X-rays, it is possible other examples have been missed, especially from earlier excavations. Metallographic analysis of the knife could help determine whether it was likely to be made locally (by comparing the composition of slag inclusions in the iron with local iron slag), but such analysis is currently destructive and is not warranted with such a rare intact object.

Pattern welding is attested on blades elsewhere around this time. The technique appears in Europe around the middle of the first millennium BC, primarily in long swords, then peaks in complexity between AD 450 and AD 650 where it was also used on other forms of blades, such as knives and spearheads (Gilmour 2017). Pattern-welded blades demonstrated the pinnacle of the blacksmith's craft; a very high level of skill was required to produce the different alloys and successfully work them together.

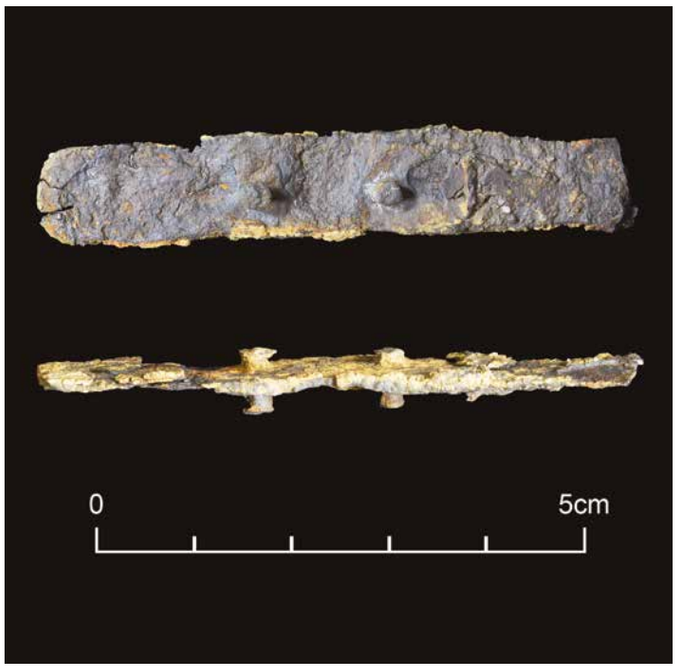


Illus 7.40
Photograph of knife (SF161506) and X-radiograph. Leanne Demay/National Museums Scotland

Opinions vary over whether pattern welding was employed to improve a blade's strength or solely for display purposes (eg Birch 2013: 128; Gilmour 2015), but a combination of both seems likely. The decoration would have been subtle, particularly on a small knife like this, and would not have been noticeable from a distance, suggesting its display was for people close to the owner. Pattern-welded blades are primarily known from Anglo-Saxon burials (eg Lang 2015; Parkhouse & Smith 1994) and large votive weaponry deposits such as that at Nydam, Demark, where over 100 swords, most of which were pattern welded, were found in a bog (Williams 2012: 63). Settlement finds are scarce, making the Craw Stane knife all the more remarkable. The broader context of pattern-welded blades, in burials and votive deposits, along with the degree of skill required to make such an item, suggest this was not just a tool but also a powerful, high-status object.

A fragmentary scale-tang knife (SF6) was also found in an upper fill of the outer ditch (C025). Protruding rivets and mineralised organic traces on the flat tang indicate there were organic plates fastened to either side to form the handle. Almost all the blade is missing, just enough survives to identify the classic V-sectioned blade section. Two other knife fragments were recovered, one from the Craw Stane complex (SF162055) and one from Tap o' Noth (SF1107). Both are too fragmentary to identify their original form.

- SF6 Iron blade-like strip with two iron rivets (burred on both ends and standing *c* 1mm proud of either side), broken at slightly narrower end, rounded at the other. Mineralised organic material adhering to one side suggests the rivets held organic plates on either side. The narrower end is more blade-like in section, suggesting this is a scale-tang handle of a small knife. Handle 42 x 10, T 3; total L 68; rivets D1.5, L 5 and 6mm; 4.1g. C025. Illus 7.41
- SF161506 Small, intact iron knife with rectangular-sectioned, tapering tang and slight angle-backed blade. Blade edge is mostly convex (slight concavity may be recent damage), therefore not extensively used. A few small patches of mineralised organics adhering to the blade indicate it may have been sheathed when deposited. A fine, pattern-welded band with zig-zag within can be seen on X-rays but no trace of this can be seen on the object. Total L 99; shank L 32, H 8.5–3.5, T 3; blade L 67, H 15, T 3.5; 10.8g. C161054. Illus 7.39
- SF162055 Very small, corroded iron fragment showing narrow 'V' section on broken edge. Possible knife blade fragment. H 15, L 14. C162056
- To'N SF1107 Part of an iron blade with triangular-section, narrowing into a rectangular-sectioned tang at one end before breaking. Tip also missing. Blade back is straight and edge is damaged. In two refitting pieces (old break). L 82; blade H 15, T max 3; tang 8 x 6. C11002



Illus 7.41
Photograph of scale-tang knife (SF6)

Fine tools

A range of fine hand-tools are likely to have been in use given the craft-rich nature of the assemblage, but few survive. Awls, punches, chisels and others would have been used to pierce, shape and decorate a range of materials. SF162062 was probably such a tool, though its missing tip prevents closer categorisation, whereas only a possible wedge tip of SF1713 survives. SF1706 is an unusual pronged strip. Some sort of tool seems likely. All three are notably fragmentary and were retrieved from the fill of the outer ditch (C1702, C1706 and C162047), where most of the craft debris was also recovered.

Two other possible fine hand-tools were found on Tap o' Noth (SF513 and SF520), both from T5 platform deposits. Both are fragmentary and missing their working ends, leaving their function unclear.

- SF1713 Neatly made wedge fragment of sheet iron. The narrow end is probably broken, suggesting it could be the end of a fine chaser or chisel. L 25; max W 14, T 3; 1.9g. C1702
- SF1706 Fine iron strip, tapering to a rounded tip at one end and to two sharp prongs at the other. Could be a needle broken over a perforation, but unusually flat section for a needle. More likely a fine pronged tool. L 46, max W 4.5, T 1; 0.9g. C1702
- SF162062 Small, square-sectioned iron bar, tapering to broken tip at one end, mineralised wood coating the other. L 49; handle L 21; T 6 x 5mm. C162047
- To'N SF513 Rectangular-sectioned iron bar, slightly shouldered at one end before narrowing to a broken rectangular-sectioned?tang. L 61, W 18–11, T 5. C5101
- To'N SF520 A portion of round-sectioned iron rod, with one blunt end original, the other (working end) broken. Probably a tool. L 53, D 7. C5111

Punch?

An iron spike (SF15003) from Trench 15 at Tap o' Noth is burred on one end from being struck, suggesting it was likely to be a tool. Its robust form suggests it could have been a blacksmith's tool, possibly a punch for piercing holes in hot iron during forging (eg Manning 1985: 9 and plate 5: A23–25).

- To'N SF15003 A robust iron spike, roughly circular in section (though the iron has now split and laminated extensively), tip missing but slightly rounded head seems original and is possibly burred. L 89, D 15–30. C15011

Handles

Four fragments are iron tangs from knives or other tools (SF1881, SF152010, SF162011 and SF162023) and would once have been covered by organic handles, as indicated by the mineralised wood traces on SF162023. SF162010 and SF162011 have the same dimensions and were from the same context, implying they are two fragments of the same tang. The breaks are old, and the tang was bent at the break where the blade once was, suggesting deliberate breakage prior to deposition within a pit or post hole in the outer ditch (C162008).

- SF1881 Rectangular-sectioned iron tang, tapering to a tip at one end, broken at wide end. L 28, W 6, T 4; 1.9g. C1703
- SF162010 Rectangular-sectioned iron tang fragment, broken at both ends, one of which bends before break. L 39, W 6 x 3mm. C162008
- SF162011 Rectangular-sectioned iron tang, pointed at one end, broken at the other (old break). L 25, W 6 x 3mm. C162008
- SF162023 Narrow, rectangular-sectioned iron tang coated in mineralised wood, both ends broken. Wood grain is perpendicular to shank. L 15, T 4 x 2mm. C162001

Mounts

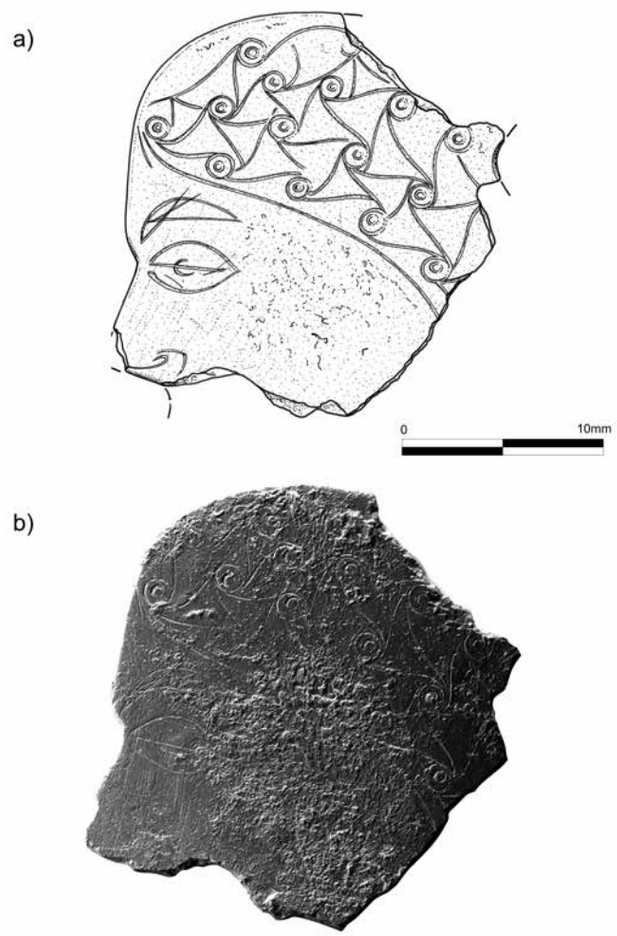
Six objects from the Craw Stane complex and one from Tap o' Noth share common characteristics of being formed from sheet metal and preserving traces of once having been attached to something else, suggesting they were mounts. Amongst these is perhaps the most striking find from the site; a small copper-alloy sheet fragment finely engraved with a face (SF15068; Illus 7.42).

The sheet fragment preserves the shape of a human face in profile, with the nose, brow ridge and front of head surviving. The jaw, neck, and back of head are missing, leaving it unclear whether it was originally a full figure. Surface corrosion obscures the central area but very fine engraved decoration is visible around the margins, clearly portraying a face with elaborate hair, a crescentic eyebrow, lentoid eye and the edge of a curved nostril. The other side is undecorated.

The decorative hair was created using two main techniques: punching and engraving. First, three rows of small circles were punched into the sheet metal, with two rows neatly following the engraved hairline and a third, less-even row added near the top of the head, presumably slightly squashed to fit the available space. These punch marks are noticeably deeper on the left of the circle in all cases, suggesting an asymmetric tool top or possibly the craftworker's handling technique. The small punch marks are surrounded by larger punched circles, with varying distances from the smaller marks suggesting they were created by a separate tool and not by a single punch with double-ringed tip.

The punched circles were then skilfully joined by engraved loose S-scrolls, creating the illusion of swirling triskeles. The pattern is more regular on the right side, at the back of the head, and slightly more crowded and uneven on the left. The eyebrow, eye and nostril are represented by a few simple but carefully placed curved engraved lines.

It was found amongst the metalworking debris in one of the middle fills (C15192) of the outer ditch, perhaps suggesting it was craft-related. Its broken state may suggest it was destined for repair or recycling. Another possibility is that it was a trial or motif piece used by a craftworker to test or demonstrate a new design or skill. However, a possible broken perforation on the damaged edge at the back of the head suggests the face was originally a mount affixed to another object, perhaps of wood, such as a box or shield. The decoration is so fine it is only visible from a very short distance and in favourable light. It is hard to imagine anyone noticing the engraved face from more than half a metre away, probably less, suggesting this was a personal object to be examined as closely as possible.

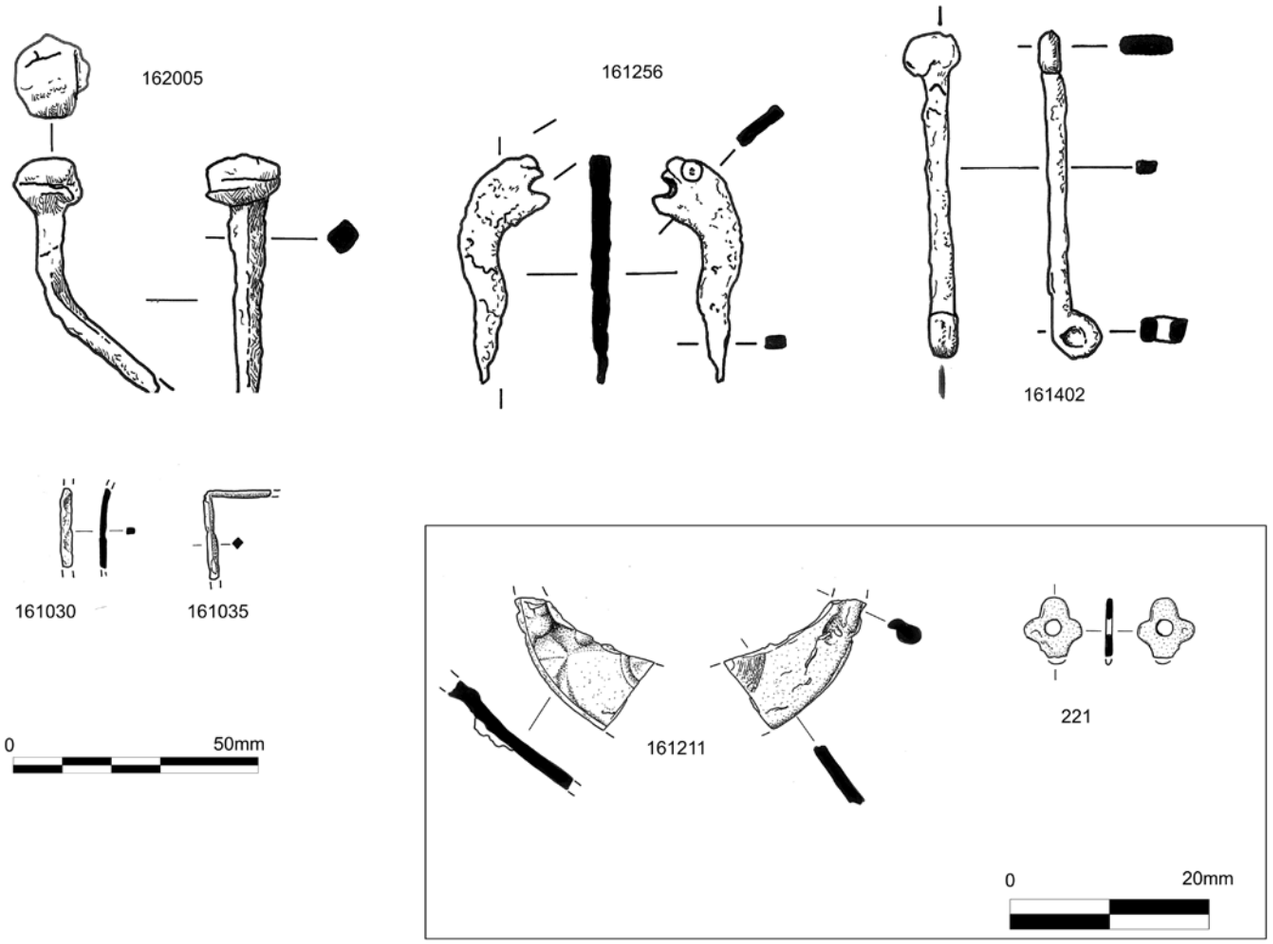


Illus 7.42
Illustration of a thin copper-alloy sheet engraved with a face (SF15068). Alan Braby

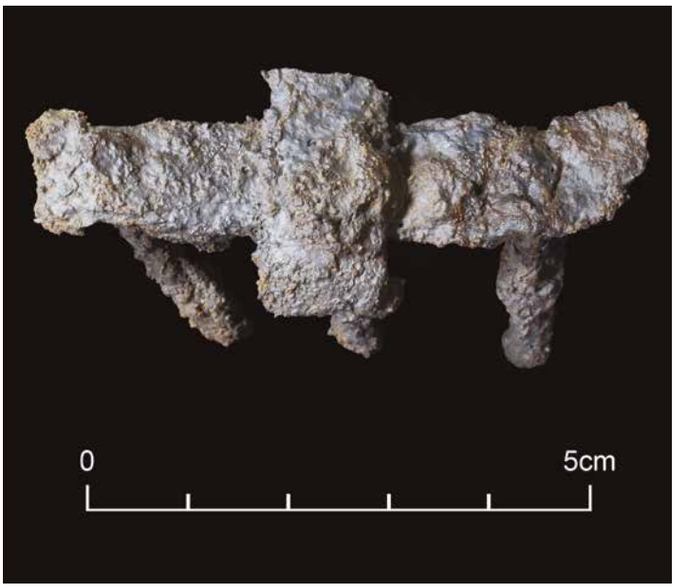
This tiny face is a remarkable survival, providing a rare glimpse of a Pictish face on a small portable object. No other figures or faces are known on metalwork in this period from Scotland, making it difficult to contextualise, though individual aspects have parallels. Carved figures on Pictish stones are perhaps the most obvious comparison, including the famous 'Rhynie Man' himself (Illus 12.3). Many such figures have defined hair lines, often helmet-like in form but lacking any decoration. With the back of this example's head missing, it is unknown if it shared the same helmet-like form over the back of the neck. The exact technique of punch marks joined by engraved scrolls is also hard to parallel, probably because such a technique is best suited to metalwork.

- SF15068 A sub-oval sheet metal fragment in the shape of a silhouette of a left-facing head. Back of head, jaw and neck missing. Engraved and punched decoration create the impression of triskeles over the hair, using circular punch marks joined by loose S-scrolls. A crescentic eyebrow, lentoid eye with lid and pupil, and curled nostril were all engraved with simple curved lines. Corrosion obscures the central area and the back is plain. H 21, W 20.5, T 1; 0.8g. XRF: Cu, Pb, Sn and trace Zn. C15192. Illus 7.42

Other mounts from the Craw Stane complex include small lobed copper-alloy washer (SF221; Illus 7.43) which resembles a flower and may have decorated something like a leather strap. Similar small strap-mounts are common in the late medieval period, but this particular example remains unparalleled in the early medieval period. The four other mounts are iron. SF161259 is a small fragment with uncertain form, but the mineralised leather adhering to its surface suggest it was probably a part of a mount attached to a leather object. The broken perforation on SF020 suggests it was part of a strip mount, possibly something like SF15014d, which comprises two crossed iron strips with three iron rivets in situ. The other is a pointed, sinuous terminal from an iron strip (SF161256; Illus 7.43), broken across a perforation. A small fragment of sheet copper alloy from Tap o' Noth (SF1701) has regularly spaced copper-alloy rivets along the surviving curved edge. These mounts could have been attached to a range of objects, such as wooden boxes or furniture.



Illus 7.43
Illustration of mounts, fittings and an unfinished brooch terminal. Alan Braby



Illus 7.44
Photograph of iron strip mount SF15014d

- SF020 Sub-rectangular iron sheet fragment with one straight edge, the other long edge broken over a possible perforation. L 32.5, W 11, T 1.5; 1.9g. C025
- SF221 Decorative copper-alloy washer/small mount, intact. Quadrilobate with three rounded lobes and one square or cut. 11 x 11mm, T 1mm, hole D 3mm. 0.5g. XRF: Cu with Pb, Sn, trace Zn. C218. Illus 7.43
- SF15014d Two rectangular strips, crossed in the middle. The longest strip is perforated by three circular-sectioned rivets, the middle of which secures the perpendicular strip. Two other strip fragments in the bag (30 x 11 x 1.5; 26.5 x 10 x 2mm) have one rounded end (one of which is perforated) and the other broken. They may well have been attached to one of the four broken ends on the crossed strips, but no longer refit. The rods are all missing their tips at the same distance from the strip – perhaps they did not have points. Main strip L 61.5, W 14, T 2; rods L 24–7, D 5.5; short strip L 25 x 11.5 x 2mm; 17.3g. C15112. Illus 7.44
- SF161256 Sinuous, tapering iron strip, pointed at one end and broken across a perforation at the wide end. L 47.5, W 11, T 4; perforation 3; 4.3g. C161003. Illus 7.43
- SF161259 Thin triangular sheet fragment coated in mineralised? leather. Broken at wide end. Too flat to be a knife tip. L 25, W 10, T 2. C161049.
- To'N SF1701 Small fragment of sheet copper alloy with one curved original edge, the others broken. The curved edge has traces of three regularly spaced rivets around 2mm in from the edge. 25.5 x 16.5 x 1mm. XRF: Cu, Pb, Sn. C17003

Fittings

The remains of a range of small fittings were identified. Only three of the four nails still have their head. Two from the Craw Stane complex (SF15057 and SF162005, Illus 7.43) are disc-shaped and one from Tap o 'Noth (SF1125) has a flat, square head – all are common forms. SF162005 has a curved shank, suggesting it had been removed from wood before deposition in the upper fill of the outer ditch (C162001). In contrast, the shank on SF15057 is clenched, indicating it was still through wood 12mm thick, probably a plank. Two other nails (SF209 and SF210) survive only as small shank fragments. A rectangular washer (SF206) is likely to have been on the end of a clench-bolt, a type of fitting used to secure two planks of wood on doors, boats and other plank-built constructions. A small iron tack (SF058) resembles a hobnail, but such small tacks could be used on a wide range of objects.

A right-angled bar with two points (SF1749) resembles a wall anchor or wall hook, though is not exactly like either. A similar sort of wall fitting seems likely though. The exact function of a half-cylinder object (SF161378) is also unclear, though a collar fitting seems likely, perhaps to protect the end of a wooden pole.

Three fragments are all forms of looped fitting. Two (SF1712 and SF15003) are bent double, creating a loop at the folded end, one of which (SF15003) retains a small copper-alloy ring. Both were likely to have been fittings for straps, with the fine ring on SF15003 adding a slightly decorative element. SF15014c breaks after starting to loop around, leaving its character less clear.

The use of iron for items like nails and bolts and other small fittings increases significantly throughout the first millennium AD, reflecting greater availability of iron for items other than tools and weapons (Cruickshanks 2017: 272). However, the relatively small numbers here imply the use of iron for fixtures and fittings was still fairly restricted between the 4th and 6th centuries AD.

- SF058 Small iron tack with disc head and short pointed shank. Head D 11; shank L 6; 2.3g. C025
- SF206 Discoidal washer, secured to rivet by domed head, other end broken. Head 20 x 25. L 25mm. C201
- SF209 Nail shank, square-sectioned. L 45, W 6. C218
- SF210 Bent nail shank, square tapering to rectangular section. 42 x 5 x 3mm. C218.
- SF1712 Looped fitting. Iron strip bent to form a neat teardrop-shaped loop at one end, the two sides then fusing together (with corrosion) before splaying out then breaking. L 47; loop W 18, T 8.5; strip T 4; 5.7g. C1702
- SF1749 Timber fitting. Rectangular-sectioned iron bar, tapering to points at both ends (one broken) and bent at 90° at the thickest part in the middle. L 41, W 6, T 3; 3.4g. C1703
- SF15003 Looped fitting. Rectangular iron strip, looped double with small copper-alloy ring in the looped end. The ring has a butt-join. The other end of the strip is broken just after an iron rivet, presumably to fasten it around a thin strap of sort. L 31, W 6, T 3; Ring D 19.5, T 1.5mm; 2.2g. C15112
- SF15014c Looped fitting. Rectangular-sectioned bar, tapering to a tip at one end, narrowing and curving before breaking at the other. L 97.5, W 5; 8.24g. C15112
- SF15057 Fragmentary iron nail with small disc head and clenched shank. Would have clenched wood 12mm thick. L 23.5; head D 11; 4.3g.
- SF161378 Part of a hollow iron cylinder formed from sheet metal, ?cut or split longitudinally. May have been a collar/cover fitting for the end of a wooden rod, for example. L 29.5, W 15, T 1; 3.2g. C161047

- SF162005 (and SF162009) Disc-headed iron nail, in two refitting fragments, with curved, square-sectioned shank, missing tip. Traces of mineralised organic material at top of shank. L 54, head D 16, shank T 6mm. C162001. Illus 7.43
- To'N SF1125 Square nail head and part of square-sectioned shank. Head W 9 x 9mm; shank T 8.5mm. C11009

Metalworking evidence

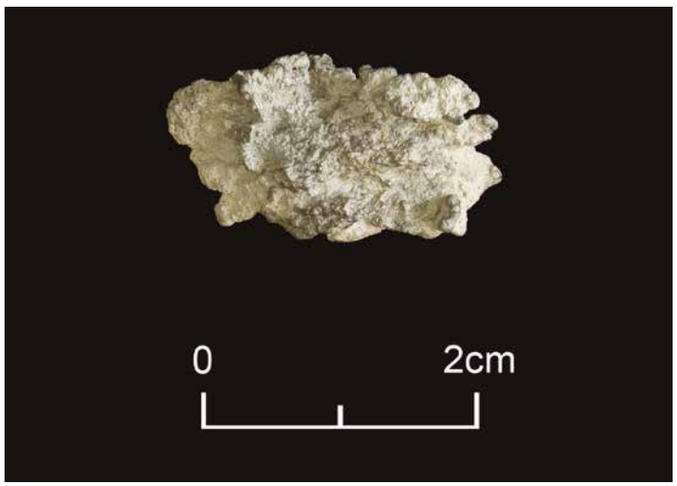
Part-worked bar

Two partly-shaped bars add to the evidence of copper-alloy working here (SF161030 and SF161035; Illus 7.43). The bars are likely to have been cast in moulds like the stone ingot moulds in this assemblage (Section 7.3) (though these bars are narrower than any of the moulds recovered). Surface indents are visible under magnification on SF161035, and there are traces left from a smith's hammer on the bevelled edges of SF161030. The bevelling on the long edges of SF161030 hints at an attempt to create a rounder section. The unfinished iron pin (SF15058) and key (SF161402) provide further evidence of metalworking.

- SF161030 Slender, rectangular-sectioned copper-alloy bar. Broken at one end, tapering at the other. Two long edges are bevelled, showing initial shaping. 32 x 4 x 3mm, 1.5g. XRF: Cu with Pb and Sn, and trace Zn and Ag. C161003. Illus 7.43
- SF161035 Tapering square-sectioned copper-alloy bar, bent at a right angle in the middle. Ends are damaged but length is probably near complete. Undulations in the surface indicate some initial hammering had taken place. Original L *c* 60; W 4.5–3; T 2–3mm. 2.8g. XRF: Cu with Pb and Sn, and trace Zn. C161003. Illus 7.43

Casting debris

Fourteen droplets and small nodular fragments of metal, weighing 29.9g, are spills from metal casting. All fragments analysed with XRF are copper alloy apart from SF1823 which is silver (Illus 7.45) (the unanalysed fragments are likely to be copper alloy based on appearance) (Table 7.15). The identification of silver-casting debris is of great significance. Silver-casting waste is rare in early medieval Scotland, though silver has been found on a small number of crucibles from sites around Scotland. This fragment adds to other evidence of silver working at the Craw Stane complex, including silver within at least one of the crucibles (Section 7.4). All the casting debris was recovered from the outer ditch.



Illus 7.45
Photograph of silver-casting waste (SF1823). Leanne Demay/National Museums Scotland

Find	Context	No	Weight (g)	XRF results				
				Cu	Zn	Pb	Sn	Ag
1823	1726	1	3.0	x	x	x	x	xxxx
1839	1703	1	1.3	xxx	x	x	xx	
161007	161003	1	3.5	xxx	xx	xx	xx	
161178	161003	6	3.7					
161215	161003	1	1.0	xxx	x	xx	xx	
161312	161048	1	1.1					
161446	161048	1	4.3	xxx	x	xx	xx	
162024	162047	1	1.9	xxx	x	x	xx	
162078	162054	1	1.1	xxx	x	x	xx	

Table 7.15
Summary of casting debris. XRF results: xxxx = high, xxx = medium, xx = low, x = minor. SF161178 and SF161312 were not analysed

Failed casting

A small fragment of penannular brooch terminal (SF161211) still displays flashes – ridges of metal around the edge of the object where metal seeped into the join between two mould valves. Flashes were smoothed off on finished objects, indicating this brooch terminal was unfinished, in all likelihood a failed casting. Traces of moulded decoration where the flat terminal narrows into the brooch hoop suggest this was a zoomorphic penannular brooch though the details are distorted, leaving identification to an exact type out of reach. No definite moulds for brooches of this form were identified, though eight moulds for casting barrel pins of a form found on such brooches are present (Section 7.2).

- SF161211 Failed casting of a flat, expanded penannular brooch terminal, both ends broken. Flashes are still present along both edges along with irregular ridges on one face where the metal seeped into cracks in the mould. The upper surface was decorated with opposing cast-in triangles (like a bow-tie) at the junction between the terminal and the hoop. There are distorted traces of further possible moulded decoration where the hoop joins. L 30, max W 17, T terminal 3, T hoop 5; estimated original D 70mm. 5.6g. XRF: Cu with Sn, Pb, trace Zn and Ag. C161003. Illus 7.43

Unfinished padlock key?

While SF161402 (Illus 7.43) resembles a large buckle pin, the flat oval plate on its terminal would make it impossible for the pin to pierce a leather strap. The form also bears similarities to early barrel padlock keys, though the plate would normally be

perforated and at a 90° angle to the shank (it is on the same alignment here). The unperforated terminal suggests it is unfinished. That the plate is still aligned with the shank implies it would have been bent to 90° after it was perforated. An unfinished key indicates the blacksmiths here understood locks: a complex technology, providing further evidence of the range of skills present amongst the metalworkers here.

Locks of this form are common in the Roman and early medieval periods, with examples known in both iron and copper alloy. A copper-alloy key and padlock bolt were recovered from Sculptor's Cave, Covesea in association with Roman Iron Age finds (Hunter 2020a: 138, illus 5.50: SF779) while early medieval examples are known from Dunadd and Whithorn (Lane & Campbell 2000: 165, illus 4.77: 1422; Hill 1997: 416, illus 10.95: 34.5, 34.10 and 34.14).

- SF161402 Rectangular-sectioned iron shank with one end curved around into a small loop, the other expanding out into a small flat oval plate terminal. L 66, W 4 x 3; loop D 8; plate 11 x 7 x 3.5. C161048. Illus 7.43

Offcut

One of the iron bar fragments has a cut end (SF161289), suggesting it is a blacksmith's offcut. While offcuts must have been common on sites where blacksmithing was taking place, such fragments are challenging to identify without careful X-radiography and cleaning. Offcuts could also have been recycled, leaving them less likely to be discarded.

- SF161289 Rectangular-sectioned bar fragment, rounded at one end and possibly cut straight at the other end. L 19, W 4, T 2mm. C161048

Fragments

Thirty-six iron fragments could only be identified as pieces of bars, rods or strips, with a further two unidentifiable (summarised in Table 7.16 with full catalogue in the archive). Seventeen fragments have square or rectangular sections classifying them as bars, most of which are missing both ends. Smaller bar fragments may have been part of nail shanks or tool tangs, particularly those with tapering ends. The rod fragments are thin enough (2–4mm in diameter) to have been part of pin shanks, but could also be from fine tools such as awls.

While many of these fragments may be broken fragments of finished artefacts, it is also likely there were fragments of stock iron in the form of bars and rods on a site with blacksmithing activity.

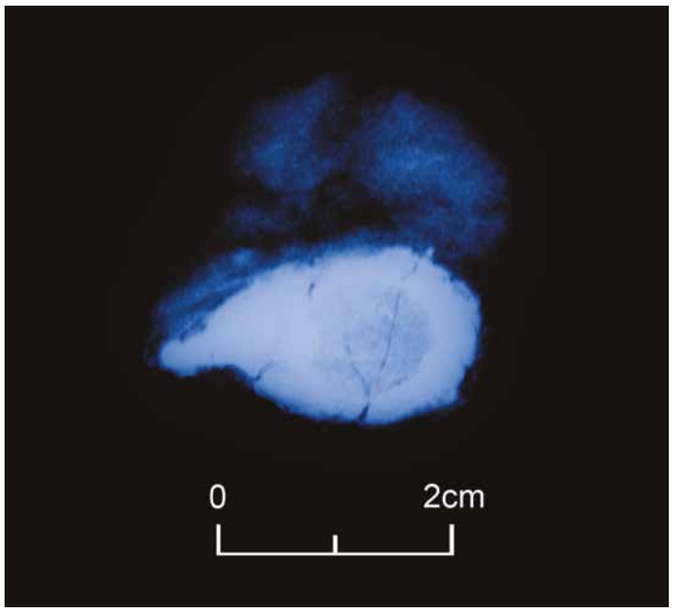
Other

A totally decayed object (SF24; Illus 7.46) remains a puzzle. It comprised a nut-shaped copper-alloy object with hollow centre, possibly containing organic material. It is difficult to find parallels, but Meaney (1981: 183, V.ll.6) illustrates a Frankish 'amulet-capsule' from the Rhineland of approximately this size and shape. A more decayed example from Flixborough had an amber inset and was interpreted as a necklace pendant (Evans & Loveluck 2009: fig 1.11, no 212).

Find	Context	Type	Section	Sides	L (mm)	Max T/ D
8	19	Strip	Flat	Parallel	28	2
9	25	Bar	Rectangular	Tapering	35	7
15	25	Bar	Rectangular	Tapering	72	6
16	25	Bar	Rectangular	Parallel	37	5
21	25	Strip	Flat	Parallel	20	16.5
22	25	Strip	Flat	Tapering	25	7
25	25	Sheet	Flat	Parallel	18	3
29	25	Rod	Round	Tapering	30	2
53	42	Bar	Square	Parallel	26	3
61	26	Strip	Rectangular	Parallel	20	10
61	26	Strip	Flat	Parallel	17.5	1
209	218	Bar	Square	Parallel	34	4
210	218	Bar	Rectangular	Tapering	43	5
1768	1703	Bar	Rectangular	Parallel	45	7
1807	1726	Rod/ bar	Irregular	Irregular	47	3.5
15004	15007	Strip	Flat	Parallel	33	1.5
15058.2	15007	Bar	Square	Tapering	42.5	3
161104	161003	Fragment	Irregular	Irregular	12.5	7
161219	161003	Rod	Round	Parallel	24	3
161260	161003	Bar	Rectangular	Parallel	24	6
161277	161049	Bar	Rectangular	Tapering	24.5	11
161298	161048	Rod	Round	Parallel	21	2
161377	161047	Rod	Round	Parallel	25	4
162007	162001	Bar	Rectangular	Parallel	25	5
162020	162001	Bar	Rectangular	Parallel	35	6
162027	162047	Bar	Square	Tapering	31	10
162039	162054	Bar	Rectangular	Parallel	16	7
162065	162054	Fragment	Irregular	Irregular	11	8
162076	162054	Bar	Rectangular	Parallel	23	14
162111	162054	Rod	Round	Parallel	26	3
162161	162054	Bar	Square	Tapering	25	3
162172	162054	Strip	Flat	Tapering	31	7.5
164009	164002	Fine rod/ wire	Round	Parallel	43	2
To'N 519	5101	Strip	Rectangular	?Tapering	50	3
To'N 1129	11005	Strip	Rectangular	Parallel	37	2.5
To'N 15001	15005	Bar	Rectangular	Parallel	59	7

Table 7.16
Summary of iron fragments. L length, T thickness, D diameter (mm)

- SF24 A corroded mass of copper-alloy and organic remains, no metal remaining. The metal object was a hollow, nut-shaped object measuring about 20 x 30 x 10mm. The X-rays show an extension at one end. It is not clear if the organic remains are related to the metal object or not. A small thread within the structure may be a root or a hair, and the interior is coated with a white substance. Originally 20 x 30 x 10mm. C25. Illus 7.46



Illus 7.46
Photograph of X-radiograph of possible amulet SF24

SF1766 is mostly obscured by mineralised textile remains, indicating it was wrapped in cloth of some sort when deposited (Illus 7.47). It was a sub-square iron plate with copper-alloy rim, broken in places but roughly its original size. No means of attachment to anything survives to indicate it was a mount and its function remains unknown. It was found amongst craft debris in the outer ditch (C1703), suggesting it could have been deposited as scrap, though the textile remains are unusual.

Illus 7.47
Photograph of mineralised textiles on metal plate (SF1766).

- SF1766 Part of a thin, sub-square iron plate with rounded corners and a fine, tubular copper-alloy rim mount around the edge, now missing in places. The faces on both sides are coated in mineralised organic material preserving a coarsely-woven textile (woven with Z-spun, single-ply yarn). The fine rim suggests this was a decorative item. Textiles on both sides suggest it was in a pouch? W 32 x 31; T 10.5 (including textiles, 1mm without); rim W 2mm; 4mm. C1703. Illus 7.47

7.9.4 Distribution and wider discussion

Like most of the assemblage, many of the metal artefacts (62/93) from the Craw Stane complex were recovered from fills of the outer ditch. Notable exceptions include 12 objects from palisade fills, including both nail-headed pins and the axe-headed pin, a small decorative mount, two nails and knife fragment, and the set of tongs which were pushed into a palisade post hole. The tongs and pins are likely to have been deliberately deposited.

It is more difficult to identify individual deliberate deposits within the complex outer ditch fills but the two possible Anglo-Saxon pins from C025 may be an example. The potential amulet and small round iron buckle were from the same deposit.

All the metal objects related to metalworking were retrieved from the outer ditch, where so much other craft debris was deposited. So too were all the iron bar and rod fragments, suggesting many of those could be scrap or stock. A small concentration of casting debris plus both part-worked copper-alloy bars came from C161003, which produced the most metal items (16) in general.

The metalwork assemblage includes several remarkable objects, notably the sheet metal face, axe pin and pattern-welded knife. Several items find easier parallels amongst Anglo-Saxon assemblages: two possible pins, a pommel cap, the pattern-welded knife and possibly the rectangular buckles. While it is tempting to use this as evidence of direct contact between the Craw Stane complex and Anglo-Saxon communities, we know so little about Pictish assemblages of this period that local metalworking traditions are currently poorly known. These objects are perhaps best seen as influenced by Anglo-Saxon material culture. However, the imported finds on the site clearly do show a wide range of contacts and direct links are not unlikely.

Other metal finds are easier to contextualise; the nail-headed pins and penannular brooch terminal are types known from other sites in Scotland, including production evidence here and on other sites. The large proportion of small iron fittings is indicative of iron being more available by this period, and no longer restricted to items like tools and weapons.

7.10 Worked Stone Artefacts

GEMMA CRUICKSHANKS, LEANNE DEMAY AND FRASER HUNTER, WITH GEOLOGICAL IDENTIFICATION BY FIONA MCGIBBON

7.10.1 Summary

Excavations at the Craw Stane complex produced an assemblage of 66 worked stone artefacts with a further ten from Tap o' Noth and one from Cairn More (Table 7.17). Metalworking tools and equipment dominate the Craw Stane complex assemblage, particularly a

Group	Type	CS	To'N	CM	Total
Metalworking	Mould	12			12
	Cupel	23			23
	Sharpener	2			2
	Whetstone	1			1
Craft tools	Spindle whorl	2			2
	Pumice	2			2
	Hide-rubber	2			2
	Working surface	1			1
Jewellery	Amber beads	2			2
	Shale ring			1	1
Cobble tools	Pounder	1			1
	Hide-rubber	1	1		2
	Hide-rubber/ grinder		1		1
Rotary quern		5			5
Polished stone discs		1	2		3
Gaming	Counters	6			6
	Ball		1		1
	Unworked pebbles		5		5
Other		5			5
TOTAL		66	10	1	77

Table 7.17
Summary of worked stone from the Craw Stane complex (CS), Tap o' Noth (To'N) and Cairn More (CM)

group of stone moulds for casting metal ingots (Section 7.3) and an unusual form of stone metalworking vessel, probably used for refining precious metals (Section 7.5). A small number of other craft tools, including a spindle whorl, pumice fragments and possible hide-rubbers, attest to a range of organic crafts. Three polished stone discs may have been used as palettes for preparing medicines or cosmetics. Typical domestic tools are in the minority, with the notable exception of an intact rotary quern with unusual handle and a small number of cobble tools. Gaming is well represented, with a small group of shaped counters, a ball and a small group of pebbles from the Craw Stane complex and Tap o' Noth providing evidence of this pastime.

There are separate reports on the stone moulds (Section 7.3), stone metalworking vessels (Section 7.5) and amber beads (Section 7.12) from the Craw Stane complex and the shale bangle from Cairn More (Section 7.11).

7.10.2 Stone resources at the Craw Stane complex

FIONA MCGIBBON

The village of Rhynie is located in an area of sedimentary rocks of the Devonian period. The village itself is on the Dryden Flags Formation with the Quarry Hill Sandstone Formation just to the south and fringing deposits attributed to the Tillybrachty Sandstone Formation to the north and south. These formations are subdivisions of the Devonian age deposits that are all fluvial in character and range from conglomerates to mudstones but are dominated by sandstones and siltstones. These relatively young sedimentary rocks are deposited on top of much older metamorphic rocks of the Dalradian which are lithologically diverse and also form extensive exposures across the region. There are also large intrusions of igneous rock in the area, such as granite, diorite and norite (a close relative of gabbro). Glaciation will have left thick deposits of loose material that has been abraded by transport, and that material will have been reworked by glacial outwash systems as well as the modern rivers that fringe the village. Cobbles and pebbles of erosion-resistant rock types would be readily available. Sandstone, being less likely to survive ice transport, is unlikely to be common in the glacial deposits and this lithology was more likely harvested from outcrops where it could be easily prised off and would break along natural bedding planes to provide fairly uniform slabs from which items could be fashioned.

The most common lithology in the Craw Stane complex assemblage is red sandstone, most often arkosic, which was used to manufacture the metalworking vessels. The lithological variation within this category is consistent with what would be found in an outcrop of such material where the original deposition process resulted in layers of slightly different grainsize and composition. Most of the vessels are remarkably consistent in the material chosen: fine-grained arkosic sandstone with minimal layering and good cementation, producing robust blocks. The items are blocky but have parallel planar top and bottom surfaces, representing bedding surfaces and suggesting harvest of the material from outcrop. Few used vessels show signs of breakage due to thermal shock, highlighting how suitable this stone type is. The vessels are often broken, with breakage surfaces cutting through the glassy surface deposits, but these breaks do not appear to be heat related as there is very little discoloration or heat-cracking present.

Many ingot moulds (eg SF1857, SF1867 and SF161363; Illus 7.21) seem to have been intentionally made from finer-grained, more clay-rich siltstones characterised by mica-rich bedding surfaces. Siltstone horizons are very likely in the same outcrops of Devonian sandstone. The finer grain size and higher clay content makes the material easier to carve, more likely to survive the casting process, and would allow the item cast to be more cleanly removed, free of rock debris.

Brief examination of the clay moulds from the Craw Stane complex shows them also to be reddish and muscovite-bearing, suggesting that the clay used is local and likely to be collected from deposits associated with the weathering of the red sandstones and siltstones described above. Such deposits are likely to be available in river beds as well as in pockets of glacial clay in the area.

A number of items are of staurolite schist – a metamorphic rock type of distinctive character. Similarity in appearance and mineralogy suggests a source of this lithology nearby or harvesting of pieces from a larger item, such as a large quern stone for which such a lithology would be ideal. It is not possible to provenance that lithology specifically, but it would be typical of the Dalradian rocks of the area and could occur also in the drift although it is unlikely to survive long transit in the surface environment due to its friability. The other objects in the assemblage represent drift-sourced pebbles, often of Dalradian lithologies, which would be abundant in the area due to glaciation. The only material bias seems to be to choose schists to make discs as this

lithology has a strong planar fabric. It is also suitable as it is mica-rich, a mineral with good refractory properties making it able to withstand heat. A few objects which are water-worn pebbles and cobbles are of typical erosion-resistant lithologies such as quartzite and rhyolite, which would be abundant in the local environment.

The only items from the Craw Stane assemblage that are definitely not made from local stone are the blocks of basaltic pumice and fragments of slate. Basaltic pumice is a rare find on west coast beaches, rafted naturally from Iceland after explosive eruptions cast it in the direction of Scotland. These are not found inland or on the east coast, suggesting this material has been imported to the site and its utility was well understood. Slate is not found this far north in the Highlands and the closest sources of such true slate are near the Highland Boundary Fault which runs NE/SW from Stonehaven to Bute.

The Tap o' Noth assemblage also included a few items made from stone not local to the hill. A jasper pebble, a flint pebble and grey schist disc (see gaming counters below) were all brought from elsewhere. In situ bedrock sources of jasper are found in the Highland Border Complex which lies along the Highland Boundary Fault from Stonehaven to Bute, and pebbles are known from the coast, for example on Stonehaven beach (though this will not be the only source). Similar schists to the disc are known from near Portsoy, while flint pebbles may have been found on the coast or in buried cobble beach deposits, such as at the Den of Boddam.

7.10.3 The Assemblages

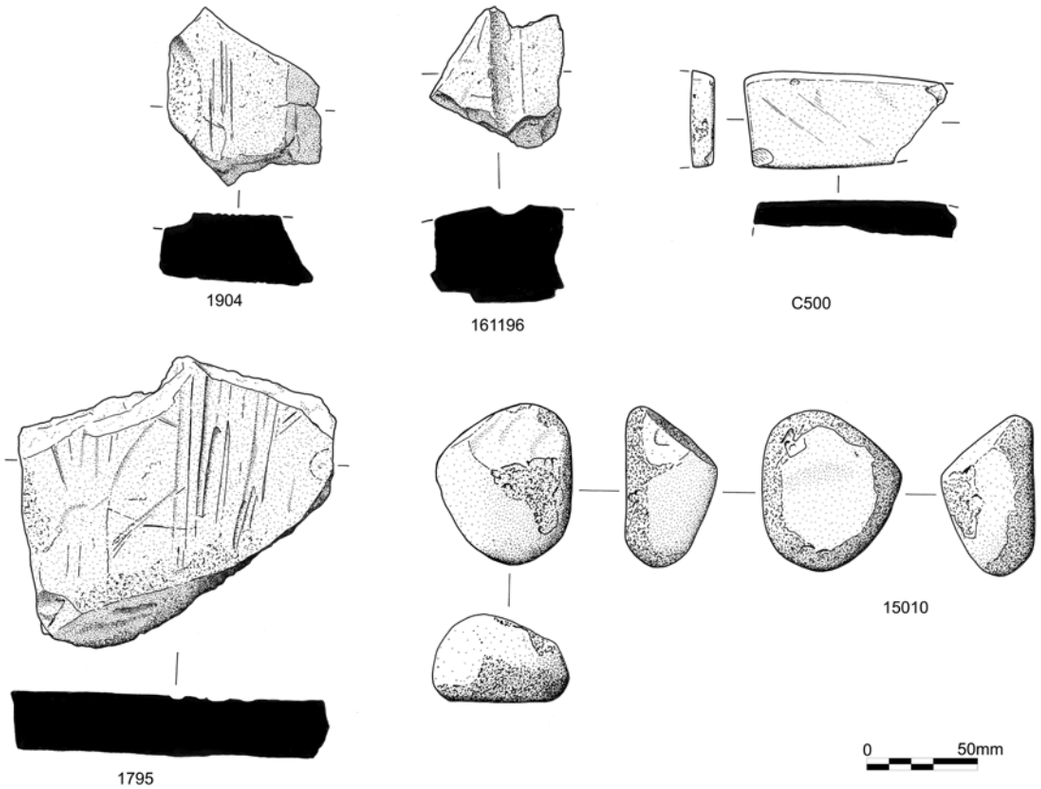
Measurements in catalogue entries are in mm. Abbreviations: L length, W width, T thickness, H height, D diameter, C context. Geological identifications by Fiona McGibbon.

Craft Tools

Sharpeners/smoothers

Two objects are categorised as sharpeners or smoothers (SF1795 and SF161196; Illus 7.48). They both present one or more shallow smoothed grooves across one face, varying in width between 6.5mm and 15mm. These would have been used to smooth the rough edges off freshly cast or forged metal items. The flat base on the grooves, rather than a rounded or V-shaped section, suggests use to finish bar-like objects. Mould SF1904 also saw additional use as a sharpener, displaying a group of parallel scratches across the centre of one face, implying it may have been used to sharpen points (eg on pins).

- SF1795 An irregular siltstone slab fragment with three shallow, smoothed grooves across one face, varying between 6.5mm and 11mm in width, with a flat base. 152 x 107 x 27. C1713. Illus 7.48
- SF161196 Fine-grained sandstone slab fragment with a wide, shallow groove across one surface. Too shallow for a mould (though could be part-made), suggesting it was a sharpener/smoother. L 60, W 57, T 44; groove L 53, W 15, depth 3. C161003. Illus 7.48



Illus 7.48
Illustration of stone tools from the Craw Stane complex. Alan Braby

Whetstone

A single whetstone (C500; Illus 7.48) had been finely shaped into a bar from fine-grained siltstone. Such fine-grained stone was best suited for the maintenance of finished blades; to resharpen them when blunt through use. The fine shaping of this tool suggests it was a valued item which was probably carried around to sharpen a small personal knife. One of the stone moulds (SF161320; Illus 7.21) had also been used as a whetstone, with its large, smoothed facet (*c* 130 x 95mm) implying use to sharpen larger blades, such as axes or sickles. In contrast to the bar whetstone (C500), this larger example is more likely to have been based in a workshop rather than carried around as a personal object.

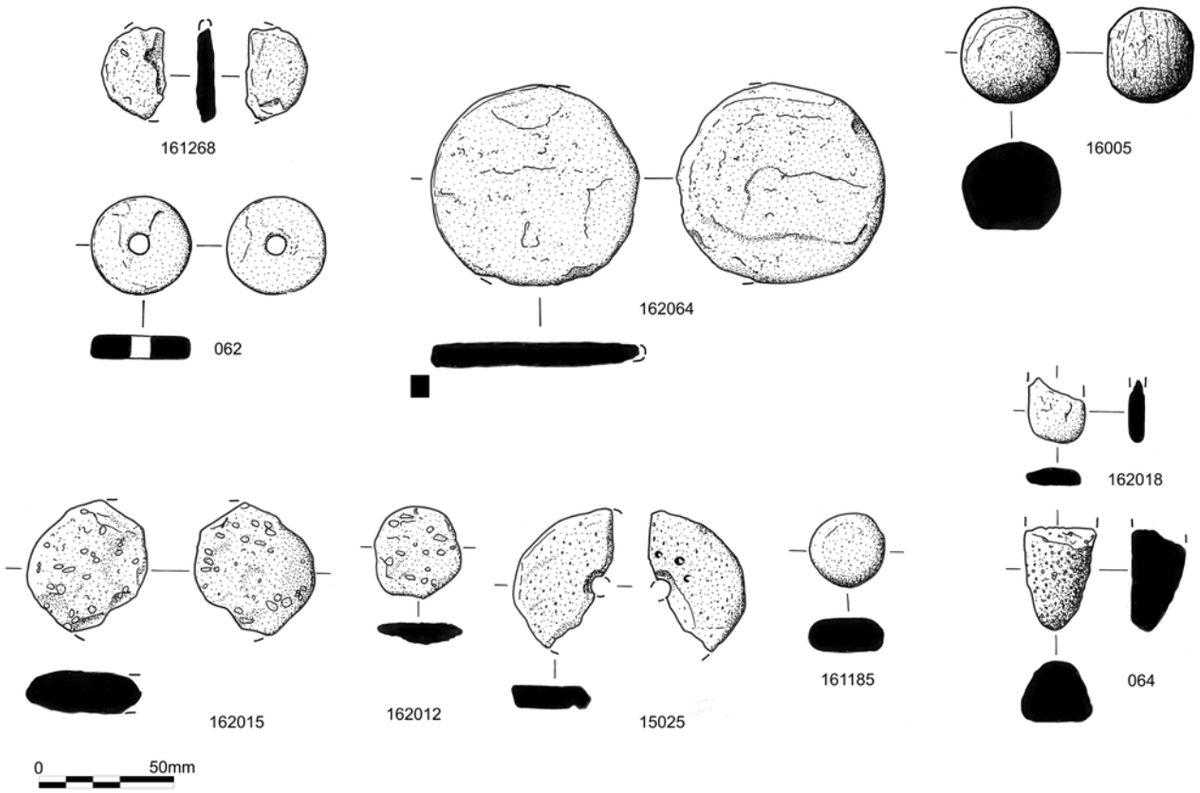
- C500 Whetstone. Neatly shaped, fine-grained siltstone bar, missing one face and one end. Surviving edges and face are finely smoothed and convex, with only very slight dishing on the face. L 91, W 43, T 19. C500. Illus 7.48

Other Craft Tools

A small group of tools represent other craft activities. The only certain evidence of textile manufacturing is a spindle whorl (SF62; Illus 7.49 and 7.50) and a possible whorl (SF15025), used for twisting animal or plant fibres into yarn. Whorls are usually categorised by weight and perforation diameter (Walton-Rogers 2007; Forster 2015: 370–1). Iron Age and Roman Iron Age examples tend to have a perforation diameter of 4–8mm, whereas early medieval whorl perforations span 6–9mm (Walton-Rogers 2007: 23–4). This example fits in both categories with a perforation of 7mm. A study of whorls from early ecclesiastical sites in Dumfries and Galloway found diameters to vary between 38mm and 52mm, and weigh between 26g and 50g (Williams 1966: 149–51). At 36mm in diameter and 21g in weight, SF62 is a small, light example, suggesting the production of yarn at the finer end of the spectrum.

Perforated disc fragment SF15025 (Illus 7.49) is made from an attractive shimmering stone type (phyllite) and ornamented with dots, making it the only decorated stone object here. Its original diameter and weight would have been around 60mm and 40g respectively, placing it at the large end of the spectrum for a spindle whorl. Such a function is possible though it is not a typical form. Other possible functions include a pendant, though it seems too large, or a weight, for which is unnecessarily decorative and not particularly heavy.

Two pieces of basaltic pumice (SF64 and SF507) are present, and although only one is possibly worked (SF64; Illus 7.49), both must have been brought to site after collection on the coast. Pumice could have been used in a range of crafts to scrape, abrade and smooth materials such as leather, wood and bone, in the same manner as coarse sandpaper. The exact function of a small stone bar fragment (SF161410) with red staining on one side is unclear, but likely to be craft-related. One possibility is as a form of hide-rubber, used to rub preservatives into the hide during processing. SF30 may have had a similar role but lacks the red staining. Two cobble tools from Tap o' Noth (SF1204 and SF1601)



Illus 7.49
Illustration of craft tools and gaming pieces. Alan Braby

had also been used as hide-rubbers (catalogues under cobble tools). Evidence from elsewhere in Scotland shows hide-processing was a widespread, everyday task taking place on most Iron Age/Roman Iron Age sites (Hunter 2015, 228).

Part of a sandstone slab (SF164019) with scattered scratches on one surface was probably a worksurface and could have been used during a variety of tasks, not necessarily restricted to crafts. After use as a worksurface it was reused as post-hole packing (C164038).

- SF30 Rubber? Flat, triangular :ragment of phyllite, broken at wider end, with traces of polish on edges. L 36, W 21, T 8. C28
- SF62 Spindle whorl. Neatly shaped psammitic schist disc with central, cylindrical perforation and finely smoothed outer edge. Faces were probably smoothed too, now spalled in places. D 36, T 9; perf D 7; 21g. C75. Illus 7.49
- SF64 Pumice: part of an elongated ovoid pebble with one end missing. Surface rounded but could be water-worn. One flatter face may indicate use to abrade a flat object. 35 x 25 x 22. C26. Illus 7.49
- SF507 Pumice: fractured fragment of basaltic pumice. 3.3g. C501
- SF15025 Possible whorl? Around half of a decorated disc, broken through central perforation. Stone (phyllite) has attractive speckled appearance is likely to have been chosen for its decorative qualities. Three drilled dots are present around the perforation on one side. The edge is fairly roughly shaped, which seems odd for a decorative object, suggesting it may not have been finished. Original diameter may have been around 60mm. L 54, W 29, T 8.5; perf D 7; 19.3g. C15022. Illus 7.49

Illus 7.50
Photograph of spindle whorl (SF062) from the Craw Stane complex. Leanne Demay/National Museums Scotland

- SF161410 Rubber, stained. Small rectangular quartzite bar with rounded corners. Not obviously shaped, but red staining on one face suggests it was utilised 32 x 24 x 12. C161048
- SF164019 Working surface. Fragment of fine-grained arkosic sandstone slab with uneven base, broken edges and faint scratches in various directions on the flat upper surface, suggesting light use as a worksurface. 132 x 102 x 62. C164038

Cobble tools

Only four cobble tools were recovered: pounder SF15010 (Illus 7.48) and possible rubber SF162014 from the Craw Stane complex and a combination grinder/rubber (SF1204) and hide-rubber (SF1601). The lack of cobble tools is partly a reflection of the site's date and specialist craft function. Cobble tools are ubiquitous on prehistoric sites. However, their presence generally decreases with the increase in the availability of metal tools throughout the first millennium AD.

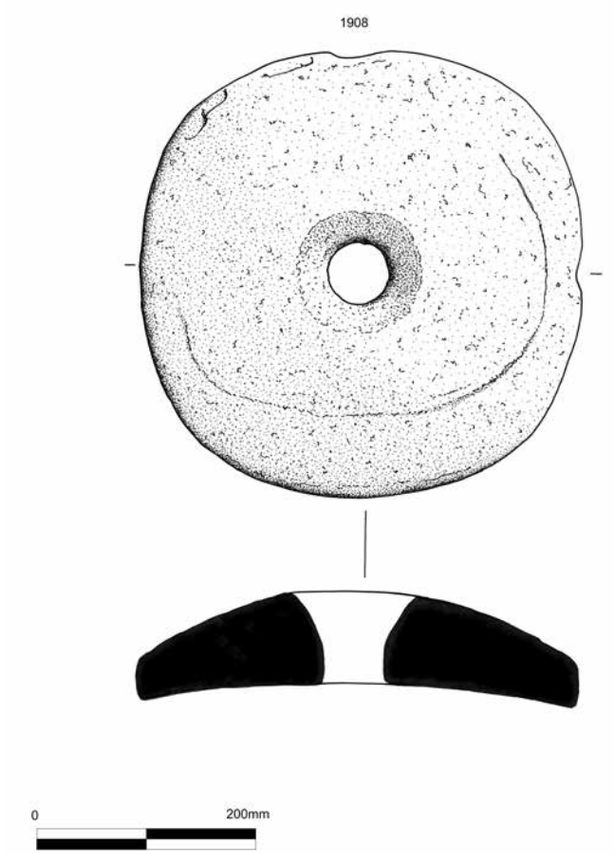
- SF15010 Irregular sub-round quartzite cobble with pitted areas around edges, suggesting use as a pounder. L 72, W 62, T 44. C15006. Illus 7.48
- SF162014 Fragment of rhyolite water-worn cobble with one smooth, flat face from possible use as a rubber. 63 x 59 x 60. C162039
- To'N 1204 Hide-rubber/grinder. Flat ovoid cobble with small light grinding facets at each rounded end and very light circumferential grinding along one edge. Lightly polished all over with a sub-circular patch of dark staining and polishing on one face and lighter staining concentrated along one edge on the other face. The primary function was a hide-rubber/smoother, later used for light grinding. L 106mm; W 70mm; T 31mm; Wgt 335.3g. Tr 12, C12003
- To'N 1601 Flattened ovoid cobble, slightly plano-convex in section. Smoothed with a slight sheen all over; one edge is slightly more abraded/polished. A distinctive patchy reddish stain is present across the flatter surface and around the edges. L 74; W 72; T 30. C16004

Rotary querns

One intact rotary quern (SF1908) and four probable fragments (SF1730, SF1879, SF1906 and SF162170) were retrieved, all from different fills of the outer ditch at the Craw Stane complex. The intact upper stone SF1908 (Illus 7.51) is an unusual quern. Its finely shaped convex upper surface with wide biconical hopper indicate it is an upper stone, but no traces of a handle socket survive, either as a horizontal socket or slot in the edge or vertical socket in the upper surface. Polished circumferential wear on its grinding surface confirms it was used and is not an unfinished example. The only damage to the stone are two adjacent flake scars on the edge, leaving the possibility that the quern once had a protruding handle which broke off. Part of a rotary quern upper stone from a 7th-century AD context at Dunadd preserved a small projecting knob as the only evidence of a handle, which may have had a rope or string attached in order to operate it (Lane & Campbell 2000: 185–6: illus 4.96). This is an unusual form but provides a plausible example of how SF1908 could have been turned. Alternatively, a strap with handle could have been fastened around the edge.

The four possible quern pieces (SF1730, SF1879, SF1906 and SF162170) are all poorly preserved, fractured fragments but hints of curved edges, shaped upper surfaces and traces of wear suggest they were once rotary quern fragments. No features such as handle sockets survive and it was not possible to estimate their original size. They are all made from locally available Dalradian schists, which were commonly utilised to manufacture querns.

This small group of querns comprise some of the few artefacts in this assemblage which relate to typical domestic activity (grinding grain to make flour for food) rather than craft production. This makes it all the more intriguing that SF1908 did not have a typical quern handle and although a handle had potentially broken off, it would have been a relatively simple task to add a handle socket in the upper surface to continue using the quern. The deposition of SF1908 in the lower fill of the outer ditch (C1731) therefore reflects a deliberate choice to no longer use it. The symbolic significance of querns and their deposition has seen regular discussion in a prehistoric context (eg Brück 2001: 152–3; Heslop 2008: 73–80; Peacock 2013: 162–73), but this has not tended to extend to the early medieval period and later, despite similar patterns of deposition existing. The deposition of this intriguing quern seems likely to have been symbolically charged.



Illus 7.51
Illustration of intact rotary quern (SF1908) from the Craw Stane complex.
Alan Braby

- SF1730 Fragment of biotite schist slab with convex upper, irregular, flat lower face and part of one slightly curved edge (other edges broken). Shape of the upper surface and type of stone suggests this was probably part of a rotary quern, but no features such as handle socket, central perforation or grinding surface survive. L 102, W 104, T 51. C1703
- SF1879 Sub-square slab of amphibole biotite schist with slightly convex upper surface curving down surviving edge. Flat lower surface has hints of smoothing from use as a rotary quern but much of the original grinding surface has eroded. No handle socket or central perforation surviving. Too fragmentary to determine original diameter or type, but thickness would suggest disc-type. L 18.5, W 107, T 50.05. C1704
- SF1906 Fragment of staurolite schist with one flat face, other face possibly shaped convex (now eroded) and all edges broken. Stone type and shape suggests this is likely to have been part of a discoidal rotary quern. L 109, W 72, T 44. C1703
- SF1908 Intact rotary quern upper stone of coarse-grained arkosic gritstone with central biconical hopper/ feeder pipe (wider at hopper). The neatly shaped vertical edge then rises to the centre, creating a shallow bun-shaped profile. Concave grinding surface displays concentric wear. The lack of any handle socket or slot is very unusual and it is uncertain how this quern would have been turned. A few flake scars on the edge. D 420, H 105, hopper max D 105, feed pipe D 55. C1731. Illus 7.51
- SF162170 Flat fragment of phyllite with part of rounded edge surviving. No traces of working on either face and seems too thin to have been a rotary quern (though stone type is typical for a quern). Could be a spall from a quern or a disc of some sort. L 110, W 90, D 21. C162054

Polished stone discs

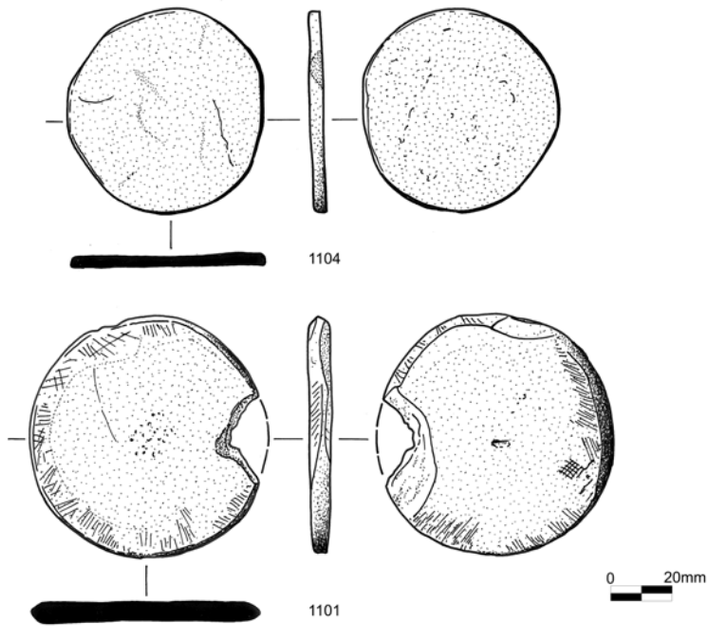
Two polished stone discs (SF1101 and SF1104; Illus 7.52) of slate were recovered from the upper floor deposit (C11002) of a hut platform located in T11 on the north-west shoulder of Tap o' Noth. A similarly sized psammitic schist disc (SF162064; Illus 7.49 and 7.53) was found at the Craw Stane complex in a lower fill of the outer ditch (C162059). SF1104 was abandoned unfinished, probably as it became too thin to use, but the careful shaping and smoothed surfaces of SF1101 link it to a type found across Scotland, though hitherto sparse in Aberdeenshire (Graham-Campbell & Hunter 2021: 233–7). The surfaces of the Craw Stane complex disc have eroded, but just enough of the finely shaped edge survives to place it in this category too. Few are well dated, but patterns of contextual association point to a broadly Roman Iron Age floruit (Graham-Campbell & Hunter 2021: 234).

The function of such discs has been extensively debated (summarised in Goldberg & Hunter 2019: 115–17; Graham-Campbell & Hunter 2021: 234–7), the most plausible interpretations involving use as a palette for processing special substances. SF1101 shows use-traces consistent with this; both faces have been smoothed and show central pecked areas, with one having plausible fine cut marks as well.

- To'N1101 Thin sub-circular polished disc of slate. Faces polished very smooth but with some residual abrasion traces from shaping as it tapers slightly towards the edge. The edge

itself is slightly irregular: some areas are ground flat, others faceted with fine vertical abrasion. Curved chip lost from edge; one other area of flake damage. Small hollowed pecked area (5.5mm x 3.2mm) near-central on one face, and an irregular scatter of fine lines; many are residual abrasion marks but a few finer ones may represent use. The other face shows a scatter of fine peckmarks over an area of 15 x 12mm and some residual abrasion scars. D 72.3mm T 5.2mm; 62.6g. C11002. Illus 7.52

- To'N1104 Sub-circular slate disc, retaining an irregularity from its natural form though the outline saw some flaking to modify it, given the presence of some residual flake scars. One face is flat apart from a thin, spalled area, the spalling pre-dating the finishing of the edge. The other is more irregular, with very thin laminar spalls creating a rather irregular surface; again, the spalls pre-date the edge-finishing. No use-wear or polish; a few random scratches are probably post-depositional. The lack of polish or use-traces indicate it is unfinished. It sits at the very lower end of such discs in terms of thickness and may have been abandoned because it became too thin to be functional. L 60.7; W 57.1; T 3.4mm; 25.2g. C11002. Illus 7.52
- SF162064 Thin, circular psammitic schist disc with a neatly smoothed vertical edge surviving around a quarter of the circumference, the rest eroded. Both faces also eroded, thus not preserving working traces. D 75, T 9.5mm. C162059. Illus 7.49 and 7.53

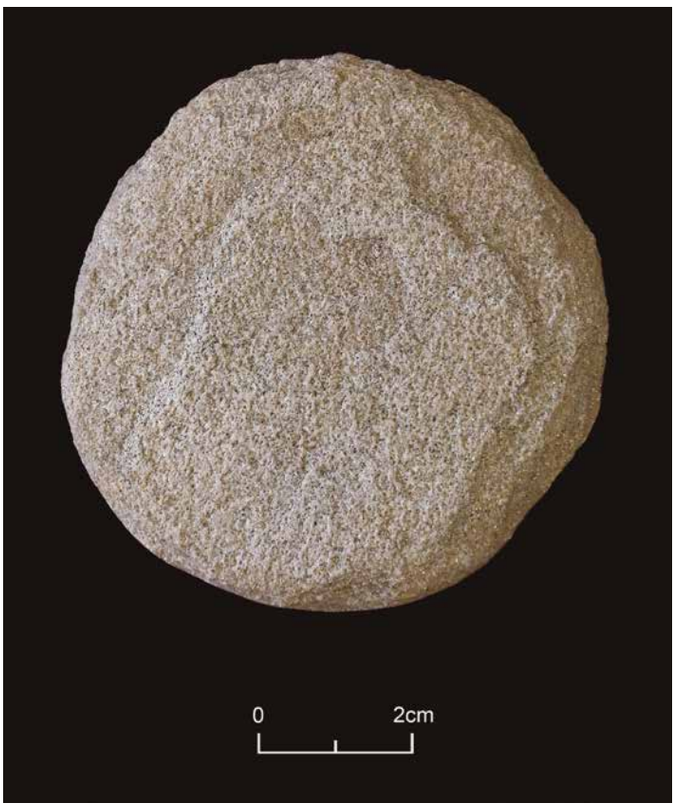


Illus 7.52
Illustration of polished stone discs from Tap o' Noth. Alan Braby

Gaming Pieces (or charms?)

A range of objects from the Craw Stane complex and Tap o' Noth are possible gaming counters. From the former, six stone discs have diameters varying between 22mm–46mm. Four retain traces of abrasion facets or regular flaking from shaping (SF15045, SF162012, SF162015 and SF161268; Illus 7.49 and 7.54) while two with no working traces (SF161273 and SF161185) are included because their size and shape is so consistent with the other discs. A group of stone gaming counters from Sculptor's Cave, Moray, have a similar range of diameters (23 and 37mm) (Cruickshanks 2020a: 114–15) to the Craw Stane complex group and while it is possible such discs could be roughouts for beads or pendants, gaming counters seem more likely.

Board games were introduced to Scotland during the Roman period (Hall & Forsyth 2011) and gaming pieces are relatively common finds on wealthy sites thereafter. Hall has noted that gaming piece forms, sizes and materials can vary widely, as demonstrated by the range of pieces in glass and different stone types found in two sets within burials at Waulkmill, Aberdeenshire (2016: 50). With this in mind, five natural pebbles (SF1103 and SF1105a–d; Illus 7.55) and a stone ball (SF16005; Illus 7.49 & 7.55) from Tap o' Noth are also considered to be gaming pieces. Interpreting unworked pebbles is a challenge, but these were concentrated around two hearths in the centre of Platform 11's upper floor layer (C11002), and two are in stone types (jasper and flint) unlikely to be found on the hill, suggesting they were brought there and held some significance. The stone ball (SF16005; Illus 7.49) has very unusual lithology and is also likely to be non-local in origins though its exact nature remains unclear (Fiona McGibbon pers comm)



Illus 7.53
Photograph of polished stone disc from the Craw Stane complex (SF162064). Leanne Demay/National Museums Scotland

Another possible function for the Tap o' Noth pebbles was as charms or 'curing stones', perhaps involving the collection of attractive stones from a river to be carried around or placed in homes as talismans. Such customs were undertaken in Scotland up to the modern era (Black 1893: 516). Special treatment of pebbles is demonstrated by their inclusion in a large assemblage of mixed material from Monquhitter, described by Stevenson (1967) as a 'Roman-period cache of charms' found to contain over 50 attractively coloured natural pebbles, some of which were highly polished.

- SF15045 Two refitting phyllite fragments forming a rounded edge. Fairly worn, but facets from shaping are still visible on the edge. Estimated original diameter 40mm. L 19, W 20, T 10. C15007
- SF161185 Small sandstone disc. Surface eroded so working traces are unclear, but its shape is very regular. D27, T 12. C161044. Illus 7.49
- SF161268 Around half of a slate disc with regularly flaked edge, broken through the middle. Burnt black, almost vitrified in places. Original diameter *c* 30–40mm. L 32, W 22, T 7.5. C161003. Illus 7.49
- SF161273 Small, irregular schist disc. Erosion has obscured any shaping. D 19 x 22; T 7. C161003
- SF162012 Garnet mica schist disc with edge flaked to shape. D 32, T 5. C162046. Illus 7.49
- SF162015 Staurolite schist pebble, roughly discoidal, with part of edge possibly smoothed to shape, the other flaked/broken. L 46, W 39, T 13.5. C162001. Illus 7.49
- To'N 1105 (A) Small flat ovoid schist pebble, unworked. L 29.2, W 26, T 7. (B) Small rounded red sub-triangular jasper pebble, unworked. L 25.5, W 14, T 15.9. (C) Small oblong/rounded flint pebble, unworked. L 29.4, W 20.9, T 17.6 (D) Small irregular/rounded-triangular shaped grey andesite pebble, unworked. L 25.7, W 25.1, T 16. C11002. Illus 7.55
- To'N 1103 Small oval white quartzite pebble with a flat side and a slightly domed side, unworked. L 26.4, W 20.5, T 15.3mm. C11002. Illus 7.55

Illus 7.54
Photograph of gaming counters from the Craw Stane complex. L-R: SF162015, SF162012, SF161185, SF161268. Leanne Demay/National Museums Scotland

Illus 7.55
Photograph of possible gaming pieces from Tap o' Noth (SF1103, SF1105 and SF16005). Leanne Demay/National Museums Scotland

- To'N 16005 Stone ball. Striking geological characteristics, consisting of a creamy white clay-like matrix with black, possibly metalliferous, veins. Spherical in shape with lightly chipped facet forming a base, suggesting use as a gaming counter. D 35mm. C16005. Illus 7.49 & 7.55

Other

Five worked stone objects have an unclear function. Two fragments of slate (SF52) are not a local stone type and must have been brought to the Craw Stane complex. This and SF1905, a sandstone fragment with possible carved edge, may have broken during manufacturing. SF162018 (Illus 7.49) survives as the end of a shaped oval or bar-shaped object; too little remains to determine its original nature. A fragment of heat-affected cobble with bubbled residues (SF164008B) may not have been used as such, but was simply in the vicinity of one of the high-temperature processes taking place on site.

- SF52 Two fragments of slate; one a spall, the other sub-rectangular with edges flaked to shape. Could be a large flake from a sturdier slate bar. No use-wear. Function unclear. Largest fragment 105 x 75 x 9.5. C62
- SF162018 Fragment of staurolite schist broken from oval or bar-shaped object. Surviving rounded edge is smoothed but no obvious use-wear. L 26, W 17, T 6. C162002. Illus 7.49
- SF1905 Fragment of sandstone with most surfaces missing. Large notch in one edge has slight regular stepping on one edge, suggesting it may have been carved, but the rest of this surface is spalled. Perhaps broken during manufacture? 78 x 57 x 33. C1704
- SF164008B Fragment of heat-affected, fire-cracked quartzite cobble with black, bubbled residues on one of the broken faces. 69 x 48 x 45. C164013

7.10.4 Discussion

Over half of the worked stone assemblage from the Craw Stane complex comprises metalworking accoutrements (38 of 67), reflecting other extensive evidence for non-ferrous metalworking there. A further six, possibly seven, items provide evidence of fine textile production (spindle whorl) and probable hide-processing (pumice and hide-rubbers). The stone assemblage also supplies rare evidence of non-craft activities on site, namely food production (rotary querns) and leisure activities (gaming pieces). The careful positioning of the intact rotary quern in one of the lowest ditch fills and the seemingly deliberate fragmentation of the metalworking vessels prior to deposition (Section 7.5) give us hints of ritual traditions echoing an earlier period.

The stone assemblage from Tap o' Noth, though smaller, has quite a different character. Two polished stone discs suggest the preparation of special substances, perhaps medicinal or cosmetic. A group of pebbles and a stone ball were probably gaming pieces. Both groups illustrate activities associated with higher-status sites. Two cobble tools are less evocative but provide evidence of the everyday activities taking place amongst more elite pastimes.

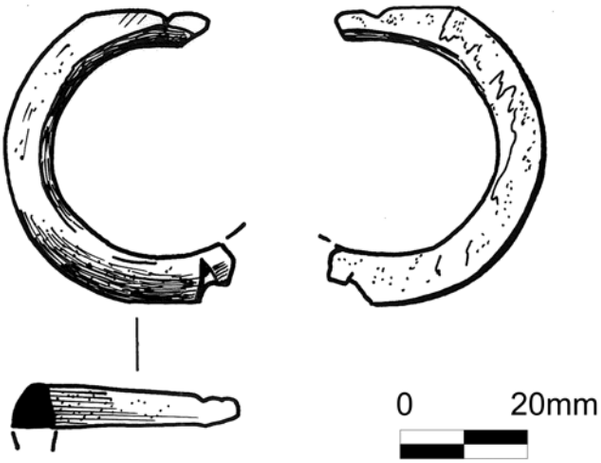
Locally available stone types dominate at the Craw Stane complex, with only three fragments of worked slate and two pieces of pumice brought in from further afield, most likely western Scotland. The stone moulds (Section 7.3) were manufactured from a finer-grained sandstone than the metalworking vessels (Section 7.5), but both probably from the same outcrop, indicating an in-depth knowledge of stone properties and careful selection. Unfinished ingot moulds and metalworking vessels which may have broken during manufacture indicate they were made on site. The presence of these unfinished objects in the same contexts as the dumps of used moulds and cupels suggests they were manufactured in a common workshop area. The part-worked polished stone disc abandoned at Tap o' Noth implies stone items were made there too.

Most of the stone objects at the Craw Stane complex were recovered from the outer ditch (51 of 64) and mainly from the upper fills, mirroring the overall assemblage's distribution. Exceptions to this include a hide-rubber (SF30), pounder (SF15010), probable gaming counter (SF15045) and shaped bar (SF162018) from palisade fills [027] [15506], working surface (SF164019) and residue-coated stone (SF164008b) from post-hole fills [162012] [164008], the spindle whorl (SF62) from a possible floor surface (C75) and decorated, perforated disc (SF15025) from stone socket [15359]. The remaining five objects were unstratified. It is noteworthy that none of the many metalworking-related stone items were recovered from contexts other than the outer ditch; only items relating to other activities were found in other features across the site. That the metalworking debris was not dispersed in this way suggests careful control of the debris to prevent this happening, or that it took place in the later stages of the site's use, limiting opportunity for its spread.

7.11 The Shale Bangle from Cairn More

FRASER HUNTER

The excavations uncovered a well-preserved and notably small bangle of oil shale (Illus 7.56). At only 34.5mm in internal diameter, it is the smallest bangle recorded by the writer from Scotland: in a sample of 378 bangles recorded so far, only six fall into the 35–40mm diameter category. The section (with flattened inner face) is consistent with use as a bangle, but at this size it would most likely have been for a child. It was clearly a valued item, showing extensive use-wear, as considerable efforts were made to repair it after breakage: much of its circumference survived, and the ends were trimmed to create notches, suggesting it was intended to fasten it to the broken piece or to another material. This reflects the local rarity of such items: a recent review by the writer (in McGalliard & Wilson 2021: 23–4, where references may be found) identified only seven pieces of organic-rich stone jewellery from Aberdeenshire of likely later prehistoric or early medieval date. From settlements there is only a bangle from Thainstone and an unfinished bead or pendant from Maiden Castle, Bennachie. Three further instances came from deliberate deposits in hoards or on older sites: gaming pieces from Bruce's Camp, Kintore, a ring-pendant from Cairnhill, Monquhitter, and a bangle fragment from Old Keig recumbent stone circle. In addition, two stray finds may be relevant: a ring-pendant from Huntly Castle and an unfinished bead from West Wrangham, Culsalmond.



Illus 7.56
Illustration of the shale bangle from Cairn More. Alan Braby

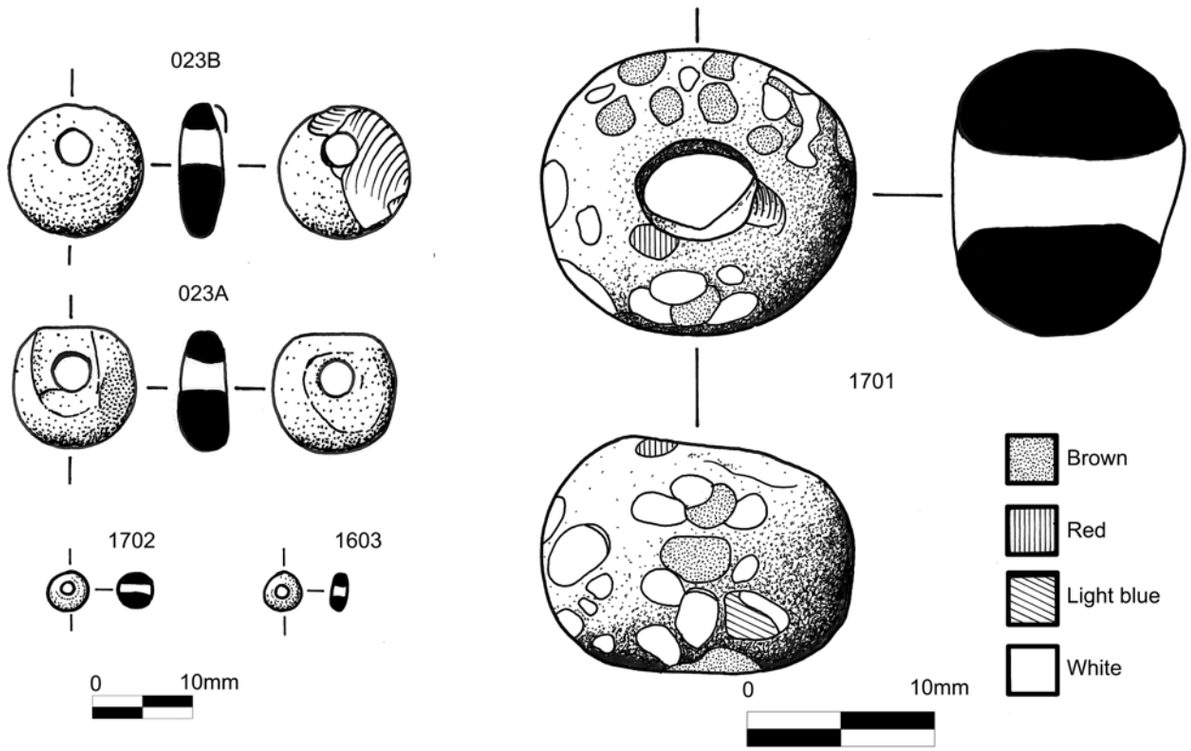
In this area, far from ready access to the relevant raw materials, such imports had considerable rarity value. They are more common along the Moray Firth coast, where the oil shale and cannel-coal deposits at Brora were more readily accessible (Gibson 1922: 32–6).

- Small bangle, D-sectioned with well-rounded exterior surface and gently convex faces turning sharply into the slightly convex interior. Well finished internally, with only faint circumferential abrasion marks; exterior well finished to a medium lustre, with extensive use-abrasion. Modified after it split and broke, leaving around two-thirds of the circumference intact. One end was tapered by trimming, and both had partly encircling notches cut around them (clearly extending onto the split surface, thus post-dating this). These were presumably intended to allow the other part of the bangle to be re-attached or to allow it to be fastened to a replacement or alternative material. The grooves show no significant use-wear, indicating this repair was not long-lived. Internal diameter 34.5mm (65% surviving), external diameter 47.5mm; W max 7.3m, H 6.8mm (originally *c* 10mm). Material: dark grey with laminar fracture; oil shale. CM20 Tr 17. Illus 7.56

7.12 Amber Beads from the Craw Stane complex

GEMMA CRUICKSHANKS AND EWAN CAMPBELL

Two annular amber beads (SF023A and B; Illus 7.57 and 7.58) were found in destruction deposits within the upper fills of the outer ditch C025. Both show polish within and around their perforations from being strung, probably as a necklace. In a local context, amber is notably rare in north-east Scotland during the Iron Age (Hunter 2020b: 159) and continues to be scarce during the early medieval period with no other examples known to the authors in this area. Baltic amber would have washed up on the east coast of Scotland, though the beads themselves may have



Illus 7.57
Illustration of amber beads from the Craw Stane complex and glass beads from Tap o' Noth. Alan Braby

come from further afield; they are not sufficiently diagnostic to determine this.

In southern Britain, amber beads are characteristic of Anglo-Saxon pagan female burials and are by far the commonest bead type, accounting for more than half of all beads in Brugmann's large sample (Brugmann 2004: 115). Though amber beads are not particularly chronologically diagnostic, Brugmann (2004: 47) puts many in her A2 Group of the 6th century. The two beads from the Craw Stane were not associated with a burial, but this wider context along with their local rarity would have made them valued objects.

- SF023A An intact irregular, annular amber bead with tapering oval section and off-centre drilled cylindrical perforation, now worn into an oval opening on one side. Both faces have abraded, fairly flat facets around the perforation and the rounded outer edges are duller from wear. The amber is red-orange with frequent cracking throughout. D 11, perf D 3.5, max t 6; 0.4g. Illus 7.57
- SF023B An annular amber bead with both ancient and recent spalls missing from one face. The neatly drilled cylindrical perforation is off-centre but the overall shape of this bead is much more regular than SF023A, with a circular plan and oval section. The amber is red-orange with frequent cracking and the whole surface is dulled from wear, with notable polish around the edge of the perforation. D 12.5, perf D 3.5, max T 5; 0.3g. Illus 7.57

Illus 7.58
Photograph of amber beads (SF023A and SF023B) from the Craw Stane complex. Leanne Demay/National Museums Scotland

7.13 Glass from the Craw Stane complex and Tap o' Noth

7.13.1 Glass beads and block from Tap o' Noth

LEANNE DEMAY

SUMMARY
Three beads and a block of raw material were recovered from house platforms on Tap o' Noth. Whilst the two smaller beads (SF1603 and SF1702) are a common long-lived type, the 'crumb' bead (SF1701) is rare in a Scottish context. Crumb decorated beads from Anglo-Saxon and continental burials are mostly dated to the 5th–6th centuries AD. The block of green glass (SF1124), probably a Roman tessera, is an unusual find, but one that can be paralleled on a few other Scottish sites of Late Roman Iron Age and early medieval date. Scientific analysis by Mary Davis (Appendix 1) has shown the beads and block have compositions typical of Roman glass. The emerging pattern of distribution of these objects indicates a relationship between such raw material and the production of decorative metalwork at high-status sites.

Glass beads from Tap o' Noth

A translucent dark blue bead with irregular mottled surface decoration in red, white and light blue (SF1701; Illus 7.59) was recovered from the upper floor layer (C17002), Trench 17 and is almost certainly associated with the early 5th- to mid-6th-century AD phase of occupation of House 4. It conforms to Guido's 'crumb bead' type (1999: 27, 53) comprising globular beads with random and irregular speckled decoration. The decoration varies widely and can consist of speckles of the same colour or multicoloured on different coloured bases.

Examples from Scotland are rare. Blackwell's (2018) study of Anglo-Saxon finds from Scotland only confidently identified one other example from Traprain Law conforming to the type. This bead (Blackwell 2018: 246; illus 7.7) bears striking similarity in terms of size and form, but the base bead colour and colours of the 'crumb' decoration differ. The bead from Tap o' Noth conforms to Guido's Schedule 6xi group (1999: 53, 269; map 19), 'blue beads with coloured specks' dated mainly to the 5th–6th centuries in England. This is a variant of the Schedule 2xi group, 'black globular beads with coloured specs' (Guido 1999: 27; plate 3) to which the bead from Traprain Law belongs. Guido (1999: 27) identified a clear 6th-century AD horizon for the 2xi group in England but compared them to a group from eastern Europe common in the Iron Age which continued into the 5th century AD. Blackwell (2018: 251) suggests a late 5th- to early 6th-century AD origin for the Traprain Law example. Three beads from Coulter, Lanarkshire (Blackwell 2018: 247; illus 7.7) are decorated with large white and grey irregular spots, but their date is uncertain.

Following Guido's 1999 compilation, several pivotal studies of beads from burials in England, Ireland and continental cemeteries have been crucial for refining aspects of chronology and distribution (eg Siegmund 1995; Brugmann 2004; Mannion 2015; van Tongeren 2023). In her study of glass beads from early Anglo-Saxon graves, Brugmann (2004) identified a wide distribution of translucent, dark blue globular beads with small irregular dots applied in various colours associated with the Early or 'Migration'

Period. Termed 'mottled' beads, the decoration usually consists of at least two colours, mostly white and red. Sixty-eight are known from England, but require more detailed analysis on provenance, distribution and dating (Brugmann 2004; Table 10; plate 149). In Ireland (Mannion 2015), beads resembling Guido's 'crumb' group are known from the early medieval royal residences at Lagore (Hencken 1950: 145; fig 68D), Garranes (Ó Ríordáin 1942: 16; fig 14 321 and fig 16 337a), and from Ballinderry Crannog 2 (Hencken 1942: 51; fig 21 440). The 'crumb' form of decoration is popular across Merovingian Europe, for example, present in 5th- to 8th-century AD graves of females on the Lower Rhine (Siegmund 1995: 45; illus 2.15) and 6th- to 7th-century AD burials in the Netherlands (van Tongeren 2023: 389–90; plate 14).

Glass beads are bespoke crafted items, demonstrating highly individual characteristics with shared traits and manufacturing techniques (Mannion 2015: 18). The variance in base and speck colours on crumb beads suggest they were decorated on an *ad hoc* basis by creative artisans. Of all the decorated glass beads, this form of decoration would have been the easiest to produce (Guido 1999: 27). Beads are easily transported and probably travelled widely with other desirable goods of the period. With the lack of a burial tradition in Scotland, there is a paucity of contextual information to suggest who wore the beads and how they were worn and most beads of the period have little to no provenance or context information (Blackwell 2018: 220). Anglo-Saxon grave studies (eg Hirst & Biek 1981; Brugmann 2004; Hines & Bayliss 2013: 520) have been instrumental in facilitating discussion beyond their value as chronological indicators and objects of decoration and burial costume (predominantly associated with female burials), going further to explore their social role in projecting an individual's position in society. Rather than just being common decorative objects, they could have held a deep, complex role within society as carefully curated heirlooms embodying individual and communal identities and beliefs.

A tiny translucent green bead SF1702 (Illus 7.57) was found in the same context as the crumb bead and a tiny blue bead SF1603 (Illus 7.57) came from another floor layer (C16005) in Trench 16. These conform to Guido's Group 7iii (medium and small green translucent and opaque globular beads) and Group 7iv (medium and small blue translucent and opaque globular beads; Guido 1978: 70). Common on sites in Britain and the continent, small annular beads persisted for a long time and are considered culturally and chronologically undiagnostic. Green and dark blue are the most common colours, along with the typical opaque yellow found on many Iron Age sites. Similar tiny blue beads have been found in both Iron Age and Pictish phases at Old Scatness, Shetland (Brown 2010: 348; Plate 6.13.2; Brown 2015: 431; Plate 7.12.10–11). This type of bead also conforms to Mannion's Class 15a – miniature globular beads which were current throughout the early medieval period in Ireland from the late 5th to late 9th centuries (Mannion 2015: 28–9).

- SF1701 Globular translucent dark blue bead with irregular dots in red, white and light blue. Asymmetrical, probably from irregular heating. Chipped around the perforation on both sides. D 16.6; perforation D 4.4; T 9.7–12.8; 3.9g. Trench 17; C17002; upper floor layer. Illus 7.57 and 7.59
- SF1702 Small semi-translucent green globular bead. D 4.6mm; W 4mm; perforation D 1.6mm; 0.1g. T17; C17002; upper floor layer. Illus 7.57
- SF1603 Small translucent annular blue bead with rounded edges, chipped on one side. D 4.6; W 2.4, perforation D 1.9mm; 0.1g. T 16; C16005; upper floor layer. Illus 7.57

Glass block

A small, angular block of opaque green glass (SF1124; Illus 7.60) was recovered from the upper floor layer (C11002) of a house platform in Trench 11. Its shape, composition and weight suggest it could be a piece of Roman tessera (James 2017: 27). This unusual find can be paralleled on a few other Scottish sites of Late Roman Iron Age and early medieval date, for example, at Brough of Birsay, Orkney (Curle 1982: 47); Dunadd, Argyll (Lane & Campbell 2000: 173); Sculptor's Cave, Moray (Hunter & Davis 2020: 163; Illus 5.58); Mote of Mark, Kirkcudbrightshire (Campbell 2006: 102); and Whithorn, Wigtownshire (Hill 1997: 296; Campbell 2008: 93–4).

There are no indications that raw glass was produced in northern Europe before the end of the 8th century AD (Barfod et al 2022: 179) and for most of the first millennium AD, glass was produced on a large scale at a relatively small number of specialised sites (Paynter & Jackson 2016). Objects like tesserae, produced in the Mediterranean, would have been exchanged or reused as small ingots for recycling into beads or enamelling metalwork. Compositional analysis of glass from the period shows widespread and prolonged recycling of Roman glass for this purpose (eg Freestone 2015a; Paynter & Jackson 2016). Analysis of SF1124 by Mary Davis has confirmed that its composition it consistent with Roman glass (Appendix 1). During the Late Antique period, small glass blocks, probably scavenged from floor and wall mosaics travelled across northern Europe to satisfy the thriving glass bead industries (eg Barfod et al 2022; Henderson et al 2019; Crocco et al 2021).

SF1124 was recovered from a floor deposit (C11002) containing Late Roman pottery, and radiocarbon dates indicate a 3rd- to 4th-century AD phase of occupation. An early appearance for this type of object that can be paralleled at another site in the north-east of Scotland, Sculptor's Cave (Hunter & Davis 2020: 163; Illus 5.58). Mould fragments from the same floor layer (C11002) support the emerging pattern of a relationship between such raw material and the production of decorative metalwork at high-status sites, for example, Dunadd, Brough of Birsay and Whithorn (Table 7.18). The relationship between glass and jewellery manufacture is clear at the Iron Age craftworking centre of Culduthel (Hunter 2021c: 201). Evidence for glass working and enamelling in Scotland remains scarce (Hunter 2015: 235), but the distribution of one glass ingot (Dunagoil, Bute; Hunter et al 2018: 213) and tesserae (Table 7.18) hints the craft was specialised but widespread (see Hunter 2015: 235).

Exactly how this block of Roman glass made its way to a house on Tap o' Noth is a complex question to answer, but the site's inhabitants clearly had long-distance contacts and access to valuable raw material. It was probably intended to be reworked, but comparable finds from other sites reveal a deeper meaning: for example, the tessera from Sculptor's Cave, Moray was interpreted as a votive token embodying a craftworking process or specially selected for its colour symbolism (Hunter & Davis 2020: 163).

Site	Site type	Date	Description/reference
Tap o' Noth, Aberdeenshire	Hillfort	3rd–6th century	Block of opaque green glass
Dunagoil, Bute	Hillfort	Iron Age	Opaque yellow glass ingot (Hunter et al 2018, 213)
Dunadd, Argyll	Hillfort	7th century	SF1309 Tessera of greenish yellow glass with gold leaf (Lane & Campbell 2000, 173)
Sculptor's Cave, Morayshire	Cave	Roman Iron Age	SF871 Small block of opaque red glass (Hunter & Davis 2020, 163)
Mote of Mark, Dumfries & Galloway	Hillfort	Unstratified	SF3102 Irregular cuboidal fragment of pale aquamarine glass (Campbell 2006, 102)
Brough of Birsay, Orkney	Craftworking settlement	Pictish horizon	SF 645 Opaque light blue cube (Curle 1982, 47)
Fey Field, Whithorn, Dumfries & Galloway	Monastic town	Undetermined	93/SF02100 Opaque yellow glass tessera (Campbell 2008, 93–4)
Glebe Field, Whithorn, Dumfries & Galloway	Monastic town	*c* 12th–13th century	Twelve tesserae, ten blue, one yellow, and one red (Period IV) (Hill 1997, 296)
Glebe Field, Whithorn, Dumfries & Galloway	Grave	*c* 7th century	Dark blue glass tessera (Period 1/4) (Hill 1997, 296)

Table 7.18
Finds of glass blocks/ingots from non-Roman sites in Scotland

Illus 7.59
Photograph of crumb bead from Tap o' Noth (SF1701). Leanne Demay/ National Museums Scotland

Illus 7.60
Photograph of Roman vessel glass (SF15008) and glass block (SF1124) from Tap o' Noth. Leanne Demay/National Museums Scotland

Plenty evidence exists to show Roman glass objects were often reused without being re-melted (see Paynter & Jackson 2016) and this small colourful block of glass may have been curated as a well-travelled object imbued with meaning beyond its physical characteristics.

- SF1124 Small block of opaque bubbly green glass. The edges are sharp with no abrasion. One surface is very flat and chipped at the corner (perhaps removed intentionally?). L 13.1mm; W 9.5mm; T 7.2mm; 1.3mm. T11; C1102; upper floor layer. Illus 7.60

7.13.2 Roman Vessel Glass from Tap o' Noth

FRASER HUNTER

Small sub-oval fragment of Roman glass (SF15008; Illus 7.60), preserving the attachment point for the base of a fine strap handle just above the curved shoulder of the vessel. It is of good-quality glass, almost clear and slightly bubbly, and a 1st- to 2nd-century date is likely. The surviving shoulder and slim handle suggest it derives from a fine jug or small amphorisk. A wide range of possible forms could have such features (eg Fünfschilling 2015: Formtafel 2 no A112, Formtafel 5 nos 164–5, 176–77). The fragment is too small to identify with certainty, but both small jugs and small amphorisk forms are already attested on Iron Age sites in Scotland (Ingemark 2014: 40–3 [though known Scottish examples are decorated], 117–9). High-quality Roman glass is already known from Aberdeenshire, both as complete vessels and as heavily reused fragments (Ingemark 2014: 251–3); the Tap o' Noth fragment sits between these extremes, being broken but showing little wear to suggest an extended life as a fragment.

- SF15008 Almost clear, slightly green-tinged fine glass sherd, some bubbles, from the shoulder of a vessel, preserving the neat drop where the base of a handle was attached just above the shoulder. The remains of a narrow strap handle (some 6mm wide, slightly concave) survive. A separate decorative trail, doubled back on itself, projects the line of the handle slightly down the body of the vessel. The broken edges

show no sign of wear. L 21.5mm, W 12.5mm, max T 4.5mm, wall T 1–1.5mm, m 1.8g. TAP 22; T15; C15015. Illus 7.60

7.13.4 Glass from the Craw Stane complex

EWAN CAMPBELL

Early medieval vessel glass

There is only a handful of early medieval vessel glass sherds from the site, but they are important as they include representatives of the main groups of imports found in Britain in the early medieval period: the Mediterranean, Germanic and Atlantic Groups (Campbell 2007). Imported glass has been found on around 60 Insular sites outside of Anglo-Saxon areas, but only four other sites have this range of types – Tintagel, Whithorn, Dinas Powys and Cadbury Congresbury (Campbell 2007: 54–73, fig 39). These are all important high-status sites which, like the Craw Stane complex, also have much imported Mediterranean pottery and evidence of fine metalworking. Tintagel and Dinas Powys also have possible royal connections. All the sherds from the Craw Stane complex are small, but several have enough features preserved to identify the type of vessel and its probable origin. The assemblage includes material that is conventionally dated to the later 5th to early 7th centuries, the period when two successive trading systems were bringing material (mainly ceramics) from the Mediterranean and the western continent to Insular sites by the western sea route (Campbell 2007), but the radiocarbon dates from the Craw Stane complex suggest these vessels were in use no later than the mid-6th century. A separate trading system brought material from Anglo-Saxon England and the north continent up the eastern coast of Scotland (Campbell 2009), from the 6th to 8th centuries. The Craw Stane complex appears to have been tied into both of these trading networks, and is one of very few sites in Pictland which received imports from the western sea routes, the others being Clatchard Craig, Craig Phadrig and Dundurn hillforts. Although the date of the Craw Stane complex glass vessels cannot be closely established, all could fit comfortably in with the late 5th- to mid-6th-century date of the Mediterranean amphorae found on the site.

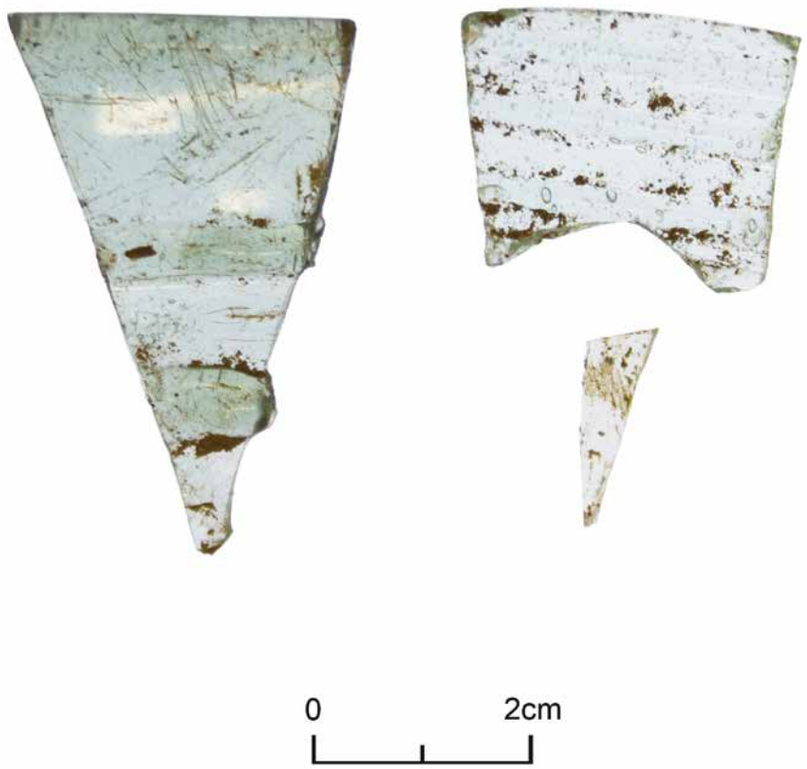
Small undecorated sherds can be very difficult to separate from modern pre-industrial glass, but at least five of the vessels described here can be confidently assigned to the early medieval period. All of the vessels imported at this period were drinking vessels, and were high-value items brought alongside the larger pottery containers described above. Given the relatively large areas of the site excavated, the small number and size of the sherds suggests that the glass sherds from broken vessels were carefully collected for recycling. There is evidence for this glass working in the non-vessel material described below, and this recycling process has been shown to have taken place at sites such as Dinas Powys (Campbell 2007: 92–6).

Vessel 1 belongs to the Group C decorated Atlantic tradition (Campbell 2007: 64–9). The marvered opaque white trails are characteristic of this group of vessels. The vessel was probably a bowl rather than the commoner cone beaker form. These vessels were imported from south-western France, Bordeaux region, in the 6th and 7th centuries, initially alongside the early 6th-century Mediterranean package of ceramics, but later in larger quantities in the 6th and 7th centuries alongside DSPA and E Ware, also produced in western France. This vessel is probably 6th century in date.

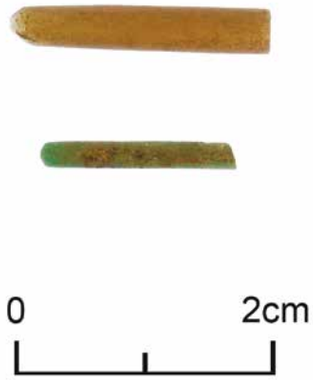
Vessel 2 (Illus 7.61) is of very fine quality decolourised glass. If it is ancient, which is not certain as it has no distinguishing features, it is probably from a conical beaker or flask of the Group A Mediterranean tradition. Given that it was stratified with certain early medieval material in the palisade trench, there is no reason to doubt that it is contemporary with that material.

Vessel 3 is from a vessel of the Group B Germanic tradition, with complex decoration, possibly a claw beaker. The brown colour is similar to that of 5th-/6th-century Anglo-Saxon glass, and at least some of the vessels of this form were probably manufactured in south-east England (Evison 2000: 63–5). Claw beakers are rare outside Anglo-Saxon areas, with finds only from Dinas Powys, Whithorn and Dunnyneil Islands (Campbell 2007: 60, fig 41).

Although Vessel 4 (Illus 7.61) is only represented by a tiny fragment, it shows the typical wheel-abraded scroll and letter decoration of Group A Mediterranean tradition glass (Campbell 2007: 56–8, fig 40). These decorated vessels are also very rare in Insular contexts, and have been found at Tintagel, Traprain Law and Whithorn, as well as in a few Anglo-Saxon graves, in 5th- to 6th-century contexts (Price 2000: 24–6).



Illus 7.61
Photograph of early medieval vessel glass from the Craw Stane complex (SF162002, SF222 and SF161210). Leanne Demay/National Museums Scotland



Illus 7.62
Photograph of glass rods from the Craw Stane complex. SF1884 (above) and SF161507 (below). Leanne Demay/National Museums Scotland

Vessels 5 (not illustrated) and 6 (Illus 7.61) are similar in colour and decoration, but are different vessels belonging to the Group B Germanic tradition of the 5th/6th centuries. The upright rim of Vessel 6, and its diameter, are indicative of a conical beaker (cf Evison 2008: 50, fig 4, no 28, from Faversham), though other forms are possible. The regular spacing of the trails on Vessel 5 might suggest it comes from a Kempston type beaker (Evison 2000: 62, fig 2, Group 26) of the 5th or early 6th century.

Bead

A disintegrated translucent yellow glass bead (SF161034) was recorded in the upper fill of the outer ditch, but its form is no longer discernible. Beads of this colour are known from Anglo-Saxon contexts, but there many unpublished beads of similar colour from Culbin Sands (Christie 2014: NMS Reg No. BIB59), perhaps indicating local manufacture. A residual fragment of Early Bronze Age faience bead (SF219) was also recovered from an outer ditch fill (C297), probably from a grave which predates (and was possibly destroyed by) the early medieval site. The faience bead report by Alison Sheridan is in Appendix 2.

Glass-working debris

WITH GEMMA CRUICKSHANKS

There are a few other items of glass, including important evidence of glass working on the site. Raw materials are represented by two glass rods (SF1884 and SF161507; Illus 7.62) and two lumps of glass (SF238 and SF161337). The glass rods, one white and one green, both display facets on one end suggesting they were rubbed against something. Such rods may have been used to apply decorative trails to glass objects such as beads, implying such objects were being made at the Craw Stane complex. Analysis of their composition by Mary Davis has demonstrated they are all typical of reused Roman glass (Appendix 1). These were all found in the same section of the outer ditch, suggesting glass working was taking place in this sector of the site.

Glass rods like these are not common and their presence suggests specialised glass working was taking place. Three similar rods were found amongst other glass-working waste dating to the 5th and 6th centuries AD at Lisnacaheragh ringfort in Ireland (O'Brien & Hogan 2021: 311). Facetted, plain rods like SF1884 and SF161507 are hard to parallel, though other forms of specialist glass-working evidence are known, such as two rods comprising multicoloured strands, interpreted as evidence of millefiori production from Lisnacahera (O'Brien & Hogan 2021), a multicoloured glass tube fragment from Dunadd, also understood to be from creating millefiori and a twisted blue and white glass rod from Culduthel which was thought to have been for an inlay (Lane & Campbell 2000: 173: SF874; Hunter 2021c: 203: illus 6.74). Other evidence in the form of blocks or ingots is outlined by Leanne Demay (Table 7.18). The evidence of specialist glass working is sparse, but usually found in association with extensive metalworking evidence, as here, indicating a close relationship between the crafts.

Vessel 1 SF048 Body sherd with two opaque white marvered horizontal trails. From below rim of?bowl. Almost colourless glass, excellent quality. Size 19 x 11 mm, T 1mm. C025, upper fill of outer ditch.

Vessel 2 SF222 Large bodysherd of conical vessel. De-colourised glass, very fine, few bubbles. Size 27 x 22mm, T 0.07mm. Estimated diameter 60mm. C218, palisade trench. Illus 7.61
SF164002 Small body sherd of colourless glass, good quality. Similar to SF222, possibly same vessel. Size 20 x 12 x 1mm. 164000. Cleaning, Trench 4

Vessel 3 SF1788 Irregular body sherd. Glass brown, good quality. The wall is distorted by attachment of a self-coloured blob, or possibly a claw. Size 17 x 7mm, T 1–1.5mm. C1707. Fill of outer ditch

Vessel 4 SF161210 Tiny sliver of glass vessel with a patch of wheel-abraded decoration, perhaps part of a letter. Glass light yellow, good quality. Size 10 x 3 mm, T 1mm. C161003. Fill of outer ditch, Trench 1. Illus 7.61

Vessel 5 SF161077 Body sherd from just below the rim of a conical vessel. Decorated with four evenly spaced unmarvered self-coloured horizontal trails. Glass very light green, good quality but full of tiny bubbles. Estimated diameter 80mm, T 1mm, size 12 x 15mm. C161037. Fill of outer ditch, Trench 1

Vessel 6 SF162002 Rim sherd. Glass very light green, good quality, a few horizontal bubbles. Rim fire-rounded, upright not everted or thickened. Below the rim are two wide irregular unmarvered horizontal self-coloured trails with drop point; below is a fragment of another drop point or?a vertical looped trail. Estimated rim diameter 90mm, T 1–1.5mm, size 25 x 15mm. C162002. Upper fill of palisade, Trench 2. Illus 7.61

Possible Vessel SF1787 Tiny fragment of light green vessel glass. Good quality, large bubbles. Size 9 x 8mm, T 1mm. C1707. Fill of outer ditch

Bead SF161034 Fragments of a bead of unknown form, completely disintegrated. Light yellow glass. C161037: fill of outer ditch

Glass-working waste SF238 Irregular lump of opaque yellow glassy material. Pale sulphur yellow, with columnar structure. 10 x 10 x 7 mm. C329

- SF1884 A piece of tapering glass rod, broken at one end, worn to a blunt point at the other. Opaque white glass, bubbly. Length 20mm, diameter 3mm. C1703, fill of outer ditch. Illus 7.62
- SF161337 Irregular lump of opaque yellow glass. Very abraded. 9 x 8 x7mm. C161048. Fill of outer ditch
- SF161507 A piece of glass rod, broken at one end, worn to a blunt point at the other. Opaque light green. Length 15mm, diameter 2mm. C161062. Fill of outer ditch. Illus 7.62

7.14 Handmade Pottery from the Craw Stane complex, Tap o' Noth and Cairn More

GEMMA CRUICKSHANKS AND LEANNE DEMAY

Summary

Two small assemblages of handmade pottery were recovered from the Craw Stane complex and Tap o' Noth, and a single undiagnostic sherd was found at Cairn More. Twenty-eight sherds from a minimum of seven vessels are from the Craw Stane complex, all from the upper fills of the outer ditch, dating to the 5th and early 6th centuries AD. Tap o' Noth produced 46 sherds from a minimum of seven vessels, predominantly recovered from floor layers on platforms in Trenches 5, 11, 12 and 17, spanning phases of occupation between the mid-3rd and mid-6th centuries AD. Everted, rolled and plain rounded rims from vase- and bucket-shaped vessels are represented. Contemporary parallels are scarce, but the similarities with slightly earlier assemblages in north-east Scotland reveal a longer handmade pottery tradition than previously thought.

Method

Each sherd was catalogued in accordance with the Prehistoric Ceramics Research Group's recommended methods (MPRG 2016). Sherds were divided into separate fabric groups for each site and assigned vessel numbers based on differences in form, surface treatments and dimensions. Each of the 'vessels' represents a minimum of one vessel but could conceivably comprise more than one very similar vessel. Degree of wear was recorded along with the position and extent of residues and/ or soot. The fabrics and forms for each assemblage are summarised first, followed by a joint discussion at the end. Catalogue entries for each vessel are found at the end and a full catalogue detailing each sherd is in the archive.

Fabric and Form: Craw Stane complex

Four fabric types were identified:

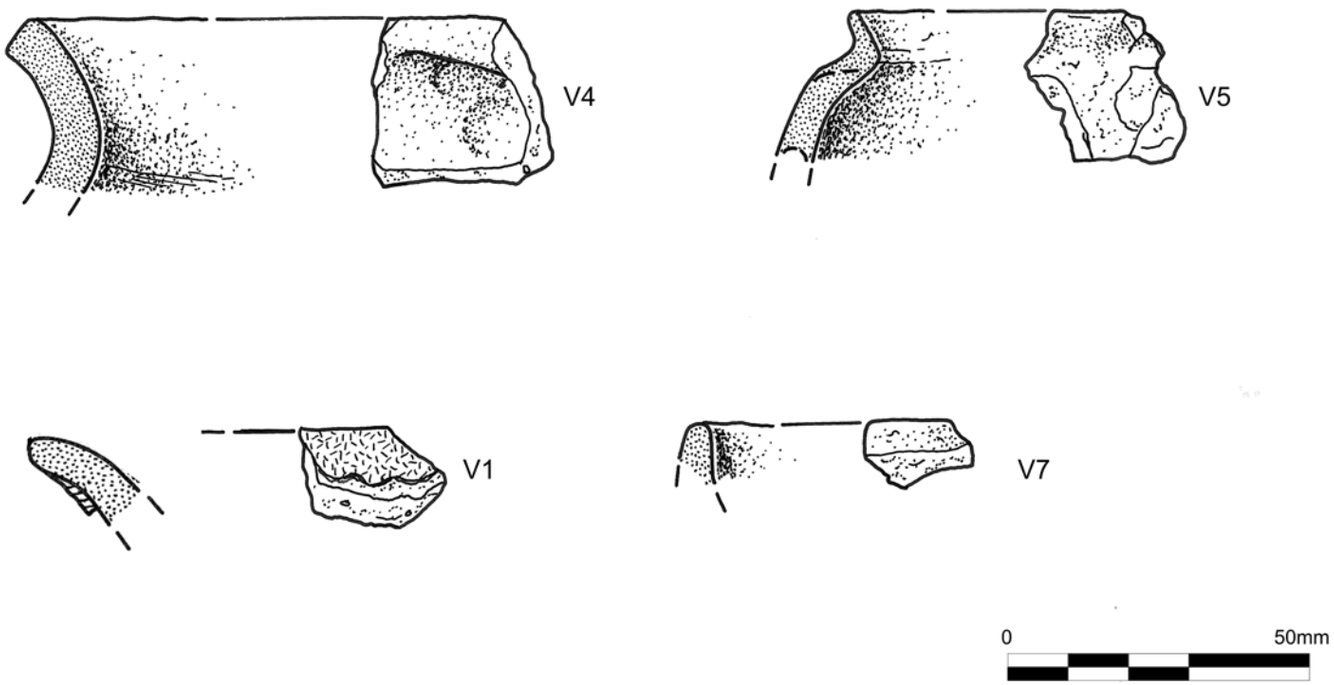
A: Fine sandy clay with occasional small (0.5–1mm) mixed rock inclusions (Vessels 1, 2 and possibly 4).

B: Sandy clay with moderate small quartz inclusions (0.5–1mm). Appears sandier/grittier than Fabric A (Vessel 3 and possibly 4).

C: Fine, hard-fired grey clay. No obvious inclusions and a flakier fracture (Vessel 5).

D: Fine, micaceous, soft clay. No obvious inclusions (Vessels 6 and 7).

Some of the fabrics, particularly A and B are not always very distinct from each other and may represent a spectrum within the same variable clay source. Thin-section analysis of similar fabrics from Sculptor's Cave and Birnie, both in Moray (Sahlén 2020;



Illus 7.63
Illustration of handmade pottery vessels from the Craw Stane complex. Alan Braby

2009: 36), has shown that such fabrics were usually locally sourced and while their inclusions appear indistinct, their regularity and even distribution suggests they were often deliberately added (Sahlén 2020).

Form

Vessels 1, 4, 5 and probably 7 (Illus 7.63) had everted rims, while Vessel 6 had a thick, plain, rounded rim. There are no diagnostic sherds (eg rims) from Vessels 2 and 3; they are designated separate vessels from fabric or surface treatment only. No basal sherds are present, and therefore no complete vessel profiles can be reconstructed, but everted-rimmed vessels tend to be vase-shaped with rounded shoulders, narrowing to a flat base. Intact wall thicknesses vary between 7 and 10mm, with most measuring around 8mm. No sherds are large enough to estimate original vessel diameter.

Fabric and Form: Tap o' Noth

Five fabric types were identified:

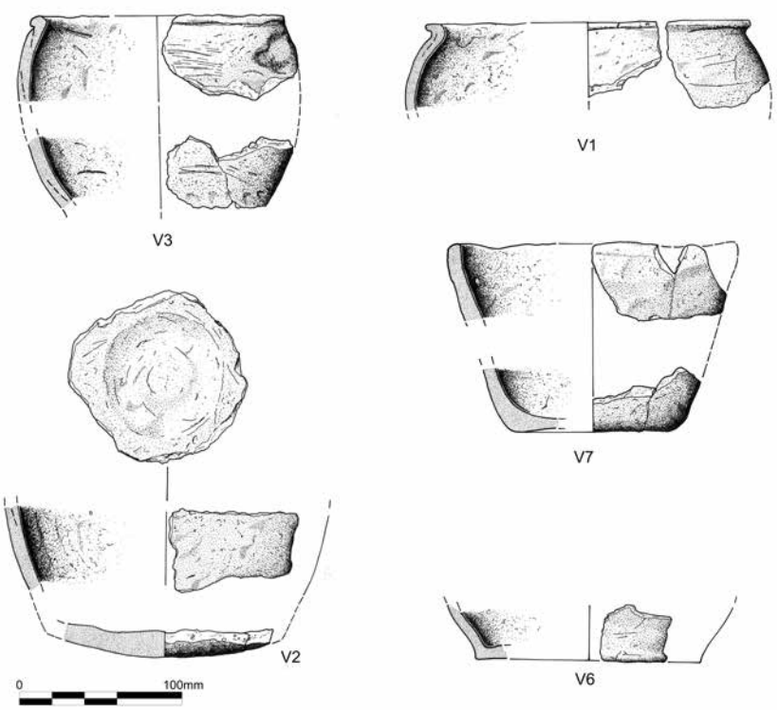
A: Fine clay with frequent sub-rounded grits (*c* 0.1–4.5mm) (*c* 5–10%) including quartzite and a distinctive orange-red grit (Vessel 3)

B: Fine sandy clay with a few small (*c* 0.1–3mm) quartz inclusions (Vessel 1)

C: Sandy clay with frequent angular grits (*c* 0.1–4mm) (*c* 5%), mostly quartzite, micaceous (Vessels 2, 5 and 7)

D: Fine clay, micaceous with occasional inclusions (*c* 0.1–1mm) (Vessel 4)

E: Similar to A, but with distinct mica inclusions (*c* 5%) (Vessel 6)



Illus 7.64
Illustration of handmade pottery vessels from Tap o' Noth. Alan Braby

Form

Vessel 1 has a short, everted rim while Vessel 3 has a rolled rim defined by a circumferential groove around the exterior, and Vessel 7 had a plain rounded rim (Illus 7.64). Basal sherds are present from Vessels 2, 4, 6 and 7, illustrating they were flat based, with the interior of Vessel 2's base displaying a distinct circular depression. Such depressions served to reduce the thickness of clay at the base to aid even firing and while concentric striations within the depression in Vessel 2's base give it the appearance of a wheel-thrown pot, it would seem odd to hide such a feature on the inside if purely for aesthetics.

While no complete profiles survive, Vessels 1 and 2 share the same vase-shaped profile with everted or rolled rims and rounded shoulders, tapering to narrow, flat bases. Vessel 7, with its plain rounded rim, was more bucket-like and the other vessels could have been either vase or bucket forms; not enough survives to determine which. The average wall thickness is 8mm (all within 7–9mm). The rim sherds from vessels 1, 3 and 7 are sizeable enough to estimate their original external rim diameter. Vessels 3 and 7 both have an estimated rim diameter of 140mm and Vessel 1 is slightly larger with a rim diameter of 180mm.

Fabric and Form: Cairn More

The single undiagnostic body sherd (SF802) retrieved from an occupation deposit (C8005) at Cairn More has a broadly consistent fine micaceous fabric and wall thickness (8mm) but is too abraded to comment on further.

Construction, function and wear: Craw Stane complex and Tap o' Noth

Technology and Manufacture

The highly variable sherd colours at the Craw Stane complex reveal fairly inconsistent firing conditions. Even across a single sherd some areas are oxidised and others reduced. In contrast, the sherds from Tap o' Noth were predominantly oxidised on the exterior with a reduced core, suggesting reasonably consistent firing. All the vessels from both sites had smoothed surfaces, suggesting they had been wiped with a wet cloth or hand prior to firing. This technique brings smaller clay particles to the surface, creating a smoother finish either for aesthetic purposes or to seal any small gaps and improve water-retention. Smoothing on both the interior and exterior surfaces suggests it was not simply for aesthetics.

The surface of the Craw Stane complex's Vessel 3 was burnished to create a shiny, polished black finish. Aside from some very fine organic impressions on the exterior of Vessel 5 (possibly hair?) there is no evidence of organic tempering. However, occasional grass or chaff impressions on broken edges of the Tap o' Noth sherds indicate there was some organic additions to the clay there.

The sherds from the Craw Stane complex were too fragmentary to determine which manufacturing technique was used, eg diagonally-joined straps, or 'tongue and groove' methods, although the lack of obvious join breaks on broken edges would argue against tongue and groove construction, which tends to leave distinct traces. Where discernible, angled-strap construction was used for the Tap o' Noth pots.

Function

Vessel 1 from the Craw Stane complex preserves soot and burnt residues on the exterior and interior surfaces, indicating it was most likely used for cooking food. Slight sooting on the interior of Vessels 3, 4 and 5 imply proximity to an open fire, also likely to represent cooking or heating water. As the original diameters cannot be measured, it is difficult to interpret if any were large enough to be storage vessels, but the relatively thin walls and presence of sooting on most suggests not or at least that they had multiple purposes and functions. At Tap o' Noth, all vessels apart from Vessel 4 show exterior sooting and vessel diameters (140–180mm, where measurable) indicate a cooking or serving, rather than storing, function.

Phytolith analysis of selected sherds from both sites indicates they held a barley-based food, such as a porridge or stew at some point during their use and does suggest that some of the vessels, perhaps intermittently, were used for storage (Section 8.5).

There are examples of ceramic vessels found sunk into the ground beside metalworking furnaces at Midhowe (Callander & Grant 1933: 476) and Howe (Ballin Smith 1994: 52), both in Orkney, which may have been used to hold water for quenching hot tools. It is worth considering, given the sherds deposition amongst extensive metalworking debris deposits in the outer ditch, that the pots there need not necessarily have had a solely domestic function at the Craw Stane complex, or that cooking pots could have been later repurposed for other functions.

Wear

The degree of wear on each sherd was recorded on a scale of 1 to 4, with 1 representing freshly broken vessels and 4 showing a high level of abrasion. This was used to analyse how much the pottery may have moved around since deposition, creating the potential to identify residual sherds from primary deposits. At the Craw Stane complex sherds from all vessels apart from Vessel 6 show fresh breaks or only slight wear, while the single sherd from Vessel 6 is notably more worn. The Tap o' Noth assemblage similarly has very little wear, suggesting it had moved very little since breaking.

Discussion: context and significance

All the sherds from the Craw Stane complex were recovered from fills of the outer ditch (C1703, C1707, C161003, C161047, C161048, C161054). Upper ditch fill C1703 produced 21 of the 28 sherds, including all but two sherds from Vessel 1 (15/17), and all sherds from Vessels 3 and 6. This, along with the lack of wear on most sherds, suggests they saw little movement after deposition. Notably, while the single sherd from Vessel 6 was significantly more worn than the other sherds it is also the only vessel with a robust, rounded rim, suggesting it may be older than the rest of the assemblage and unrelated to the early medieval activity. Vessels with plain rounded rims have a lengthy history but its relatively fine fabric suggests a broad later prehistoric date.

The upper fills of the outer ditch have been radiocarbon dated to between the 4th and 6th centuries AD. While this only dates the final deposition of the pottery rather than its manufacture and use, the relatively fresh condition of the sherds suggests they are unlikely to have derived from activity much earlier than this.

The Tap o' Noth assemblage was found in occupation deposits on several platform structures. Vessels 1, 2 and 3 were from the main occupation layer (C5101) on platform 5, Vessels 4, 5 and 6 from platform 11 deposits (C11002, C11003, C11004, C11005 and C11010) and Vessel 7 was found in the platform 12 lower floor deposits (C12003). Vessels 4 (flat base sherd) and 7 (bucket-shaped with rounded rim) came from earlier phases of occupation which have been radiocarbon dated to mid-3rd to early 5th centuries AD. The other vessels are from later deposits dating to the early 5th to mid-6th centuries.

Securely dated handmade pottery assemblages from the early and middle first millennium AD are scarce on mainland Scotland, exceptionally so from the timeframe represented here. Therefore, despite the small size and fragmentary nature of this assemblage, it is of great value in revealing a tradition of handmade pottery later than previously evidenced in this region. Scarcity of parallels makes any wider contextual discussion challenging, but the similarity of some of these vessels to Roman Iron Age pottery in north-east Scotland is striking. For example, vessels with similar everted rims and fabrics to those here are known from 2nd- to 4th-century AD deposits at the promontory fort of Dunnicaer, Aberdeenshire (Cruickshanks 2020b), two similar vessels from Birnie, Moray, contained hoards of late 2nd-century AD Roman denarii (Holmes 2006: 3, fig 2) and several everted-rimmed vessels were recovered from the Roman Iron Age layers in Sculptor's Cave, Covesea (Cruickshanks & Sheridan 2020). No aspects of this assemblage would be out of place on a Roman Iron Age site several centuries earlier, revealing the continuation of local handmade pottery traditions into the early medieval period.

From other areas of Scotland there are glimpses of a range of forms in this period, such as a flattened beaded rim from Tarradale (visually similar to the 'rolled' rim from Tap o' Noth) (McGill 2001: 246) and a range of flat, flaring, everted and inverted rims from Phase 3 (5th to 7th centuries AD) at Eilean Olabhat, North Uist (74, illus 27). A similar range of slightly everted, rolled and plain tapered rims are present in Phase 6 (4th to 8th centuries AD) at Pool on Sanday, Orkney (Hunter 2006: 83; MacSween 2006: 312, illus 8.1.15) and comparable forms in Phase 8 (*c* 4th to 7th centuries AD) at Howe, Orkney (Carter 1994: 262; Ross 1996: 253, illus 152). The broad forms present at the Craw Stane complex and Tap o' Noth are therefore geographically widespread at this time and regional diversity is more likely to be found in aspects like decoration, which is completely absent here.

Within the broader trends in form, however, subtle differences are seen when comparing the Craw Stane and Tap o' Noth assemblages. For example, less consistent firing conditions at the Craw Stane complex, and the presence of occasional organic temper at Tap o' Noth, reveal some of the finer detail in local potting traditions. Therefore, from the little evidence we have, early medieval handmade pottery forms follow geographically broad trends, with some regional variation, but also finer variations between sites, as is typical for small-scale local production. The Craw Stane complex and Tap o' Noth pottery assemblages illustrate the potential of a wider study to fully understand the organisation of handmade pottery production during this period.

Catalogue

A full catalogue of each sherd is in the archive with vessels summarised here. Measurements are in mm. Abbreviations: T thickness, SF small find number, C context.

The Craw Stane complex

A single wall sherd SF161041 (C161003) is not included below; it could not be assigned to a specific vessel but is not distinct enough to be a separate vessel.

Vessel 1 (Illus 7.63)

Two everted rim sherds (SF1783B and 1783G, the latter just the tip) and 15 wall sherds from a vessel with smoothed interior and exterior, sooting and residues on interior and exterior and low levels of abrasion on broken edges. Colour is predominantly pale brown on the exterior, with a black/ grey core and interior. Fabric A. Average wall T 8.

SF1772, 1786, 1783A, B, D–H, 1785A–F: C1703

SF1804, 1805: C1707

Vessel 2

A single wall sherd (SF161254) from a vessel similar to V1 in fabric (A) but less well-fired, slightly more worn and lacking soot or residues. Wall T 8. C161047

Vessel 3

Five wall sherds from a vessel with black, burnished outer surface. Some sooting on the interior, coloured grey with a red-orange core and only slight wear on the broken edges. Fabric B. Average wall T 7.5.

SF1709A–E: C1703

Vessel 4 (Illus 7.63 and 7.64)

An everted rim with slight, rounded external lip (SF161403). Finely smoothed exterior with patches of sooting present. Grey with a red-brown core and only slight wear on the broken edges. Fabric A or B. Wall T 9. C161048

Vessel 5 (Illus 7.63)

A small, finely shaped everted rim (SF161511) from a vessel with smoothed surfaces, slight sooting on the exterior and freshly broken edges. Grey colour throughout. Fabric C. Wall T 7. C161054

Vessel 6

A single, thick, rounded rim sherd (SF1783C) from a vessel with smoothed surfaces. No soot or residues present and edges much more worn than other sherds. Pale grey-brown in colour throughout. Fabric D. T 10. C1703

Vessel 7 (Illus 7.63)

A single tapering rim sherd (SF161187), most likely from an everted rim. Smoothed surface, no soot or residues, pale brown-grey throughout and only slightly worn on edges. Fabric D. T 5 (incomplete). C161003

Tap o' Noth

Vessel 1 (Illus 7.64)

Two rim and four body sherds from a medium-walled vessel with short everted rim. Shallow finger impressions are visible around the rim's interior. Sooting and smoothing on both faces were smoothed with rare fine organic impressions visible. Fabric B. No abrasion. Estimated rim D *c* 180 (*c* 21%); wall T 8mm.

SF 510 and SF517: Tr 5, C5101 (hut platform, occupation deposit)

Vessel 2 (Illus 7.64)

One large, flat base sherd and six body sherds from a medium-walled vessel. Interior and exterior are sooted, and smoothed with occasional burnt-out fine and coarse organics (straw?). Interior of base shows a circular depression, resembling wheel-thrown pottery. Oxidised faces, reduced core. Fabric C. No abrasion.Wall T 9; base T 12.

SF511, SF512 and SF521: Tr 5; C5101 (hut platform, occupation deposit)

Vessel 3 (Illus 7.64)

One rim and nine body sherds from a medium-walled vessel with rolled rim, defined by a circumferential groove on the exterior. Frequent burnt-out coarse organics (straw/chaff?). Exterior shows coarse circumferential wipe marks (coarse cloth/grass?) and heavy sooting. Light greyish-buff exterior, pale grey core, light buff-orange interior. Fabric A. Sherds from Tr 5 show no abrasion, those from Tr 17 are moderately abraded. Estimated rim D *c* 140 (*c* 17.5%); wall T 8mm.

SF516 from Tr 5, C5101 (hut platform, occupation deposit)

SF1704 and SF1706 from Tr 17, C17002 and C17003 respectively (floor layers).

Vessel 4

Two base sherds, one body sherd and four fragments from a flat-based vessel. Occasional fine and coarse (straw?) burnt-out organics. Oxidised exterior, reduced core and interior, buff where faces are intact. Most sherds are incomplete and fractured. No sooting or residues. Fabric D. Some abrasion. Wall T 8mm.

SF1128: Tr 11; C11015 (hut platform, hearth 3)

Vessel 5

Four small body sherds from a medium-walled vessel. Occasional fine and coarse (straw?) burnt-out organics. Buff; oxidised interior, reduced core and exterior. Fabric C. Sooting to exterior. Some abrasion. Wall T 8–10mm.

SF1102, SF1108, SF1111: Tr 11, C11002 (hut platform upper occupation deposit)

SF1123: Tr 11, C11010 (hut platform burnt/collapse deposit).

Vessel 6

One base sherd and three small body sherds from a medium-walled, flat-based vessel. Body projects at 45 degrees from base. Fine and coarse (straw?) burnt-out organics within fabric. Light orange-buff; oxidised faces, some reducing to core. Sooting to exterior. Fabric E. Some abrasion. Wall T 7; base T 10mm.

SF1115, SF1116 and SF1130: Tr 11, C11003; 11004; 11005 (deposits in and around upper and lower hut platforms)

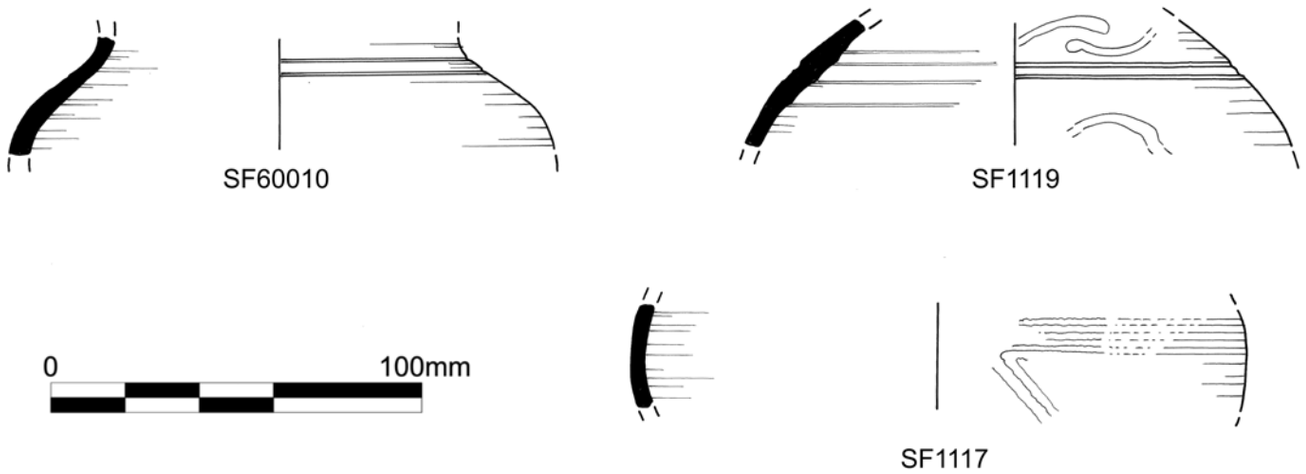
Vessel 7 (Illus 7.64)

Three rim sherds, three base sherds and three body sherds from a medium-walled flat-based bucket-shaped vessel with a tapering plain rim. Body projects at 45 degrees from base. Occasional fine and coarse (straw?) burnt-out organics within mid-grey-brown fabric. Sooting on exterior and possible residue on the rim. Fabric C. No abrasion. Estimated rim D *c* 140; Wall T 9mm.

SF1201, SF1202 and SF1203: Tr 12, C12003 (Lower occupation deposit, lower hut platform)

Cairn More

SF802: A very abraded handmade body sherd made from micaceous fine clay with occasional (5%) sub-rounded grits (*c* 0.1–1mm). Light orange coloured exterior with a grey reduced core. Abrasion has removed any traces of surface treatments. L 31; W 28; T 8mm; 6.6g. C8005: occupation layer



Illus 7.65
Illustration of Romano-British pottery from Tap o' Noth. Alan Braby

7.15 Imported Pottery at the Craw Stane Complex and Tap o' Noth

7.15.1: Roman and Romano-British Pottery from Tap o' Noth

JAMES GERRARD

An assemblage of 23 sherds of Roman and Romano-British pottery weighing 80.1g was recovered (Table 7.19). This is a small assemblage by Romano-British standards, but it is an important group from a hillfort located far beyond the *limes*.

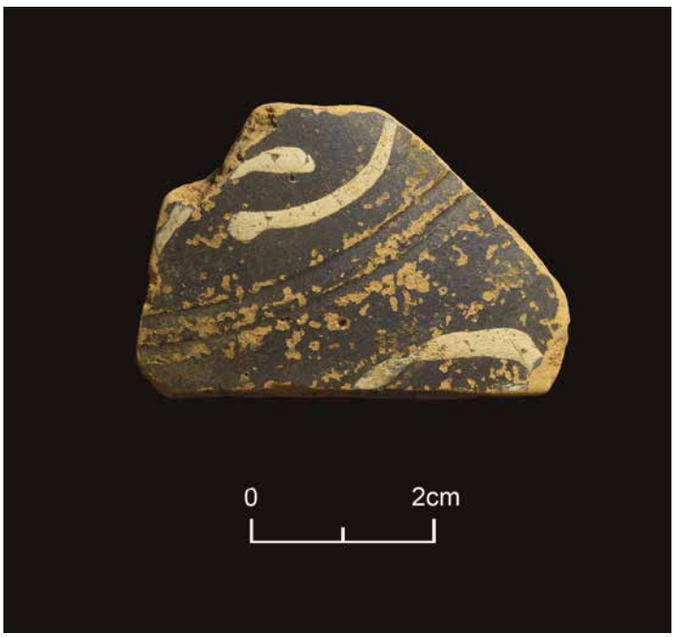
The topsoil (5001) in Trench 5 produced a single tiny fragment of Samian (1.1g) (SF503) probably from a Dr 33 cup form. The fabric is probably Central Gaulish and the vessel should date from *c* AD 120–200.

The floor layer (C6003) and fill (C6004) of post-hole [F6005] in Trench 6 produced 12 sherds weighing 55.2g (SF60009 and SF60010; Illus 7.65 and 7.66). These are all fresh but slightly abraded, perhaps a consequence of the ground conditions. All of the sherds are in a pale brown-buff fabric with a lighter, almost whiteish grey core. The external surfaces are smoothed, except in one case where the sherd has a burnished surface. Tiny well-sorted mica particles are visible in the external surfaces along with sparse and tiny angular black inclusions. The assemblage probably all derives from one or at most two vessels with a flagon or beaker being the most likely vessel form, although clearly diagnostic elements are lacking.

Identifying a source for this distinctively micaceous fabric (MICA) has proved difficult. Micaceous fabrics were produced at a number of kilns in early Roman Britain (for instance Davies et al 1993: 139–41), with poorly understood local manufacture of specialist wares like flagons along the Hadrianic frontier during the 2nd century (Alex Croom pers comm). These sherds are probably derived from a 2nd-century vessel but a precise identification eludes us.

Context	Fabric	Sherd Count	Weight (g)
6003/4	MICA	12	52.5
5001	SAM CG	1	1.1
11002	LNV CC	4	8.4
11009	LNV CC	6	18.1
Total		23	80.1

Table 7.19
Quantification of the Romano-British pottery from Tap o' Noth



Illus 7.66
Photograph of Nene Valley Ware from Tap o' Noth (SF1119). Leanne Demay/ National Museums Scotland

Trench 11 yielded ten sherds weighing 26.5g of Late Roman Lower Nene Valley Colour Coated Ware (Illus 7.66) (Tomber and Dore 1998: LNV CC). Four abraded body sherds (SF1117), probably from a beaker were recovered from floor layer (11002). One of these sherds had deep score marks cutting through the exterior slip and into the body of the vessel. These marks are probably best considered 'use-wear', or part of the afterlife of the vessel as a sherd.

The other sherds (SF1119, SF1120 and SF1121; Illus 7.65 and 7.66) are from floor deposits on platform 11 (11009). All of these probably derive from one vessel. One sherd is probably from the upper shoulder of a vessel and is decorated externally with an incised line or groove under its dark-brown slip. Above and below the groove and applied in typical fashion over-slip are two panels of white-painted lines. White-painted decoration is more common on later Roman Lower Nene Valley Colour Coated vessels (Perrin 1999: 98). The vessel is likely to have been a beaker (Howe et al 1980: Fig 5.48–50; Perrin 1999: Fig 61.172–73), or perhaps, given the groove with white-painted scrollwork above and below, a jug (Howe et al 1980: Fig 6.68; Perrin 1999: 98 and Fig 62.195). Again, the lack of diagnostic elements precludes a precise identification.

Discussion

The presence of these sherds so far north is noteworthy and requires explanation. How the vessels may have reached the site is uncertain. The early Roman Samian and micaceous sherds could have been acquired from a site along the Hadrianic frontier or in the lowlands of Scotland. Whether they reached Tap o' Noth as a complete vessel, or even in the 2nd century remains uncertain. The vessel(s) could have been scavenged, either in a complete or incomplete state, at a later date, or been acquired from an intermediary or intermediaries who had curated the vessel(s) from the early Roman period.

The recovery of Lower Nene Valley Colour Coated ware is potentially easier to understand. The industry was located in the eastern Midlands and was traditionally seen as focused on the small town of *Durobrivae* (Water Newton, Cambs.), although recent work has identified kilns producing very similar wares in *Lindum* (Lincoln, Lincs.) (Fiske & Rowlandson 2024). Products of the 'Nene Valley' were widely distributed in Roman Britain (Tyers 1996: Fig 218).

The distribution of LNV CC north of Hadrian's Wall is extremely restricted. A number of allegedly 'LNV CC' sherds have been claimed at a small number of Antonine sites (for instance Richmond 1980: 302; Keppie 1981: 54, 89 and Fig 26.38). However, these would be precociously early in an industry that seems to have begun in the middle of the 2nd century. Almost all of these Antonine sherds are likely to be either continental imports, or other Insular fabrics like Colchester Colour Coated Ware. The late Paul Bidwell (2019) was of the opinion the LNV CC was absent from the Antonine frontier.

LNV CC is present in early 3rd-century deposits at South Shields (Bidwell & Speak 1994: 221) and appears, not unexpectedly, at Severan sites like Carpow (Dore & Wilkes 1999: 544) and Cramond (Cook et al 2017: 36). Nevertheless, the fabric and form of the Tap o' Noth sherds places them firmly within the Late Roman products of the industry and thus they could not have been sourced from the pottery in use at Severan or earlier sites. Nene Valley ware was distributed to the northern frontier in small quantities during the 3rd and 4th centuries and it is most likely that the Nene Valley ware was acquired from these pottery-using frontier communities (Bidwell & Croom 2010: 31–2). Beyond the frontier the main occurrence of Late Roman LNV CC is at Traprain Law, where a variety of Nene Valley products are reported (Campbell 2012: Fig 18). Other findspots include Dumbarton Rock (Alcock & Alcock 1990: 116; Alcock et al 1992: 293) and Whithorn (Hill 1997: 293–4), where the sherds come from early medieval contexts. At Whithorn the site's maritime location and close proximity to Cumbria, with its Roman fortifications and settlements (for instance Zant 2019: 87), may explain the presence of the pottery. In simple terms the LNV CC probably reached Tap o' Noth, either as complete or incomplete vessels, from the northern frontier of Roman Britain *via* intermediaries located between the Forth-Clyde line and Hadrian's Wall.

7.15.2: Imported Early Medieval Ceramic Vessels from the Craw Stane complex and Tap o' Noth

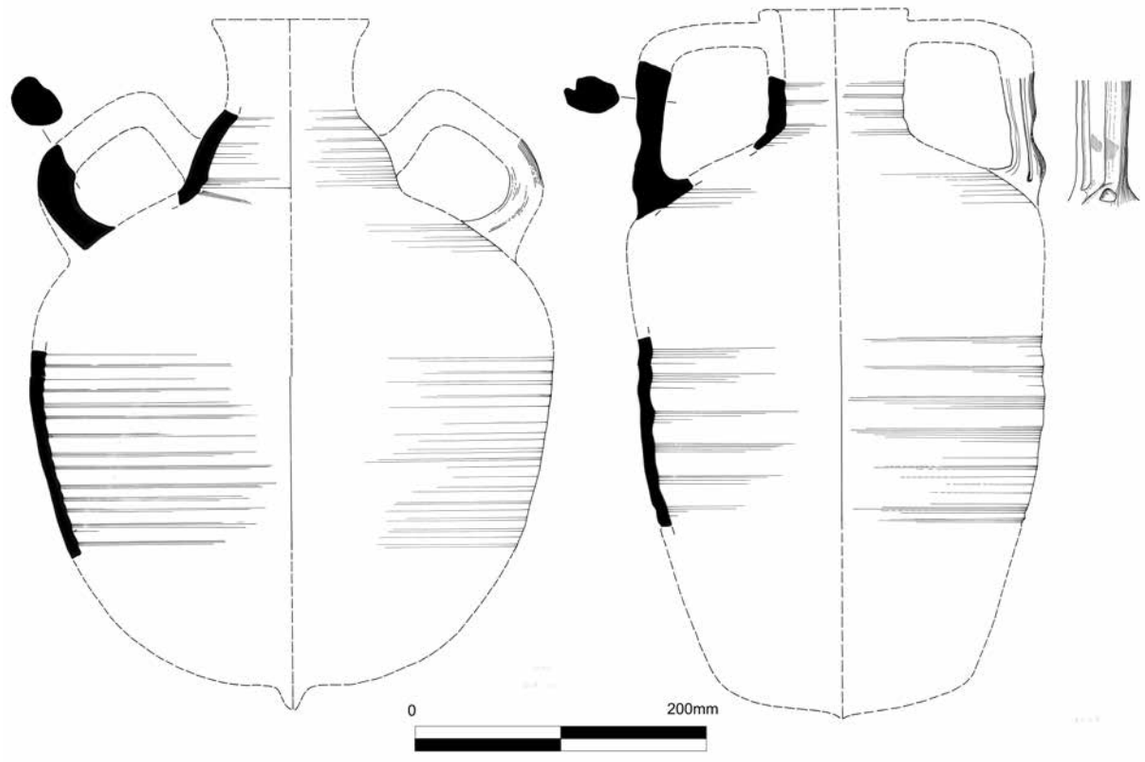
EWAN CAMPBELL

Late Roman Amphora 1 (LRA1)

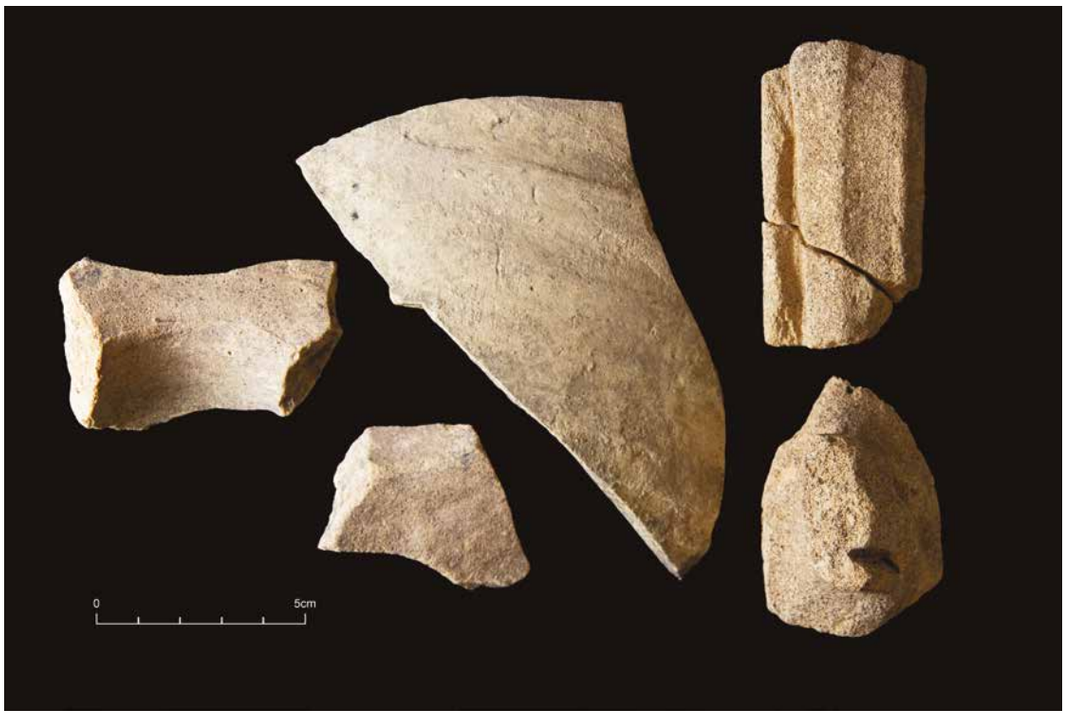
Around 72 LRA1 sherds were recovered from the Craw Stane complex, including body, neck and handle sherds, some joining (Illus 7.67). A further 13 small, fragmented LRA1 sherds were found on Tap o' Noth (Illus 7.68). The Craw Stane sherds provide a good indication of vessel form and size. The upright neck is at right angles to shoulder, thicker than the body, while internal neck diameter is *c* 70mm. The handle section (40 x 28 mm) is rounded with shallow finger grooves and one deep asymmetric groove, slight twisting towards lower end. The body has typical tegulated ribbing of varying width and prominence. Fabric is soft, gritty, buff or pinkish and numerous pits left by weathered out limestone with numerous inclusions of mixed grits (0.2–0.5mm), sub-rounded, including quartz, orange chert, mafic minerals, iron ore and yellow limestone. The sherds are mainly unabraded.

Variations in the overall LRA1 fabric suggest that there were at least three LRA1 amphorae from the Craw Stane complex and at least one from Tap o' Noth. Most of the sherds from the Craw Stane complex are in a typical gritty buff/pink fabric (*Vessel 1*), but there are large pieces in a smoother harder buff fabric (1822, 15061, 15026, 161101) (*Vessel 2*), and a few pieces in a softer more orangey fabric (161119, 161153, 161110) (*Vessel 3*). There are substantial fragments of two different handles. One of these (042, 044) joined six other bodysherds (054) from a context in the palisade destruction level showing that a significant section of an amphora was deposited here.

The sherds are from a type of medium-sized cylindrical amphora (Illus 7.67 and 7.68), belonging to the well-known Late Roman Amphora 1 (Riley 1979; Riley et al 1989), sometimes referred to as Thomas's Bii type. This was one of the common transport amphorae of the Mediterranean in 5th to 7th centuries. The type was produced at many locations in southern Turkey and Cyprus, and different sources may be discriminated by petrographic work (Williams 2005). The contents carried in the amphorae are disputed, but both wine and olive oil are possible.



Illus 7.67
Reconstruction of LRA1 and LRA2 amphorae from the Craw Stane complex. Alan Braby



Illus 7.68
Photograph of LRA1 sherds from Tap o' Noth. Leanne Demay/National Museums Scotland

Examples reached Britain in a short period from the late 5th to mid-6th century alongside fine tablewares forming a package of wares of eastern Mediterranean origin (Campbell 2007: 18–26). They are mainly concentrated in south-west England and believed to have been associated with the metal trade (Campbell 2007). Much small numbers are found scattered further north around the Irish Sea, with only two other sites in Scotland, at Whithorn Priory and Dumbarton Rock.

The fabric is softer than examples from the Mediterranean, due to the weathering of the limestone inclusions, but this is normal in the acid soils of western and highland Britain. The vessels would have been around 30 centimetres in diameter, and around 50 centimetres high, with a capacity of around 30 litres.

- SF011 Small bodysherd of LRA1 amphora. Buff fabric. C001
- SF026 Two joining sherds from neck/shoulder. Buff fabric. Neck upright, internal diam 70mm. 110 x 45mm, T 6–10mm. C025, slot 5
- SF028 Small bodysherd of LRA1 amphora. Buff fabric. C025
- SF034 Small bodysherd of LRA1 amphora. Buff fabric. C025
- SF039 Seven non-joining bodysherds of LRA1 amphora with broad tegulated ribbing. Buff fabric. C025, slot 10
- SF042 Handle of LRA1 amphora in two pieces. Asymmetric section with two curved grooves. Also five small bodysherds. Buff fabric. 73 x 36mm, T 25mm. C025
- SF044 Handle and neck attachment of LRA1 amphora. Asymmetric section with two curved grooves. Buff fabric. Same handle as 042. 50 x 40 mm. C025
- SF049 Small bodysherd of LRA1 amphora. Buff fabric. C025
- SF054 Six joining sherds and one other, forming a large section of the body of a LRA1 amphora with broad tegulated ribbing. Remains of the luting of a lower handle attachment. Buff fabric. 113 x 93mm, T 8–10mm. C025. Joins handle 042/044
- SF055 Small bodysherd of LRA1 amphora. Buff fabric. C025
- SF1822 Two large joining bodysherds LRA1 amphora with wide-spaced rilling, from lower body. Buff fabric. Body diam *c* 400mm. Size 175 x 90mm, T 8–10mm. C1702
- SF15009 Small bodysherd of LRA1 amphora. Orangish fabric. C15007
- SF15024 Four small bodysherds of LRA1 amphora. Buff fabric. C15005
- SF15026 Large bodysherd of LRA1 amphora with broad tegulated ribbing. Buff fabric. 73 x 60mm, T 7–9mm. C15005
- SF15029 Small bodysherd of LRA1 amphora. Buff fabric. C15007
- SF15031 Two non-joining bodysherds LRA1 amphora with wide-spaced rilling. Buff fabric. T 7–10mm. 70 x 57mm and 40 x 41mm. C15005
- SF15032 Small bodysherd of LRA1 amphora. Buff fabric. C15005
- SF15036 Three joining and one non-joining bodysherds of LRA1 amphora with broad tegulated ribbing. Buff/pinkish fabric. 80 x 60mm, T 8–9mm. C15005
- SF15038 Large bodysherd of LRA1 amphora with broad tegulated ribbing. Buff fabric. 36 x 30mm, T 8mm. C15005
- SF15040 Five small bodysherds of LRA1 amphora with broad tegulated ribbing. Buff fabric. C15005
- SF15041 Small bodysherd of LRA1 amphora with narrow tegulated ribbing. Buff fabric. C15005
- SF15042 Two small bodysherds of LRA1 amphora. Buff fabric. C15005
- SF15043 Small bodysherd of LRA1 amphora. Buff fabric. C15005
- SF15048 Large bodysherd of LRA1 amphora with narrow tegulated ribbing. Buff fabric. 62 x 51mm, T 7–9mm. C15005
- SF15049 Large bodysherd of LRA1 amphora with broad tegulated ribbing. Buff fabric. 40 x 32mm. C15005
- SF15050 Large bodysherd of LRA1 amphora with broad tegulated ribbing. Buff/pinkish fabric. 54 x 46mm, T 7–8mm. C15005
- SF15052 Small bodysherd of LRA1 amphora. Buff/pink fabric. C15005
- SF15055 Large bodysherd of LRA1 amphora with narrow tegulated ribbing. Buff/pinkish fabric. 37 x 32mm, T 7mm. C15005
- SF15056 Small bodysherd of LRA1 amphora with broad tegulated ribbing. Buff fabric. Unstratified
- SF15060 Small bodysherd of LRA1 amphora with broad tegulated ribbing. Buff/pinkish fabric. C15007
- SF15061 Large bodysherd of LRA1 amphora with broad tegulated ribbing. Buff fabric. 75 x 51mm, T 6–8mm. C15007
- SF15064 Bodysherd of LRA1 amphora with broad tegulated ribbing. 82 x 50mm, T 7–10mm. C15007
- SF15083 Large bodysherd of LRA1 amphora. Buff fabric. 43 x 62mm, T 6mm. C15005
- SF161031 Small bodysherd of LRA1 amphora. Buff fabric. C161003
- SF161038 Five bodysherds of LRA1 amphora. Buff fabric. C161003
- SF161101 Large bodysherd of LRA1 amphora with broad tegulated ribbing. Buff fabric. 68 x 25mm, T 7mm. C161003
- SF161110 Handle of LRA1 amphora. Asymmetric section with two curved grooves. 36 x 27mm, T 20mm. C161037. Joins 161119 and 161153
- SF161111 Neck sherd LRA1 amphora. Red fabric. 55 x 30mm, T 7–13mm. C161037
- SF161119 One large fragment of a handle, with grooves, of a LRA1 amphora and many smaller pieces, including bodysherds. Orangish fabric. C161037
- SF161153 Upper part of handle of LRA1 amphora. Asymmetric section with two curved grooves. Joins 161110. 70 x 32mm, T 24mm. C161037
- SF161180 Large bodysherd of LRA1 amphora with broad tegulated ribbing. Buff fabric. 60 x 33 mm, T 7–10mm. C161003
- SF162000 Small bodysherd of LRA1 amphora. Topsoil.
- SF162001 Small bodysherd of LRA1 amphora with narrow tegulated ribbing. Buff fabric. C162001

- SF162017 Large bodysherd of LRA1 amphora with broad tegulated ribbing. Buff fabric. 35 x 40mm, T 8mm. C162001
- TAP SF501, 514, 515 Three groups of small fragmented bodysherds from a Late Roman Amphora LR1. The exterior shows the characteristic tegulated ribbing. The fabric is sandy, buff, soft. T 5. C5001 and 5004.

Late Roman Amphora 2

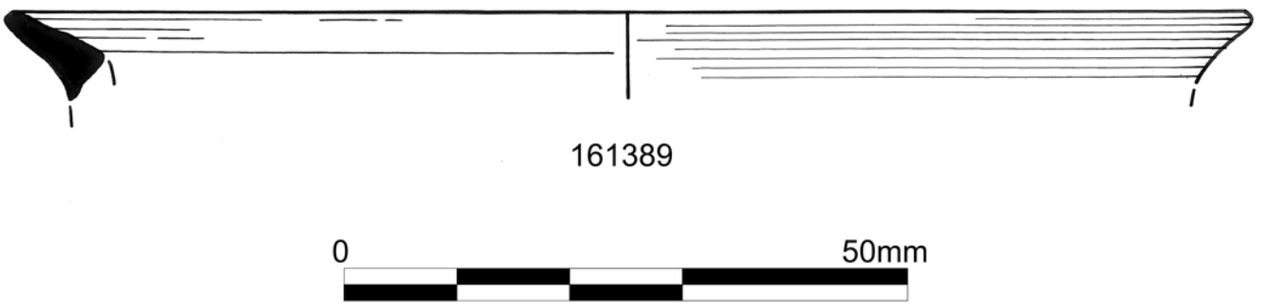
There are 17 sherds from typical LRA2 amphorae of the 6th century. The fabric and rilled decoration immediately identify it as a Late Roman 2 type (Riley 1979) (Illus 7.66). The fabric is smooth and orange to buff in colour, with limestone lumps and scattered quartz grains. As with LRA1, this was a common transport amphora of the 4th to 6th centuries in the Mediterranean, and is almost always found with LRA1 on British sites, and dates to the same late 5th- to mid-6th-century range. It was manufactured at various sites in the Aegean, and again contained wine or olive oil. Where identifiable, many of the sherds are from the neck/shoulder/handle area of the vessel. Only one sherd shows the combed rilling found on the upper body of LRA2 of this date. It is not clear if all the sherds come from the same vessel – two of the neck sherds appear to have different diameters, but this is not conclusive as the neck is conical in form. None of the sherds join, but most are unabraded.

- SF035 Shoulder sherd with base of handle of LRA2 amphora. Body with faint combed rilling, overlain by luting of handle. Size 35 x18 mm, T 6mm. Soft buff/pink fabric. Abraded. C025, Area F/G, slot 6
- SF205 Neck sherd of LRA2 amphora. Hard fabric orange-buff exterior, red interior. 45 x 40 mm, T 13mm, some abrasion. C218 palisade trench
- SF216 Large upper bodysherd of LRA2 amphora from just below neck, undecorated. Buff fabric. Size 83 x 75 mm, 8mm. Interior surface spalled off. C288
- SF217 Spall from inner face of bodysherd of LRA2, possibly SF216. Same fabric as 216. 50 x 35mm. C288
- SF218 Tiny spall of LRA2 amphora, possibly same as SF216. C288
- SF406 Small bodysherd of LRA2 amphora. 26x 20 x 8mm. C406
- SF1705 Two large shoulder sherds of LRA2 amphora, broken at neck junction. Neck diameter *c* 140mm. 90 x 68 and 45 x 43mm, T 10–12mm. C1703
- SF1745 Spall from surface of LRA2 amphora. 20 x 25mm. C1703
- SF1770 Large bodysherd of LRA2 amphora. Surface undecorated. Body diam *c* 400mm. 141 x 127mm, T 8–10mm. C1703
- SF1808 Shoulder/neck junction sherd of LRA2 amphora. Neck diam *c* 100mm, 60 x 40mm, T 9mm. C1726
- SF15012 Handle of LRA2 amphora, from neck attachment. Buff colour throughout. D-shaped in section, with finger grooves on outer surface. Handle 27 x 37mm. C15112, Structure 4
- SF15020 Small bodysherd of LRA2 amphora. 26 x 17 mm, T 5mm. C15007
- SF15030 Thick bodysherd of LRA2 amphora. 60 x 35mm, T 13mm. C15007
- SF15051 Two sherds from neck of LRA2 amphora. 44 x 28mm and 36 x 19mm,. T 20mm. C15096
- SF161013 Tiny abraded sherd of LRA2 amphora. 18 x 11mm, T 9mm. C161037

African Red Slipware (ARS)?

ARS vessels were imported as a rare accompaniment of tableware dishes alongside Mediterranean amphorae in western Britain. One sherd, SF161389, is from the rim of a bowl in fine orange-red fabric (Illus 7.69 and 7.70). Although the sherd is abraded and does not show any sign of slip, the form is similar to ARS Form 50 or 57 (Fulford & Peacock 1984: 67–71). These forms date here to the early sixth century (Campbell 2007: 18). The same form is found in some Late Roman wares such as Oxford ware, so it is possibly a residual item, but the fact that it was found stratified with LRA1 and LRA2 sherds in the outer ditch might support the attribution. The only other examples in Scotland are from Whithorn and Iona.

- SF161389 Fragment of an everted rim from a bowl. Estimated rim diam 200mm. Fine soft fabric, some mica and scattered quartz grains. 25 x 20mm. C161048. Illus 7.69 and 7.70



Illus 7.69
Illustration of African Red Slip ware. Alan Braby

Illus 7.70
Photograph of African Red Slip ware (SF161389). Leanne Demay/National Museums Scotland

Other unidentified pottery

The fabric of 162041 is also similar to that of ARS, though the piece is too small and abraded to have any certainty over this attribution. The piece has been ground down on two faces, a feature often seen on Samian ware sherds found on post-Roman sites in Scotland (Campbell 2012). It may have been used as jeweller's rouge to polish metalwork. It was found stratified with a cache of mould fragments in the outer ditch, which might support this identification. 531 is probably a post-medieval intrusion as it does not match any import fabric.

- SF162041 Abraded fragment of fine orange-red ceramic with scattered quartz inclusions. Perhaps rubbed down on two faces. 20 x 13 x 11mm. C162054

7.16 Discussion of Imported Glass and Ceramics at the Craw Stane complex and Tap o' Noth

EWAN CAMPBELL

The assemblage of imported pottery and glass vessels is small, but of great significance. In total there are a minimum of four LRA1 amphorae, one LRA2 amphora, one possible ARS vessel, two Group A glass vessels, three Group B vessels and one Group C vessel. Although not precisely dateable, all the material would fit in a late 5th- to mid-6th-century context. The lack of E Ware or any glass vessels associated with the later Atlantic trading system, confirms the radiocarbon dating evidence that the site was abandoned by the later 6th century, as such an important site would likely have received these imports. Almost all the imported material in Atlantic Britain is found on coastal sites, with only a scatter of usually single vessels found inland. The only inland sites with substantial numbers of imports are Cadbury Castle in Somerset and Clogher in Tyrone. Both of these are likely royal sites and important strongholds of their regions.

The Craw Stane complex and Tap o' Noth ceramic import occurrences lie far outside the normal distribution of Mediterranean wares in the world of Late Antiquity. They are not only the northernmost examples of amphorae from the entire Roman world, but the only ones known from eastern Britain. All the other Insular examples have a coastal Atlantic distribution. These sites lies more than 40 kilometres from the coast, again highly unusual for an import site of the period. All these factors suggest that the sites are extremely unusual, and of high status. Other sites which received quantities of these wares were often known or suspected to have royal associations, or were important ecclesiastical sites. The high-status secular centres seem to have acted as centres of importation and redistribution by gift to other sites (Campbell 2007). However the Craw Stane complex and Tap o' Noth material reached the sites, it illustrates the power and widespread contacts of the inhabitants. Although some glass did spread up the eastern coasts of Scotland from Anglo-Saxon England (Campbell 2009) and is found on sites such as Dundurn and Portmahomack, this material belonged to a Germanic tradition (Group B) of glass production, and represents a different system of exchange from the Group C/D Atlantic Tradition material from western France. Although most of the Group C/D glass is found alongside the later E Ware pottery, sites such as Whithorn (Campbell 2007: 106–8, figs 75, 76) show that its chronology overlaps with the earlier Mediterranean pottery in the early 6th century.

In terms of the stratigraphy and taphonomy of the material from the Craw Stane complex, virtually all of it was found in the latest contexts of the site, in the destruction layers of the palisade, the upper fill of the outer ditch and Structure 4. In some places in the outer ditch the imported pottery and glass was found alongside dumps of moulds and crucibles, but in others they were not, suggesting that there had been different activity areas within the enclosure. Large joining pieces of some of the amphorae were found in close proximity in some places, perhaps indicative that newly broken vessels had been swept out of the interior of the site. In other words, there is little likelihood that residual material was incorporated in the process of clearance of the site. No imported material was found in any of the primary fills of any of the structures, ditches or palisade, perhaps indicating that these had been constructed before the late 5th century, but it should be noted that only a small proportion of these features was excavated. Imported material was found in all sectors of the outer perimeter of the site, making it unlikely that the material came from a single midden. At Dinas Powys broken amphorae and glass vessels were swept out onto the rear of the rampart closest to the structures in which they had been used (Campbell 2007: fig 69), but there is no obvious relationship with Structures 1 and 3 at the Craw Stane complex. At Tap o' Noth, the LRA1 sherds were all similarly retrieved from later deposits. The sherds were found on T5 platform in possible disturbed material on the edge of the trench (C5004) and a floor layer (C5101).

7.17 Conclusion

This rich assemblage provides a vivid insight into the wealth of skills, past times and wider contacts possessed by the inhabitants of the Craw Stane complex, Tap o' Noth and Cairn More, casting new light on life during the 4th to early 7th century AD in

north-east Scotland. Metalworking evidence (discussed in Section 7.8) reveals production of a range of jewellery items, including icons of the early medieval period, such as handpins, nail-headed pins, spiral finger-rings and penannular brooches alongside objects never seen before. The moulds for a range of unique, naturalistic animal figurines reveal the skill of artists who had observed the animals with an exquisite level of detail.

Analysis of the wide range of metalworking residues has revealed they were working with iron, copper alloys and silver from a range of sources, including locally available bog iron ore and recycled Roman non-ferrous metals. Analysis of stone refining vessels (Section 7.5) has revealed they were not only melting silver to make new objects, but they were also refining the silver to make it purer. The silver-working evidence from the Craw Stane complex is a significant find which starts to bridge the gap between the world of Late Roman silver and the dominance of elaborate silver objects in early medieval Scotland. Further study of the silver-working evidence is planned, including composition analysis of the silver-casting debris and comparison with Late Roman and early medieval silver objects.

The range of wider contacts demonstrated by the imported ceramics and glass in particular, show clear links with Mediterranean, Germanic and Atlantic trading networks (Section 7.16). The amphorae fragments are the most northerly yet found and lie outwith the usual Atlantic coastal distribution of these forms. The presence of such a wide range of imports suggests the Craw Stane complex was a powerful centre of trade and redistribution.

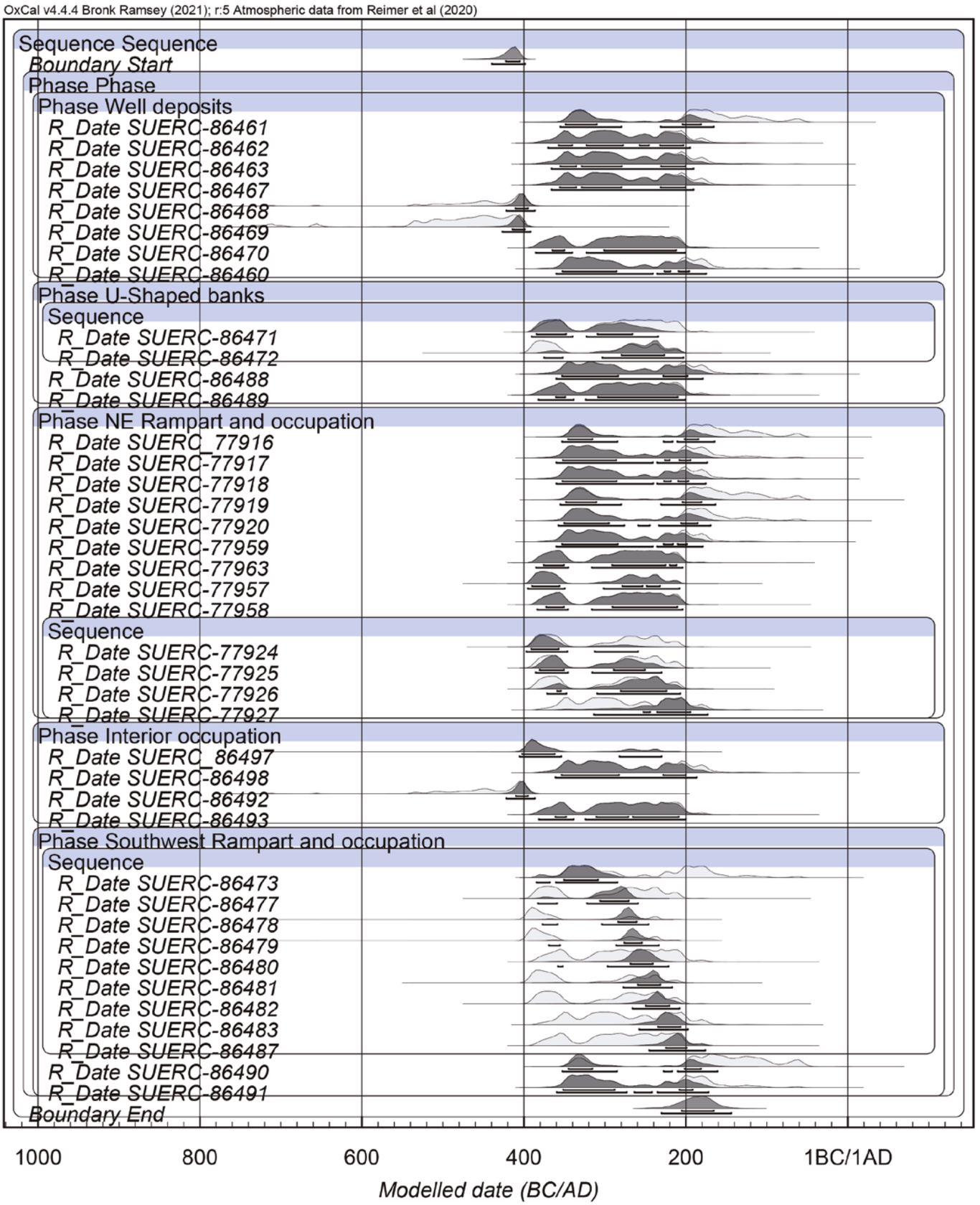
While these imports provide clear evidence of wider contacts, the origins of other items remain unclear. For example, along with some of the glass vessels, the crumb bead, the pattern-welded knife, and possibly the copper-alloy pins and iron buckles have potential Anglo-Saxon parallels, or at least suggest some level of contact and subsequent adoption of items into local material culture. Aside from a single unprovenanced bead, there were no known Anglo-Saxon objects or Anglo-Saxon-influenced objects from Aberdeenshire (Blackwell 2018: 131) before this excavation.

It is tempting to focus on exotic contacts and labels like 'Anglo-Saxon' when examining such a difficult to parallel assemblage, but the wide range of objects also reveal local knowledge and traditions. Locally sourced stone types, handmade pots in forms familiar from several centuries earlier and evidence of structured deposition of items like rotary querns, decorative pins and deliberately damaged iron tools all sit comfortably within the archaeological record of north-east Scotland, providing glimpses of local roots.

The Craw Stane complex's assemblage as a whole cannot be paralleled in 4th- to 6th-century Scotland at present. While small quantities of comparable metalworking debris or a few fragments of similar imported vessels are found on other sites of this date (see Sections 7.8 and 7.15), no assemblages match the full scale and range of material discovered here. A large quantity of high-status metalwork was produced at the Craw Stane complex, by craftworkers with remarkable levels of technical skill and artistry. This, along with the evidence of extensive importation networks, indicate this site was a powerful centre of production and trade.

The closest parallels are to be found are in contemporary Irish sites, such as the early medieval settlement at Garranes, particularly at Lisnacaheragh ringfort (O'Brien and Hogan 2021; Ó Ríordáin 1942). Lisnacaheragh produced extensive metalworking evidence, including stone metalworking vessels and evidence of silver working, along with other rare craft evidence such as glass rods, implying a strikingly similar range of skills were present. Imported Late Roman amphorae sherds and a fragment of glass vessel reveal long-distance trade at Garranes too, while items like polished stone discs, a crumb bead and an amber bead add to the wide range of objects Garranes and the Craw Stane complex have in common.

While there are obvious risks of comparing two sites separated by such a distance, the parallels are striking. Garranes benefits from the survival of early texts which reinforce its interpretation as a royal centre. While the Craw Stane complex lacks such historical sources, the cluster of sculptured stones in the site's vicinity adds to the overwhelming evidence from the assemblage that this was one of the most important sites in Scotland at this time; almost certainly royal. Without more sites of this date, it is difficult to know how large an area the Craw Stane complex was controlling and distributing goods for, whether north-east Scotland or northern Scotland in its entirety. Both seem possible. Perhaps similar sites will be found in Scotland in future, but it is hard to envisage how any site could produce evidence of a higher status than the Craw Stane complex has. The Craw Stane complex assemblage with its array of remarkable finds sets a new benchmark for what to expect from an early Pictish royal centre.



Illus 8.1
Overall site model for Tap o' Noth upper fort and activity

Chapter 8

ENVIRONMENT AND SCIENTIFIC ANALYSES

8.1 Introduction

Alongside the excavations a programme of scientific analysis took place during the course of the excavations and in a post-excavation stage. This included extensive radiocarbon dating with over 150 radiocarbon dates obtained for the three sites: Tap o' Noth, the Craw Stane complex and Cairn More (Hamilton & Noble, Section 8.2). In addition a range of established and newer analytical techniques were adopted to examine some of the bioarchaeological material recovered from the excavations. Extensive charred plant and wood remains were recovered from an extensive soil sampling and flotation initiative as part of the excavations. This (Niehaus & Ramsay, 8.3) allowed questions of the plant component of diet, agricultural practices, and firewood and structural timber use to be explored through the identification of archaeobotanical material. The environmental evidence was complimented by high resolution pollen, non-pollen palynomorphs (NPP) and XRF conducted on sediment samples extracted from a mire on Barflat farm, found just downslope from the Craw Stane complex and from a well at Tap o' Noth (Jones, 8.4) providing insights into the environment of the Rhynie area through time. An innovative phytolith analysis was also undertaken to provide an alternative way of tracking plant use in the valley (Prado, 8.5). This enabled us to assess agricultural production and consumption, the use of difficult to identify architectural materials such as turf in early medieval architecture, and human interaction with a range of ecological niche zones in different ways. Bone preservation was very poor at all three sites excavated, but an extensive burnt-bone assemblage from the Craw Stane complex, along with some very partial survival of bone from Tap o' Noth has provided some insight into the animal economy during the Roman Iron Age and early medieval periods (Masson-MacLean & Mainland, 8.6 and 8.7). Finally, a series of analyses were conducted on the fragmentary human skeleton recovered from the cist within the square barrow excavated the outskirts of Rhynie in 2013. These analyses included osteology of human remains from the cist (McManus et al, 8.8) and multi-isotope analysis of the individual including diet and mobility (Britton, 8.9). The evidence from all of these scientific analyses are outlined in this chapter.

8.2 Radiocarbon dating and Bayesian modelling

Derek Hamilton and Gordon Noble

8.2.1 Dating methods

For the Rhynie Environs Project 162 radiocarbon dates were funded by Historic Environment Scotland, by the University of Aberdeen through University of Aberdeen Development Trust funding and in the early years of the project a small number of dates were funded through small grants from the Society of Antiquaries of Scotland, the Carnegie Trust for the Universities of Scotland and the British Academy. These were all processed at the University of Glasgow's SUERC Radiocarbon Laboratory with samples pre-treated, combusted, graphitised and measured by accelerator mass spectrometry (Dunbar et al 2016). The results are presented as conventional radiocarbon ages (Stuiver & Polach 1977) and quoted according to the international standard set at the Trondheim Convention (Stuiver & Reimer 1986). The date ranges in the tables (Table 8.1–8.4) have been calculated using the maximum intercept method and have been rounded to 10 years where the measurement error is greater than or equal to 20 years or to 5 years when the error is less than 20 years. The ranges given in the figures were calculated using the probability method (Stuiver & Reimer 1993). The calibrations used the internationally-agreed calibration curve for terrestrial samples (IntCal20) (Reimer et al 2020), and were calculated using OxCal v4.4 (Bronk Ramsey 2009). These dates were modelled following a Bayesian approach to chronology building (Buck et al 1996) and the modelled results are rounded outward to 5 years and given in *italics* to differentiate them from the simple calibrated dates.

8.2.2 Tap o' Noth Upper Fort

Forty radiocarbon dates were obtained for the oblong fort at Tap o' Noth (Table 8.1) Most samples were short-lived species of wood charcoal, but one barley grain (SUERC-86473) was dated from C410. The good bone preservation of bone by the north-eastern wall face also allowed five animal bone samples to be dated from context 1708. Dating was compiled for five different areas of the oblong fort: well deposits, the U-shaped banks, the north-east rampart and occupation, interior occupation and south-west rampart and associated deposits.

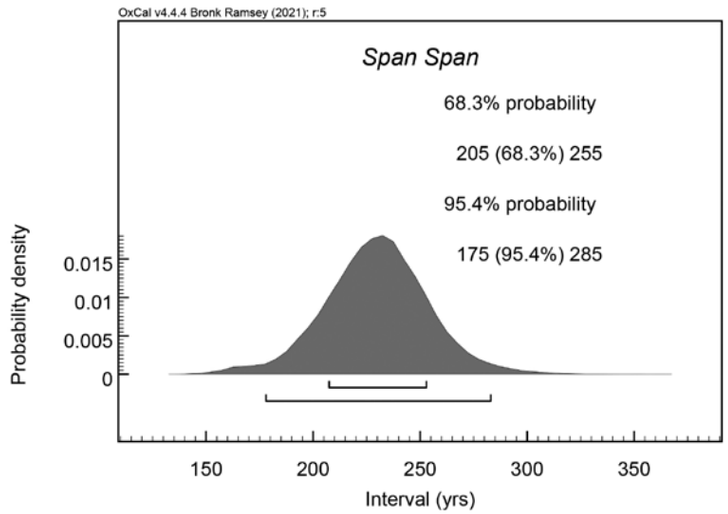
Two separate models were constructed in OxCal for the Upper Fort at Tap o' Noth. One comprised an overall site model

Site	Lab No	Material	Context	Radiocarbon Age (BP)	Calibrated date (95% confidence) cal BC	Stratigraphy
			Well deposits			
Tap o' Noth, Aberdeenshire	SUERC-86460	*Alnus* sp.	Context 210 – basal well fill	2181±28	360–170	
Tap o' Noth, Aberdeenshire	SUERC-86461	*Salix* sp.	Context 210 – basal well fill	2152±28	360–90	
Tap o' Noth, Aberdeenshire	SUERC-86462	*Salix* sp.	Context 209 – well lining	2204±28	370–190	
Tap o' Noth, Aberdeenshire	SUERC-86463	*Corylus avellana*	Context 209 – well lining	2197±28	370–190	
Tap o' Noth, Aberdeenshire	SUERC-86467	*Corylus avellana*	Context 205 – upper fill/edge of well	2197±28	370–190	Early dates below suggest these are occupation layers cut through by well
Tap o' Noth, Aberdeenshire	SUERC-86468	*Pinus* sp.	Context 205 – upper fill/edge of well	2367±28	540–380	Early dates suggest these are occupation layers cut through by well
Tap o' Noth, Aberdeenshire	SUERC-86469	*Alnus* sp.	Context 209 – upper fill/edge of well	2396±28	730–390	Early dates suggest these are occupation layers cut through by well
Tap o' Noth, Aberdeenshire	SUERC-86470	*Corylus avellana*	Context 209 – upper fill/edge of well	2229±28	390–200	Early dates suggest these are occupation layers cut through by well
			U-shaped banks			
Tap o' Noth, Aberdeenshire	SUERC-86471	*Corylus avellana*	Context 210 – Charcoal layer under Inner U-shaped bank	2234±28	390–200	Earlier than context 215
Tap o' Noth, Aberdeenshire	SUERC-86472	*Salix* sp.	Context 215 – Inner U-shaped bank matrix	2269±28	400–210	
Tap o' Noth, Aberdeenshire	SUERC-86488	*Betula sp.*	Context 408 – Outer U-shaped bank matrix	2187±28	360–170	
Tap o' Noth, Aberdeenshire	SUERC-86489	*Alnus* sp.	Context 408 – Outer U-shaped bank matrix	2223±28	380–200	
			Trench 1 Northeast rampart and occupation			
Tap o' Noth, Aberdeenshire	SUERC-77916	Animal bone: *bos* sp.	Context 1708 – layer against inner wall face	2148±25	360–90	Early occupation prior to destruction?
Tap o' Noth, Aberdeenshire	SUERC-77917	Animal bone: *Ovis* sp.	Context 1708 – layer against inner wall face	2178±29	370–160	Early occupation prior to destruction?
Tap o' Noth, Aberdeenshire	SUERC-77918	Animal bone: Other.	Context 1708 – layer against inner wall face	2184±26	360–170	Early occupation prior to destruction?
Tap o' Noth, Aberdeenshire	SUERC-77919	Animal bone: *Bos* sp.	Context 1708 – layer against inner wall face	2148±29	360–60	Early occupation prior to destruction?
Tap o' Noth, Aberdeenshire	SUERC-77920	Animal bone: *Bos* sp.	Context 1708 – layer against inner wall face	2165±29	360–110	Early occupation prior to destruction?
Tap o' Noth, Aberdeenshire	SUERC-77959	*Corylus avellana*	Context 1708 – layer abutting inner wallface	2188±26	360–180	Early occupation prior to destruction?
Tap o' Noth, Aberdeenshire	SUERC-77963	*Betula* sp.	Context 1708 – layer abutting inner wallface	2236±26	390–200	Early occupation prior to destruction?

Table 8.1
Radiocarbon determinations from Tap o' Noth upper fort

to provide the probability ranges for the start and end date for the oblong fort and occupation and another to allow individual site elements to be modelled and their relative dating to be compared. Site stratigraphy was incorporated into the second model where there were clear indications of relative chronology. In both models dates were grouped by context and by site element.

The overall model site model (Illus 8.1) showed good agreement (Amodel=85), demonstrating good correlation between the archaeological stratigraphy and modelled sequence. The model estimates that all of the dated activity at the oblong fort began in *440–395 cal BC* (*95% probability*), or in *425–405 cal BC* (*68% probability*) (Illus 8.1: Boundary Start). Dated activity ended in either *310–275 cal BC* (*3% probability*) or *240–140 cal BC* (*92% probability*), and probably in *210–165 cal BC* (*68% probability*) (Illus 8.1: Boundary End). The difference between these two dates provides an estimated span of all dated activity at Tap o' Noth oblong fort of *175–285* years (*95% probability*), and probably *205–255 years* (*68% probability*) (Illus 8.2).



Illus 8.2
Span for activity at Tap o' Noth upper fort

Site	Lab No	Material	Context	Radiocarbon Age (BP)	Calibrated date (95% confidence) cal BC	Stratigraphy
Tap o' Noth, Aberdeenshire	SUERC-77957	*Alnus* sp.	Context 1708 – Towards bone-rich deposit, but over layer of collapse	2265±26	400–210	Collapse of wall core?
Tap o' Noth, Aberdeenshire	SUERC-77958	*Betula* sp.	Context 1708 – Towards bone-rich deposit, but over layer of collapse	2234±24	390–200	Collapse of wall core?
Tap o' Noth, Aberdeenshire	SUERC-77924	*Betula* sp.	Context 1710 T1 – Peat/Charcoal layer	2256±27	400–200	
Tap o' Noth, Aberdeenshire	SUERC-77925	*Betula* sp.	Context 1710 T1 – Peat/Charcoal layer	2250±24	400–200	
Tap o' Noth, Aberdeenshire	SUERC-77926	*Corylus avellana*	Context 1712 T1 – Silty/turf layer	2248±24	400–200	Overlies 1710
Tap o' Noth, Aberdeenshire	SUERC-77927	*Betula* sp.	Context 1712 T1 – Silty/turf layer	2200±26	370–190	Overlies 1710
Trench 3 Interior						
Tap o' Noth, Aberdeenshire	SUERC-86497	*Betula* sp.	Context 307 – OGS/Basal deposit	2300±28	410–230	
Tap o' Noth, Aberdeenshire	SUERC-86498	*Corylus avellana*	Context 307 – OGS/Basal deposit	2192±28	370–180	
Tap o' Noth, Aberdeenshire	SUERC-86492	*Alnus* sp.	Context 306 – Charcoal spread within Trench 3 under stone tumble	2366±28	540–380	
Tap o' Noth, Aberdeenshire	SUERC-86493	*Alnus* sp.	Context 306 – Charcoal spread within Trench 3 under stone tumble	2222±28	380–200	
Trench 4 Southwest rampart and rampart occupation						
Tap o' Noth, Aberdeenshire	SUERC-86473	Charred plant remains: *Hordeum* sp. (Barley)	Context 410 – Peat/OGS basal deposit Trench 4	2172±28	360–120	Stratigraphically earliest
Tap o' Noth, Aberdeenshire	SUERC-86477	*Betula* sp.	Context 411 – Floor layer of structure built up against wall face	2255±28	400–200	Later than 410
Tap o' Noth, Aberdeenshire	SUERC-86478	*Alnus* sp.	Context 411 – Floor layer of structure built up against wall face	2297±28	410–230	Later than 410
Tap o' Noth, Aberdeenshire	SUERC-86490	*Betula* sp.	Context 412 – Stone layer abutting inner bank	2135±28	360–50	Later than 411, 410 and 407
Tap o' Noth, Aberdeenshire	SUERC-86491	*Corylus avellana*	Context 412 – Stone layer abutting inner bank	2174±28	360–160	Later than 411, 410 and 407
Tap o' Noth, Aberdeenshire	SUERC-86479	*Alnus* sp.	Context 416 – Post hole cut into floor 411	2292±28	410–230	Later than 411
Tap o' Noth, Aberdeenshire	SUERC-86480	*Alnus* sp.	Context 416 – Post hole cut into floor 411	2226±28	390–200	Later than 411
Tap o' Noth, Aberdeenshire	SUERC-86481	*Alnus* sp.	Context 407 – Destruction layer	2275±28	410–210	Later than 411/416
Tap o' Noth, Aberdeenshire	SUERC-86482	*Betula* sp.	Context 407 – Destruction layer	2255±28	400–200	Later than 411/416
Tap o' Noth, Aberdeenshire	SUERC-86483	*Alnus* sp.	Context 424 – Rampart collapse	2204±28	370–190	Later than 407 but may include wall core materials
Tap o' Noth, Aberdeenshire	SUERC-86487	*Betula* sp.	Context 424 – Rampart collapse	2223±28	380–200	Later than 407 but may include wall core materials

Table 8.1 (*cont.*)
Radiocarbon determinations from Tap o' Noth upper fort

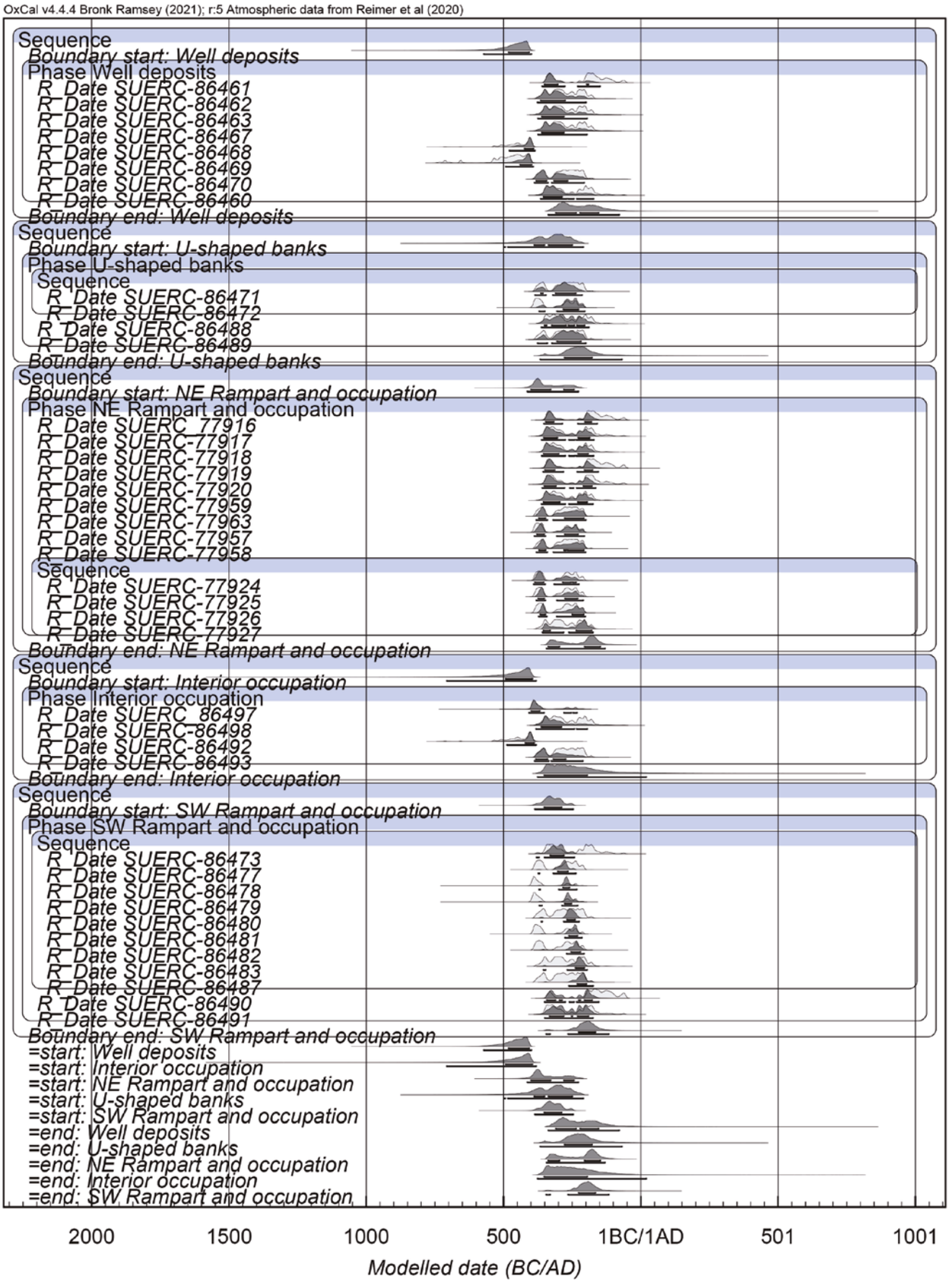
The second model with the site elements individually modelled also showed good agreement (Amodel=78) (Illus 8.3). This model suggests that the interior occupation and deposits in association with the well were amongst the earliest on site with little appreciable difference in the start dates of the north-east rampart, south-west rampart and U-shaped banks (Illus 8.3: See start and end dates at base of diagram). The model also suggests that all five elements – well deposits, the U-shaped banks, the north-east rampart and occupation, interior occupation and south-west rampart and associated deposits – came to an end around the same time, most likely in the later 3rd or earlier 2nd century cal BC.

8.2.3 Tap o' Noth Lower Fort and Platform Settlements

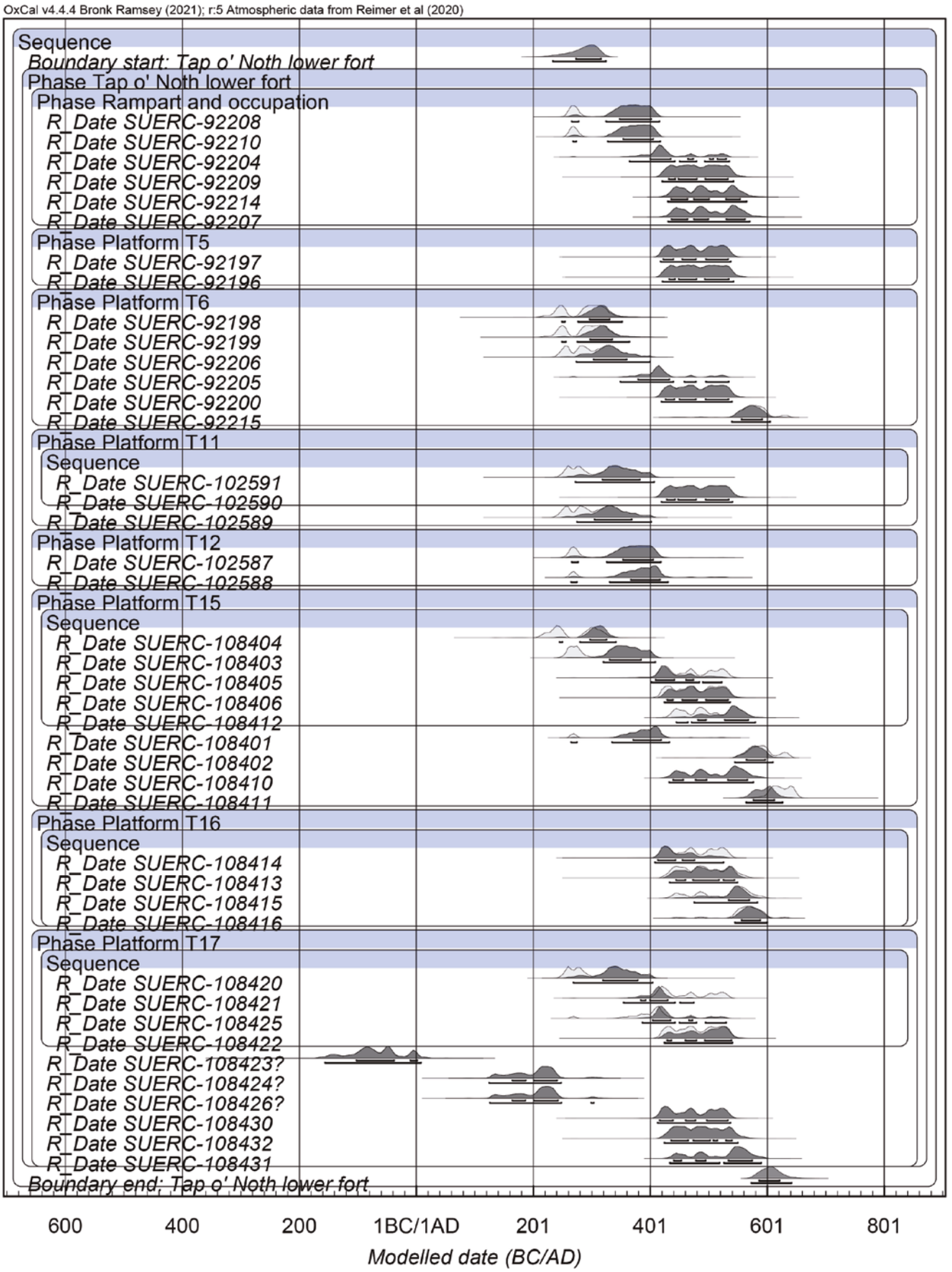
For the lower fort at Tap o' Noth and the associated platform settlements 42 radiocarbon determinations were available for chronological modelling (Table 8.2). All of the determinations were on charcoal given that bone was almost completely absent from the lower fort. All the samples were roundwood of short-lived species: birch, alder, willow and hazel. All of the determinations were of first-millennium AD date with the exception of SUERC-108423 which produced a range spanning the last centuries BC to early first century AD in date. Three additional dates were treated as outliers as they were older determinations from hearths that had later dates and/or the samples appeared to be out of sequence (Table 8.2).

Two models were compiled to analyse the Tap o' Noth lower fort and platform settlement. One comprised an overall site model to provide the probability ranges for the start and end date for activity on the lower hill and another to allow individual site elements to be modelled and their relative dating to be compared. Site stratigraphy was incorporated into the second model where there were clear indications of relative chronology. In both models dates were grouped by context and by site element – eg the rampart and the various platforms investigated in T5, T6, T11, T12, T15, T16 and T17.

The overall model site model showed good agreement (Amodel=94.1), demonstrating good correlation between the archaeological stratigraphy and modelled sequence (Illus 8.4). The model estimates that all of the dated first-millennium AD activity in association with the rampart and



Illus 8.3
Model for individual site elements at Tap o' Noth upper fort



Illus 8.4
Overall site model for Tap o' Noth lower fort and house platforms

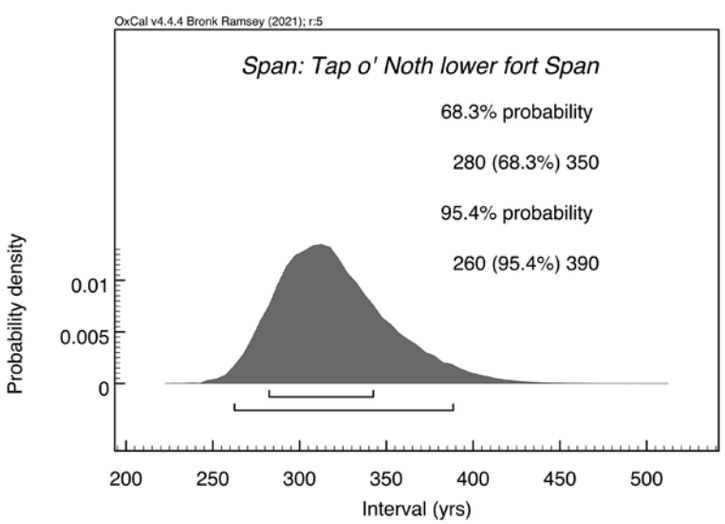
Site	Lab No	Material	Context	Radiocarbon Age (BP)	Calibrated date (95% confidence) cal AD (unless stated)	Stratigraphy
			Rampart			
Tap o' Noth, Aberdeenshire	SUERC-92208	Charcoal: *Corylus avellana*	Context 7007 – Structure within entranceway	1704±24	250–400	Should be later than 7012, redeposited?
Tap o' Noth, Aberdeenshire	SUERC-92210	Charcoal: *Betula* sp.	Context 7011 – Palisade fill	1697±24	250–410	
Tap o' Noth, Aberdeenshire	SUERC-92204	Charcoal: *Betula* sp.	Context 7006 – Basal layer below rampart	1644±23	340–530	
Tap o' Noth, Aberdeenshire	SUERC-92209	Charcoal: *Corylus avellana*	Context 7011 – Palisade fill	1593±24	410–540	
Tap o' Noth, Aberdeenshire	SUERC-92214	Charcoal: *Salix* sp.	Context 7012 – Structure within entranceway	1563±23	420–550	
Tap o' Noth, Aberdeenshire	SUERC-92207	Charcoal: *Corylus avellana*	Context 7006 – Basal layer below rampart	1558±24	420–560	
			T5 Platform			
Tap o' Noth, Aberdeenshire	SUERC-92197	Charcoal: *Betula* sp.	Context 5004 – Charcoal from occupation layer	1605±23	400–540	
Tap o' Noth, Aberdeenshire	SUERC-92196	Charcoal: *Corylus avellana*	Context 5004 – Charcoal from occupation layer	1593±24	410–540	
			T6 Platform			
Tap o' Noth, Aberdeenshire	SUERC-92198	Charcoal: *Betula* sp.	Context 6004 – Post-hole fill	1781±24	130–340	
Tap o' Noth, Aberdeenshire	SUERC-92199	Charcoal: *Salix* sp.	Context 6004 – Post-hole fill	1773±24	140–340	
Tap o' Noth, Aberdeenshire	SUERC-92206	Charcoal: *Betula* sp.	Context 6017 – Hearth 1 lower fill	1750±24	230–380	
Tap o' Noth, Aberdeenshire	SUERC-92200	Charcoal: *Corylus avellana.*	Context 6012 – Hearth 1 upper fill	1599±24	400–540	
Tap o' Noth, Aberdeenshire	SUERC-92205	Charcoal: *Betula* sp.	Context 6014 – Hearth 2 fill	1651±23	330–510	
Tap o' Noth, Aberdeenshire	SUERC-92215	Charcoal: *Corylus avellana*	Context 6014 – Hearth 2 fill	1503±24	430–630	
			T11 Platform			
Tap o' Noth, Aberdeenshire	SUERC-102589	Charcoal: *Corylus avellana*	Context 11005 – Floor layer	1747±26	240–390	
Tap o' Noth, Aberdeenshire	SUERC-102591	Charcoal: *Corylus avellana*	Context 11015 – Hearth 3 fill	1733±26	240–410	
Tap o' Noth, Aberdeenshire	SUERC-102590	Charcoal: *Betula* sp.	Context 11008 – Hearth 1 fill	1597±26	420–550	Later than 11015
			T12 Platform			
Tap o' Noth, Aberdeenshire	SUERC-102587	Charcoal: *Betula* sp.	Context 12002 – Floor layer	1697±26	250–420	
Tap o' Noth, Aberdeenshire	SUERC-102588	Charcoal: *Corylus avellana*	Context 12003 – Floor layer	1675±26	250–430	
			T15 Platform			
Tap o' Noth, Aberdeenshire	SUERC-108404	Charcoal: *Betula* sp.	Context 15015 – Floor layer H2	1799±24	210–340	
Tap o' Noth, Aberdeenshire	SUERC-108403	Charcoal: *Betula* sp.	Context 15015 – Floor layer H2	1720±23	250–410	
Tap o' Noth, Aberdeenshire	SUERC-108401	Charcoal: *Betula* sp.	Context 15006 – Floor layer H1	1670±24	260–440	
Tap o' Noth, Aberdeenshire	SUERC-108405	Charcoal: *Betula* sp.	Context 15013 – Mid floor layer H2	1623±24	400–540	Later than 15015
Tap o' Noth, Aberdeenshire	SUERC-108406	Charcoal: *Alnus* sp.	Context 15013 – Mid floor layer H2	1606±24	410–540	Later than 15015
Tap o' Noth, Aberdeenshire	SUERC-108412	Charcoal: *Salix* sp.	Context 15012 – Upper floor layer H2	1557±23	430–570	Later than 15013
Tap o' Noth, Aberdeenshire	SUERC-108410	Charcoal: *Alnus* sp.	Context 15005 – Burnt bone spread H1	1551±24	430–580	Later than 15006
Tap o' Noth, Aberdeenshire	SUERC-108402	Charcoal: *Salix* sp.	Context 15006 – Floor layer H1	1486±24	550–640	
Tap o' Noth, Aberdeenshire	SUERC-108411	Charcoal: *Corylus avellana*	Context 15005 – Burnt bone spread H1	1430±24	590–660	Later than 15006
			T16 Platform			
Tap o' Noth, Aberdeenshire	SUERC-126733	Animal bone: *Equus* species (Horse).	Context 16011 – Platform foundations	1719±24	250–410	Earlier than 16012, 16007
Tap o' Noth, Aberdeenshire	SUERC-108414	Charcoal: *Salix* sp.	Context 16012 – Lower hearth fill	1616±24	410–540	

Table 8.2
Radiocarbon determinations from Tap o' Noth lower fort

Site	Lab No	Material	Context	Radiocarbon Age (BP)	Calibrated date (95% confidence) cal AD (unless stated)	Stratigraphy
Tap o' Noth, Aberdeenshire	SUERC-108413	Charcoal: *Betula* sp.	Context 16012 – Lower hearth fill	1572±24	420–560	
Tap o' Noth, Aberdeenshire	SUERC-108415	Charcoal: *Corylus avellana*	Context 16007 – Upper hearth fill	1542±24	430–600	Later than 16012
Tap o' Noth, Aberdeenshire	SUERC-108416	Charcoal: *Betula* sp.	Context 16007 – Upper hearth fill	1515±23	440–640	Later than 16012
			T17 Platform			
Tap o' Noth, Aberdeenshire	SUERC-108423	Charcoal: *Betula* sp.	Context 17007 – Lower hearth fill	2063±24	160 cal BC–cal AD 10	Later than 17011 Residual?
Tap o' Noth, Aberdeenshire	SUERC-108424	Charcoal: *Betula* sp.	Context 17010 – Lower hearth fill	1840±24	120–250	Later than 17011 Residual?
Tap o' Noth, Aberdeenshire	SUERC-108426	Charcoal: *Betula* sp.	Context 17008 – Hearth fill	1838±24	120–310	Residual?
Tap o' Noth, Aberdeenshire	SUERC-108420	Charcoal: *Betula* sp.	Context 17011 – Lowest hearth fill	1733±23	250–410	
Tap o' Noth, Aberdeenshire	SUERC-108421	Charcoal: *Corylus avellana*	Context 17011 – Lowest hearth fill	1633±24	400–540	
Tap o' Noth, Aberdeenshire	SUERC-108422	Charcoal: *Salix* sp.	Context 17007 – Lower hearth fill	1604±23	410–540	Later than 17011
Tap o' Noth, Aberdeenshire	SUERC-108425	Charcoal: *Corylus avellana*	Context 17010 – Lower hearth fill	1656±23	260–540	Later than 17011
Tap o' Noth, Aberdeenshire	SUERC-108430	Charcoal: *Corylus avellana*	Context 17008 – Hearth fill	1616±24	410–540	
Tap o' Noth, Aberdeenshire	SUERC-108432	Charcoal: *Corylus avellana*	Context 17009 – Hearth fill	1579±24	420–550	
Tap o' Noth, Aberdeenshire	SUERC-108431	Charcoal: *Betula* sp.	Context 17009 – Hearth fill	1543±24	430–600	

Table 8.2 (*cont.*)
Radiocarbon determinations from Tap o' Noth lower fort

platform settlements began in *cal AD 230–325* (*95% probability*), or in *cal AD 270–320* (*68% probability*) (Illus 8.4: Start: Tap o' Noth lower fort). Dated activity ended in *cal AD 570–645* (*95% probability*), or in *cal AD 585–625* (*68% probability*) (Illus 8.5: Start: Tap o' Noth lower fort). The difference between these two dates provides an estimated span of all dated activity at Tap o' Noth lower fort of *260–390 years* (*95% probability*), or *280–350 years* (*68% probability*) (Illus 8.5).

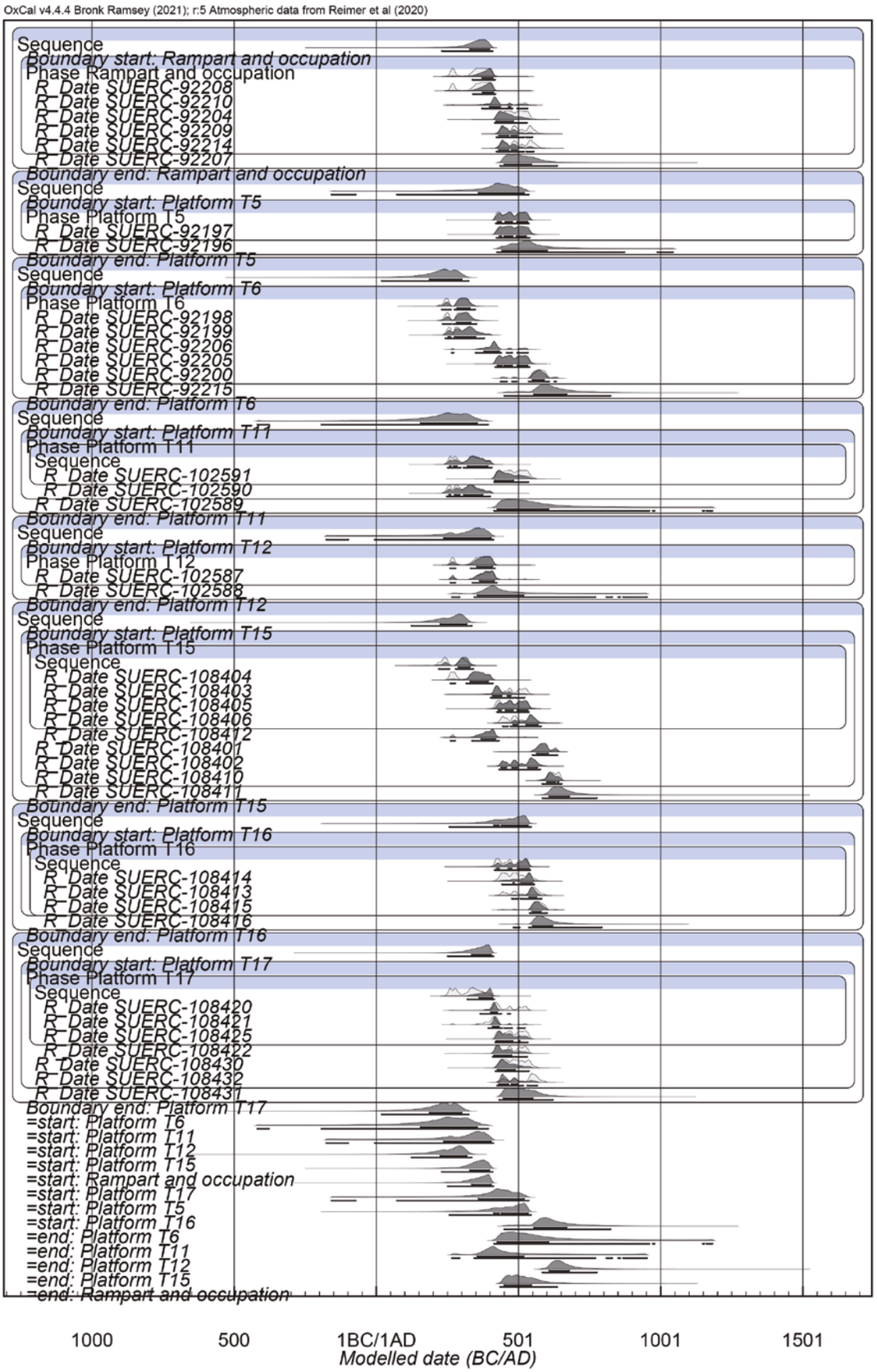


Illus 8.5
Span for activity at Tap o' Noth lower fort and house platforms

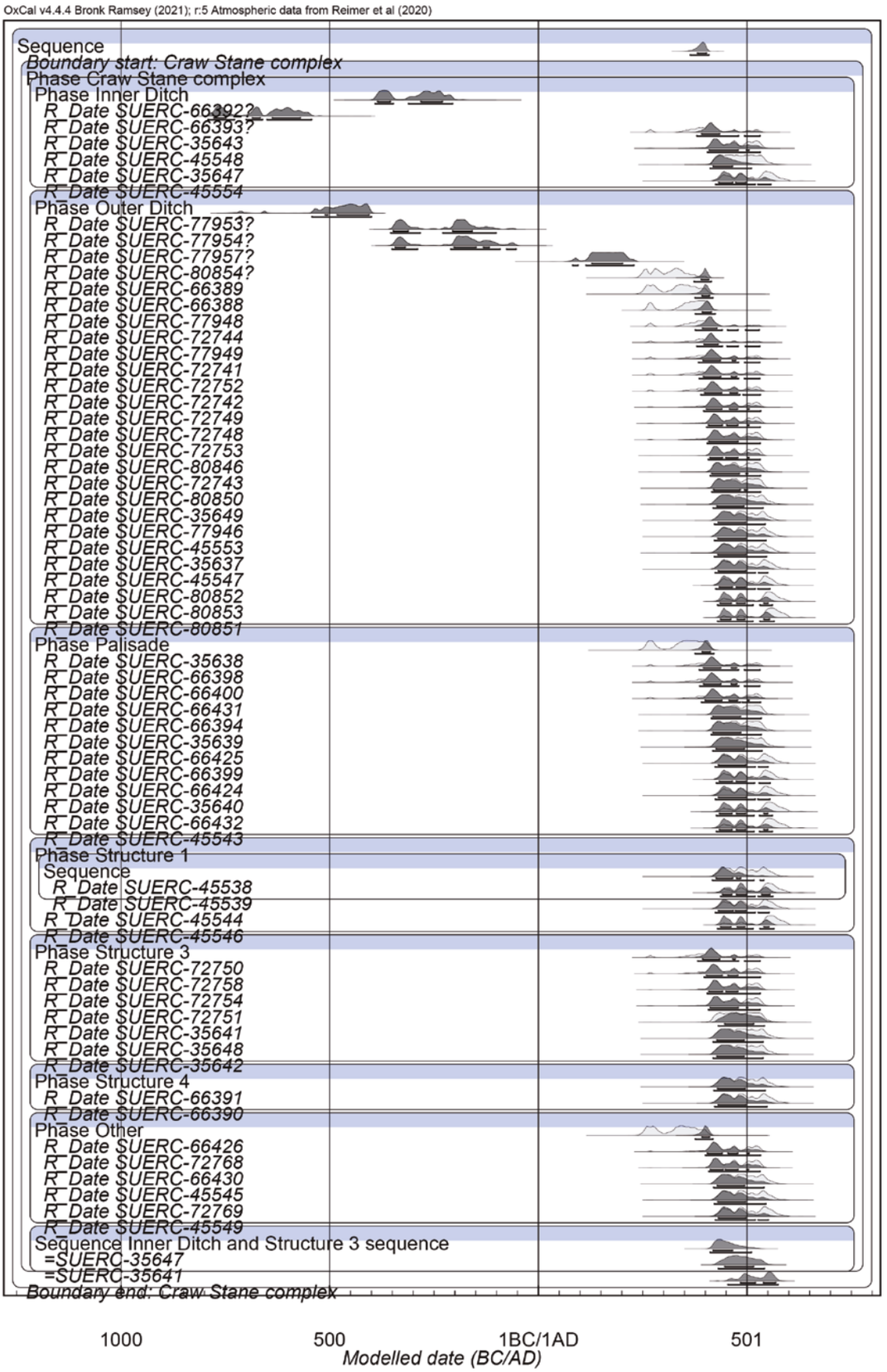
The second model with the site elements individually modelled also showed good agreement (Amodel=96.9) (Illus 8.6). The model indicates that platforms T6, T11, T12 and T15 are likely to have been in existence before activity in association with the rampart began in *cal AD 230–410* (*95% probability*), or in *cal AD 325–400* (*68% probability*) (Illus 8.6: See start and end dates at bottom of plot). Platforms T5 and T17 are likely to post-date the construction of the rampart. Despite showing some of the earliest activity on site, platform T6 also has one of the latest end dates at *cal AD 445–820* (*95% probability*), or in *cal AD 550–670* (*68% probability*) (Illus 8.6: Start: end Platform T6), similar to that of T15 in *cal AD 585–780* (*95% probability*), or in *cal AD 605–680* (*68% probability*) (Illus 8.6: Start: end Platform T15).

8.2.4 Craw Stane Enclosure Complex

At the Craw Stane complex 63 radiocarbon dates were available for modelling (Table 8.3). These were all charred botanicals given the relatively poor bone preservation on site. Nearly all were charred wood with short-lived species targeted for dating, though one sample of oak was selected for dating from the palisade. The botanical analysis (Niehaus and Ramsay this volume) suggests that the charcoal is likely to be predominately from hearth waste with a few exceptions and thus in many cases is likely to be from incidental incorporation into ditch fills, post holes and pits from acts of digging and reworking these features. The chances of residuality is high given the intense level of activity on this small glacial knoll and the clear indications of the recutting of major features, most notably the outer ditch. Indeed five Iron Age determinations (SUERC-66392, SUERC-66393,



Illus 8.6
Model for individual site elements at Tap o' Noth lower fort and house platforms



Illus 8.7
Overall site model for Craw Stane enclosure complex and associated activity

Site	Lab No	Material	Context	Radiocarbon Age (BP)	Calibrated date (95% confidence) AD unless otherwise stated	Stratigraphy
			Inner ditch			
Craw Stane complex	SUERC-66392	Charcoal: *Betula* sp.	Context 15301 – inner ditch basal fill of terminal	2253±29	400–200 cal BC	Likely to be residual date
Craw Stane complex	SUERC-66393	Charcoal: *Betula* sp.	Context 15301 – inner ditch basal fill of terminal	2526±29	800–540 cal BC	Likely to be residual date
Craw Stane complex	SUERC-35643	Charcoal: *Betula* sp.	Context 072 – inner ditch fill	1655±30	260–530	
Craw Stane complex	SUERC-45548	Charcoal: *Betula* sp.	Context 264 – inner ditch fill	1623±29	350–540	
Craw Stane complex	SUERC-35647	Charcoal: *Betula* sp.	Context 73 – inner ditch fill	1590±30	400–550	Structure 3 stratigraphically later than this fill
Craw Stane complex	SUERC-45554	Charcoal: *Corylus avellana*	Context 385 – inner ditch fill	1547±29	420–580	
			Outer ditch			
Craw Stane complex	SUERC-77953	Charcoal: *Betula* sp.	Context 1731 – basal fill of early recut	2400±23	730–400 cal BC	Stratigraphy shows residual
Craw Stane complex	SUERC-77954	Charcoal: *Corylus avellana*	Context 1731 – basal fill of early recut	2159±24	360–110 cal BC	Stratigraphy shows residual. Also not same age as SUERC-77953
Craw Stane complex	SUERC-77957	Charcoal: *Betula* sp.	Context 1712 – basal fill of secondary recut	2147±26	360–90 cal BC	Stratigraphy shows residual
Craw Stane complex	SUERC-80854	Charcoal: *Betula* sp.	Context 1703 – uppermost surviving fill of ditch	1883±25	60–220	Stratigraphy shows residual
Craw Stane complex	SUERC-66389	Charcoal: *Betula* sp.	Context 15191 – lower fill	1746±24	230–380	Early in stratigraphy
Craw Stane complex	SUERC-66388	Charcoal: *Corylus avellana*	Context 15191 – lower fill	1726±29	240–390	Early in stratigraphy
Craw Stane complex	SUERC-77948	Charcoal: *Corylus avellana*	Context 1714 – mid fill	1692±26	250–410	Early in stratigraphy, just above lowest fill, but could be in recut
Craw Stane complex	SUERC-72744	Charcoal: *Betula* sp.	Context 161062 – upper fill below 161003	1662±29	360–530	Late in stratigraphy but should be earlier than 161003
Craw Stane complex	SUERC-77949	Charcoal: *Betula* sp.	Context 1714 – mid fill	1654±26	330–530	Early in stratigraphy, just above lowest fill, but could be in recut
Craw Stane complex	SUERC-72741	Charcoal: *Salix* sp.	Context 161003 – Outer ditch final fill with large metalworking dump. Trench T1	1649±29	260–540	Latest in stratigraphy yet early dates – dump of earlier material?
Craw Stane complex	SUERC-72752	Charcoal: *Alnus cf glutinosa*	Context 164042 – Outer ditch lower fill with crucible stand. T4	1647±29	330–540	Mid stratigraphy, base of recut yet early dates – dump of earlier material?
Craw Stane complex	SUERC-72742	Charcoal: *Corylus avellana*	Context 161003 – Outer ditch final fill with large metalworking dump. T1	1642±29	330–540	Latest in stratigraphy yet early dates – dump of earlier material?
Craw Stane complex	SUERC-72749	Charcoal: *Betula* sp.	Context 162054 – Outer ditch upper layer with large metalworking dump including zoomorphic moulds. T2	1636±27	340–540	Mid-late stratigraphy yet early dates – dump of earlier material?
Craw Stane complex	SUERC-72748	Charcoal: *Corylus avellana*	Context 162054 – Outer ditch upper layer with large metalworking dump including zoomorphic moulds. T2	1628±27	340–540	Mid-late stratigraphy yet early dates – dump of earlier material?
Craw Stane complex	SUERC-72753	Charcoal: *Corylus avellana*	Context 164042 – Outer ditch lower fill with crucible stand. T4	1625±29	350–540	Mid stratigraphy, base of recut yet early dates – dump of earlier material?
Craw Stane complex	SUERC-80846	Charcoal: *Betula* sp.	Context 1730 – Outer ditch basal fill of primary ditch	1622±25	380–540	Early in stratigraphy in this part of ditch
Craw Stane complex	SUERC-72743	Charcoal: *Corylus avellana*	Context 161062 – Outer ditch upper layer below 161003. T1	1608±29	390–540	Late in stratigraphy but should be earlier than 161003
Craw Stane complex	SUERC-80850	Charcoal: *Corylus avellana*	Context 1730 – Outer ditch basal fill of primary ditch	1599±25	400–540	Early in stratigraphy in this part of ditch
Craw Stane complex	SUERC-35649	Charcoal: *Salix* sp.	Context 026 – Outer ditch uppermost fill	1580±30	410–550	Late in stratigraphy
Craw Stane complex	SUERC-77946	Charred Plant Remains: *Corylus* nutshell	Context 1712 – Outer ditch basal fill of secondary recut	1572±26	410–550	Mid stratigraphy
Craw Stane complex	SUERC-45553	Charcoal: *Betula* sp.	Context 229 – Outer ditch base of layer in recut	1567±29	410–560	Probably mid stratigraphy (ditch section by baulk not bottomed)
Craw Stane complex	SUERC-35637	Charcoal: *Betula* sp.	Context 025 – Outer ditch (025), directly below (026)	1565±30	410–560	Late in stratigraphy, but should be earlier than 026
Craw Stane complex	SUERC-45547	Charcoal: *Betula* sp.	Context 215 – Outer ditch upper fill 215/263 later than SUERC-45553	1559±29	420–570	Late in stratigraphy, later than 339
Craw Stane complex	SUERC-80852	Charcoal: *Corylus avellana*	Context 1726 – Pit cut through outer ditch fills with metalworking waste	1554±25	420–570	Late in stratigraphy, latest dates
Craw Stane complex	SUERC-80853	Charcoal: *Betula* sp.	Context 1707 – Outer ditch upper fill with hand-coiled pottery	1537±25	420–590	Late in stratigraphy

Table 8.3
Radiocarbon determinations from the Craw Stane complex

Site	Lab No	Material	Context	Radiocarbon Age (BP)	Calibrated date (95% confidence) AD unless otherwise stated	Stratigraphy
Craw Stane complex	SUERC-80851	Charcoal: *Betula* sp.	Context 1726 – Pit cut through outer ditch fills with metalworking waste	1526±25	420–610	Late in stratigraphy, latest dates
			Palisade			
Craw Stane complex	SUERC-35638	Charcoal: *Quercus robur.*	Context 027 – Palisade fill	1710±30	250–400	Oak date
Craw Stane complex	SUERC-66398	Charcoal: *Salix* sp.	Context 15333 – Palisade post fill	1647±29	330–540	
Craw Stane complex	SUERC-66400	Charcoal: *Betula* sp.	Context 15334 – Palisade fill	1646±29	330–540	Mixed charcoal suggests material incorporated in construction/destruction?
Craw Stane complex	SUERC-66431	Charcoal: *Betula* sp.	Context 15345 – Palisade fill	1640±29	330–540	
Craw Stane complex	SUERC-66394	Charcoal: *Betula* sp.	Context 15314 – Palisade fill	1601±29	390–540	
Craw Stane complex	SUERC-35639	Charcoal: *Corylus avellana*	Context 030 – Palisade post fill	1600±30	390–540	Mixed charcoal suggests material incorporated in construction/destruction?
Craw Stane complex	SUERC-66425	Charcoal: *Betula* sp.	Context 15333 – Palisade post fill	1585±29	400–550	
Craw Stane complex	SUERC-66399	Charcoal: *Corylus avellana*	Context 15334 – Palisade fill	1558±29	420–570	
Craw Stane complex	SUERC-66424	Charcoal: *Betula* sp.	Context 15313 – Palisade fill	1551±25	420–570	
Craw Stane complex	SUERC-35640	Charcoal: *Betula* sp.	Context 032 – Palisade post fill	1550±30	420–580	
Craw Stane complex	SUERC-66432	Charcoal: *Salix* sp.	Context 15345 – Palisade fill	1535±29	420–600	
Craw Stane complex	SUERC-45543	Charcoal: *Betula* sp.	Context 217 – Palisade post fill with animal bone and metalworking tongs	1535±29	420–600	One of latest dates – from clear example of structured deposition as part of decommissioning event
			Structure 1			
Craw Stane complex	SUERC-45538	Charcoal: *Betula* sp.	Context 233 – post-hole fill	1566±29	410–560	Stratigraphically earlier than 255
Craw Stane complex	SUERC-45544	Charcoal: *Corylus avellana*	Context 244 – post-hole fill	1554±29	420–570	
Craw Stane complex	SUERC-45539	Charcoal: *Betula* sp.	Context 255 – post-hole fill	1539±27	420–590	
Craw Stane complex	SUERC-45546	Charcoal: *Corylus avellana*	Context 250 – post-hole fill	1529±25	420–600	
			Structure 3			
Craw Stane complex	SUERC-72750	Charcoal: *Alnus cf glutinosa*	Context 164013 – lower arc spread	1651±29	260–540	These dates from construction?
Craw Stane complex	SUERC-72758	Charcoal: *Alnus cf glutinosa*	Context 164013 – Craw Stane structure, lower arc spread plank fragment	1635±29	340–540	
Craw Stane complex	SUERC-72754	Charcoal: *Betula* sp.	Context 164013 – lower arc spread plank fragment	1626±27	350–540	
Craw Stane complex	SUERC-72751	Charcoal: *Alnus cf glutinosa*	Context 164013 – lower arc spread	1619±29	380–540	
Craw Stane complex	SUERC-35641	Charcoal: *Corylus avellana*	Context 042 – Post-hole [12052]	1595±30	400–540	Later than inner ditch and probably outer ditch
Craw Stane complex	SUERC-35648	Charcoal: *Corylus avellana*	Context 065 – charcoal spread overlying post hole [12064]	1580±30	410–550	These 3 dates from destruction/final use?
Craw Stane complex	SUERC-35642	Charcoal: *Betula* sp.	Context 077 – charcoal spread overlying lower arc features	1580±30	410–550	
			Structure 4			
Craw Stane complex	SUERC-66391	Charred seeds: *cf Hordeum vulgare*	Context 15112 – Exterior structure floor layer	1572±29	410–560	
Craw Stane complex	SUERC-66390	Charred seeds: *cf Hordeum vulgare*	Context 15112 – Exterior structure floor layer	1563±29	420–560	
			Other features			
Craw Stane complex	SUERC-66426	Charcoal: *Betula* sp.	Context 15189 – Stone socket fill	1726±29	240–390	Mixed charcoal suggests material incorporated in construction/destruction?
Craw Stane complex	SUERC-72768	Charcoal: *Betula* sp.	Context 15189 – Stone socket fill	1632±27	340–540	
Craw Stane complex	SUERC-66430	Charcoal: *Corylus avellana*	Context 15189 – Stone socket fill	1620±25	380–540	
Craw Stane complex	SUERC-45545	Charcoal: *Corylus avellana*	Context 204 – Isolated post hole	1577±29	410–550	
Craw Stane complex	SUERC-72769	Charcoal: *Corylus avellana*	Context 15189 – Stone socket fill	1568±29	410–560	
Craw Stane complex	SUERC-45549	Charcoal: *Corylus avellana*	Context 265 – post-hole fill	1557±29	420–570	

Table 8.3 (*cont.*)
Radiocarbon determinations from the Craw Stane complex

SUERC-77953, SUERC-77954 and SUERC-77957) were identified from the inner and outer ditch and in case of the outer ditch the stratigraphy shows these were all residual. It is likely that the two Iron Age determinations from the inner ditch were also residual and all five determinations were modelled as outliers in the Bayesian models.

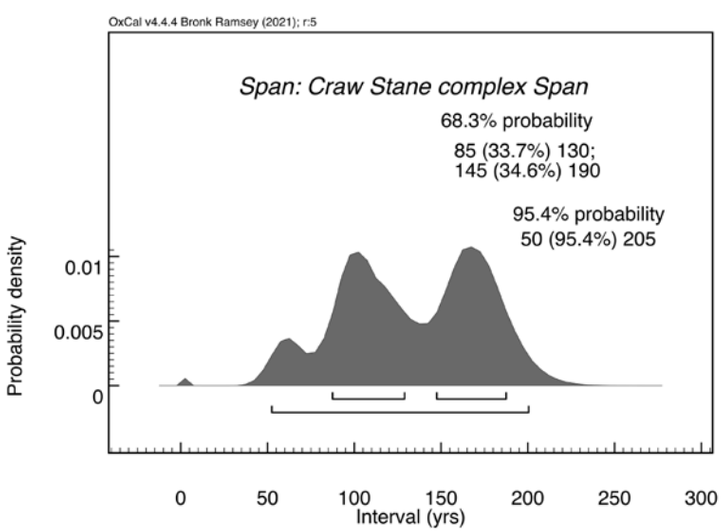
Two models were compiled to analyse the Craw Stane enclosure complex. One comprised an overall site model to provide the probability ranges for the start and end date for the complex and another to allow individual site elements to be modelled and their relative dating to be compared. Site stratigraphy was incorporated into the second model where there were clear indications of relative chronology. In both models dates were grouped by context and by site element – eg Outer ditch, Inner ditch, Palisade, Structure 1, Structure 3, Structure 4 and other features.

The overall model site model showed good agreement (Amodel=81.2), showing good correlation between the archaeological stratigraphy and modelled sequence (Illus 8.7). The model estimates that the dated first-millennium AD activity in association with the Outer ditch, Inner ditch, Palisade, Structure 1, Structure 3, Structure 4 and other features began in *cal AD 360–410* (*95% probability*), or in *cal AD 380–405* (*68% probability*) (Illus 8.7: Start: Craw Stane complex). Dated activity ended in *cal AD 455–575* (*95% probability*), or in *cal AD 485–570* (*68% probability*) (Illus 8.5: Start: Craw Stane complex). The difference between these two dates provides an estimated span of all dated early medieval activity at the Craw Stane complex of *50–205 years* (*95% probability*), or *85–190 years* (*68% probability*) (Illus 8.8).

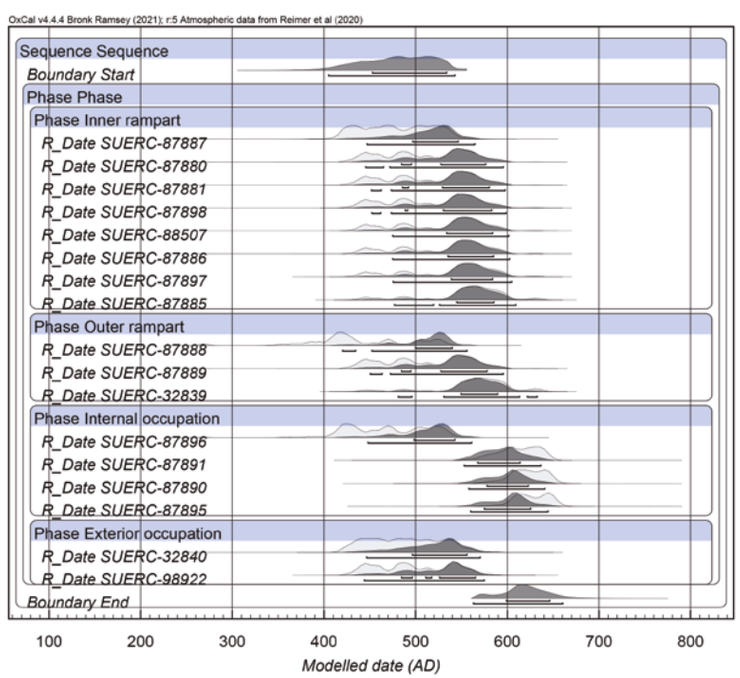
The second model with the site elements individually modelled also showed good agreement (Amodel=81) (Illus 8.9). Given that the charred samples from individual features are in the most part from incidental inclusion from hearth waste etc, we cannot put too much weight on the relative dating of features. However, the start date for activity associated with Structures 1 (*cal AD 345–570* (*95% probability*) or in *cal AD 435–560* (*68% probability*); Illus 8.9: Boundary start: Structure 1), and Structure 3 (*cal AD 375–530* (*95% probability*) or in *cal AD 400–525* (*68% probability*); Illus 8.9: Boundary start: Structure 1) are relatively late in the sequence which accords with observations from the stratigraphy and supports the notion that the structures evident are those from towards the final use of the enclosure complex. The start dates for the inner ditch (*cal AD 250–520* (*95% probability*), or in *cal AD 370–470* (*68% probability*)) and outer ditch (*cal AD 320–410* (*95% probability*), or in *cal AD 360–405* (*68% probability*)) are early in the overall sequence, as is the palisade (*cal AD 300–470* (*95% probability*), or in *cal AD 365–415* (*68% probability*)) (Illus 8.9; See start and end dates at base of plot). The latest end dates out of all of those for the individual site elements are that of Structure 1 (*cal AD 445–700* (*95% probability*), or in *cal AD 540–605* (*68% probability*)) and Structure 4 (*cal AD 435–1075* (*95% probability*), or in *cal AD 450–630* (*68% probability*)), albeit there are only two determinations available from Structure 4. The end date of activity associated with the palisade (*cal AD 445–610* (*95% probability*), or in *cal AD 490–585* (*68% probability*)) is also later than that of the inner ditch (*cal AD 420–675* (*95% probability*), or in *cal AD 440–545* (*68% probability*)) and outer ditch (*cal AD 445–585* (*95% probability*), or in *cal AD 460–570* (*68% probability*)), providing tentative support for the ditched elements of the complex being earlier than the palisade (Illus 8.9).

8.2.5 Cairn More

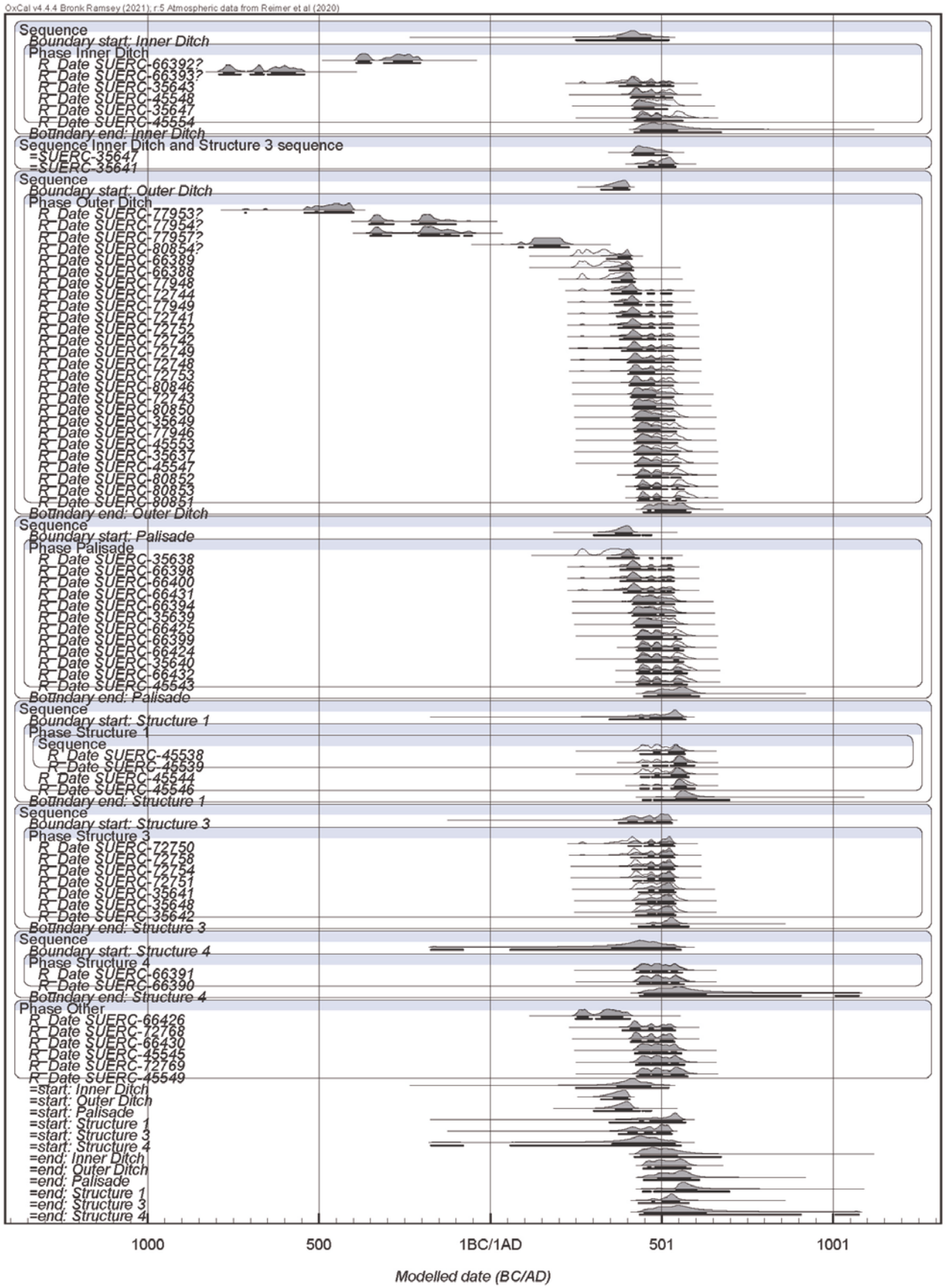
At Cairn More 17 radiocarbon determinations were available for modelling including two determinations from Murray Cook's work at the site (Table 8.4). These were all on short-lived species of charred wood. The overall model (Illus 8.10) showed good agreement (Amodel=94.1), correlating well between the archaeological stratigraphy and modelled sequence. The model estimates that all of the dated activity in association with Cairn More began in *cal AD 405–545* (*95% probability*), or in *cal AD 450–535* (*68%*



Illus 8.8
Span for activity at the Craw Stane enclosure complex



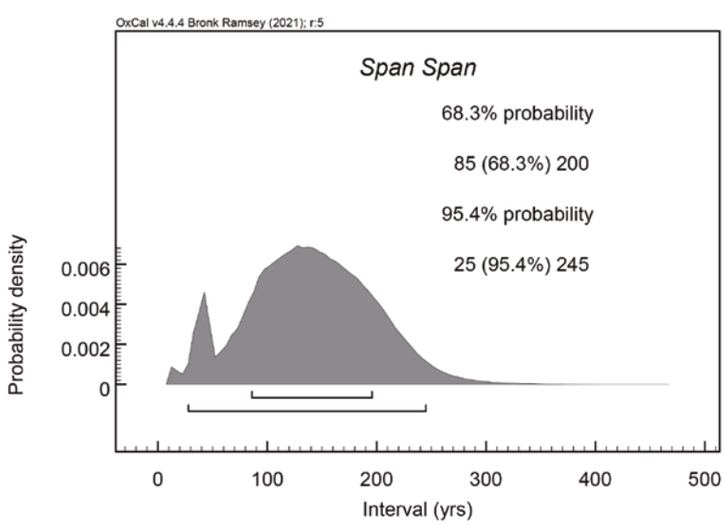
Illus 8.10
Overall site model for the Cairn More enclosure and associated activity



Illus 8.9
Model for individual site elements at the Craw Stane enclosure complex

Site	Lab No	Material	Context	Radiocarbon Age (BP)	Calibrated date (95% confidence) cal AD	Stratigraphy
			Inner rampart			
Cairn More	SUERC-87887	Charcoal: Betula sp.	Context 5007 – pit/post-hole [5010] underlying inner rampart	1604±30	390–540	
Cairn More	SUERC-87880	Charcoal: Alnus sp.	Context 5004 – occupation spread sealed by inner rampart	1550±30	420–580	
Cairn More	SUERC-87881	Charcoal: Betula sp.	Context 5004 – occupation spread sealed by inner rampart	1546±30	420–580	
Cairn More	SUERC-87898	Charcoal: Betula sp.	Context 5002 – rampart collapse	1544±30	420–580	
Cairn More	SUERC-88507	Charcoal: Corylus avellana	Context 5007 – pit/post hole [5010] underlying inner rampart	1538±30	420–590	
Cairn More	SUERC-87886	Charcoal: Betula sp.	Context 5006 – spread sealed by inner rampart	1536±30	420–590	
Cairn More	SUERC-87897	Charcoal: Salix sp.	Context 5002 – rampart collapse	1530±30	420–600	
Cairn More	SUERC-87885	Charcoal: Salix sp.	Context 5006 – spread sealed by inner rampart	1519±30	420–610	
			Outer rampart			
Cairn More	SUERC-87888	Charcoal: Betula sp.	Context 6003 – spread sealed by outer rampart	1642±30	330–540	
Cairn More	SUERC-87889	Charcoal: Alnus sp.	Context 6003 – spread sealed by outer rampart	1549±30	420–580	
Cairn More	SUERC-32839	Charcoal: unidentified	Murray Cook – under outer rampart	1510±30	430–630	
			Internal occupation			
Cairn More	SUERC-87896	Charcoal: Alnus sp.	Context 7006 – lower hearth deposit	1621±30	350–540	
Cairn More	SUERC-87891	Charcoal: Salix sp.	Context 7003 – hearth deposit	1456±30	550–650	
Cairn More	SUERC-87890	Charcoal: Corylus avellana	Context 7003 – hearth deposit	1433±30	570–660	
Cairn More	SUERC-87895	Charcoal: Corylus avellana	Context 7006 – lower hearth deposit	1419±30	580–670	
			Exterior			
Cairn More	SUERC-32840	Charcoal: unidentified	Murray Cook – exterior activity? (described as foundation cut for outermost rampart). External settlement?	1580±30	410–550	
Cairn More	SUERC- 98922	Charcoal: unidentified	17001 House floor – exterior house	1562±24	430–570	

Table 8.4
Radiocarbon determinations from Cairn More

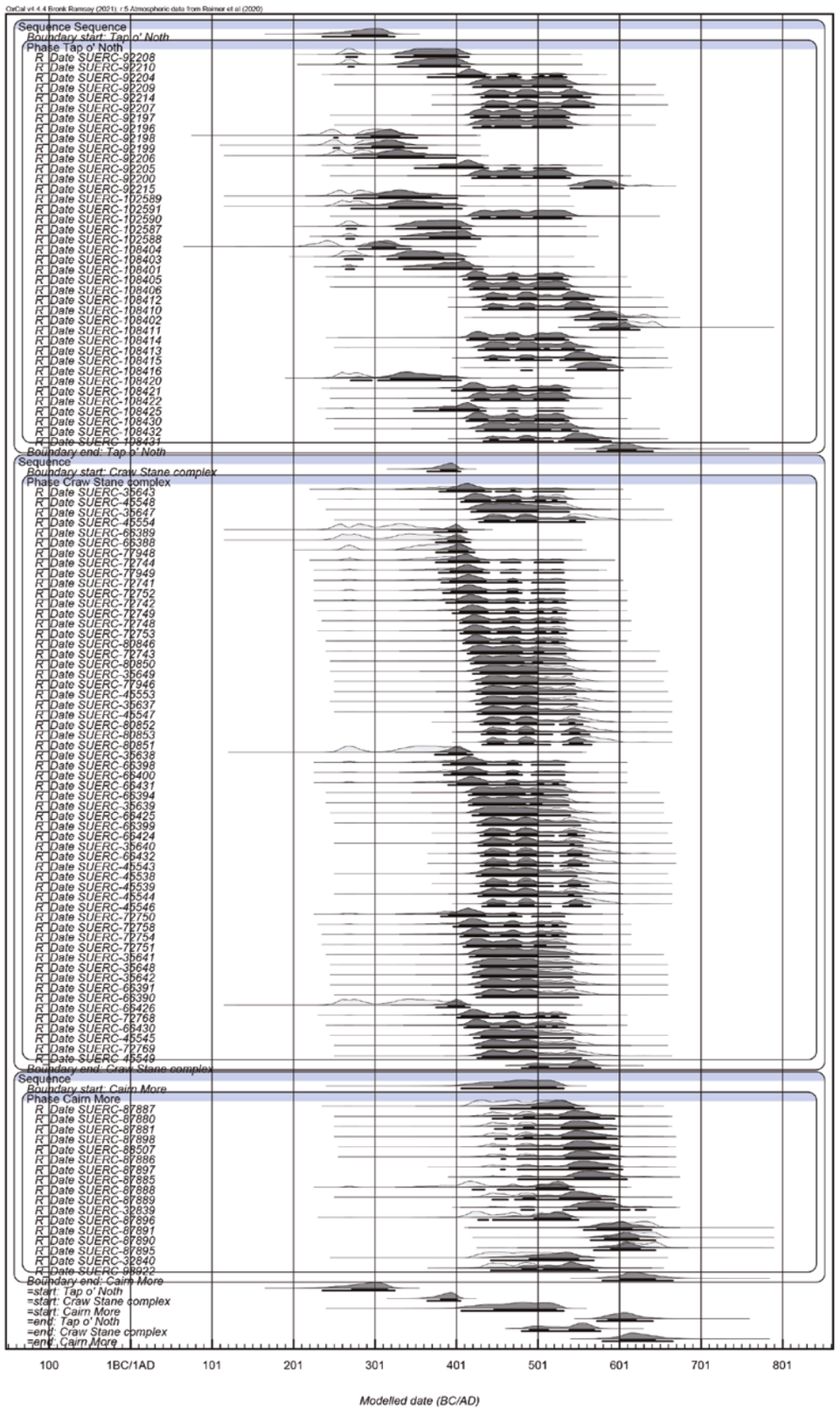


Illus 8.11
Span for activity at the Cairn More enclosures

probability) (Illus 8.10: Boundary Start). Dated activity ended in *cal AD 560–660* (*95% probability*), or in *cal AD 595–650* (*68% probability*) (Illus 8.10: Boundary End). The difference between these two dates provides an estimated span of all dated activity of *25–245 years* (*95% probability*), or *85–200 years* (*68% probability*) (Illus 8.11).

8.2.6 The sites compared

A model to compare the start and end dates of Tap o' Noth lower fort, the Craw Stane complex and Cairn More was also compiled (Illus 8.12). This provides a sequence for the three sites with Tap o' Noth being the earliest of the three followed by the Craw Stane complex and finally by Cairn More. The sequence at Cairn More goes the latest into the first half of the 7th century AD, whereas the Craw Stane complex appears to have ended in the 6th century AD, with the Tap o' Noth sequence likely to have ended between the two other sites around the turn of the 7th century AD.



Illus 8.12
A comparison of the start and end dates of Tap o' Noth lower fort, the Craw Stane complex and Cairn More

8.3 The charred assemblages

Sesilia Niehaus and Susan Ramsay

8.3.1 Introduction

The recovery of charred wood and plant remains from archaeological contexts often serves the primary purpose of collecting material for radiocarbon dating, but further analysis of these assemblages can reveal valuable information on human-environment interactions. Depending on the types of charred remains present, questions of the plant component of diet, cultivation practices, and firewood and construction wood use can be explored through the identification of archaeobotanical material. This chapter section presents and discusses the results of archaeobotanical analyses of charred material from the Craw Stane complex, Cairn More and Tap o' Noth, all located in the Upper Strathbogie valley. Extensive environmental sampling was undertaken at the three sites, resulting in excellent spatial coverage and an abundance of charred material for analysis.

8.3.2 General methods

Botanical identifications were carried out by Susan Ramsay (2018c; 2019b; 2019c; 2019d), with the exception of the Cairn More 2020 material, which was analysed by Sesilia Niehaus (2021) (see below for methodology used at Cairn More). All samples were processed by bucket flotation using standard methodology for the recovery of carbonised remains. Flots and retents were examined using a binocular microscope at variable magnifications of x4–x45 and an estimation of the total volume of carbonised material greater than 4mm was made. For each sample, all of the charcoal larger than 4mm in size was identified unless this proved to be too large an amount, in which case a known percentage of the total charcoal was identified. All carbonised seeds were also identified and any other botanical remains were noted. The internal anatomical features of all charcoal fragments were further identified at x200 magnification using the reflected light of a metallurgical microscope. Reference was made to Schweingruber (1990) and Cappers et al (2006) to aid identifications. Vascular plant nomenclature follows Stace (1997) except for cereals, which conform to the genetic classification of Zohary and Hopf (2000).

8.3.3 Cairn More 2020 assemblage methods

Air-dried flots and retents of 32 bulk soil samples were sent to the University of Sheffield, where they underwent analysis as part of a MSc dissertation project (Niehaus 2021). Each sample was split into four size fractions using a stacked sieve with mesh sizes of 0.3mm, 1mm, 2mm and 4mm. The complete >1mm material and 1/8 of the >0.3mm material were subsequently analysed for the presence of charred non-wood macrobotanical remains. The decision to target only 1/8 of the smallest fraction was based on the high volume of fine material, and the number of botanical remains recovered from this fraction was multiplied by eight. Plant macroremains were identified based on external morphology using a low-power stereo microscope at magnifications up to x64. Cappers et al (2006) and Stace (2019) were consulted to aid identification, and the broad botanical reference collection at the University of Sheffield was utilised where necessary.

Fourteen samples were selected for the charcoal analysis based on sample richness, as time constraints for the completion of the dissertation did not allow for the analysis of the entire assemblage. A total of 50 charcoal fragments per sample were identified from the >2mm and >4mm fractions. While larger sample sizes are generally recommended (Kabucku and Chabal 2021), the decision to target 50 fragments was justified by maximising spatial coverage of the site by analysing a smaller amount of material from a wider range of contexts.

Feature	Information	Recorded as
Growth rings	Age and diameter	Number of rings
Pith and bark	Age and diameter	Present/absent
Ring curvature	Age and diameter	Weak/moderate/strong
Radial cracks	Temperature and dampness	Present/absent
Tyloses	Heartwood	Present/absent
Vitrification	Combustion process	Absent/low/moderate/severe
Fungal hyphae	Deadwood, dampness	Present/absent
Insect damage	Deadwood	Present/absent

Table 8.5
Summary of recorded botanical information

	Context	264	385	15301
	Sample	212	231	15025
	Description	Fill of inner ditch [203]	Lower fill of inner ditch [203]	Inner ditch terminal
Volume of charcoal >4mm		25ml	5ml	<2.5ml
% charcoal >4mm ID		100%	100%	100%
Charcoal				-
Betula spp	birch	67 (4.03g)	1 (0.04g)	7 (0.05g)
Corylus cf avellana	hazel	11 (0.79g)	3 (0.40g)	-
Quercus spp	oak	2 (0.08g)	-	-
Salix spp	willow	-	-	-
Indet charcoal	indet charcoal	-	-	1 (0.01g)

Table 8.6
Botanical remains from the Craw Stane complex inner ditch contexts

	Context	263	263	314	339	15191	161003	161062	162054	164042	1703	1707	1712	1714	1726	1730	1731
	Sample	214	215	225	229	15007	161004	161013	162019	164019	1702	1701	1715	1703	1711	1716	1713
	Description	Upper fill of outer ditch [262]	Upper fill of outer ditch [262]	Fill of large pit [256]	Basal fill of outer ditch [262]	Lower fill of outer ditch	Upper fill of outer ditch [15004]	Fill of outer ditch [15004]	Fill of outer ditch [15004]	Fill of outer ditch [15004]	Fill of ditch recut [1734]	Fill of ditch recut [1734]	Fill of ditch recut [1735]	Fill of ditch [15004]	Fill of pit [1725] in ditch [15004]	Fill of ditch [15004]	Fill of ditch recut [1732]
Vol of charcoal >4mm		5ml	10ml	100ml	30ml	10ml	60ml	250ml	500ml	200ml	2.5ml	<2.5ml	<2.5ml	10ml	10ml	5ml	5ml
% charcoal >4mm ID		100%	100%	50%	100%	100%	50%	50%	20%	50%	100%	100%	100%	100%	100%	100%	100%
Charcoal																	
Alnus cf glutinosa	alder	-	-	-	-	4 (0.09g)	-	7 (0.46g)	-	41 (8.94g)	-	-	-	-	-	-	-
Betula spp	birch	23 (1.44g)	12 (1.25g)	99 (11.29g)	52 (7.36g)	33 (0.82g)	22 (1.26g)	116 (8.42g)	183 (19.20g)	30 (4.67g)	6 (0.12g)	1 (0.04g)	1 (0.02g)	29 (1.20g)	50 (1.82g)	8 (0.33g)	15 (0.81g)
Corylus cf avellana	hazel	2 (0.25g)	5 (0.47g)	3 (0.27g)	-	8 (0.20g)	40 (2.60g)	56 (3.56g)	8 (0.42g)	40 (3.65g)	1 (0.02g)	-	-	17 (0.61g)	1 (0.04g)	1 (0.05g)	3 (0.08g)
Ericales	heather type	-	-	-	-	-	-	-	-	-	-	-	1 (0.01g)	-	-	-	-
Quercus spp	oak	-	-	2 (0.47g)	-	-	4 (0.22g)	28 (1.54g)	12 (1.00g)	-	-	-	-	-	-	3 (0.10g)	-
Salix spp	willow	-	1 (0.05g)	3 (0.50g)	-	-	10 (0.69g)	9 (0.33g)	5 (0.24g)	6 (0.57g)	-	-	-	-	-	-	-
Cereals																	
Hordeum vulgare sl	barley	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-
Cereal indet	cereal indet	-	-	-	-	-	-	-	-	-	-	-	1	15	-	-	-
Carb seeds																	
Corylus cf avellana	hazel nutshell	-	-	-	-	-	-	4 (0.19g)	-	-	-	-	1 (0.01g)	8 (0.19g)	1 (<0.01g)	-	-
Misc																	
Bone	bone	-	-	-	-	-	-	7 (1.04g)	9 (2.36g)	-	-						
Fucoid seaweed	seaweed	-	-	-	-	-	-	-	-	-	-	-	-	-	1 (0.03g)	-	-

Table 8.7
Botanical remains from the Craw Stane complex outer ditch contexts

	Context	237	288	353	15007	15311	15313	15314	15333	15334	15345	15346
	Sample	217	226	233	15034	15028	51030	15031	15042	15043	15048	15049
	Description	Fill of palisade post hole [236]	Palisade slot 1	Palisade slot 4	Upper fill of palisade slot – destruction level	Fill of post shadows in palisade fill below 15007	Fill of post shadows in palisade fill below 15007	Fill of post shadows in palisade fill below 15007	Interior post hole – post-pipe fill	Fill of post shadows in palisade fill below 15007	Fill of post shadows in palisade fill below 15007	Fill of post shadows in palisade fill below 15007
Volume of charcoal >4mm		60ml	100ml	20ml	40ml	10ml	5ml	15ml	10ml	5ml	15ml	10ml
% charcoal >4mm ID		50%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Charcoal												
Betula	birch	31 (6.84g)	18 (2.25g)	29 (1.80g)	21 (1.83g)	17 (1.02g)	9 (0.14g)	17 (0.53g)	23 (1.51g)	20 (0.88g)	22 (1.29g)	39 (1.94g)
Corylus	hazel	2 (0.22g)	4 (0.18g)	2 (0.10g)	1 (0.012g)	-	-	-	7 (0.35g)	1 (0.05g)	1 (0.01g)	1 (0.02g)
Prunoideae	cherry type	-			-	-	-	-	-	-	1 (0.02g)	-
Quercus	oak	-	84 (6.93g)	21 (1.00g)	83 (5.89g)	-	23 (0.39g)	83 (2.10g)	-	9 (0.10g)	18 (1.07g)	-
Salix	willow	1 (0.51g)	3 (0.80g)	1 (0.59g)	-	-	-	-	1 (0.15g)	-	1 (0.12g)	7 (0.39g)
Carbonised seeds etc												
Corylus avellana nutshell	hazel nutshell	-	2 (0.01g)	2 (0.02g)	-	-	-	-	-	-	1 (0.01g)	-

Table 8.8
Botanical remains from the Craw Stane complex palisade and post-hole contexts

Charcoal fragments were prepared by sectioning along transverse, radial, and tangential planes, and identified using a MEIJI high-power dark field microscope at magnifications up to x500. Identification manuals by Schweingruber (1990) and Hather (2000), as well as the wood and reference collection at the University of Sheffield, were consulted to ensure the accuracy of identifications. In addition to taxonomic identification, a range of additional information was recorded in order to collect data for a more nuanced discussion of the assemblage (Table 8.5).

8.3.4 Results: Craw Stane complex

The complete botanical results for the Craw Stane complex are shown in Tables 8.6–8.10.

Inner ditch

The upper fill (385) of the inner ditch [203] produced only small amounts of hazel and birch charcoal, whilst the lower fill (264) contained larger amounts of birch charcoal, with smaller quantities of hazel and oak also present. The fill of the inner ditch

	Area	**Interior features**		**Structure 1**				**Structure 4**
	Context	249	266	7 (=233)	244	250	255	15112
	Sample	204	216	202	230	203	209	15013
	Description	Fill of double post hole [248]	Fill of post hole [265]	Fill of post hole [232]	Packing from post hole [213]	Fill of post hole [213] post-pipe	Fill of post hole [232] post-pipe	Fill of spread 15111
Volume of charcoal >4mm		40ml	10ml	10ml	5ml	2.5ml	5ml	400ml
% charcoal >4mm ID		100%	100%	100%	100%	100%	100%	100%
Charcoal								
Betula spp	birch	11 (1.04g)	9 (0.48g)	51 (3.78g)	1 (0.02g)	-	7 (0.33g)	-
Corylus cf avellana	hazel	2 (1.05g)	16 (0.75g)	14 (0.58g)	4 (0.15g)	3 (0.29g)	4 (0.08g)	2 (0.37g)
Quercus spp	oak	1 (0.08g)	17 (1.29g)	1 (0.03g)	7 (0.58g)	2 (0.10g)	-	212 (141.37g)
Salix spp	willow	6 (5.74g)	-	5 (0.21g)	-	-	1 (0.02g)	-
Carbonised cereals								
Hordeum vulgare var vulgare	six-row hulled barley	-	-	-	1	-	-	2
Hordeum vulgare sl	six-row barley	-	-	-	1	-	-	14
cf Hordeum vulgare sl	cf barley	-	-	-	-	-	-	7
Cereal indet	cereal indet	-	-	-	-	-	-	5
Carbonised seeds etc								
Corylus avellana nutshell	hazel nutshell	-	-	-	-	-	1 (0.05g)	-

Table 8.9
Botanical remains from the Craw Stane complex interior features, Structure 1 and Structure 4

	Area	**Structure 3**			**Stone socket found next to Craw Stane**				
	Context	164013	164013	164013	15022	15022	15189	15189	15195
	Sample	164003	164005	164020	15027	15033	15044	15045	15014
	Description	Fill of post hole [164012]	Fill of post hole [164012]	Fill of post hole [164012]	Upper fill of stone socket [15359]	Upper fill of stone socket [15359]	Basal fill of stone socket [15359]	Basal fill of stone socket [15359]	Mid fill of pit [15359]
Volume of charcoal >4mm		*c* 1500ml	*c* 600ml	30ml	10ml	30ml	10ml	2.5ml	5ml
% charcoal >4mm ID		100%	100%	100%	100%	100%	100%	100%	100%
Charcoal									
Alnus cf glutinosa	alder	-	2 plank sections	32 (5.85g)	-	-	-	-	-
Betula spp	birch	-	-	3 (0.04g)	21 (1.42g)	2 (9.13g)	3 (0.19g)	6 (0.11g)	14 (0.31g)
Corylus cf avellana	hazel	-	-	-	13 (0.53g)	-	7 (0.90g)	6 (0.17g)	3 (0.05g)
Quercus spp	oak	Large plank section	-	1 (0.01g)	-	-	-	-	-
Salix spp	willow	-	-	-	-	-	1 (0.04g)	-	-
Indet charcoal	indet charcoal	-	-		-	-	-	-	14 (0.56g)
Carbonised seeds etc									
Corylus avellana nutshell	hazel nutshell	-	-	-	-	3 (0.07g)	-	-	-
Misc									
Fucoid seaweed	seaweed	-	-	-	241 (1.25g)	-	3 (<0.01g)	7 (0.03g)	-

Table 8.10
Botanical remains from the Craw Stane complex Structure 3 and stone socket contexts

terminal (15025) produced only small traces of birch charcoal. There is little indication that this material derives from any structural remains and most likely represents the remains of hearth or midden waste dumped into the ditch.

Outer ditch

The fills of the outer ditch were dominated by birch charcoal (67% of the total charcoal from this feature), with smaller amounts of hazel, alder, oak and willow also present. A few of the ditch fills also contained traces of hazel nutshell, carbonised barley, bone and a fragment of carbonised seaweed. Birch is not usually associated with structural remains and, combined with the other botanical finds, it is more likely that these assemblages are the remains of hearth or midden waste that have either been dumped into the ditch or have trickled down into the ditch fills from general occupation scatter across the site.

Palisade ditch and post holes

The contexts denoted as post shadow fills contained mixed carbonised assemblages that tended to be dominated by birch and oak charcoal, but with hazel, willow and cherry type also present. The palisade slot fills also produced mixed assemblages but, in these cases, oak tended to be a more prominent part of the assemblage than was seen in the post-hole shadow fills. Overall, birch makes up almost 50% of the palisade contexts, with oak being over 40% of the total charcoal found. Traces of hazel nutshell were found in a few of the palisade contexts.

The carbonised assemblages from many of the palisade contexts are very similar to those from the outer ditch fills and so may have had a similar origin, ie hearth or midden waste. There are no indications from any of the palisade post holes that there are significant remains of posts burnt in situ. However, oak charcoal does comprise a more substantial percentage of the charcoal in the palisade contexts than was noted in the ditch contexts, particularly those identified as upper fills of the palisade slots. This might imply that there is a structural component to at least some of these carbonised assemblages but that this was 'above ground' timber that was burnt and then became mixed with more general domestic hearth or midden waste rather than posts burnt in situ.

Interior settlement

Within the interior of the enclosure were a series of features representing plank settings and a post hole, although their relationships were complicated. Feature [248] was a double-post setting that appeared to have had the posts removed or dug out. The fill (249) of this post setting contained a carbonised assemblage dominated by willow charcoal, with lesser amounts of birch, hazel and oak. Although this assemblage could also be just midden or hearth waste, the preponderance of willow might suggest that there is a structural component within this assemblage that originated from a burnt wattlework structure or panel. A short distance to the north-east was feature [265], which was a post hole with evidence for possible burning in situ. Although the carbonised assemblage from the fill (266) was dominated by oak, which may be the remains of the original post, hazel and birch charcoal were also present. This suggests that some other hearth or midden material had become incorporated into this fill along with the burnt remnants of the post.

Structure 1

Within Structure 1, one of the larger post holes [213] was excavated and revealed a clear post-pipe fill (250) and packing material (244). The post-pipe fill (250) contained only small amounts of hazel and oak charcoal, whilst the packing was similar but with the addition of a trace of birch charcoal. This does not appear to be the remains of a post burnt in situ but rather evidence for midden or hearth waste, particularly because two carbonised grains of barley were also recovered from the packing material. Post-hole [232] on the opposite side of the building contained fill (233) and post-pipe fill (255), both of which produced mixed charcoal assemblages of birch, hazel, willow and oak, with a single fragment of hazel nutshell. This assemblage appears to represent hearth or midden waste that was either deliberately dumped into the post hole or incorporated into the fill over time.

Structure 3

To the south-west of the Craw Stane was a shallow curving ditch and an arrangement of post holes that may be the remains of a further structure. Only the fill (164013) of the inner post hole or arc of burnt material [164012] was examined for the presence of carbonised botanical remains. The fill produced three carbonised plank sections as well as other charcoal fragments. Sample <164005> contained two plank sections measuring 12 x 10 x 2cm and 17 x 10 x 2–2.5cm, which were both identifiable as alder and had 20–30 visible rings but no obvious sapwood. Sample <164003>contained a single section of plank measuring 28 x 18 x 3–4cm, which was identified as oak. At least 30 rings were visible, but the plank appears to have been cut from a much larger tree. Sample <164020>came from a mixed deposit that contained a large quantity of alder charcoal, perhaps from another alder plank, together with traces of birch and oak. During excavation, cleaning revealed that [164012] appeared to be the spread from collapsed debris from a burnt structure overlying a series of post holes, presumably from the burnt structure. It appears that this structure was built using planks, rather than wattle, for the walls but that both alder and oak planks were used.

Structure 4

Just outside the palisaded enclosure on the east was a sub-circular feature (15111) with a shallow bowl-shaped profile. Large burnt timbers were identified on the east side of the fill (15112) and analysis of the carbonised assemblage from this fill identified large quantities of oak, but this was very fragmented and it was impossible to give any estimate of size for the original timber. In addition, small amounts of hazel charcoal were also present together with 28 cereal grains. The identifiable cereals were all barley, including a few grains that were further identifiable as the hulled variety. Feature (15111) may be the floor layers of a sunken building or other structure. The carbonised assemblage does suggest an oak structure that may have been destroyed by fire. The presence of carbonised cereal grains also indicates either food preparation or storage of grain.

Stone socket

Feature [15359] had a collection of stones (15888) arranged tightly in a ring at its base, making it likely that these stones were packing for a standing stone. Beneath the fill (15189), and underneath the area of stone packing, a cattle jaw and other animal bone were identified lying at the very base of the pit on its southern side. The carbonised assemblages from the basal fill (15189) of the stone socket comprised birch, hazel and willow charcoal, together with traces of carbonised seaweed. A second, later cut [15362] was identified cutting into (15189), containing two fills (15195) and (15022), which may represent disturbance of the standing-stone socket, possibly during its extraction. The upper fill (15022) produced only birch and hazel charcoal, a few fragments of hazel nutshell, together with numerous fragments of carbonised seaweed. Fill (15195) produced only birch and hazel charcoal. The charcoal and hazel nutshell are consistent with collection of resources from the local environment, but the seaweed is difficult to interpret. The presence of this burnt seaweed in the fill of the stone socket is very unusual and this material had been transported some considerable distance from the coast.

8.3.5 Results: Cairn More

The complete botanical results for Cairn More are shown in Tables 8.11–8.15.

Ramparts and pre-hillfort activity

An old ground surface (5003) lay under the core of the inner rampart wall [5005] and extended westwards into the interior of the enclosure. It produced a charcoal assemblage dominated by birch, with small amounts of willow and alder also present, probably indicating scattered hearth waste on the original surface. The original ground surface (5003) overlay fill (5007) of a shallow pit or ditch terminal [5010]. Fill (5007) produced charcoal of birch, hazel and willow, again suggesting the remains of hearth waste, possibly deliberately dumped into the pit as infill.

Deposit (5006) also lay under the core of wall [5005] and beneath (5003) on the south side of the trench. It produced a very diverse charcoal assemblage of birch, alder, hazel, oak and willow, again consistent with scattered hearth waste. Underlying (5006) was a layer of redeposited natural (5008) which produced a large amount of birch charcoal with only traces of hazel charcoal. This may be hearth waste but could also be evidence of clearing of vegetation from the original ground surface.

A charcoal-rich deposit (6003) was located directly underneath the main core of the outer rampart wall. It produced an assemblage dominated by birch, but with smaller amounts of alder, hazel, oak and willow also present. This deposit is consistent with hearth scatter and very similar to that identified from (5006), beneath the wall core of the inner rampart.

A potential wattle floor or fence panel (16004) underlying the outer rampart was likely to be related to earlier, pre-ringfort occupation. The 4mm fraction consisted nearly entirely of small hazel roundwood, with the three fragments with both bark and pith present measuring 2.04, 2.55 and 3.12cm in diameter (6, 8 and 7 growth rings respectively). These are best interpreted as young trees or medium-sized branches, and the complete lack of fungal hyphae or insect damage supports the harvesting of fresh wood for the wattle panel. The remaining roundwood fragments ranged between 1–11 rings, with an average of 6.35. Traces of birch, willow/poplar and hazel were present in the 2mm fraction, likely representing small amounts of intrusive hearth waste.

	Trench	**Trench 5**				**Trench 6**	**Trench 7**				**Trench 9**			
	Context	5003	5006	5007	5008	6003	7003	7006	7119	7120	9004	9009	9011	9013
	Sample	5002	5004	5006	5007	601	701	702	733	734	901	902	903	-
	Description	OGS under wall [5005] of fort	Deposit under inner rampart wall	Fill of shallow pit or ditch terminal [5010]	Soil under rampart core	Spread underlying rampart core	Deposit directly overlaying hearth	Lower hearth fill	Upper fill of post hole [7121]	Fill of post-pipe [7121]	Inner rampart post hole [9003]	Charcoal under rampart	Fill of post hole [9010]	Fill of post hole [9012]
	Vol charcoal >4mm	30ml	40ml	25ml	60ml	30ml	40ml	30ml	5ml	15ml	30ml	40ml	5ml	50ml
	% charcoal ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Charcoal	**Common name**													
Alnus cf glutinosa	alder	1 (0.02g)	18 (1.53g)	-	-	5 (0.81g)	-	5 (0.27g)	-	5 (0.30g)	-	8 (1.38g)	-	-
Betula spp	birch	99 (5.36g)	64 (6.27g)	34 (2.61g)	142 (17.28g)	89 (5.95g)	38 (3.40g)	34 (2.56g)	5 (0.24g)	-	42 (4.42g)	28 (4.79g)	11 (0.69g)	21 (5.63g)
Corylus cf avellana	hazel	-	15 (1.22g)	4 (0.15g)	4 (0.20g)	4 (0.24g)	25 (2.41g)	20 (1.03g)	13 (0.42g)	17 (1.20g)	14 (0.76g)	8 (1.08g)	7 (0.39g)	23 (2.81g)
Ericales	heather type	-	-	-	-	-	-	1 (0.02g)	-	-	-	-	-	-
Quercus spp	oak	-	1 (0.05g)	-	-	9 (0.44g)	3 (0.19g)	5 (0.26g)	2 (0.07g)	29 (1.05g)	-	-	2 (0.30g)	2 (0.11g)
Salix spp	willow	19 (0.86g)	1 (0.05g)	3 (0.60g)	-	11 (0.56g)	16 (2.67g)	7 (0.39g)	-	-	4 (0.27g)	2 (0.32g)	-	4 (1.33g)
Seeds														
Corylus avellana nutshell	hazel nutshell	-	-	-	-	-	-	1 (0.02g)	1 (0.02g)	-	-	-	-	-

Table 8.11
Botanical remains from Cairn More – Trenches 5, 6, 7 and 9

	Trench	**Trench 13**									**Trench 14**					**Trench 15**
	Context	13005	13007	13009	13011	13013	13015	13016	13018	13021	14001	14005	14007	14008	14010	15002
	Sample	13007	13002	13001	13003	13004	13005	13006	13008, 13009	13009	-	14002, 14007	14003	14001	14005	15001
	Description	Fill of post-hole 1 [13004]	Fill of post-hole 2 [13006]	Fill of post-hole 3 [13008]	Fill of post-hole 4 [13010]	Fill of post-hole 5 [13012]	Fill of post-hole 6 [13014]	Lower fill of post-hole 4 [13010]	Fill of linear feature [13017]	Fill of second cut of post-hole 3 [13008]	Topsoil	Fill of post hole [14004]	Fill of post hole [14006]	Burnt spread	Fill of post hole [14009]	Fill of post hole [15001]
	Vol charcoal >4mm	5ml	40ml	50ml	50ml	50ml	30ml	40ml	65ml	2.5ml	15ml	40ml	5ml	60ml	10ml	10ml
	% charcoal ID	100%	100%	50%	50%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Charcoal	**Common name**															
Alnus cf glutinosa	alder	-	-	-	-	-	-	-	-	-	-	-	-	-	5 (0.15g)	-
Betula spp	birch	24 (0.81g)	46 (3.63g)	56 (5.63g)	35 (3.93g)	69 (7.75g)	50 (4.26g)	34 (8.22g)	103 (6.47g)	9 (0.36g)	38 (2.27g)	46 (5.06g)	10 (0.52g)	98 (7.27g)	26 (0.33g)	1 (0.02g)
Corylus cf avellana	hazel	6 (0.27g)	9 (0.93g)	4 (0.22g)	8 (0.98g)	6 (0.34g)	3 (0.16g)	4 (0.28g)	25 (2.48gg)	-	16 (0.60g)	22 (2.28g)	5 (0.17g)	41 (4.22g)	13 (0.56g)	-
Quercus spp	oak	1 (0.11g)	46 (3.18g)	69 (4.32g)	2 (0.27g)	-	-	4 (0.19g)	23 (1.54gg)	17 (0.28g)	1 (0.02g)	2 (0.30g)	1 (0.07g)	1 (0.03g)	7 (0.18g)	5 (1.98g)
Salix spp	willow	1 (0.03g)	5 (0.44g)	9 (0.80g)	5 (0.55g)	5 (0.87g)	6 (0.59g)	4 (0.50g)	5 (0.14g)	-	1 (0.02g)	1 (0.10g)	-	16 (0.63g)	3 (0.09g)	-
Misc																
Bone	bone	2.5ml (1.69g)	5ml (2.15g)	15ml (10.11g)	15ml (11.05g)	30ml (26.78g)	25ml (15.76g)	5ml (2.76g)	30ml (21.98g)	<2.5ml (0.45g)	5ml (2.13g)	5ml (1.11g)	-	25ml (16.42g)	>2.5ml (2.12g)	2.5ml (1.31g)
Fucoid seaweed	seaweed	-	-	-	1 (0.04g)	-	-	-	-	-	-	-	-	-	-	-

Table 8.12
Botanical remains from Cairn More – Trenches 13, 14 and 15

		Trench 16							Trench 17						
	Context	16002	16004	16010	16010	16013	16020	16022	17001	17002	17003	17009	17014	17017	17023
	Sample	**1601**	**1602**	**1604**	**1605**	**1606**	**1609**	**1610**	**1718**	**1701**	**1703**	**1709**	**1712**	**1716**	**1717**
	Description	Middle palisade post-pipe fill	Wattle floor under outer bank	Middle palisade post-pipe fill	Fill of post hole	Outer bank post-hole fill	Lower fill of post pipe	Outer palisade post-hole fill	Floor of external house	Grey bone rich deposit	Lower post-pipe fill	Lower post-pipe fill	Fill of central hearth of external house	Outer palisade post-pipe fill	Floor of external house
Charcoal	**Common name**														
Alnus glutinosa	Alder					1				1					3
Betula	Birch	2	2	1		28	3	2	37	45	6	35	40	44	28
Corylus avellana	Hazel		46			5	33	3	6	1		2			5
Quercus	Oak	47		49	50	15	13	45	4		44	7	7		2
Salix/Populus	Willow/poplar		1			1				1				5	3

Table 8.13
Charcoal remains from Cairn More – Trenches 16 and 17

	Trench 16										Trench 17				
Context	16002	1604	16005	16010	16013/14	16019	16020	16020	16022	16025	17001	17003	17003	17003	17006
Sample	**1601**	**1605**	**1603**	**1604**	**1606**	**1607**	**1608**	**1609**	**1610**	**16012**	**1718**	**1702a**	**1702b**	**1703**	**1704**
Description	MP post pipe	Fill of post hole	Post-hole fill	MP post-pipe	OP post-pipe		OP post-pipe	Lower fill of OP post-pipe	OP post hole	Feature fill	House floor	OP post-hole packing	OP post-hole packing	OP post-pipe fill	OP post-hole packing
Seeds (1mm)															
Brassica sp.	5		3		27	1	18	14	1	2				8	1
Brassica cf. *nigra*					14						5			1	
Brassica/Sinapis				3		5		9			1		8		
Carex sp.			2								1				
Carex cf. *buxbaumii*					2								1		
Carex cf. *pendula*				1							1				
Plantago lanceolata			4		1			2			2		1		
Poaceae type 1		4	1										1		
Poaceae type 2		3													
cf. *Poa*		1													
Rumex sp.			1		3										
Seeds (300 mic)															
Brassica sp.	8														
Brassica cf. *nigra*	32	16		40	32		24	16				8			
Carex sp.	8			8											

	Trench 17 (*continued*)										
Context	17007	17008	17009	17009	17014	17017	17017	17020	17024	17025	17031
Sample	**1708**	**1706**	**1707**	**1709**	**1712**	**1714**	**1716**	**1715**	**1721**	**1722**	**1723**
Description	OP post-pipe	OP post-hole packing		Lower post-pipe fill	Central hearth of external house	OP post-pipe	OP post-pipe	OP post-hole fill	MP post hole	Post-hole fill	Post-pipe fill
Seeds (1mm)											
Brassica	1		1	5		7	26	2	12	3	
Brassica cf. nigra					5						
Brassica/Sinapis		1				3	4		2	3	5
Carex sp.					2			1			
Plantago lanceolata							1				
Poaceae type 1					2						
Rumex					1						
Seeds (300 mic)											
Brassica				16			48				
Brassica cf. *nigra*		24			16	8		8			8

Table 8.14
Macrobotanical remains from Cairn More – Trenches 16 and 17

Sample no	Context	Description	Radial cracks	Tyloses	Vitrification	Fungal hyphae	Insect damage	Bark	Pith
1601	**16002**	Post-pipe fill	32.00% (n=16)	28.00% (n=14)	12.00% (n=6)	-	2.00% (n=1)	-	-
1602	**16004**	Wattle panel	8.00% (n=4)	-	-	-	-	6.00% (n=3)	46.00% (n=23)
1604	**16010**	Post-pipe fill	10.00% (n=5)	42.00% (n=21)	12.00% (n=6)	6.00% (n=3)	-	-	-
1605	**16010**	Post-pipe fill	30.00% (n=15)	50.00% (n=25)	16.00% (n=8)	12.00% (n=6)	-	-	-
1606	**16013**	Post-hole fill	8.00% (n=4)	4.00% (n=2)	-	2.00% (n=1)	2.00% (=1)	-	2.00% (n=1)
1609	**16020**	Lower post-pipe fill	8.00% (n=4)	2.00% (n=1)	6.00% (n=3)	-	2.00% (n=1)	-	-
1610	**16022**	Post-hole fill	26.00% (n=13)	36.00% (n=18)	38.00% (n=19)	8.00% (n=4)	-	-	-
1701	**17002**	Old ground surface	8.00% (n=4)	2.00% (n=1)	-	8.00% (n=4)	-	2.00% (n=1)	-
1703	**17003**	Lower post-pipe fill	8.00% (n=4)	28.00% (n=14)	-	-	-	-	-
1709	**17009**	Lower post-pipe fill	-	2.00% (n=1)	-	2.00% (n=1)	-	-	-
1712	**17014**	Central hearth fill	20.00% (n=10)	2.00% (n=1)	6.00% (n=3)	4.00% (n=2)	4.00% (n=2)	-	2.00% (n=1)
1716	**17017**	Post-pipe fill	2.00% (n=1)	-	2.00% (n=1)	6.00% (n=3)	-	-	-
1717	**17023**	Fill of second hearth	32.00% (n=16)	-	8.00% (n=4)	2.00% (n=1)	6.00% (n=3)	-	-
1718	**17001**	Floor of external house	16.00% (n=8)	4.00% (n=2)	2.00% (n=1)	4.00% (n=2)	-	-	-

Table 8.15
Anthracological information recorded for samples from Cairn More – Trenches 16 and 17

Macrobotanical remains were completely absent. A greyish sandy silt (17002) was interpreted as an old ground surface, and produced a large concentration of birch, followed by only traces of willow/poplar, hazel and alder. This may represent original cleared vegetation. Fill (16025) of pre-hillfort shallow rock-cut feature [16024] was only analysed for the presence of macrobotanical remains, and contained two charred seeds from the cabbage genus *Brassica*.

Post holes

Three large post holes [9003], [9010] and [9012] were located at the edge of the inner bank, approximately 2 metres apart. The fills (9004), (9011) and (9013) all produced significant amounts of birch and hazel charcoal, with small amounts of willow and/or oak also present. These mixed fills are probably from hearth waste that either trickled down into the post-hole fills or was deliberately used as packing material for the posts, rather than evidence for posts burnt in situ. A charcoal deposit (9009) under the rampart stones produced a similar mixed assemblage dominated by birch charcoal but with alder, hazel and willow also present.

To the west of these post holes, a further six large post holes [13004], [13006], [13008], [13010], [13012] and [13014] were identified along the edge of the inner bank. The fills of post holes [13004], [13006], [13008] and [13010] produced very similar carbonised assemblages dominated by birch charcoal followed by smaller amounts of hazel, oak and willow, together with fragments of burnt bone. In addition, a single fragment of burnt seaweed was identified from the fill (13011) of post-hole [13010]. The significant amounts of charcoal found within these fills suggest that this hearth waste may have been deliberately used as packing around the posts. The upper fill (13021) of post-hole [13008] produced only traces of birch and oak charcoal with burnt bone. Fill (13011) of post-hole [13012] and fill (13013) of post-hole [13014] were also very similar, with birch, hazel and willow charcoal, together with fragments of burnt bone. These post-hole fills differed from the other four in not containing any oak charcoal, perhaps suggesting that the charcoal from these fills came from a different episode of burning. The fill (13018) of linear feature [13017] produced a very similar carbonised assemblage to that recorded from the first four post holes, with birch dominating and smaller amounts of hazel, oak and willow also present, together with burnt bone.

Slightly further to the west, one large post hole [15001] was identified but was not excavated, although charcoal and bone were collected from the upper fill (15002) for analysis. While this fill produced more oak than birch charcoal, this does not imply that this constitutes the remains of an oak post since only selected fragments of charcoal were collected and so the sample may not be representative.

Two large post holes [14004] and [14006] were located to the east of post holes [9003], [9010], and [9012]. The fills (14005) and (14007) contained mixed charcoal assemblages, with birch, hazel and oak present in both fills, but additional traces of willow and bone identified in fill (14003). It may be that hearth waste was deliberately used as post-packing within the post holes. A burnt spread (14008) was located beneath the bank and may be related to its construction. The spread (14008) contained a charcoal assemblage that was very similar to that recorded from the post-hole fill, with birch and hazel dominating together with small amounts of oak, willow and burnt bone. The charcoal within the post holes may have originated from the burnt spread. The topsoil and overburden (14001) over the bank also produced a mixed charcoal assemblage that was similar in composition to that recorded from spread (14008) and so redeposition of material may have taken place. Directly beneath spread (14008) was a small post hole [14009], fill (14010), that contained a similar carbonised assemblage to that seen from the burnt spread, but with the addition of traces of alder charcoal. It is likely that the charcoal from this post-hole fill originated from the overlying spread. Post-pipe fills (17025) and (17031) from post holes [17026] and [17029] located to the south-east were analysed for the presence of macrobotanical remains only. Both fills contained small concentrations

of charred *Brassica* sp. and *Brassica/Sinapis* seeds, likely to represent the seeds of wild plants that were unintentionally burnt along with firewood.

Inner arc post holes

Fills (16002) and (16010) of two large post holes may represent burnt structural remains associated with timber framing for the ramparts. The features produced large concentrations of oak and traces of birch. The birch may in this case be explained by hearth-derived material mixing in with the burnt structural remains. The oak in both contexts exhibited frequent tyloses and weak ring curvature, as well as infrequent insect tunnelling, suggesting the presence of mature oak heartwood. This further supports the interpretation of the oak concentrations as posts burnt in situ. Both post-hole fills contained charred cabbage genus (*Brassica*) and sedge (*Carex*) seeds, most likely again representing wild plants from the surrounding natural environment.

Post-hole [17019] contained post-pipe fill (17020) and surrounding packing fill (17024), both of which were only investigated for the presence of charred macrobotanical remains. Fill (17024) contained seeds identified to the cabbage and cabbage or mustard genera (*Brassica* and *Brassica/Sinapis*), while in addition to *Brassica*, (17020) also produced a club sedge seed (*Carex cf buxbaumii*). Macrobotanical remains were also identified from fill (16006) of rock-cut post-hole [16005] situated between the inner and outer ramparts. The seeds of cabbages (*Brassica)*, docks (*Rumex)* and grasses (Poaceae) were present in small quantities, and are again likely to represent wild plants from the vicinity of the site.

Outer arc post holes

Fills (17003) and (16022) of two outer post holes [17005] and [16021] probably associated with the outer rampart produced heavily oak-dominated assemblages with only traces of other taxa present, and may represent the remains of burnt posts mixed with small amounts of hearth waste. Over 50% of the oak fragments in both contexts exhibited weak ring curvature, and together with the consistent presence of tyloses and absence of insect tunnelling this lends support to the wood deriving from mature heartwood. Charred cabbage genus (*Brassica)* seeds were found in both contexts, and (17003) additionally produced seeds of club sedge (*Carex cf buxbaumii)*, the grass family (Poaceae), and ribwort plantain (*Plantago lanceolata*).

The rest of the analysed outer arc post-hole fills include fill (16014) of post-hole [16013], post-pipe fill (16020) and packing fill (16019) of post-hole [16018], post-pipe fill (17009) and packing fill (17008) of post-hole [17015], and fill (17017) of post-hole [17018]. These fills are likely to represent mixed, displaced burning waste that was either deliberately dumped into post holes (possibly as packing material) or trickled from occupation surfaces. Charcoal was identified from all fills except (17008) and (16019), and the charcoal assemblages were consistently dominated by birch, except for the hazel-rich (16020), and contained smaller amounts of alder, hazel, willow/poplar and oak. Tyloses were rare, and growth rings mainly strong to moderate, suggesting the lack of mature heartwood and supporting the interpretation of the charcoal as hearth-derived material. Rectangular post-pipe fill (17017) stood out as having a particularly high concentration of birch, and could represent a potential burnt post, though the clear prevalence of birch in firewood contexts across the site means that the charcoal could simply derive from hearth waste. Post-hole fill (16013) contained a variety of tree taxa mixed with the wild seeds of cabbages (*Brassica*), sedges (*Carex*) and docks (*Rumex* sp.). The macrobotanical remains of the remaining post-hole contexts mainly consisted of sedges (*Brassica* sp.) followed by occasional ribwort plantain (*Plantago lanceolata*). Charred macrobotanical remains were identified from packing fill (17006) and post-pipe fill (17007) of post-hole [17010]. Both contexts produced a single cabbage genus (*Brassica*) seed, and (17007) also contained two indeterminate, poorly preserved seeds.

Interior building and hearths

In the centre of the fort, a stone spread (7002) was located over the remains of a large hearth [7004]. Beneath (7002) was a clay silt deposit (7003) that appeared to be deposited within and around the hearth stones. The charcoal assemblage from (7003) comprised significant amounts of birch, hazel and willow, and traces of oak. Beneath (7003) was an earlier hearth deposit (7006) with a similar range of charcoal types present but with the addition of alder, heather type and a single fragment of hazel nutshell. These diverse charcoal assemblages are what would be expected from a domestic hearth with no deliberate selection of wood types for fuel. A post hole [7121] was located in the western section of the trench. The upper fill (7119) produced a mixed charcoal assemblage of birch, hazel, oak and willow, with a fragment of hazel nutshell. The fill of the post-pipe (7120) produced an assemblage of hazel, oak and willow. Both assemblages are consistent with hearth waste.

External building and hearths

House floor layer (17001) of an external building was dominated by birch with traces of alder, hazel, and willow/poplar also present, and the charcoal is likely to be scattered hearth waste. No macrobotanical remains were identified. The potential central hearth of the house was cut into the natural which was discoloured a dull reddish-pink, suggesting in situ burning. Its fill (17014) produced a concentration of birch, with oak also present, and is likely to represent the burnt remains of hearth fuel. The restricted range of taxa present in the hearth may be related to intentional fuel selection or suggest that the charcoal derives from the latest burning event rather than an accumulation of material over time. Macrobotanical remains in (17014) included the seeds of cabbages (*Brassica*), grasses (*Poaceae*) and docks (*Rumex*). Fill (17023) of the second hearth was similarly cut into discoloured natural, and contained a mix of charcoal dominated by birch and followed by hazel, alder and oak, while macrobotanical remains were completely absent. This mixed assemblage is typical of domestic firewood use that did not require selection for specific taxa.

Radial cracking was more common in the hearth deposits than the full assemblage, potentially indicating higher moisture content of the wood being burnt (Théry-Parisot & Henry 2012). Fungal hyphae and insect damage were rare, suggesting limited use of deadwood. The calibre of wood in the two hearths may differ, as the central hearth charcoal displayed mainly moderate to weak ring curvature, while over 60% of fragments in the second hearth had strong curvature, though the lack of pith and bark make it impossible to securely determine the original size of the wood.

8.3.6 Results: Tap o' Noth

The complete botanical results for Tap o' Noth are presented in Tables 8.16–8.20.

Natural peat and old ground surfaces

The earliest material excavated in Trench 1 in the vitrified fort was a thin layer of peat (1714), which overlay the bedrock. The only botanical remains recovered from this deposit were numerous fragments of carbonised heather type stems. This probably represents in situ burning of natural heather that was growing on the site prior to the period of occupation. Overlying the natural peat in places was a thin charcoal-rich lens (1710) that produced an assemblage of birch, alder, heather type and willow together with heather seeds and a single possible carbonised barley grain. The heather type stems and seeds may be from in situ burning of natural vegetation, and it is possible that birch and willow may have grown close by, but alder would be very unlikely on top of a hill like Tap o' Noth. The presence of the single carbonised cereal grain indicates human occupation on the site at this time and so the wood charcoal is more likely to represent hearth waste, presumably on an old ground surface. At the south-west end of the trench was a thin layer of silty soil (1712) that was interpreted as a possible degraded turf wall or turf component of a bank. However, the carbonised assemblage comprised a diverse range of charcoal types including alder, birch, hazel, Scots pine type and oak representative of hearth waste.

Within Trenches 2, 3 and 4, the earliest layers identified during excavation were thin layers of peat (216, 304, 307 and 410), overlying the bedrock in most places. The carbonised assemblages from these peat layers produced charcoal of alder, birch, heather type, oak and willow together with occasional carbonised barley grains. Although heather type, birch and willow could have been growing locally, it is again unlikely that alder or oak would have been present on such thin soil on top of the hill. The presence of carbonised barley grains lends more weight to this material being the remains of hearth waste that was either dumped on the peat or from fires burnt nearby on old ground surfaces.

Within Trench 3 a thin layer of reddish-brown heat-affected silty material (306) was identified directly overlying the natural peat. The carbonised assemblage comprised charcoal of alder, birch, hazel, Scots pine type, oak and willow, with significant amounts of carbonised cereal grains. Barley was the only cereal type identified, with a few grains further identifiable as the hulled variety. It appears that this in situ burning was a result of either the preparation of cereals directly for food or drying of cereal grains prior to storage or grinding.

	Context	**1704**	**1708**	**1708**	**1708**
	Sample	**1710**	**1715**	**1723**	**1729**
	Description	U-shaped bank	Deposit against inner wall	Deposit against inner wall	Deposit against inner wall
Vol charcoal >4mm		15ml	5ml	20ml	5ml
Charcoal	**Common Name**				
Alnus cf glutinosa	alder	-	-	2 (0.41g)	-
Betula spp	birch	107 (3.53g)	-	7 (0.40g)	8 (0.37g)
Corylus cf avellana	hazel	-	-	-	9 (0.20g)
Ericales	heather type	-	9 (0.67g)	-	1 (0.04g)
Pinus sylvestris type	Scots pine type	-	-	-	2 (0.08g)
Quercus spp	oak	-	-	74 (3.18g)	4 (0.07g)
Salix spp	willow	-	-	-	-
Cereals					
cf Hordeum vulgare sl	cf barley	-	-	-	-
Seeds					
Calluna vulgaris seeds	heather seeds	-	-	-	-
Corylus avellana nutshell	hazel nutshell	-	-	1 (0.04g)	-

Table 8.16
Botanical remains from Tap o' Noth 2017 excavations

	Context	**216**	**304**	**307**	**410**
	Sample	**210**	**307**	**303**	**404**
	Description	Peat under bank	Peat under (306)	Peat under flat stones	Black peat over bedrock from base of outer wall
Total volume charcoal >4mm		5ml	15ml	15ml	2.5ml
Charcoal					
Alnus cf glutinosa	alder	-	-	6 (0.45g)	-
Betula spp	birch	6 (0.49g)	-	11 (0.83g)	3 (0.04g)
Corylus cf avellana	hazel	3 (0.19g)	-	4 (0.29g)	-
Pinus sylvestris type	Scots pine type	-	2 (0.02g)	-	-
Ericales	heather type	8 (0.10g)	-	-	9 (0.05g)
Quercus spp	oak	2 (0.20g)	-	15 (1.03g)	-
Salix spp	willow	1 (0.03g)	-	2 (0.06g)	-
Indet bark	indet bark	-	3 (3.69g)	-	-
Cereals					
Hordeum vulgare sl	barley	2	-	-	2
Hordeum vulgare sl	barley				
Cereal indet	indet cereal				
Cereal rachis frag	cereal rachis frag				
Carbonised seeds					
Calluna vulgaris seeds	heather seeds				
Corylus avellana nutshell	hazel nutshell				

Table 8.17
Botanical remains from Tap o' Noth 2018 excavations – Peat contexts

	Context	**205**	**205**	**209**	**209**	**210**	**210?**	**210?**	**212**	**215**
	Sample	**201**	**205**	**202**	**203**	**212**	**?**	**?**	**209**	**211**
	Description	Top of charcoal spread (west)	Base of charcoal rich spread (west)	Top of charcoal spread (north)	Base of charcoal spread (north)	Charcoal from base of well	Basal well (recovered by conservator)	Basal well (dried bulk sample sieved by SR)	Lower well fill	Bank material
Total volume charcoal >4mm		200ml	30ml	500ml	150ml	5ml	5ml	15ml	30ml	10ml
% total charcoal identified		50%	100%	25%	100%	100%	100%	100%	100%	100%
Charcoal										
Alnus cf glutinosa	alder	4 (0.28g)	-	21 (2.00g)	16 (1.11g)	-	2 (0.07g)	7 (0.31g)	-	5 (0.10g)
Betula spp	birch	4 (0.20g)	-	25 (1.11g)	16 (0.89g)	2 (0.09g)	4 (0.11g)	12 (0.37g)	10 (1.09g)	6 (0.18g)
Corylus cf avellana	hazel	43 (3.29g)	27 (1.41g)	15 (0.84g)	37 (1.79g)	6 (0.10g)	2 (0.11g)	14 (0.38g)	17 (1.89g)	8 (0.39g)
Ericales	heather type	13 (0.91g)	42 (2.14g)	138 (11.43g)	223 (11.65g)	6 (0.14g)	5 (0.16g)	32 (0.77g)	7 (0.52g)	-
Pinus sylvestris type	Scots pine type	43 (3.41g)	2 (0.08g)	81 (9.49g)	5 (1.78g)	2 (0.02g)	7 (0.26g)	7 (0.18g)	10 (0.82g)	-
Quercus spp	oak	46 (3.55g)	4 (0.07g)	11 (0.54g)	11 (0.59g)	11 (0.21g)	1 (0.04g)	10 (0.39g)	4 (0.68g)	-
Salix spp	willow	-	-	-	-	6 (0.26g)	-	4 (0.14g)	1 (0.10g)	3 (0.19g)
Burnt soil/peat	burnt soil/peat	-	5ml (1.68g)	-	-	-	-	-	-	-
Uncarbonised wood										
Betula spp twigs	birch twigs	-	-	-	-	-	++ up to 220mm x 5mm	-	-	-
Misc										
Monocot roots/stem bases	grass/sedge roots/stem bases	-	-	-	-	-	++++	-	-	-

Table 8.18
Botanical remains from Tap o' Noth 2018 excavations – Trench 2

	Trench	**Trench 3**	**Trench 4**						
	Context	**306**	**407**	**408**	**408**	**411**	**412**	**416**	**424**
	Sample	**302**	**402**	**403**	**406**	**412**	**405**	**409**	**411**
	Description	Charcoal under flat stones	Occupation layer	Clay within inner bank	Clay within inner bank, lower level	Compact blue clay floor (411)	Possible occupation layer on N side of inner bank	Fill of post hole [415]	Fill of beam slot
Total volume charcoal >4mm		30ml	100ml	40ml	75ml	2.5ml	10ml	30ml	5ml
% total charcoal identified		100%	100%	100%	100%	100%	100%	100%	100%
Charcoal									
Alnus cf glutinosa	alder	4 (0.14g)	79 (5.07g)	73 (3.50g)	13 (1.09g)	4 (0.16g)	16 (0.28g)	25 (1.45g)	9 (0.22g)
Betula spp	birch	40 (2.05g)	53 (3.74g)	66 (3.57g)	27 (1.66g)	3 (0.14g)	19 (0.81g)	47 (1.75g)	2 (0.07g)
Corylus cf avellana	hazel	4 (0.27g)	-	-	-	-	3 (0.22g)	-	-
Pinus sylvestris type	Scots pine type	10 (0.42g)	7 (0.53g)	-	27 (10.29g)	-	1 (0.02g)	-	-
Quercus spp	oak	10 (0.56g)	2 (0.53g)	-	-	-	9 (0.26g)	-	-
Salix spp	willow	5 (0.20g)	-	-	-	-	-	-	-
Indet bark	indet bark	-	20 (3.46g)	-	-	-	-	-	-
Cereals									
Hordeum vulgare var vulgare	hulled barley	5	-	-	-	-	-	-	-
Hordeum vulgare sl	barley	69	-	1	-	-	14	-	-
Cereal indet	indet cereal	66	-	-	-	-	13	-	-
Cereal rachis frag	cereal rachis frag	1	-	-	-	-	-	-	-
Carbonised seeds									
Bromus spp	brome	1	-	-	-	-	-	-	-
Misc									
Bone	bone	-	4 (0.46g)	-	-	-	-	-	1 (0.06g)

Table 8.19
Botanical remains from Tap o' Noth 2018 excavations – Trenches 3 and 4

	Trench	Trench 5	Trench 6					Trench 7			
	Context	5004	6003	6004	6012	6014	6017	7006	7007	7011	7012
	Sample	501	609	601	604	605	607	701	702	703	704
	Description	Occupation layer	Upper floor layer	Fill of post hole [6005]	Upper fill of hearth 1	Fill of hearth 2	Lower fill of hearth 1	Basal layer under bank stones (7005)	Occupation deposit	Fill of palisade slot [7010]	Occupation layer under (7007)
Volume of charcoal >4mm		2.5ml	50ml	30ml	100ml	60ml	80ml	5ml	100ml	10ml	50ml
% charcoal >4mm identified		100%	100%	100%	50%	50%	50%	100%	100%	100%	100%
Charcoal											
Alnus cf glutinosa	alder	-	6 (0.38g)	6 (0.15g)	-	-	-	-	-	-	-
Betula spp	birch	10 (0.13g)	75 (5.95g)	42 (3.47g)	92 (6.24g)	56 (3.31g)	80 (4.30g)	17 (0.58g)	52 (8.21g)	34 (1.45g)	87 (5.48g)
Corylus cf avellana	hazel	7 (0.28g)	25 (1.32g)	24 (0.85g)	55 (3.41g)	24 (1.12g)	58 (2.62g)	5 (0.11g)	5 (0.31g)	14 (0.34g)	44 (2.20g)
Quercus spp	oak	-	-	-	-	-	-	-	5 (0.53g)	2 (0.05g)	8 (0.77g)
Salix spp	willow	-	3 (0.06g)	7 (0.51g)	11 (0.40g)	9 (0.29g)	10 (0.42g)	-	1 (0.28g)	1 (0.02g)	10 (0.54g)
Misc											
Bone	bone	-	-	-	-	-	-	5 (0.43g)	-	-	-

Table 8.20
Charcoal remains from Tap o' Noth 2019 excavations – Trenches 5, 6 and 7

Rampart

A small area of the vitrified inner wall face [1713] was found intact in Trench 1. In front of the inner wall was a charcoal and bone-rich silty soil (1708) that appeared to have built up whilst the enclosure was in use. Three samples were analysed from context (1708), but each produced very different carbonised assemblages indicating that this is not a homogeneous deposit. Sample <7015>produced only small amounts of heather type charcoal, which could be from natural burning of onsite vegetation. Sample <1723>contained small amounts of alder, birch and hazel nutshell together with relatively large amounts of oak charcoal. This could just be the remains of hearth waste, but the oak could be evidence for the timbers that formed the timber lacing of the rampart. Sample <1729>produced a very diverse assemblage of birch, hazel, heather type, Scots pine type and oak, with none of the types present in particularly large amounts. This assemblage would seem to be the remains of hearth waste.

U-shaped banks

In the interior two U-shaped banks were identified. The charcoal assemblage from inner bank [1704] contained significant amounts of birch charcoal but nothing else. The outer bank [408] was investigated in most detail in Trench 4. The carbonised assemblage from the outer bank comprised significant amounts of alder and birch charcoal, with a single carbonised barley grain. The charcoal from within the bank may be the remains of a wooden palisade that was held up by a low stone bank before being burnt in situ. Although this is possible, neither birch nor alder are usually associated with palisade construction and the presence of a single cereal grain may suggest that this is hearth or midden waste that has been used as additional bank material.

The well

The well [204] was sub-circular with gradual sloping sides at the top, steepening to close to vertical towards the base. The well was initially cut through peat (216), then natural subsoil (207) then into bedrock. The basal well deposits (210) contained a diverse range of charcoal types, including alder, birch, hazel, heather type, Scots pine, oak and willow, with no one type being overly dominant. This material probably represents hearth waste, either deliberately dumped into the well or a scatter from the around the well that fell down into the basal fills. The only identifiable uncarbonised plant material were birch twigs and the basal parts of either grass or sedge stems. The grass/sedge material could have grown in the base of the well once it went out of use. Birch twigs are very light and easily blow in the wind and so may have just blown into the well once it was abandoned. There do not appear to be high enough concentrations of birch twigs to suggest deliberate dumping of birch brushwood into the well.

A dark grey clayey silt (212) was identified on the southern edge of the well cut. This produced a very similar charcoal assemblage to that identified from the basal fills of the well and suggests that scattered hearth waste was present over much of this area of the site. Deposits (205) and (209) were noted as charcoal-rich soils on the upper lip of the north and west side of the well. The charcoal assemblages from these deposits were diverse with alder, birch, hazel, heather type, Scots pine type and oak all present. However, heather type stems make up 45% of the total charcoal from these two contexts, whilst Scots pine type accounts for 25% of the total.

Trench 4 Structure

A light blue clay floor layer (411) lay over the natural between the wall face (406) and the bank (408). This also contained small amounts of alder and birch charcoal like the U-shaped banks and so could have a similar source. In the field (411) was thought to represent a number of sequential floor layers with degraded wood separating these layers. A deposit of small stones, silt charcoal and animal bone (412) overlay floor layer (411) and was thought to represent a further occupation layer. The charcoal assemblage

comprised alder, birch hazel, Scots pine and oak together with some carbonised barley grains. This is the type of assemblage that would be expected from domestic hearth waste. A small post hole [415] was cut into clay floor layer (411) and a post pad was identified sitting on the peat layer at the base of the post hole. The fill (416) produced significant amounts of alder and birch charcoal, which are unlikely to represent the remains of a post burnt in situ and are more likely to represent scattered hearth waste as seen in the rest of this area.

A further deposit of silty clay (407), with charcoal and animal bone, also overlay the clay floor (411). This might be a destruction layer overlying the clay floor with a possible wicker- and post-defined structure. However, the charcoal assemblage was dominated by alder and birch charcoal, with smaller amounts of Scots pine, oak and indeterminate bark. This does not seem a particularly likely assemblage if a wattle and post structure had been destroyed by fire, since the commonest wattle woods, hazel and willow, are absent from the assemblage. From other carbonised assemblages on the site, it is clear that both hazel and willow were available in the local woodlands when the hillfort was occupied. A layer of collapsed stone (424) was present over most of the trench, and this also produced small amounts of alder and birch charcoal, suggesting this carbonised material was scattered over much of this trench.

8.3.7 Results: Lower fort

T5 House platform

Deposit (5004) lay across the platform and is thought to represent an occupation layer. However, only small amounts of birch and hazel charcoal were identified from this deposit, probably representing the remains of scattered hearth waste.

T6 House platform

An occupation floor layer (6003) produced a mixed charcoal assemblage dominated by birch but with hazel, alder and willow also present. In the central and northern side of the trench was a levelling deposit (6031), with a stone revetment (6030) on the northern side. The revetment corresponds with an arc of post holes. The fill (6004) of post-hole [6005] produced a charcoal assemblage that was very similar to that recorded from floor layer (6003), which suggests that hearth waste from the floor of the structure had trickled down into the post-hole fill.

Two stone-built hearths (Hearth 1 and Hearth 2) were located at the centre of the circular platform. Hearth 1 is the larger hearth and produced two distinct fills: upper fill (6012) and lower fill (6017). The upper fill was separated from the lower fill by a layer of heat-affected stones (6016). Although fills (6012) and (6017) were visually distinct during excavation, the charcoal assemblages were very similar with birch charcoal dominating, hazel also common and small amounts of willow present. Fragments of moulds and crucibles were recorded from the upper fill (6012), suggesting that this was a metalworking hearth, although it is more usual for the charcoal assemblages from metalworking hearths to be dominated by oak. Hearth 2 was located directly adjacent to Hearth 1 and produced a very similar charcoal assemblage to those recovered from Hearth 1.

Entranceway and occupation deposits

Bank [7005] had a line of large kerbstones [7015] and on the inside of this kerbline was a palisade slot [7010] that contained fill (7011). Fill (7011) contained small amounts of charcoal, with birch, hazel, oak and willow present. Between the back of the kerb and the palisade slot was a basal deposit (7006) that produced small amounts of birch and hazel charcoal, with burnt bone.

On the interior of the bank were a series of possible occupation deposits. The lowest of these deposits (7012) produced a charcoal assemblage of birch, hazel, oak and willow. Above (7012) was a further occupation deposit (7007), which produced an almost identical charcoal assemblage. These mixed assemblages are consistent with scattered domestic hearth waste.

8.3.8 Discussion

Firewood

The majority of the charcoal from the three sites is best interpreted as hearth waste, either as evidence of in situ burning in hearths, or as intrusive burning waste in post holes, house floors and other features. There appears to be regional consistency in fuel selection patterns (or the lack thereof), as birch dominates in firewood assemblages across all sites, and a range of secondary taxa including hazel, willow/poplar, oak and alder were consistently present.

The mixed assemblages are consistent with domestic firewood use, where selection for specific taxa is unnecessary. Since metalworking appears to have taken place at all three sites, some level of specialised fuel selection might be expected, especially for oak, which is known to produce very high heat due to its density and to burn for longer with lower flames (Gale & Cutler 2000; Marston 2009). The apparent lack of firewood selection may partially be explained by the relative scarcity of oak: Jones et al's (2021) study (See also Jones below) notes that oak only makes up 0–3% of the land pollen count in the valley, implying that this high-quality fuel source would not have been readily available for collection. At Cairn More, ring curvature measurements suggest that one of the external hearths used wood of larger calibre, which may be linked to metalworking, since larger branches and trunks are often preferred for this process (Ludemann 2010). The lack of pith and bark in the analysed charcoal makes this a tentative suggestion, and additionally, hearths do not always replicate patterns of long-term fuel use: hearth waste is routinely cleaned and discarded, and there is no guarantee that the latest burning episode reflects longstanding patterns of size or species selection (Kabucku & Chabal 2021: 8).

The other taxa found in firewood contexts would have been more ubiquitously present in the Upper Strathbogie environs, though the prevalence of birch is somewhat surprising as it constitutes a fairly low percentage of the regional pollen signal (Jones et al 2021; Jones below). Perhaps birch was more common in the immediate vicinities of the three sites than it was in the valley as a whole, making it a low-effort source of firewood. Some indication of this is present in the Cairn More original ground surface, which produced a charcoal assemblage consisting nearly entirely of birch, which may represent cleared vegetation. Alternatively, the prevalence of birch could reflect intentional selection. Shackleton and Prins's (1992) model suggests that preferred species were

more likely to have been harvested when wood was plentiful, and this may have been the case in the valley since woodland was widely present in the area. Nonetheless, the burning properties of birch do not particularly differ from other taxa available in the valley, and it is more likely that its common use as fuel was influenced by local availability and ease of transport.

The anthracological information collected from the Cairn More charcoal provides further detail of firewood use at the site. There is little evidence for deadwood use in the form of fungal hyphae or insect damage, and this may suggest the harvesting of wood off of living trees, or the collection of recently dropped branches, as wood degradation may not be immediate (Moskal-del Hoyo et al 2010). The calorific value of wood is known to increase with its dryness (Chabal & Laubenheimer 1994; Théry-Parisot 2001), and if greenwood was indeed collected, it may have been left to dry before burning. This interpretation is supported by the generally infrequent radial cracking, as this phenomenon has been linked to the high moisture content of greenwood, though it is still uncertain how this would present in fragmented archaeological material (Théry-Parisot & Henry 2012).

Construction wood

The Craw Stane charred assemblages produced tentative evidence for burnt willow wattle and a possible oak post in the interior of the enclosure complex. However, these assemblages also contain additional charcoal types that probably represent scattered hearth waste and so can only tentatively be identified as the remains of structural components. Oak and alder planks were retrieved from Structure 3, and substantial quantities of oak timber from Structure 4 may represent the remains of the burnt superstructure of this building. Alder is recognised to be a less durable type of wood than oak (Deforce 2017), and its presence in structural components would not be preferred in a modern context but alder is known from buildings and rampart structures in prehistoric contexts. While the intentional selection of alder cannot be ruled out, the Craw Stane case may be linked to the scarcity of oak in the Upper Strathbogie valley. The difficulty to source oak could have resulted in occasional substitutions with other taxa, especially for components that were not essential for the building's structural integrity, such as internal plank fittings.

At Cairn More, convincing evidence is present for burnt hazel wattle made from branches or young trees. Additionally, the concentrations of oak retrieved from two outer palisade post holes are likely to represent burnt structural remains. The use of mature oak heartwood, as suggested by numerous tyloses combined with frequent weak ring curvature, would have contributed to the longevity of these posts and the site itself, as both xylophagus insects and fungus attacks struggle to penetrate tylosis-filled wood (Marguerie & Hunot 2007). The use of oak at both Cairn More and the Craw Stane complex shows an understanding of its strength and durability, and perhaps a willingness to source oak timber beyond its local natural availability.

The Tap o' Noth assemblages produced less convincing evidence of wooden structural remains. Within the vitrified walls of the upper fort were slots that are thought to be the remnants of the original timber lacing. However, the charcoal assemblages from the collapse of these walls were very diverse and did not show any obvious selection of specific types. It might be expected that wood for timber lacing would have been selected for specific reasons, depending on why the timber lacing was present. If increasing the strength and stability of the wall was the purpose of the timber lacing, durable oak might be expected to be the dominant type present. If the timber lacing were present to aid in deliberate vitrification, then again, oak might be the preferred timber because of its ability to produce very high temperatures when burnt (Gale & Cutler 2000). The carbonised assemblages from contexts associated with the walls appear to be the remains of hearth or midden waste rather than providing any evidence for the burning of the timber lacing within the walls.

The internal banks of the upper fort at Tap o' Noth showed some evidence for a dominance of birch charcoal, which could suggest some form of birch brushwood being used in the construction of the banks. However, birch is also common in the occupation layers and so it may just be one of the commonest types of wood available for collection for fuel and the charcoal from these features may be incidental, redeposited from elsewhere.

Crops and food plants

Evidence of food plants from the three sites is very limited, consisting of occasional finds of cereal grains and traces of hazelnut shell. The presence of hazelnut shells may be related to occasional foraging and consumption, though there are no indications of this being a major food source. Barley was the only cereal type identified at the Craw Stane, with a few grains further identifiable as the hulled variety. The quantity of cereal grain recovered from this site is relatively small considering its size, complexity and importance. This may simply be an artefact of sampling but could also indicate that cereal processing and, perhaps, some cooking activities were taking place elsewhere. It is interesting to note that more cereal grains were found in Structure 4 outside of the complex, suggesting that preparation or storage of cereals may have occurred outside of the enclosure complex interior. Evidence of off-site storage is lacking at contemporary sites in Scotland, but in early medieval Ireland granaries and drying kilns have been found outside the main structural areas of sites (Kerr et al 2012; McCormick 2014).

Cereals were completely absent at Cairn More and relatively scarce at Tap o' Noth, though a heat-affected patch of soil at the latter site did produce a significant number of carbonised cereal grains and suggests some form of food processing was occurring on the site. The dates from this context, however, are amongst the earlier from the sequence and could represent pre-fort activity. The only cereal type identified on the site was barley, with a few grains being further identifiable as the hulled variety.

Since barley pollen was present in the Upper Strathbogie valley, arable farming is likely to have taken place in the vicinity of the sites (Jones et al 2021: 907; Jones below). Barley is known to have been the most common cereal grown in Scotland until the medieval period, and is indeed found at several early medieval sites including Portmahomack (Carver et al 2016), Burghead (Ramsay 2018a; 2018b; 2019a; Niehaus 2022) Niehaus 2022), Lairg (McCullagh & Tipping 1998), and the Brough of Birsay (Donaldson 1982). The presence of this hardy and reliable crop at the Upper Strathbogie valley sites is thus not surprising.

Though technically not a plant, fucoid seaweed was a surprising find in ditch fills and a stone socket at the Craw Stane, and as a single piece in a post hole at Cairn More. This material must have been transported at least 50km from the coast onto the site. As both sites have evidence for metalworking activities, seaweed ash may have been used as a flux (a powder diminishing the formation of iron oxide and impurities) (Sebire 2013). Parallels are found at Dunadd in western Scotland, where metalworking evidence is present and seaweed was discovered in early medieval contexts (Lane & Campbell 2000: 223). Alternatively, seaweed may have been used as fertiliser in fields, as has been practised in coastal Scotland (McKenzie 2014).

8.3.9 Conclusions

The analysis of the charred assemblages from the Craw Stane complex, Cairn More and Tap o' Noth has provided information on firewood and construction wood use, as well as the utilisation of crops and wild plants. The three sites appear to have employed a very similar firewood strategy, with birch being the most common source of fuel, followed by a range of other deciduous trees that would have been available in the valley. While metalworking was clearly conducted at the sites, there is no indication of specialised fuel selection for this purpose. Both the Craw Stane complex and Cairn More presented evidence for the utilisation of oak for structural purposes, such as posts and planks. It is likely that oak was brought in from locations outside the valley, as it only makes up a small percentage of the local pollen count. There is some evidence for the limited use of other taxa in construction contexts: alder plank fragments were identified at the Craw Stane complex, and birch may have been utilised at Tap o' Noth and Cairn More. Barley grains were present in low numbers at the Craw Stane complex and Tap o' Noth, and the consumption of barley is in line with contemporary evidence from sites around Scotland. The off-site storage of grain is an intriguing possibility, as at the Craw Stane complex the main concentration of grain was recovered from a building outside the main enclosure, and at Cairn More no grain was identified. Finally, the unusual presence of fucoid seaweed at the Craw Stane complex and Cairn More may be related to specialised metalworking practices or the fertilisation of arable fields. These findings showcase a heavy reliance on local resources, ie the valley's wild woodland and most likely locally grown barley, but equally emphasise the sites' connectedness and willingness to source necessary materials from farther afield.

8.4 Palaeoenvironmental evidence from the Barflat/ Craw Stane complex and Tap o' Noth

Samantha E. Jones

8.4.1 Introduction

Between 2018 and 2020 high resolution pollen, non-pollen palynomorphs (NPP) and XRF was conducted on sediment samples extracted from a mire on Barflat farm, found just downslope from the Craw Stane complex and from a well at Tap o' Noth. The main objectives of the palaeoenvironmental analysis were to reconstruct the changes in vegetation and land-use surrounding the Craw Stane complex and Tap o' Noth but also to gain a better understanding of resource availability, land-use and the economies of both sites.

8.4.2 Site Location

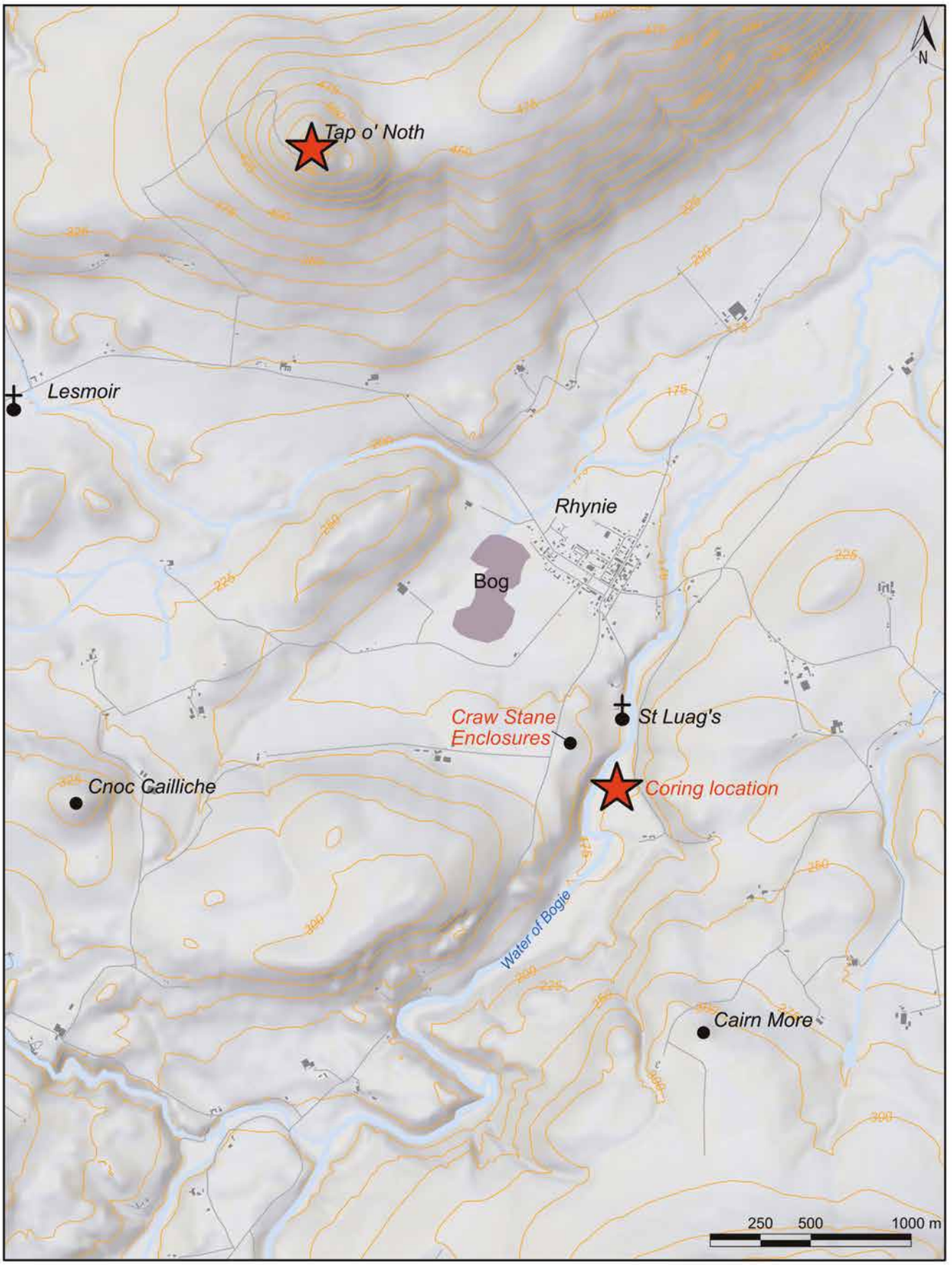
A 1.86m core, sampled at 2cm intervals, was selected for analysis from a valley mire on Barflat farm around 300m southeast of the Craw Stane complex (57°19'26.3"N 2°49'59.3"W) and 900m south-east of the village of Rhynie (Illus 8.13). The main vegetation on the mire today is predominantly sedge (*Carex*) with some *Sphagnum* moss. Adjacent to the valley mire is grass dominated pastures, whilst along the Water of Bogie alder (*Alnus*) is present. The adjacent slopes are comprised of mainly gorse (*Ulex*) and pine (*Pinus*), with some birch (*Betula*), sedge (Cyperaceae) and grass (Poaceae).

Tap o' Noth lying at a height of 563m OD, is today covered with grassland and heather moorland (*Calluna vulgaris*) and wild blueberries (*Vaccinium*). At Tap o' Noth three samples were extracted from the lower sediments of the well excavated in 2018 (Chapter 2) (Illus 8.14). At the very base of the well a mat of organic material consisting of grass twigs and charcoal covering an area *c* 1m across and 0.1m thick was recorded (See Ramsay below). The in situ undisturbed deposits including at the base of the well were sampled in the field for pollen analysis.

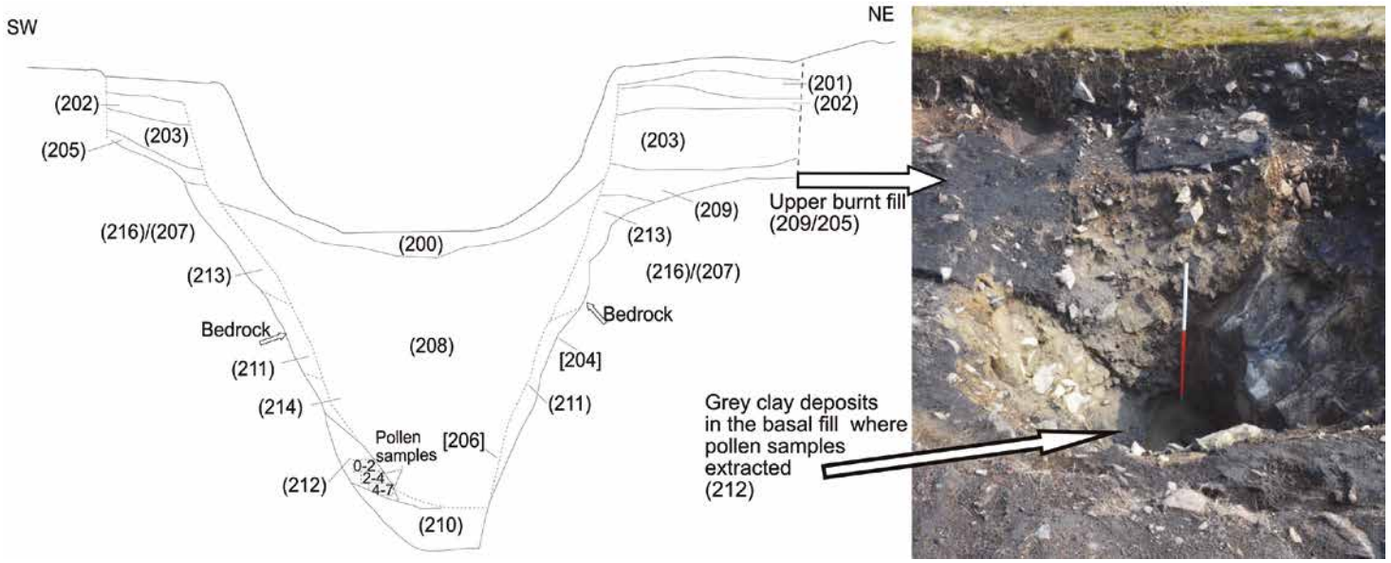
8.4.3 Methods

Pollen and non-pollen palynomorphs were prepared using the conventional methods outlined in Moore et al (1991) including the additional step of density separation (Nakagawa et al 1998). A sum of 500 total land pollen (TLP) has been counted for all sub-samples where possible. At Tap o' Noth fewer pollen grains were counted due to poor preservation; however, a sum of 300 TLP was counted where possible. A count of 300 TLP is considered to give a representative picture of the past environment by Birks and Birks (1980).

Cereal-type pollen are classified as grains with a long diameter of 40ɥm + and an annulus diameter of 8ɥm +; most cereal-type pollen identified in this study were >40ɥm. Pollen counts are expressed as a percentage of the total land pollen (TLP), with spores and aquatic taxa excluded from the TLP sum. Non-pollen palynomorphs (NPPs) were also counted during routine pollen analysis and are expressed as concentrations. NPPs were identified using information from Bakker and van Smeerdijk (1982), van Geel (1976, 1978), van Geel et al (1981, 1983, 1986), Haaster (1984), Kuhry (1985, 1997), Pals et al (1980) and van der Wiel (1983). Rare types are indicated by a cross (+), where one cross is equal to one pollen grain or NPP. Pollen and NPPs were compiled and plotted using Tilia and TG View (Grimm 1991–2011). Zones were established using the constrained incremental sum of squares (CONISS) cluster analysis (Grimm 1987). Geochemical analysis (XRF) was also undertaken on the Craw Stane complex samples. This was conducted at RIAIDT (Infrastructure Network for the Support of Research and Technological Development) facility of the University of Santiago de Compostela (Spain). The methods and the results are discussed in more detail in Jones et al (2021).



Illus 8.13
Rhynie – Barflat coring location



Illus 8.14
Tap o' Noth sediment profile and well deposits sampling location

8.4.4 Results

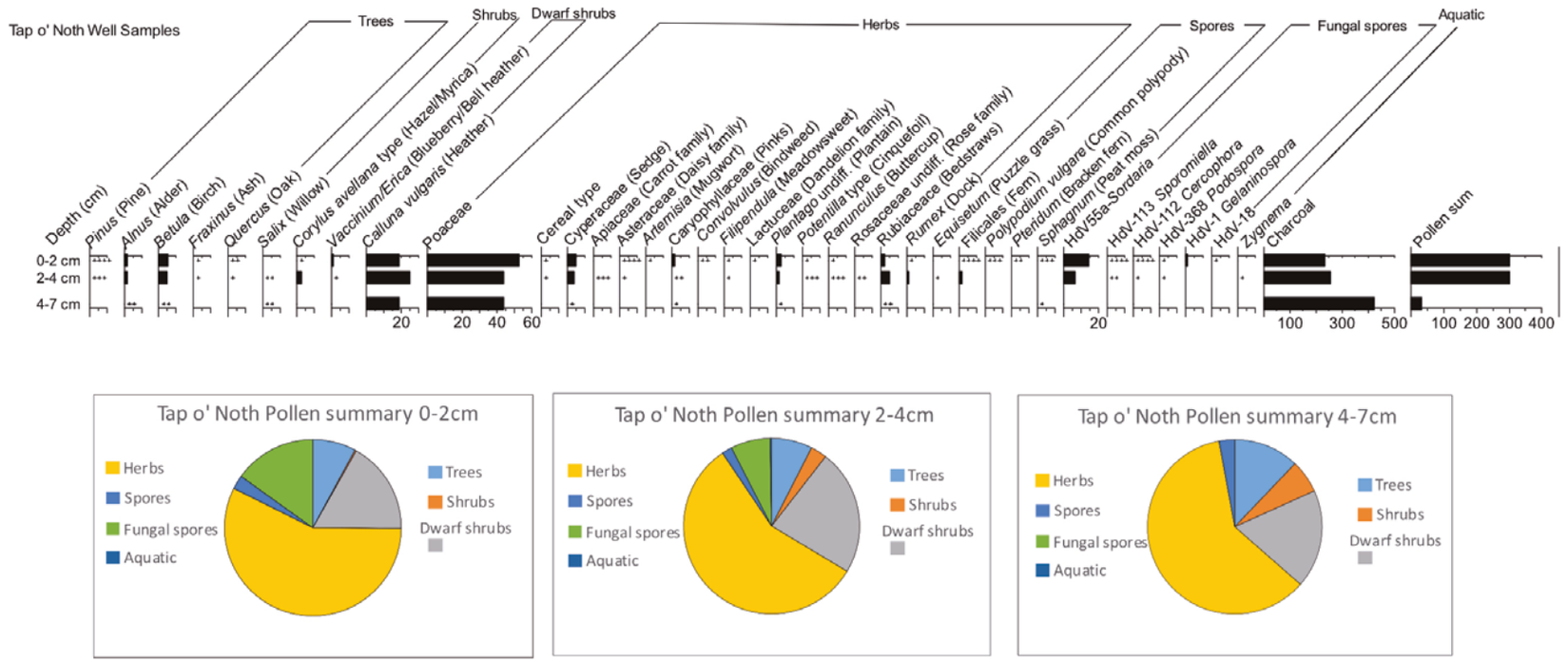
Eight samples from the Barflat valley mire core were submitted for ^{14}C analysis (Table 8.21). The bottom of the core produced an age range of AD 260–415 (95.4% confidence). An inverted age appears at 131cm and is believed to be an outlier possibly caused by the deposition of fluvial sediment carrying residual material during a flood (Jones et al 2021). All other radiocarbon ages are in chronological order.

Pollen and NPPs: Tap o' Noth

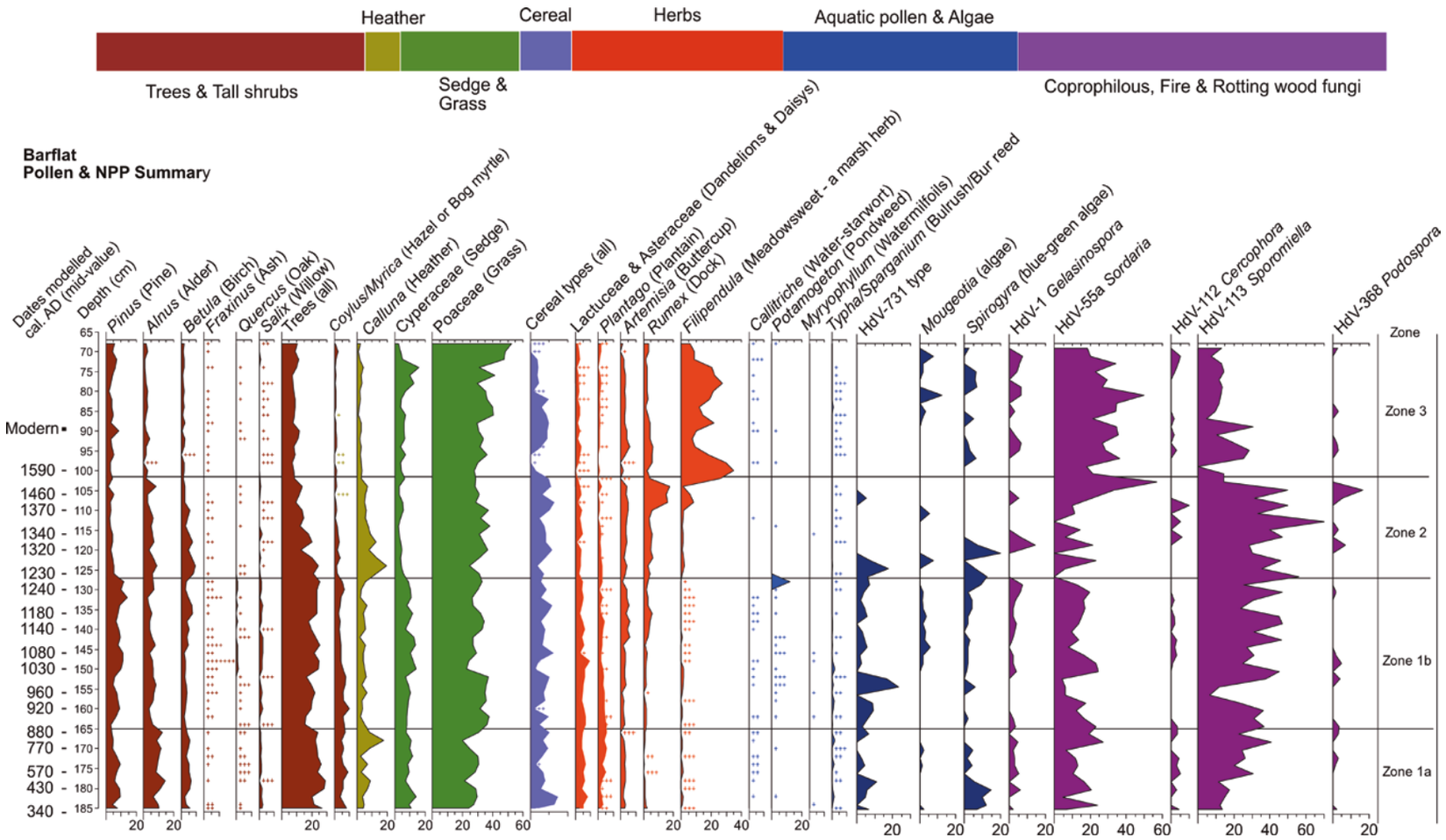
Samples 0–2cm, 2–4cm and 4–7cm represent the lower sediments from the excavated well at Tap o' Noth and likely correspond to the period when the well was in use – these deposits have been dated to *c* 400–100 cal BC. The pollen preservation of the three samples investigated was generally quite poor. All identified grains were degraded, and less than 50 grains could be identified from the bottom sample (4–7cm), which therefore should be interpreted with caution; however, a count of 300 grains excluding aquatics and spores has been achieved for the top two samples and is considered representative (Birks & Birks 1980). Results are presented in Illus 8.15. Herbaceous and heather pollen dominate all three samples investigated, notably Poaceae and *Calluna vulgaris* but also Cyperaceae, and pollen from plants often associated with pastures and/or disturbance such as Asteraceae, *Artemisia*, Caryophyllaceae, *Plantago* undiff., *Potentilla*, *Ranunculus* and *Rumex* (Brown et al 2007). Evidence of arable farming is potentially represented by the presence of cereal pollen types in the top two samples. Tree species tend to show a very low representation, apart from *Betula* and *Alnus*. Other trees present include *Pinus*, *Fraxinus*, *Quercus* and *Salix*. Other taxa represented in the pollen record include *Corylus/Myrica* and fungal spores

Lab code	Site	Material Type	Depth (cm)	Thickness (cm)	14C age	Error +/-	δ^{13}C ‰	Calibrated Age AD (95.4 %)
SUERC-8041	Barflat	Peat humic acid	89–90	2	Fraction modern:1.0931 ± 0.004	Modern	-30.6	1957–2003
SUERC-81223	Barflat	Peat-humic acid	110–11	2	593	21	-30.7	1303–1408
SUERC-82058	Barflat	Peat-humic acid	125	1	684	26	-30.2	1271–1387
SUERC-80414	Barflat	Peat-humic acid	131	1	1171	± 30	-29.5	770–960
SUERC-82062	Barflat	Peat-humic acid	145	1	944	26	-29.9	1028–1154
SUERC-81224	Barflat	Peat-humic acid	156	1	1092	24	-29.6 ‰	892–1011
SUERC-82063	Barflat	Peat-humic acid	167	1	1146	26	-29.2	777–92
SUERC-76891	Barflat	Peat-humic acid	181–2	2	1686	± 24	-25	260–415

Table 8.21
Barflat mire C^{14} ages (calibrated to 2σ; from Jones et al 2021)



Illus 8.15
Tap o' Noth well sampling results



Illus 8.16
Summary Pollen and NPP results from Barflat

Zone	Depth (cm)	Age (cal AD)	Sediment	Dominant Taxa
Zone 1A	186–-164	200–800	Grey-brown silty clay	**Woodland (20–30%):** *Pinus* (4–10%); *Betula* (2–7%), presence of: *Ulmus* (0–3%), *Quercus* (0–3%), some *Fraxinus, Abies* & *Picea*; *Corylus avellana* type (4–9.2%). **Heathland:** *Calluna vulgaris* (4–9.2%). **Wet woodland & mire:** *Alnus* (6–13%), *Salix* (1–3%); Cyperaceae (8–15%); *Pedicularis* & *Sphagnum*. **Aquatic:** Presence of *Callitriche*, *Typha* & the NPPs *Spirogyra*, *Mougeotia*, HdV-731. **Open ground, disturbance & pasture:** Poaceae (same as mire group); presence of Asteraceae, Lactuceae, *Plantago* undiff. *Rumex* spp., Ranunculaceae, *Plantago lanceolata*. Fungi associated with herbivore dung: HdV-368 *Podospora*, HdV-169 *Tripterospora*, HdV-112 *Cercophora*, HdV-113 *Sporormiella* & HdV-55A/B *Sordaria*. **Arable farming:** Cereal types (above 3%; between 184–82cm: 6.5–7.3%)
Zone 1B	164–128	800–1200	Grey-brown organic silty clay	**Woodland (wet & dry) decline to below 20% in the first half of this zone:** including *Alnus* & *Betula*. **Heathland:** is lower (2–7%). **Mire/Aquatic:** A rise in *Equisetum* above 150 cm, the presence of *Myriophyllum* between 165–45cm, a more consistent presence of *Potamogeton* above 155cm; A slight increase in *Sphagnum* (1–3%) and *Selaginella* (0–3%, > 146cm), Cyperaceae (78–14%). *Pedicularis* is absent. Fluctuations in the water table suggested by the presence/absence of aquatic algae *Mougeotia* & *Spirogyra*. HdV-207 Glomus chlamydospore might reflect erosion; HdV-1/2 Gelasinospora type, often associated with burning/drier conditions **Open ground, disturbance & pasture increase:** Poaceae increases slightly (same as mire); Brassicaceae, *Rumex* and Ranunculaceae increase slightly (to 3–4% above 142cm). Fungi associated with herbivore dung: HdV-368 *Podospora*, HdV-169 *Tripterospora*, HdV-112 *Cercophora*, HdV-113 *Sporormiella* & HdV-55A/B *Sordaria*. **Arable farming:** Cereal types consistent (>1.6%).
Zone 2	130–100	1200–1500	Dark brown, fibrous reed swamp peat	**Woodland:** *Pinus* declines from 12% to 2–9%. *Abies* & *Picea* disappear. Shrubs fall (below 20%). A prominent decline in Pteropsida (from 12% to 3–9% TLP). The spores *Botrychium* & *Dryopteris* disappear. *Betula* & *Alnus* however increase. **Mire & Aquatic:** Reduction in Cyperaceae, *Equisetum, Callitriche, Potamogeton*, HdV-731; but *Fillipendula* increases. **Heathland:** *Calluna vulgaris* initially increases (to 20%) but then decreases. **Disturbance, arable & pastoral:** Poaceae (35–55%); Brassicaceae (3–19%), *Rumex* (15–17%). Most coprophilous fungi types decline. Microscopic charcoal counts are also generally lower. **Arable farming:** Cereal types (2–6%)
Zone 3	100–68	Modern	Dark brown, very loose fibrous reed swamp peat	**Woodland:** Substantial decline in deciduous woodland (to below 20%), particularly *Betula* & *Alnus*. **Heathland:** *Calluna vulgaris* remains present, and the fungi *Meliola* type is well represented. **Mire/Aquatic:** Cyperaceae and *Equisetum* increase. Presence of *Valsaria* type & the aquatic *Callitriche*. **Open ground, disturbance & pasture:** Poaceae remains above 30%. *Filipendula*, Brassicaceae, *Rumex* and *Ranunculus* increase. Coprophilous fungi increase most notably *Sordaria* and *Sporormiella*, with *Cercophora, Podospora* & *Tripterospora* sporadically present. **Arable farming:** Cereal-type pollen fluctuates: Pronounced decrease between 103–96cm, a rise to 5% TLP, then a further fall after 82cm (1.4%).

Table 8.22
Summary of pollen and NPP results from Barflat

often associated with herbivores, particularly *Sordaria* but also *Sporomiella*, *Cercophora* and *Podospora* (van Geel et al 2003). All samples also contained high amounts of microcharcoal; above 400 counts at 4–7cm and above 200 counts (>5μm) in the top two samples.

Barflat

High resolution analysis was conducted on the Barflat core extracted *c* 300m south-east of the Craw Stane complex. The pollen and NPP diagram has been divided into three main zones based on CONISS. Zone 1 has been further divided into sub-zones 1a and 1b; 1b is a transitional zone between zones 1 and 2 (Table 8.22). Results are summarised in Illus 8.16 and Table 8.22 and are discussed in more detail in Jones et al (2021).

8.4.5 Discussion

Tap o' Noth

The well at Tap o' Noth dates to the Iron Age occupation of the site between the 4th and 1st century BC. In the three basal samples analysed (C212, Illus 8.14 and 8.15) elevated microcharcoal counts (200–400) were recorded. The macrofossil analysis (Niehaus & Ramsay this volume) identifies these as belonging to a diverse range of taxa including alder, birch, hazel, heather type, Scots pine, oak and willow and noted that no one type of taxa was overly dominant in the record, and thus probably represents hearth waste, either deliberately dumped into the well or from scatter located around the top of the well that had fallen down into the basal fills. Similarly, charcoal-rich deposits were also recorded towards the top of the well and represented mixed charcoal types from a variety of trees and heather, but predominantly from pine (25%) and heather type stems (45%).

Today grassland is the dominant vegetation found on the summit; it may also have been the dominant vegetation during the Iron Age occupation given the high representation of Poaceae pollen grains in the microfossil record. In terms of the economy of the site, cereal usage is evident in both the microfossil and macrofossil records. Low representation of cereal-type pollen is recorded in the two top samples of context 212, whilst in the macrofossil record significant amounts of carbonised barley grains were identified from a burnt occupation layer in the summit enclosure, with a few grains further identifiable as the hulled variety. The very low amounts of cereal pollen in the record may represent arable farming in the vicinity but not necessarily within the summit enclosure, and/or cereals that have been brought onto the site for processing. The latter seems to be supported by the macrofossil record, where Niehaus and Ramsay suggests in situ burnt grain, identified from a nearby occupation layer in trench 3 (306), was a result of either the preparation of cereals directly for food or drying of cereal grains prior to storage or grinding the

grains for flour or meal. However, the deposit from which the majority of the burnt grains were retrieved may date prior to the main phase of enclosure.

Besides arable farming there is some evidence of pastoral activities on site. The stalling of domesticated animals on the summit enclosure may be represented by the presence of herbaceous pollen such as *Plantago*, *Rumex*, *Artemisia*, *Filipendula*, Asteraceae and Lactuceae, often associated with disturbance or pasture (Brown et al 2007), and by a 7–15% representation of the coprophilous fungi *Sordaria* and sporadic representation of other coprophilous fungi (*Sporomiella, Podospora* and *Cercophora*) often associated with large herbivore dung (van Geel et al 2003). *Cercophora* and *Sordaria*, however, can also grow on rotting wood, whilst *Cercophora, Sordaria, Sporomiella* and *Podospora* can equally grow on non-domesticated animal dung (Perrotti & Van Aspern 2019) so some caution is needed when interpreting their presence. During extraction of the well samples it was noted that the site today is full of modern rabbit/hare droppings. However, modern contamination is unlikely as samples were extracted from a cleaned and uncontaminated section of the well. Hare droppings however could have impacted the record to some extent; hares were likely more common in Scotland during the Iron Age than rabbits, given the scarcity of rabbit bones in zooarchaeological assemblages. The brown hare is believed to have been introduced into the UK during the mid-Iron Age (Lauritsen et al 2018) but its distribution is predominantly in lowland areas of the UK. The native mountain hare, on the other hand, is found in upland heathland areas of northern England and Scotland and was likely more widespread in the past (Game and Wildlife Conservation Trust 2020). This species could have influenced the Tap o' Noth coprophilous record, though the presence of wild hare may be doubtful if the fort was in contemporary occupation. Indeed, robust evidence supporting the presence of domesticated animals at Tap o' Noth is present via the zooarchaeological record, where deposits of cattle teeth and bones have been identified, excavated from the inner face of the vitrified stone wall (See Mainland & Masson-MacLean below).

A wide range of wild foods, such as wild fruit, nuts, berries, and leafy plants, would have been seasonally available and probably formed an important subsistence resource during the Iron Age. At Tap o' Noth the pollen record shows that wild blueberries, which are packed with vitamins and fibre, were locally available during the Iron Age occupation of the site as they are today. Blueberries have previously been identified in Scottish archaeobotanical remains, including at an Iron Age Broch dating between 200 BC and AD 200 in Caithness (Dickson & Dickson 1984) and at Bearsden near Glasgow, in ditch deposits at a Roman fort on the Antonine Wall (Dickson & Dickson 2016). Blueberries have not been identified in the macrofossil results, but this may simply be because only charcoal and charred food remains have preserved. Ramsay did identify hazelnut shells, which does suggest people were supplementing their diets with some gathered wild foods.

In terms of natural vegetation likely growing on the summit of Tap o' Noth, sedge (Cyperaceae) has been identified in the pollen record; the dampness around the well likely providing an ideal environment for sedges to thrive. Several tree species were recorded in the Tap o' Noth pollen record including birch (*Betula*), alder (*Alnus*), pine (*Pinus*), ash (*Fraxinus*), oak (*Quercus*) and willow (*Salix*). Tap o' Noth displays a similar representation of birch and alder pollen to the lowland coring site at Barflat but much lower pine and willow percentages. The sources are from different periods, but the cause of the difference is also probably due to both taphonomy and location. Taphonomy in that the small diameter of the well (eg van Amerongen 2020) and the height of Tap o' Noth have probably restricted regional pollen and pollen from lower altitudes from reaching the deposition site. The pollen representation at this site, therefore, is likely to be very localised.

The same woodland taxa, except ash, has been identified from the wood charcoal record. However, despite a diverse range of trees represented in the pollen record, tree percentage representation is very low, except for birch and alder. This would imply that most of the tree taxa identified were not growing locally on top of the hill. Thin soils may have been a contributing factor to this (Ramsay 2018c); however, given the diversity of charcoal types, woodland resources may have been plentiful in the wider landscape around Tap o' Noth, as represented in the Barflat record. It is quite likely most of the wood, particularly hardwoods, would have been sourced from the surrounding valleys below. Birch on the other hand seems to have been more locally and widely available displaying both a higher representation in the pollen record and is equally common in the macrofossil records.

Barflat

The Barflat core location in the mire below the Craw Stane complex is situated in a valley adjacent to the Water of Bogie river with a much wider pollen catchment area than the Tap o' Noth pollen source, encompassing both atmospheric and fluvial transported pollen from regional and local vegetation sources (eg Jacobson and Bradshaw 1981). The more sheltered location of the core location with its adjacent water course may also have supported more local woodland taxa compared to the summit of Tap o' Noth.

The pollen record comprises three main vegetation components: 1) Mire, 2) Woodland-Scrub-Heathland and 3) Anthropogenic. At the core location sedges, grasses, moss, alder, aquatic plants and algae formed part of the mire vegetation. The mire appears to have been considerably wetter between the 3rd and 14th centuries AD compared to after the 14th century. Minerogenic deposition, which has probably been deposited fluvially, is suggested by low organic and high silt content in the lithology and LOI results (see Jones et al 2021), whilst the presence of open water is represented by the presence of aquatic plants and algae such as *Callitriche*, *Potamogeton*, *Typha* & the NPPs *Spirogyra*, *Mougeotia*, and HdV-731. Outside of the mire, between the 3rd and 6th centuries AD, local communities would have had a wide variety of woodland resources available to them to use for construction, animal fodder and fuel. This is evidenced in the pollen record by the 20–30% arboreal representation, which constituted both wet and dry woodland (eg pine, alder, willow, some oak, some ash and birch). *Corylus/Myrica* type pollen are also well represented. The availability of hazel woodland/scrub would have been beneficial not only for construction or as a fuel resource, but also the seasonal availability of resources such as hazelnuts would have provided a valuable food supplement. These results are further supported by the archaeobotanical record which highlights a diverse usage of

plants at the Craw Stane enclosure complex. During excavations hazelnut shells were identified from a variety of contexts, as well as carbonised remains of Prunoideae (plum/cherry?) was also identified from a midden deposit. The identification of Prunoideae in the macrofossil record is interesting as it perhaps suggests the availability of wild cherries or plums. Wild cherries have been previously identified from early medieval contexts in Scotland. At Dundurn for example, human faeces contained over 24 cherry stones (Alcock et al 1989: 202). The genus *Prunus*, however, has not been identified in the pollen record. Besides the availability of wild plant resources, the inhabitants of the Craw Stane complex and surrounding settlements were likely practising both pastoral and arable farming. Pastoral farming is indicated by the strong presence of fungi commonly associated with herbivore dung such as: *Podospora*, *Tripterospora*, *Cercophora*, *Sporormiella* & *Sordaria*. Arable farming is suggested by the presence of cereal-type pollen which may belong to the *Hordeum* (Barley) family (see Jones et al 2021); the cultivation of which is again supported by the macrofossil analysis. Both arable and pastoral farming is further supported by herbs with cultural affinities (eg Asteraceae, Lactuceae, *Plantago* undiff. *Rumex* spp., Ranunculaceae, *Plantago lanceolata*). After the abandonment of the Craw Stane complex in the 6th century AD there is evidence to suggest continued exploitation of the land. Notwithstanding a brief decline in cereal percentages sometime around the 6th century AD (see Jones et al 2021) the local landscape does not appear to have been abandoned as cereal-type pollen continues to be recorded throughout the record. Pastoral indicators as well to some extent continue to be represented, with fluctuations in the coprophilous fungi record linked to erosional discharge (Jones et al 2021). Evidence of fire and erosion (represented in the geochemical record – see Jones et al 2021) are also recorded during and after the Barflat and Cairn More occupation periods, although these are most pronounced between AD 800 and AD 1200.

8.4.5 Conclusions

The main objectives of the environmental analysis have been to reconstruct the types of vegetation surrounding the early medieval settlement complex at the Craw Stane and the Iron Age fort at Tap o' Noth. This was undertaken to not only understand the differences in the environment that communities in the later prehistoric to early medieval periods lived within, but also to better understand resource availability and the economies of both sites. The summit at Tap o' Noth appears to have been more open than in the environs of the Craw Stane complex, mirroring the conditions of today. Subsistence economies at both sites would have been supported by subsistence farming with evidence for low-level use/availability of wild resources, such as blueberries and hazelnuts. Grass and herbaceous taxa appear to have dominated the environments of Tap o' Noth after the construction of the fort with evidence that the surrounding slopes supported heather and wild blueberries communities as it does today. The evidence for farming includes both arable farming (Barley) and pastoralism indicators; and the pollen and fungal spores associated with dung may indicate some domesticated livestock were kept within the summit enclosure. Woodland taxa were scare in the pollen record but may indicate the occasional alder and birch scrub (birch was probably more locally and widely available). Woodland resources were probably more plentiful in the surrounding valleys below as indicated in the Barflat samples. During the 4th–6th centuries AD at Barflat woodland would have provided ample building material, fodder and fuel whilst the main economy centred around both pastoralism and arable farming. Cereal types are prominent in this record and represent predominantly *Hordeum* (Barley) types. Finally, despite abandonment of the Craw Stane enclosure complex and potentially a brief decline in cereal percentages in the 6th century AD, cereal pollen grains continue to be recorded throughout the record which suggests the locality was not abandoned with occupation at Cairn More and Tap o' Noth continuing to the 7th century AD.

8.5 Microbotanical Evidence from Pictland (Upper Strathbogie Valley): Phytoliths and Starch Grains

Shalen Prado

8.5.1 Introduction

Microbotanical residues, such as starch grains and phytoliths, retrieved from three Pictish sites in the Upper Strathbogie valley (Cairn More, Tap o' Noth and Rhynie) have provided either evidence of plants from Pictish settlements which only rarely preserve in the macrobotanical record or provide an alternative way of tracking plant use. These microscopic plant remains were extracted from soil samples and potsherds, and shed light on past architectural traditions, foodways, land-use and human-plant relationships in Pictland. Soil samples targeted intact floor layers from Tap o' Noth and Cairn More, while potsherd samples were limited to Rhynie. These two sampling strategies extracted variable quantities and types of microbotanical residues with phytoliths predominately retrieved from soil samples and starch grains from potsherd residues. The microbotanical results presented here are useful for comparison with the macrobotanical remains discussed by Niehaus and Ramsay (this chapter), and other environmental proxies such as pollen (Jones et al 2021; Jones this chapter). Overall, the phytolith and starch grain assemblages from the Upper Strathbogie valley point to the centrality of cereal production, the use of turf in upland architecture and human interaction with a spectrum of ecological niche zones.

8.5.2 Methods

Two sampling approaches were used to retrieve phytoliths and starch grains from Pictish archaeological sites: extraction from soil samples, and a three-wash process for extraction from artefact surfaces (Barton 2007: 1752; Hart 2011: 3246; Pearsall 2015: 360). Both approaches were successful in retrieving microbotanical specimens, with only one context considered as 'empty' (Rhynie Potsherd 2; Table 8.23). Laboratory procedures for microbotanical extraction from soil samples is detailed in Prado and Noble (2022). Soil samples were best suited for retrieving phytoliths and were not suitable for extracting starch grains which would have been burned up during chemical processing of the soil. The laboratory procedure for soil sampling was carried out at the McMaster Paleoethnobotanical Research Facility (MPERF) in Canada and

	Soil		Potsherds	
Site Name	# of samples	# of contexts	# of samples	# of contexts
		Context		
Cairn More (CM)	21	1		
		Floor		
Tap o' Noth (To'N)	14	2*		
		Hearth Floor		
Rhynie (REAP)			3	3
				Potsherd 1 *Potsherd 2* *Potsherd 3*
Total	35	3	3	3

Table 8.23
Phytolith sample contexts in this study. *Indicates neighbouring/embedded contexts which were located within the same horizon. For example, a hearth context within a floor layer context

broadly involved soil sterilisation, deflocculation, separating into soil fractions (A/B and S fraction), removing clay, chemical digestion and flotation. At Tap o' Noth and Cairn More, soil samples were taken using a horizontal 'blanket' sampling approach where a 1m x 1m grid delineated the sampling area (ie, house platform and in situ floor layer respectively). Composite 'pinch' samples were taken from each unit across the grid, sampling both feature (eg, hearths) and non-feature contexts (Prado & Noble 2022: 4). Horizontal blanket sampling is well suited in cases where researchers aim to collect a higher diversity of plants within a specific context (Lennstrom & Hastorf 1992: 206, 211; Pearsall 2015: 74).

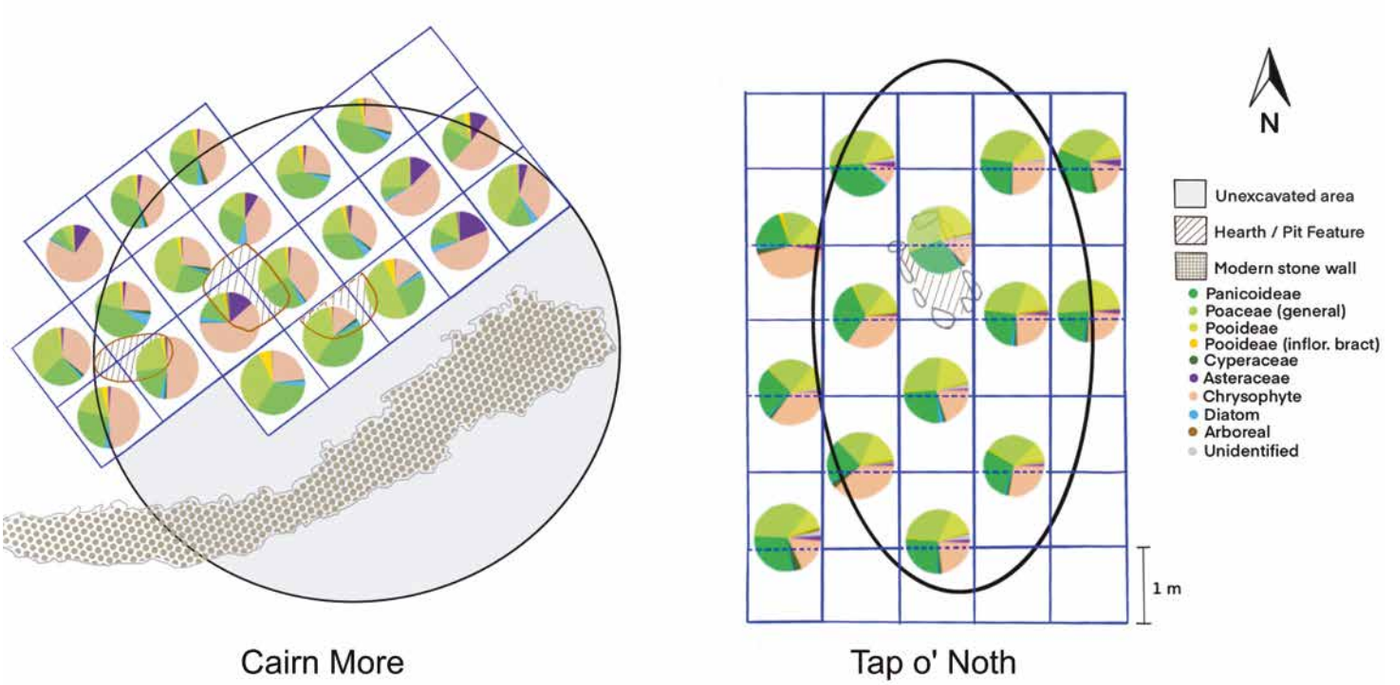
The three-wash process used for sampling artefacts such as potsherds involves a dry wash, a wet wash and a sonicated wash to extract microbotanical specimens from the outermost to innermost layers of artefact surface residues. This process in non-destructive, cost-effective, time efficient and has been used in several archaeological investigations (Berubé et al 2020; Hart 2011: 3246; Morell-Hart 2015; Morell-Hart et al 2014, 2019; Pearsall 2015: 360; Pearsall et al 2004: 427; Prado 2023). The dry wash involves gently brushing the surface layer (often consisting of stuck-on soil) with your finger while wearing a nitrile glove. This wash is collected into a clean petri dish and transferred into a labelled sample tube (eg, 2mL centrifuge tube). The wet wash involves the same gentle washing process with the addition of distilled or ultra-pure water. Again, this wash is collected into a petri dish and transferred to a labelled sampling tube using a clean pipette. The final sonicated wash gently dislodges stuck-on and trapped residues from the microscopic pores and crevices of artefacts by using a handheld sonicated device (in this case a Kinga Skin Scrubber KD-8020). Sonication lasts for five minutes to sufficiently dislodge the stuck-on residues (Pearsall 2015: 360), and like the other washes is transferred into a sample tube. Each sampling context (ie, artefact) took approximately 20 minutes to sample, and materials needed were minimal including glass petri dishes, ultra-pure water, pipettes, kim wipes, sample tubes, nitrile gloves and a handheld sonicator.

After extraction these samples were mounted onto glass microscope slides and identified using a transmitted light microscope (Zeiss Axiolab A.1) at 200x, 400x, and 630x magnification. Phytoliths were counted to a minimum of 200 morphotypes following established protocols (Albert et al 1999; Albert & Weiner 2001; Pearsall 2015) and were described using International Code for Phytolith Nomenclature (ICPN) 1.0 and 2.0 (Madella et al 2005; Neumann et al 2019). Artefact residues contained both starch grains and phytoliths (albeit a minimal quantity) as no chemical processing was necessary for these extractions. Starch grains required the use of cross polarised light filters to identify diagnostic features including the extinction cross, and these microbotanical structures were described using the author's reference collection of modern starch morphotypes (macmicrobot.omeka.net) and compared with Ahituv and Henry (2022), Piperno and Dillehay (2008), Torrence and Barton (2006), and Yang and Perry (2013).

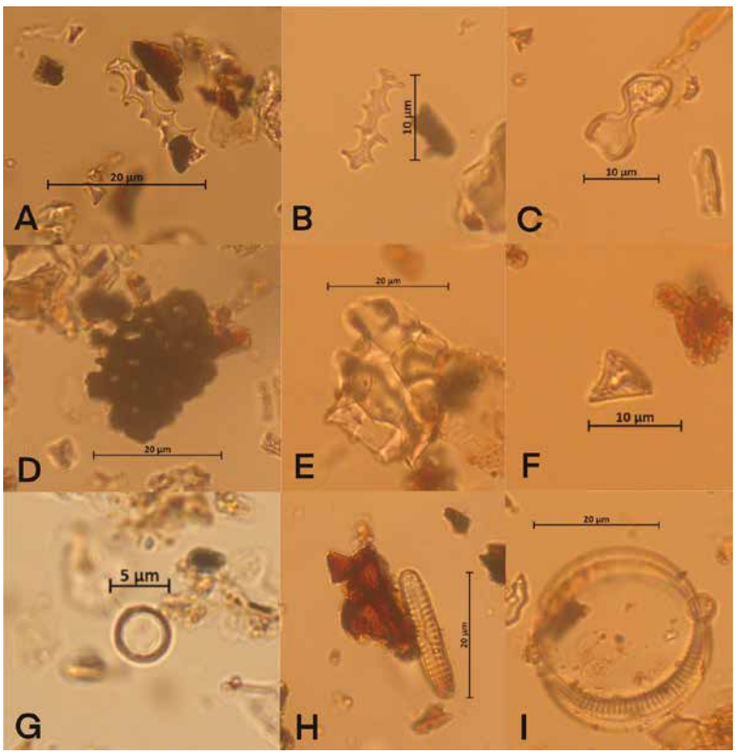
Secondary analysis and tabulation were carried out using Excel using pivot tables. Each microbotanical specimen was described with morphological information including morphotype (eg, conical starch grain), size (eg, 10 microns), hilum (eg, centric), lamellae (eg, present), extinction cross (eg, bold – straight arms), surface texture (eg, smooth) and possible cooking damage (eg, blurred extinction cross). Secondary analysis predominantly focused on ubiquity (Table 8.24) which measures on the occurrence of specific plant taxa across sampling contexts. This is useful for understanding how pervasive a plant taxon is within a context and avoids over-representation of a plant's importance which can occur when using raw counts (eg, where a cache of a plant may overwhelm its representation).

	Aster.	Cyper.	Arund.	Panicoid.	Pooid.				Arbor.	Dicot.
					G	H	T	A		
CM	20/21	19/21	2/21	21/21	21/21	0/21	0/21	0/21	2/21	3/21
To'N	12/14	11/14	0/14	12/14	12/14	0/14	0/14	0/14	9/14	0/14
REAP	0/3	0/3	0/3	1/3	2/3	2/3	1/3	1/3	0/3	0/3

Table 8.24
Ubiquity of major plant taxa. Aster. = Asteraceae, Cyper. = Cyperaceae, Arund. = Arundinoideae, Panicoid. = Panicoideae, Pooid. = Pooideae (G = General Pooideae [species not identifiable], H = Hordeum sp., T = Triticum diccocoides, A= Avena sp.), Arbor. = Unidentified Arboreal, and Dicot. = Unidentified dicotyledonous taxa



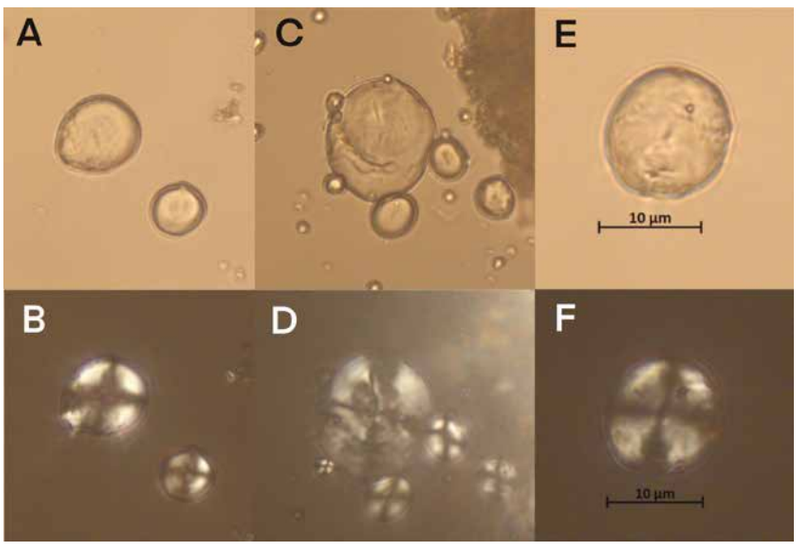
Illus 8.17
Microbotanical results from soil samples of excavated house floors at Cairn More and Tap o' Noth



Illus 8.18
Phytolith morphotypes extracted from Cairn More and Tap o' Noth samples viewed at 400. A–B elongate dendritic phytoliths (cereal inflorescence bracts), C – bilobate phytolith (Panicoideae), D – opaque perforate plate (Asteraceae), E – facetate phytolith (arboreal), F – sedge cone phytolith (Cyperaceae), G – Chrysophyte (micro-algae), H–I diatoms (micro-algae)

8.5.3 Results

The microbotanical assemblages (Illus 8.17) are broadly reflective of the sampling strategy. Soil samples retrieved a broader spectrum of plant taxa, while the potsherd residue extraction had less diversity but were able to facilitate a more detailed identification of plant taxa (Table 8.25). As expected, grasses (Poaceae) were well represented, and this is unsurprising as grasses are one of the



Illus 8.19
Lenticular cereal-type starch grains extracted from the Craw Stane complex potsherd surfaces (viewed at 200x – 400x). A–B Triticum dicoccum (emmer wheat) starch grain, with diagnostic dimpled surface. C–E Hordeum (barley) starch grains

Site	Microremain	Plant Families Represented	Plant Taxa
Cairn More	Phytoliths	Asteraceae, Cyperaceae, cf Ericaceae, Poaceae (Arundinoideae, Panicoideae, Pooideae), Unidentified arboreal, Unidentified Dicot	Could not identify to genus level
Tap o' Noth	Phytoliths	Asteraceae, Cyperaceae, cf Ericaceae, Poaceae (Arundinoideae, Panicoideae, Pooideae) Unidentified arboreal	Could not identify to genus level
Craw Stane complex	Starch grains, Phytoliths	Poaceae (Panicoideae, Pooideae)	*Hordeum* sp., *Triticum diccocoides*, *Avena* sp.

Table 8.25
Plant microremains and taxa identified in study

highest producers of phytoliths (Delhon et al 2020: 231; Morell-Hart 2019: 236; Twiss 1992). Grass phytoliths from Arundinoideae (ie, reeds), Panicoideae (eg, needle grass) and Pooideae (eg, cereals) subfamilies were identified in soil samples from Cairn More and Tap o' Noth (Illus 8.18), while only Panicoideae and Pooideae were present in the Rhynie potsherd samples (Illus 8.19). These grasses were identified through grass short cell phytoliths which included elongate entire, cylindrical polylobate, bilobate, trapeziform sinuate, elongate echinate, trapeziform short cell, bulliform, papillae and elongate dendritic morphotypes. Cereal inflorescence bracts, the plant part that encapsulates the edible grain, were indicated through papillae and elongate dendritic morphotypes. Cereals were also evidenced in the study through the presence of lenticular starch grains within the Rhynie potsherd residues. Non-grass plants were also present and included asters (Asteraceae – opaque perforated plate phytoliths), cf. heather (Ericaceae – opaque perforate plate phytoliths), sedges (Cyperaceae – cone phytoliths), arboreal taxa (unidentified – faceted forms, conifer form phytoliths), and dicotyledonous plants (unidentified – hair cell base, stomata, jigsaw phytoliths). Overall, the results from the microbotanical analysis represent Pictish-plant interactions with heathlands, wetlands, grasslands and agricultural areas. To understand architectural traditions, foodways and land-use however, the results need to be discussed in regard to sampling strategy and spatial representation.

Cairn More

During excavations at Cairn More by the Northern Picts Project in 2020, an in situ roundhouse floor was identified under the collapse materials of the outermost rampart wall. The floor was truncated by a modern drystone wall, and therefore only half of the floor layer was accessible for microbotanical sampling. Twenty-one samples were taken across this floor layer using the 1m x 1m grid for blanket sampling (Illus 8.17). Twenty of these samples were taken directly from the stained floor layer, and an additional sample was taken just outside of the floor stain and was assumed to be a natural context. Radiocarbon dates from this floor layer suggest AD 5th- to 6th-century dates (Prado & Noble 2022: 3).

Grass (Poaceae) phytoliths were well represented in all samples. Of particular interest was the presence of elongate dendritic phytoliths which are only produced in cereal inflorescence bracts. Although these phytolith morphotypes were only recovered in trace quantities, they confirmed the presence of cereal crops which were possibly processed (ie, threshed or winnowed) nearby to this roundhouse. Sedge (Cyperaceae) and aster (Asteraceae) phytoliths were occasionally identified through cone and opaque perforated plate morphotypes respectively. Some perforated plate phytoliths could be representative of heather (Ericaceae).

Micro-algae such as diatom frustules and chrysophycean cysts were frequently present throughout the roundhouse floor samples, and although these technically do not qualify as plant remains (algae belong to the Kingdom Protista rather than Plantae), micro-algae were tabulated alongside the microbotanical residues. Tentative identifications were assigned to these micro-algae and many appear to belong to freshwater species that live within terrestrial and subaerial environments such as peat bogs.

The microbotanical and micro-algae assemblage from Cairn More provided data to interpret architectural details of the roundhouse and to better understand human-plant relationships in Pictland. Wetland phytoliths (eg, sedge cones) and micro-algae were concentrated around the perimeter of the floor which suggests the use of wetland turf to build the outer walls of the structure. The roof was possibly constructed of mixed grass and heather thatching as Poaceae, Asteraceae and cf. Ericaceae morphotypes were present across the floor layer. Grasslands, heathlands and wetlands (eg, bogs) were represented through these micro-residues which suggests the Picts relied on and interacted with these ecological niche zones to create and sustain the upland settlement at Cairn More. The use of the roundhouse was unclear given the microbotanical evidence; however, the presence of the floor layer itself suggests repeated use of the structure. Furthermore, the presence of cereal inflorescence bract phytoliths confirms the presence of cereal agriculture and crop-processing activities at Cairn More, in this case just outside of the main ringfort enclosure, which mirrors the evidence from the Craw Stane complex (Niehaus & Ramsay this chapter).

Tap o' Noth

A series of house platforms were identified at Tap o' Noth within the lower citadel. These platforms were targeted for microbotanical sampling during excavations in 2022 to examine architectural details, use of space, activity areas and foodways. House 3 within Trench 16 was sampled following the blanket sampling strategy like the procedure at Cairn More and retrieved 14 samples. The T16 platform suggested an oval shaped structure and a single well-built rectangular hearth was located near the centre–west of the floor (Illus 8.17). Radiocarbon samples were taken from the floor layer of House 3 and returned AD 3rd –late 6th-/early 7th-century dates, the floor deposits presumably derive from towards the end of this occupation sequence. A small glass bead and burnt animal bone were retrieved during the excavation of the platform, suggesting that the building was likely a residence.

Across the floor layer from House 3, grasses (Poaceae), asters (Asteraceae), cf. heather (Ericaceae) and sedges (Cyperaceae) were represented. Wet environment indicators such as micro-algae and sedges were represented at higher quantities around the edge of the structure, and this is particularly clear toward the southern side of the floor layer. This suggests a probable concentration of

peat/turf around the outer edge of the platform. Given the absence of post holes and the higher-than-average retrieval of micro-algae and plant taxa that thrive in wet environments (eg, sedges), the microbotanical evidence suggests that House 3 was likely constructed of turf walls and a mixed thatch roof, like the structure at Cairn More. At both of these upland settlements the fortuitous retrieval of micro-algae (eg, chrysophytes and diatom frustules) alongside the microbotanical residues were important for understanding the architectural form of these Pictish buildings.

The microbotanical assemblage from Tap o' Noth suggests relationships between the Picts and several ecological niche zones including grassland, heathland, wetland and forest environments. Indicators of agricultural production were also present as evidenced by the recovery of cereal inflorescence bract phytoliths (ie, elongate dendritic morphotype) from the floor of House 3. However, the microbotanical assemblages from both Tap o' Noth and Cairn More house floors were not able to reflect the division of space for certain activities such as crop processing, sleeping/bedding or cooking. Such ephemeral floors can be challenging to interpret due to the cleaning habits of the inhabitants (eg, sweeping) which can remove activity area indicators or disperse them throughout the structure. Nonetheless, the presence of cereal inflorescence bract phytoliths from Cairn More and Tap o' Noth floors however indicates that crop processing such as the threshing or winnowing of cereal crops was carried out nearby these structures, and perhaps was tracked into the structure by its inhabitants providing some indication of the types of activities carried out in these structures.

Rhynie

Microbotanical sampling at Rhynie was restricted to artefact residues as soil sampling strategies were not practised in collaboration with the Northern Picts Project until after the Rhynie Environs Project (REAP) was completed. Three potsherds retrieved from the Craw Stane complex were targeted for the three-wash sampling process. These potsherds were likely made by hand (ie, without a pottery wheel) and did not show any indication of cooking encrustations visible to the naked eye. Small assemblages of locally produced Pictish pottery are rarely recovered from Pictish archaeological sites (Noble & Evans 2022: 85) and this residue analysis suggests that such approaches are advantageous where macroscopic food evidence is scarce because of preservation biases. It is important to note the possibility of contamination in starch research which has been discussed at length within the field (eg, Crowther et al 2014; Laurence et al 2011; Mercader et al 2017); however, no indication of contamination was present in these samples, such as the presence of unexpected residues (eg, maize starch grains).

Approximately 75 starch grains were retrieved from three Rhynie potsherds (Table 8.26). These sherds had already been gently cleaned after excavation and therefore a dry wash was not possible (ie, no dirt remained to brush off without water) although it was attempted. Two of the three sherds contained these starch grains, and one sherd (PS 2) was considered 'empty' as no identifiable residues were retrieved. Potsherd 1 (PS 1) only retrieved residues from the wet wash, and the sonicated wash was deemed 'empty'. Potsherd 3 contained the largest quantity of starch grains (n=70). The starch grain assemblage from Rhynie consisted of mostly lenticular morphotypes which are diagnostic of cereal grains; however, non-lenticular starch grains were also present including one spherical starch grain (cf transitory starch grain) and one other starch grain that could not be rotated to confirm the morphotype. Only one phytolith was retrieved from the potsherd surfaces, a grass type cylindrical polylobate phytolith (Panicoideae).

Starch grains from oat (*Avena* sp.), barley (*Hordeum* sp.), emmer wheat (*T. dicoccum*) and unidentified cereals (Pooideae) were recovered from two of the three potsherds from Rhynie. One sherd (PS 3) contained over 50 cereal starch grains which with most appearing raw and only some appeared cooked (eg, boiled). Several starches from Rhynie Potsherd 3 resembled emmer wheat and barley starch morphotypes (Illus 8.19). Cooking evidence can be determined by looking for cooking damage evidence of the starch grains; for example, blurred extinction crosses (Henry et al 2009). Both sherds had evidence of cooked and uncooked or 'raw' starch grains, which suggests that the Picts used handmade pottery for both cooking and raw storage. The quantity of starch grains from Potsherd 3 was surprising and perhaps suggests this sherd was mostly used as a cereal storage vessel because most of the grains appeared undamaged from cooking. Given the high status of the site, such vessels would not be surprising, and the presence of barley starch grains corroborates both

PS #	Wash	Morphotype	Plant taxon	#	Size	Lamellae	Hilum	Extinction cross	Surface
PS 1	W	Could not rotate	N/A	1	7µm	no	centric	blurry	smooth
PS 1	W	Lenticular – subcircular	*Hordeum* sp.	1	12µm	no	centric	blurry	dimpled
PS 1	W	Lenticular – subcircular	*Pooideae*	1	8µm	no	centric	bold	smooth
PS 1	W	Spherical	N/A	1	5µm	no	centric	bold	smooth
PS 3	W	Lenticular – polygonal	*Avena* sp.	1	8µm	no	centric	blurry	smooth
PS 3	W	Lenticular – subcircular	*Pooideae*	1	11µm	damaged	centric	blurry	smooth
PS 3	S	Lenticular –subcircular	*Pooideae*	1	11µm	no	centric	bold	smooth
PS 3	S	Lenticular – subcircular	*Pooideae*	1	7µm	no	centric	bold	smooth
PS 3	S	Lenticular – circular	*Hordeum* or *T. dicoccum*	60	5–22µm	faint	centric	bold	dimpled
PS 3	S	Lenticular – subcircular	*Hordeum* sp.	6	10µm	no	centric	bold	smooth

Table 8.26
Starch grains retrieved from Rhynie potsherds (PS) 1–3. Wet wash (W), Sonicated wash (S)

the macrobotanical and palynological evidence which also identified cereal residues within the Craw Stane complex (Jones et al 2021; Niehaus and Ramsay above).

8.5.4 Discussion

The microbotanical assemblages from this study suggest human-plant relationships in the Upper Strathbogie valley were consistent in regard to cereal production and upland architecture. Cereals were identified through various microbotanical residues (eg, elongate dendritic phytoliths and lenticular starch grains), which points to a consistent plant food production strategy by the Picts which centred around cereal agriculture. This is consistent with contemporaneous agricultural practices from medieval Ireland and Anglo-Saxon England (Banham 2010; Higham 2010: 20; McCormick 2014; McKerracher 2018; Monk 1986; O'Sullivan et al 2014: 75–6). Interestingly, other plant foods were not recovered as might be expected such as legumes (eg, beans and peas), geophytes (eg, roots and tubers) and nuts. Both legumes and geophytes have highly diagnostic starch grains, as do some nuts (eg, acorns). This absence could be indicative of an exclusive reliance on cereal plant foods; however, this study marks the beginning of such analyses, and a much larger sampling strategy would provide a clearer picture of past Pictish foodways.

The similarity between the microbotanical assemblages from the roundhouse at Cairn More and the house platform at Tap o' Noth suggest a shared approach to Pictish vernacular architecture. Although minor differences can be identified, for example the Asteraceae and Ericaceae signatures are more pronounced at Cairn More and more dispersed at Tap o' Noth, although these differences are minor. Overall, the structures were likely very similar in form, turf walled with mixed thatch roof, central hearths and likely flexible activity areas. The construction materials including peat turf, sedges, heath and asters were likely procured from wet upland zones such as blanket bogs and fens as evidenced by micro-algae, Asteraceae opaque perforated plate phytoliths and Cyperaceae cone phytoliths. Such materials were likely known to the Picts for the insulative and waterproof qualities. Similar construction traditions are known from other regions and time periods such as Iceland's Viking Age and historical turf structures (Bathurst et al 2010; van Hoof and van Dijken 2008).

Through this small study several details surrounding Pictish daily life have been uncovered; however, much is still ambiguous. The microbotanical assemblages from Cairn More, Tap o' Noth and Rhynie indeed point to shared traditions in regard to foodways and architectural form, yet it is unclear how these sites might have operated in relation to each other. Seasonality too is challenging to interpret based on this evidence. Potentially, the cereal evidence from upland sites indicates that cereal products were being transported to the upland settlements, as it is unlikely that cereal agriculture would thrive in the upland landscape in comparison to the fertile and sheltered lowland settlements (eg, Rhynie). However, the presence of the inflorescence bracts at Cairn More and Tap o' Noth is interesting as this indicates unprocessed cereals were taken to the upland settlements and processed there, instead of being processed first in the lowlands and transported later for consumption (eg, winter).

Further microbotanical analyses would certainly improve our understanding of daily life in Pictland including the use of space and food traditions in Pictish settlements. Unfortunately, lowland settlements are often disturbed by historical and modern practices, including agricultural ploughing, and this inhibits the potential for microbotanical sampling of lowland settlement contexts (ie, sampling of floors). Pictish made pots are also rarely recovered in the archaeological record which limits the capacity for residue sampling. Imported pottery, which is slightly more common than locally made pottery, could present intriguing opportunities for understanding how the Picts interacted with cultural outsiders. Did the imported pots exclusively contain imported food and drink? Or were the pots reused? Hopefully future excavations of Pictish settlements uncover more opportunities for microbotanical analyses to investigate these and other questions on Pictish plant relationships, foodways, use of space, land-use and architecture.

8.5.5 Conclusion

Microbotanical analysis is useful in first-millennium AD contexts where macrobotanical evidence is often scarce in northern Britain. In this study, phytoliths and micro-algae were useful for identifying turf-walled architecture at settlements at Cairn More and Tap o' Noth. Starch grains were recovered from two of three Rhynie potsherds and the results suggest that locally made pottery was used for both storage and cooking of cereals at Rhynie. Cereals appeared to be the central plant derived food based on phytolith and starch grain evidence, as starch grains from legumes and geophytes were absent. Residue analysis was limited to a small sample size of three potsherds however, and an expanded analysis of other potsherds would greatly improve our understanding of Pictish plant food consumption. Such analyses are complimentary to pollen, wood charcoal and carbonised seed evidence and together archaeobotanical and paleoethnobotanical lines of evidence from Pictland are improving the resolution of daily life, seasonal tempos and Pictish environment relationships.

8.6 Faunal remains from the Tap o' Noth excavations

Edouard Masson-MacLean

8.6.1 Introduction

The excavations at Tap o' Noth hillfort, Aberdeenshire, consisted of trenches targeting both the Iron Age oblong fort and a number of first-millennium AD dwelling platforms within the rampart of the lower fort. Due to soil acidity and unfavourable burial conditions for bone preservation, faunal assemblages are rare from these periods in mainland Scotland and Tap o' Noth is no exception. Excavations led by the University of Aberdeen since 2017 have yielded only small quantities of poorly preserved animal bone, including teeth with partial loss of dentine, and small calcined fragments comprising an assemblage of limited interpretative value.

The animal bone was recovered mainly by hand and no large bulk samples were taken for the recovery of animal bone. The assemblage was analysed following standard archaeozoological methods (Davis 1992; Dobney et al 1999) and taxonomic identifications were made using the comparative reference collection at the

University of Aberdeen Archaeology Department. The preservation condition and fragmentary nature of the teeth did not permit tooth wear analysis for age-at-death estimates due to loss of dentine and damaged occlusal surfaces or the use of the crown height method for horse (Levine 1982). Age-at-death based on long bone fusion followed Silver (1969).

8.6.2 Iron Age component

The animal bone from within the Iron Age oblong fort came from contexts (407) and (1708), deposits associated with middens and a possible structure up against the rampart of the fort interior. A poorly preserved assemblage of 202 bone specimens was recovered. Context (407) yielded 125 unidentifiable mammalian bone fragments, mainly small calcined fragments (<2cm), and 3 large mammal (cattle, horse or red deer size) vertebrae. Context (1708) yielded 74 bone pieces including 60 unidentifiable mammal, 8 long bone shaft fragments of large mammal and a vertebral fragment from a medium-sized mammal (sheep/goat, pig size). Four bones were identified as cattle including a right distal humerus, a right radius, a sacral fragment and a burnt centroquartale. The radius was complete with both epiphyses fused indicative of an animal which was at least 3.5/4 years old when slaughtered. Cut marks were observed on the distal humerus, indicating consumption, and was fused coming from an individual of at least 12–18 months old when killed. A pig lower third molar tooth was also recovered from (1708) and seemed to be in stage wear A or B (Grant 1982) suggesting the animal was slaughtered before reaching adulthood, possibly between 18–30 months, though in primitive breeds the eruption of the M3 could have occurred as late as three years of age (Lemoine et al 2014; Silver 1969; Bond et al 2015: 215). Cattle would probably have been a high-value multi-purpose commodity used as working animals, dairying, but also a source of food and raw materials (McCormick 2008: 1992), whilst pigs were raised primarily as a food item, but have also been considered to be high-status animals consumed by elites in the Iron Age (Smith 2000; Bond 2002).

8.6.3 The platform settlements

The animal bone from the lower fort comprised the degraded teeth and enamel fragments from context (16011), the foundation deposit for platform T16. At least one lower third molar and one upper molar of cattle could be identified and four horse upper cheek teeth, probably representing just a single individual for both species. The cattle teeth were too degraded to be aged. All horse teeth were in wear at the time of death indicating the individual or individuals were at least 5 to 6 years old (Levine 1982: 229). Horses, often associated with high-status activity, were mainly kept for warfare, transport or traction and may have been occasionally consumed at the end of their working life and also possibly in times of hardship (Foster 2014: 199; McCormick 2007: 92; Jaworski et al 2020; Cross 2011: 191).

Overall the faunal remains from Tap o' Noth are of limited interpretative value by the size of the assemblage and poor bone preservation. The limited data available does not suggest any clear divergence from patterns observed at other sites during the Iron Age and early medieval period.

8.7 Faunal remains from the Craw Stane complex, Rhynie

Ingrid Mainland

8.7.1 Introduction

A mammal bone assemblage of 8,414 fragments was recovered from the Craw Stane complex, Rhynie, providing an opportunity to explore human-animal relationships at a Pictish royal centre during the 5th–6th centuries AD. This report aims to provide an overview of the assemblage focusing in particular on the spatial distribution of faunal material across the site, the species representation therein and the identification of taphonomic pathways for the assemblage. As the site is essentially single phase, no attempt was made to explore any changes in species representation through time. C201, a topsoil cleaning layer (n=47) and C15, associated with the 3rd to 4th cal BC century ring ditch (n=170: cattle =1%, Large ungulate = 29%, small ungulate = 3%, unidentified = 67%), were excluded from the analysis. Full data from these contexts is available in the archive.

8.7.2 Methods

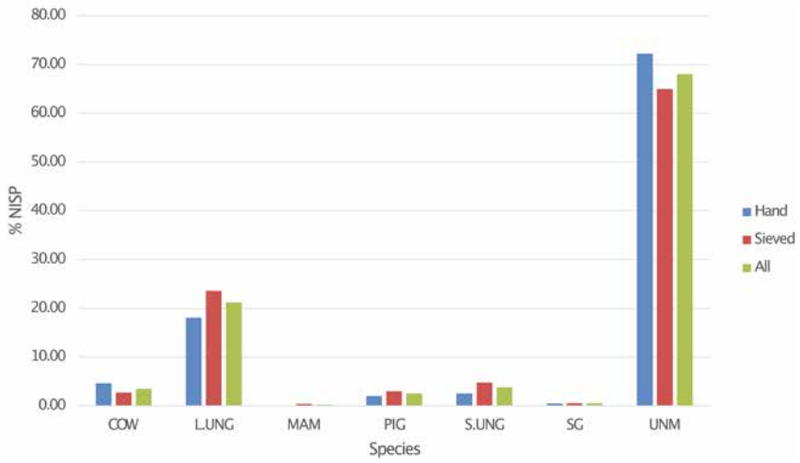
All fragments were identified to species, anatomical element and body side whenever possible. Where species could not be ascertained fragments were assigned to one of the following size classes: L.ung (large ungulate – eg cattle, horse, red deer); S.ung (small ungulate – eg roe deer, pig, sheep/goat); S.mam (small mammal-sized – eg dog, otter, cat); UNM (unidentified) and MAM (indeterminate terrestrial mammal). Vertebrae and ribs were not identified to species or side and were grouped into one of the size classes above.

Mammalian species identification was achieved using the modern reference collection at the UHI Archaeology Institute, Orkney College UHI, and with reference to identification manuals such as Schmidt (1972). The presence of particular diagnostic zones on elements were noted, recording whether 50% or greater of the zone was present. All fragments identified to species were given an individual entry in the data record; fragments identified as L.ung, S.ung, etc only required an individual entry if they possessed a diagnostic zone or were considered special in some other manner.

Epiphyseal fusion was recorded for all bones identified to species. All fragments were examined for signs of pathology, butchery, recent breaks, erosion, weathering, burning or canid gnawing. The colour of burnt bones was noted using the following categories after Stiner et al (1995): 0 – not burned (cream/tan); 1 – Slightly burned; localised and less than half carbonised; 2 – Lightly burned; more than half carbonised; 3 – Fully carbonised (completely black); 4 – Localised half calcined (more black than white); 5 – more than half calcined (more white than black); 6 – Fully calcined (completely white).

8.7.3 The assemblage: taponomy and depositional trends

Bone was recovered by hand (n=3557) and through wet-sieving of soil samples (n=4640). Species representation in both fractions was similar with only four species identified, cattle (*Bos taurus*), sheep/



Illus 8.20
Species representation at the Craw Stane complex by recovery method: shows the relative frequency (% NISP) of fragments identified to species and to the taxonomic groupings

Species	Hand recovered		Wet-sieved		Total assemblage	
	n	%	n	%	n	%
CATTLE	164	5	127	3	291	4
SG	17	0	26	1	43	1
PIG	72	2	139	3	211	3
L.UNG	644	18	1095	24	1739	21
S.UNG	90	3	223	5	313	4
MAM	2	0	18	0	20	0
UNM	2568	72	3012	65	5580	68
Total	**3557**		**4640**		**8197**	

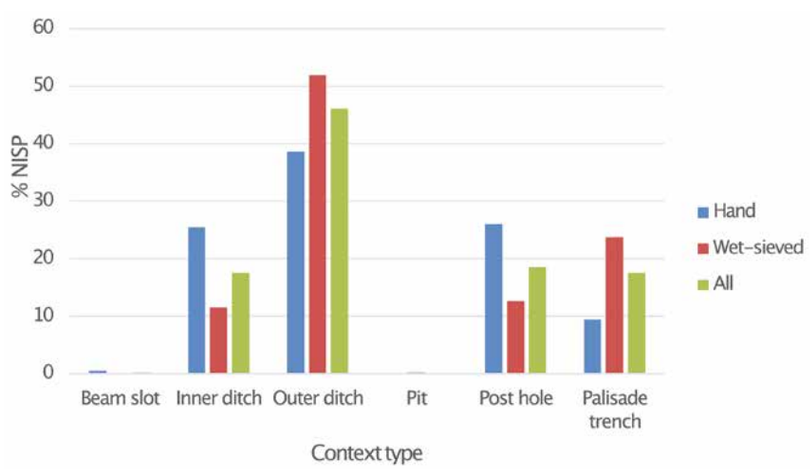
Table 8.27
Species representation at the Craw Stane complex by recovery method: shows the number of identified specimens (n, NISP) and relative frequency (%) of fragments identified to species and to the taxonomic groupings

Context type	Hand-collected		Wet-sieved		Total	
	n	%	n	%	n	%
Beam slot	18	0.51		0.00	18	0.22
Inner ditch	904	25.41	534	11.51	1438	17.54
Outer ditch	1374	38.63	2406	51.85	3780	46.11
Pit	0	0.00	10	0.22	10	0.12
Post hole	926	26.03	589	12.69	1515	18.48
Palisade trench	335	9.42	1101	23.73	1436	17.52
Total	*3557*		*4640*		*8197*	

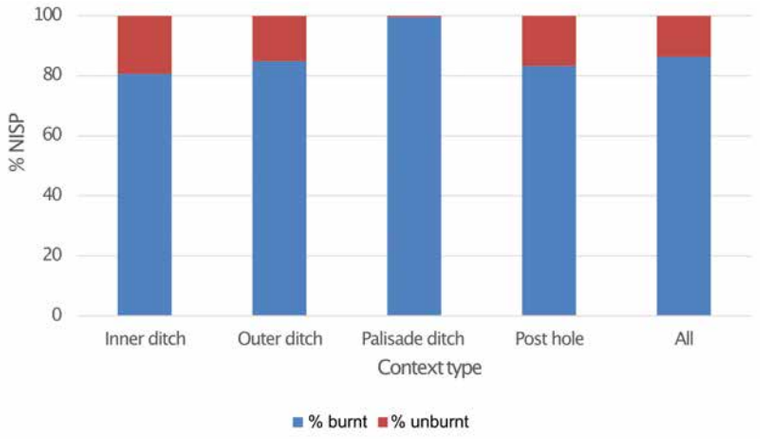
Table 8.28
Bone deposition by context type: shows the number (n) and relative frequency (%) of bone fragments present in each context type by recovery method

goat (*Ovis aries/Capra hircus*) and pig (*Sus scrofa domesticus*) (Table 8.27, Illus 8.20). Hand recovery does not therefore seem to have biased representation in any significant way. Most of the bone was recovered from the enclosure ditches (inner ditch, n=1438; outer ditch, n=3780) and the palisade trench (n=1436) or were incorporated into post-hole fills (n=1515) with the latter particularly associated with two palisade post holes, features 236 and 164028 (n=1116 and 192 respectively) (Illus 8.21; Table 8.28). Broadly similar trends in bone representation by context type are evident in the wet-sieved and hand collected fraction indicating that this pattern of intra-site variability in bone deposition is not biased unduly by sampling strategy (where an emphasis on sampling of particular feature types may lead to an over-representation of bone in certain deposits).

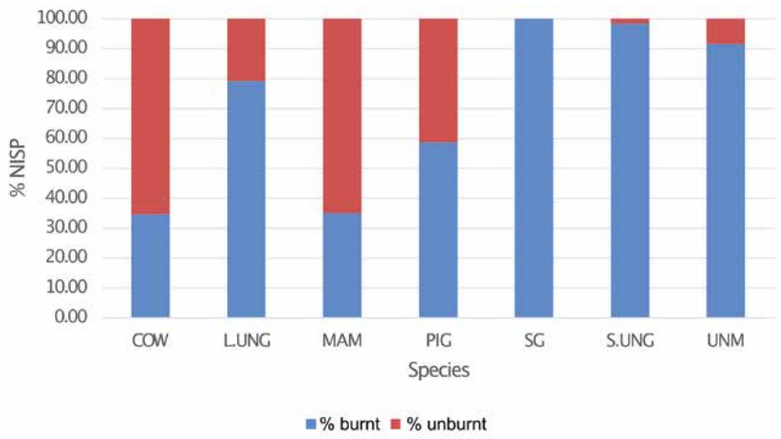
The assemblage is characterised by a high degree of burning with 86% (n=7244) of fragments having been exposed to fire. The vast majority were either fully calcined (n= 6528, 90%) or more than half calcined (n=648, 9%) indicating combustion at high temperatures, likely in excess of 600°C (Stiner et al 1995). This calcined bone was highly fragmented, and a large proportion of fragments were not identifiable, either to element or species (n=5226, 72%). Some slight variation in relative frequency of burnt bone is evident by context type with very little unburnt bone present in deposits associated with the palisade ditch (Illus 8.22). The inner and outer ditches and post-hole deposits have a slightly higher representation of around 20% unburnt bone. None of the 10 fragments from pit 66 (C59) were burnt. However these are all unidentifiable fragments of mammal dentition and may well derive from one or two teeth. Intra-species variation is evident in the frequency of burning with cattle bone less likely to be burnt than pig (66% and 41% unburnt, respectively) (Illus 8.23). Only calcined fragments of sheep/goat were present (100% unburnt). Unburnt bone was typically in very poor condition, was highly fragmented, extensively abraded and/or weathered. This may account for the lack of butchery and any evidence of carnivore gnawing.



Illus 8.21
Bone deposition by context type: shows the relative frequency (%) of bone fragments present in each context type by recovery method (see Table 8.28 for NISP)



Illus 8.22
Proportion of burnt to unburnt bone by context type (context types with less than 100 fragments excluded; See Table 8.28 for NISP)



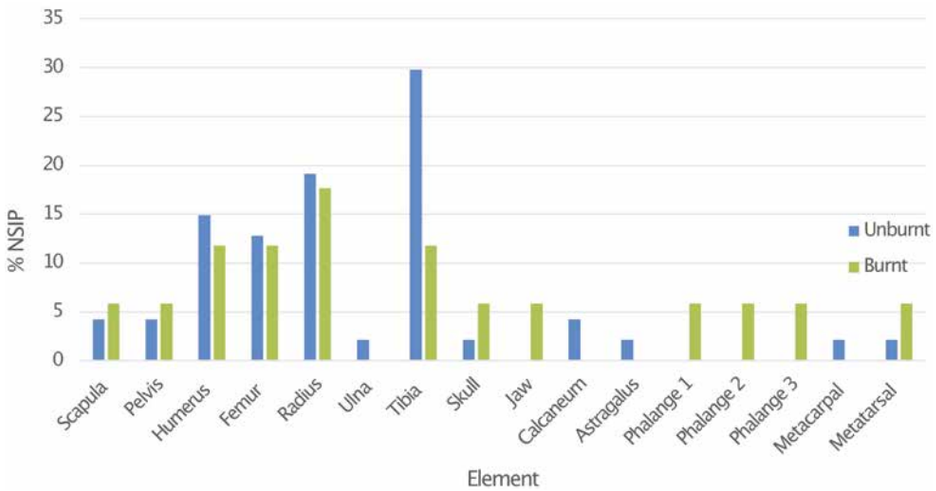
Illus 8.23
Proportion of burnt to unburnt bone by species (for NISP see Table 8.27)

8.7.4 Species and element representation

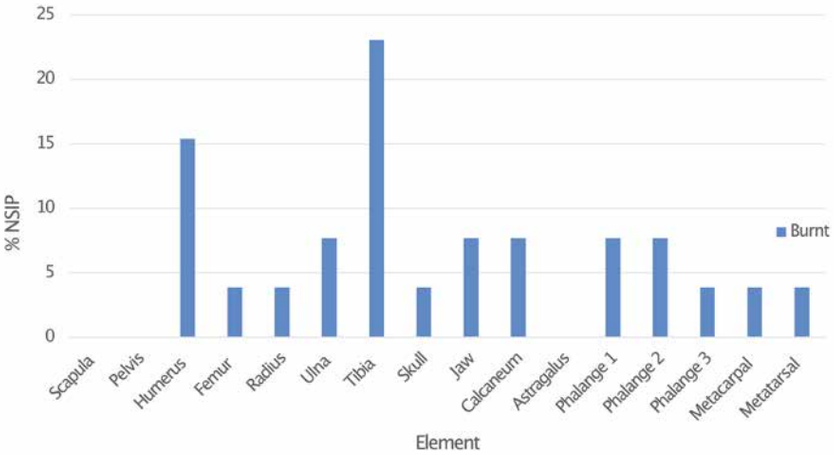
Species diversity was low with only cattle, sheep/goat and pig represented (Illus 8.20; Table 8.29). Cattle and pig are the dominant species for the assemblage as a whole with just over 54% and 39% of the fragments identifiable to species, respectively. Sheep/goat are relatively uncommon (8%). MNI suggests a greater emphasis on pig than cattle (cattle MNI=4, pig MNI=8, sheep/goat MNI=3) likely reflecting the greater potential for larger species to dominate highly fragmented assemblages due to the larger size/surface area of their bones. Nevertheless, cattle will have provided the bulk of the meat consumed at the Craw Stane complex.

Species	Inner ditch	Outer ditch	Palisade	Post hole	All	Inner ditch	Outer ditch	Palisade	Post hole	All
	n	n	n	n	n	%	%	%	%	%
CATTLE	58	106	60	67	291	56.31	40.15	67.42	76.14	53.39
PIG	35	134	22	19	211	33.98	50.76	24.72	21.59	38.72
SG	10	24	7	2	43	9.71	9.09	7.87	2.27	7.89
Total	103	264	89	88	545	100	100	100	100	100

Table 8.29
Species representation (NISP (n) and % NISP) for the Craw Stane assemblage as a whole and by context type



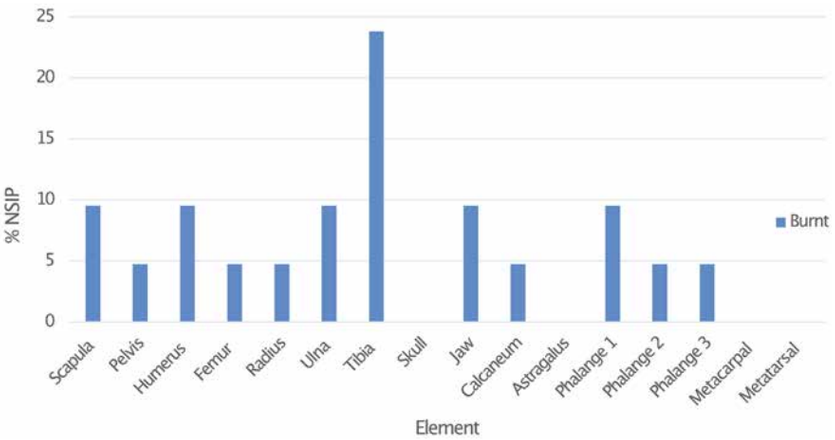
Illus 8.24
Cattle element representation for the Craw Stane complex assemblage: shows the relative representation of elements in the burnt (n=17) and unburnt (n=47) fractions for selected elements (phalanges are corrected to account for their greater frequency)



Illus 8.25
Pig element representation for the Craw Stane complex assemblage: shows the relative representation of elements in the burnt (n=24) fraction for selected elements (phalanges are corrected to account for their greater frequency)

Element representation for cattle indicates an emphasis on limb bone elements with very few phalanges and metapodials present, particularly in the unburnt fraction (Illus 8.24). These elements are not present in the large ungulate category either suggesting a real rather than taphonomic (eg through fragmentation) absence.

There were insufficient pig bones to allow assessment of element representation for the unburnt fraction. In the burnt bone most of the pig skeleton is represented with no particular emphasis on limb, feet or head elements (Illus 8.25). The higher frequency of tibia can be accounted for by the relative distinctiveness of this bone in burnt assemblage. The absence of scapula and pelvis may likewise be taphonomic, these elements being present in the small ungulate category. Only burnt sheep/goat bone was recovered. As with pig, element representation indicates the presence of cranial, limb and feet elements (Illus 8.26).



Illus 8.26
Sheep/goat element representation for the Craw Stane complex assemblage: shows the relative representation of elements in the burnt (n=21) fraction for selected elements (phalanges are corrected to account for their greater frequency)

8.7.5 Age-at-death

There were no intact mandibles were recovered from Craw Stane complex and hence age-at-death is reliant on loose teeth. The three cattle third molars (M3) recovered indicate animals which had died in young adulthood, *c* 18–30 months (n=2) and as adults (n=1) (Halstead 1985 age stages E and G, respectively). The slightly larger sample of pig third molars range in age from 16–20 months (Mainland et al 2019 stage D, n=9) to young adults (Mainland et al 2019 stage E, n=2) with the majority killed at 16–20 months (82%). There were no ageable sheep/goat teeth.

8.7.6 Intra-site variation in depositional practices associated with animal bone

Species representation varies with context type pointing to potential selective deposition and/or disposal practices for different animals. This applies in particular to pig and cattle with the former species more abundant in the outer ditch, whereas cattle occurred in higher numbers within the inner ditch, palisade and post-hole deposits. The latter largely comprise post holes associated with the timber structure(s) (features 29, 228, 230, 232, 15101, 15181, 234) or the palisade, again within the inner enclosure (features 235, 15079, 164020, 164022, 164028). A small assemblage of bone was also recovered from the fill of stone-setting 15359, located adjacent to the outer ditch and likely a setting for a standing stone (Noble et al 2015). Most of these post-hole features contain very little bone and may reflect little more than accidental inclusions or *ad hoc* use of midden material for packing material (Table 8.30). However three features, palisade post-hole 236, palisade post-hole 164028 and stone-setting 15359, contain larger assemblages and/or were noted on excavation to have what appeared to be associated bone groups. These are discussed separately below.

Stone-setting 15359

A small assemblage of animal bone was recovered from the base of stone-setting 15359, lying underneath the area of stone packing. During excavation it was noted that this included a cattle mandible; however by the post-excavation stage only a lower first or second molar (LHS) and *c* 20 highly fragmented pieces of cattle teeth were present. No enamel or dentine were retained in the cattle first/second molar indicating highly erosive soil conditions which likely contributed to the extreme fragility of the dentition. Age could not be assigned to this individual due to the absence of dentine/enamel. Associated with this was a pig third molar (LHS) and the fragmented remains of nine pig teeth, also representing teeth which had fragmented and were not identifiable as individual molars or premolars. The pig third molar was in reasonably good condition and could be aged with the absence of dentine wear (Grant (1982) wear stage 'a') indicating an individual aged around 16–20 months at death. None of the teeth recovered from stone-setting 15359 had been burnt prior to deposition. From the upper fill (C15022) of this feature 23 unidentifiable bone fragments were recovered, 17 of which were calcined.

Palisade post-hole 236

This feature forms one of a series of large post holes which would have supported upright timbers associated with the timber

Post-hole feature (context)	Cattle	Pig	Sheep/goat	Large Ungulate	Small ungulate	Indet mammal	Unidentified	Total
11(12)							2	2
29 (30)	1							1
52 (42)							11	11
64 (65)				4			11	15
229 (228, 229)				3			37	40
230 (230, 231)					2			2
233 (232, 233)					1	2		3
234 (234, 235)				8			6	14
236 (236, 237, 238)	35	9	2	196	37		833	1112
15079 (15080)				1			15	16
15101 (15102)							3	3
15155 (15156)							3	3
15181 (18182)							10	10
15359 (15022, 15359)	21	10					23	54
164020 (164021)				2	2		12	16
164022 (164023)	2			9	2		8	21
164028 (164029)	8			44	1		139	192
Total	**67**	**19**	**2**	**267**	**45**	**2**	**1113**	**1515**

Table 8.30
Bone distribution in post-hole/post-pit features (context numbers for fill deposits in brackets; palisade post holes are in bold)

palisade. On excavation it became clear that the post had been removed and the resulting void filled with burnt stone, animal bone and artefacts. This has been interpreted as a deliberate structured infilling, perhaps a decommissioning activity or ritualised destruction (Gondek & Noble 2012: 23).

An assemblage of 1,112 fragments were recovered from this infill deposit of which only 46 could be identified to species (Table 8.30). Most fragments were calcined (n=1059, 95%) and highly fragmented. The unburnt fraction was in very poor condition, fragmented and with very little original bone surface present. Where exterior surfaces were in situ weathering/exfoliation of the surface bone was apparent. This combination of taphonomic indicators suggests bone was exposed for some time prior to deposition and then affected by acidic soil conditions once in the ground. The unburnt fraction derives almost exclusively from cattle (n=34) or large ungulate (n=14). Most of the elements from cattle upper limbs were present and were largely from the left-hand-side of the body (Table 8.31). It is conceivable that these all derive from a single individual (MNI=1). If so, epiphysial fusion would suggest a young adult aged *c* 36–42 months. Elements of the feet (metapodials and phalanges) were not recovered. These are dense bones which usually tend to survive well and so their absence is unlikely to reflect preservation biases; rather what may be indicated a deliberate selection of the meat-bearing elements of the lower and upper limb for deposition with metapodials and feet being discarded elsewhere. A similar absence of foot and metapodials was noted for the structured cattle deposited associated with the human burial at Rosemarkie which also dates to the Pictish period and which was interpreted as a feasting deposit from the emphasis on meat-bearing elements (Kennedy & Mainland in prep). The presence of unburnt cattle teeth and one large ungulate skull fragment do however suggest that cranial elements (MN1=1) were also being deposited in the post-pit. Pig is represented in the unburnt fraction by three bone fragments: a calcaneum, lower second premolar and a tooth fragment.

Fusion Age		Post-hole 236	Post-hole 164029
<1 month			
Astragalus		Fused (1R)	
7–10 months			
Scapula	Distal		Fused (1R)
12–18 months			
Humerus	Distal	Fused (1R)	Fused (1L)
Radius	Proximal	Fused (1L)	
24–36 months			
Tibia	Distal	Fused (1L)	Fused (1L)
36–42 months			
Calcaneum	Proximal		Fused (1L)
Femur	Distal	Unfused (1L)	
Tibia	Proximal	Unfused (1L)	Unfused (1R)
Ulna	Proximal	Fused (1L)	
Humerus	Proximal		Fusing (1L)

Table 8.31
Cattle bone fusion for palisade post-holes 236 and 164028

183 fragments of calcined bone from post-hole 236 were identified as cattle/large ungulate. These derive mainly from fragments of long bone undifferentiated to element (n=160) but a small number of ribs (n=16), cranial (n=4) and vertebrae fragments (n=3) were also present. Six calcined pig bones (3 tibia, 1 tarsal, 1 maxilla and a first phalange) and two calcined sheep/goat (1 scapula, 1 metapodial) were identified. The 37 calcined small ungulate fragments (rib =25, long bone =10, phalange =1, vertebrae = 1) may derive from either pig or sheep/goat.

Palisade post-hole 164028

The formation processes associated with this animal bone assemblage appear similar to palisade post-hole 236. The void associated with the removal of the palisade post had again been packed with animal bone and other organic material and likely reflects similar ritualised decommissioning/destructive activities (Noble et al 2016c: 30).

A smaller assemblage of 192 fragments was recovered of which the majority were unburnt (80%, n=153). Bone condition was poor however and both the burnt and unburnt fractions were highly fragmented with very few fragments identifiable to species (Table 8.29). In the unburnt fraction eight cattle limb bones were identified: calcaneum, humerus (2), scapula, tibia (3), upper third molar. A MNI of one is indicated with a possible young adult suggested, if it is assumed that these elements derive from one animal.

Representation of cranial elements at the Craw Stane complex

No intact skulls or mandibles were recovered at the Craw Stane complex, reflecting the poor condition of the mammal bone. However loose mandibular/maxillary teeth and fragmentary remains of skull and mandibles can serve as a proxy for the presence of cranial elements. Cattle cranial elements were found in only 13 of the 75 bone bearing contexts with five context types represented (Table 8.32). Features 236 and 164028 are the palisade post-pits described above; 15359 is the stone setting also described above (Table 8.30). The palisade post-pit assemblages can be interpreted as the deliberate or structured internment of limb bone elements and skulls from at least two cattle (from the presence of two left distal tibias). Stone-setting 15359 is exclusively focused on cranial elements and probably also represents a structured deposit, here involving a single cattle mandible and a pig skull/mandible. Post-hole 29 is associated with the timber hall structure and just contains one fragment of bone, a lower cattle molar. This may represent further evidence for an association between the deposition of cattle and post holes, but equally could be a chance incorporation of debris within the fill.

A cattle maxillary first, second and third molar (LHS) was recovered from context 15005, the upper fill of the inner ditch. This was associated with a reasonably large assemblage of animal bone (n=1192) comprising a mixture of species and elements, both burnt and unburnt, and likely reflects generalised disposal of bone waste. A similar origin can be proposed for the cranial

Context type	**Element**										
Context	**Mand**	**LM12**	**LM3**	**LP3**	**LT**	**MAX**	**SKULL**	**UM12**	**UM3**	**UP4**	**Grand Total**
Inner ditch											
15005					38			1	1		40
150005					1						1
Outer ditch											
25		3	2	1			1	2		1	10
26			1			3					4
328	1				12						13
15192		2			20						22
161044					8						8
164042					5						5
Palisade ditch											
15007		1			44		1				46
Post hole											
30 (Post-hole 29)		1									1
237 (Post-hole 236)								1			1
238 (Post-hole 236)					25						25
15359 (Stone setting)		1			20						21
164029 (Post-hole 164028)									1		1
Total	1	8	3	1	173	3	2	4	2	1	198

Table 8.32
Distribution of cattle cranial elements at the Craw Stane complex by context and context type (mand = mandible, LM12 = lower molar, LM3 = lower third molar; LP3 = lower third premolar; LT = loose tooth, max = maxilla, UM12 – upper molar, UM3 = upper third molar, UP4 = upper fourth premolar)

elements recovered from the upper fills and middle fills of the outer ditch (C25, C26, C15192 and C161044) which are also associated with reasonably large assemblages of bone of mixed composition with no evidence for articulation or association. The fragmentary remains of cattle teeth (n=5) were the only mammal bone recovered from context 164042, the secondary basal fill of outer ditch 15004 formed after a period of natural infilling (Noble et al 2015: 24). Here, it is likely that this find represents accidental inclusion rather than a structured deposit.

8.7.7 Discussion

The assemblage of 8,414 fragments of mammal bone from the Craw Stane complex, Rhynie, provides an opportunity to explore human-animal relationships at this Pictish royal centre during the 5th–6th centuries AD. The taphonomic processes which have affected the assemblage do, however, place limits on interpretation. The vast majority of the bone recovered was calcined indicating combustion at high temperatures prior to deposition. Calcined bone is mineralised during the burning process and while more resistant to chemical and biological decay will typically exhibit higher degrees of fragmentation than unburnt bone due to dehydration and loss of organic content (Stiner et al 1995; Baker & Worley 2019). Settlement site assemblages which are dominated by calcined bone are often associated with acidic soils and will represent only the mineralised fraction of the original assemblage that has not been lost through diagenetic processes. At the Craw Stane complex, where unburnt bone does survive it is in poor condition, fragmented and with very little of the outer bone surface present. This again likely reflects the impact of acidic soils across most of the site, albeit with some potential micro-environments such as post holes and pit features in the inner and outer ditch where bone had preserved better. As a result of these taphonomic processes, the bone assemblage will probably only represent a fraction of the bone originally deposited. Moreover, differential fragmentation between species, which tends to increase representation of larger, complicates interpretation of species and anatomical representation both at an intra- and inter-site level. At the same time the low numbers of mandibles and the absence of butchery evidence means that little can be said regarding culling patterns, economic uses, carcass processing and/or culinary practices. Nevertheless, with these caveats in mind some general observations can be made on the nature of human-animal relations at the Craw Stane complex, Rhynie, and how this compares with Pictish sites elsewhere in Scotland.

The low taxonomic richness evident at the Craw Stane complex is striking with only four species present: cattle, pig and sheep/goat. Other domesticates such as horse, dog or cat were not identified nor is there any evidence for the exploitation of wild terrestrial species such as red or roe deer or the use of marine resources. Birds are also notable by their absence. A similar restricted range of species is seen at Craig Rock and Mither Tap, also high-status Pictish sites in the north-east of Scotland (Masson-MacLean et al 2023) and may be a feature of these kinds of settlements, perhaps indicating specialised accumulation pathways deriving from particular food production and/or consumption activities rather than general household or settlement waste. Like other contemporary Pictish sites in mainland Scotland, cattle and pig are the dominant species at the Craw Stane complex while sheep/goat are. This contrasts with Late Iron Age and Pictish sites in the Scottish islands where sheep/goat and cattle are dominant, usually in that order (Mainland 2023).

Pig frequencies based on NISP are slightly higher at the Craw Stane complex than at other northern Pictish sites while MNI ratios suggest a significantly greater emphasis on pig at Rhynie (Tables 8.33 and 8.34). Pigs are widely associated with high-status sites and feasting activities during the first millennium AD in both Britian and Scandinavia (Masson-MacLean et al 2023; Mainland & Batey 2018; Madgwick et al 2019) and their greater relative importance at Rhynie may therefore indicate more emphasis on feasting than at contemporary sites in the region. Although age-at-death data is limited, the prevalence of pigs aged between 16–20 months, which provide both good quality, tender meat and a good carcass size, and the absence of very young piglets or very old adults is also consistent with consumption rather than subsistence production. Nevertheless, by virtue of their greater size cattle will still have provided the bulk of the meat consumed. Carcass utilisation models at the Craw Stane complex will be biased by bone preservation, fragmentation and small sample sizes and must be interpreted cautiously. However, the presence of most elements of the skeletons for each species does seem to indicate that some whole carcasses were deposited and that for pigs at least individual animals were being brought to the site on hoof rather than as joints of meat. This accords with trends at other sites in the region (Masson-MacLean et al 2023). Unfortunately, the limited dental and fusion data for cattle and sheep/goat makes it difficult to assess whether these species were being reared at Rhynie.

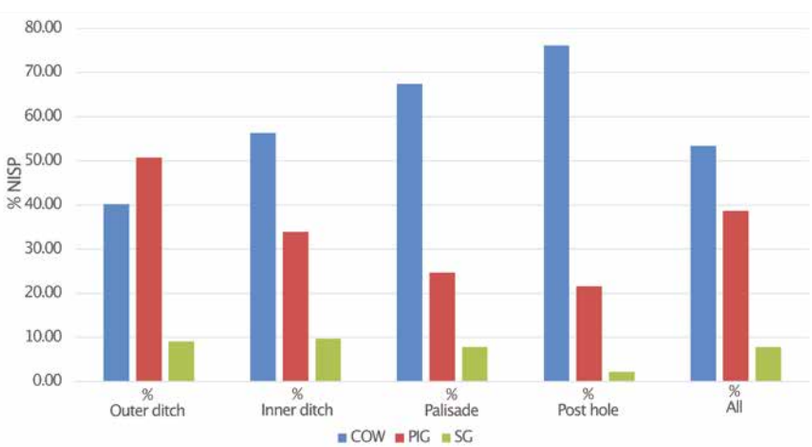
	Rhynie		**Craig Rock**		**Burghead**		**Mither Tap**		**Rosemarkie cave**	
	NISP		NISP		NISP		NISP		NISP	
	n	%	n	%	n	%	n	%	n	%
Cattle	291	53.39	93	49.47	951	66.69	81	52.26	347	91.56
Pig	211	38.72	65	34.57	241	16.90	50	32.26	10	2.64
Sheep/goat	43	7.89	30	15.96	234	16.41	24	15.48	22	5.80
Total	545	100.00	188	100.00	1426	100.00	155	100.00	379	100.00

Table 8.33
Comparing sheep, pig and cattle relative frequencies at Pictish sites in northern mainland Scotland based on NISP (data from Masson-MacLean et al 2023; Kennedy & Mainland in prep)

	Rhynie		Craig Rock		Burghead		Mither Tap		Rosemarkie cave	
	MNI		MNI		MNI		MNI		MNI	
	n	%	n	%	n	%	n	%	n	%
Cattle	4	26.67	7	50.00	16	53.33	3	37.50	7	70.00
Pig	8	53.33	4	28.57	12	40.00	3	37.50	1	10.00
Sheep/goat	3	20.00	3	21.43	2	6.67	2	25.00	2	20.00

Table 8.34
Comparing sheep, pig and cattle relative frequencies at Pictish sites in northern mainland Scotland based on MNI (data from Masson-MacLean et al 2023; Kennedy & Mainland in prep)

Intra-site variability in species representation and the presence of animal bone groups (ABGs) points to structured depositional practices involving cattle and potentially also pig bodies. The structured cattle deposits in the palisade post-pits, stone-setting 15359 and potentially post-hole 29 of the timber hall are also all located within the inner enclosure. These are partial rather than complete burials representing at least three, possibly four cattle crania and the post-cranial skeleton of at least two individuals though the second is represented only by a single tibia. A pig crania is also present in the stone-setting deposit. During the first millennium AD special deposits of mainly cattle crania found within post holes, ditches and pits and likely associated with foundation or decommissioning activities, are a common feature of sites across Europe including at Yeavering and Cowdery's Down (Hamerow 2006), site types for which parallels have been drawn with Rhynie (Noble et al 2016c). The structured deposits of cattle within the palisade post-pits and post hole associated with the timber hall at the Craw Stane complex would appear to be part of this wider first-millennium AD practice. There is also some indication that cattle bones were being preferentially deposited in the inner enclosure features and inner ditch whereas pig was more common in the outer ditch deposits suggesting other hitherto unrecognised structuring in the deposition of animal bodies within Pictish sites (Illus 8.27). Here, perhaps the greater emphasis on cattle in proximity to the centre of elite activities at Rhynie reflects the significance placed on cattle in Pictish society (eg Masson-MacLean et al 2023).



Illus 8.27
Species representation (% NISP) for the Craw Stane complex assemblage as a whole (all) and by context type (for NISP see Table 8.29)

The Craw Stane complex, Rhynie, assemblage thus provides further evidence for the importance of cattle and pig at mainland Scottish Pictish sites and for intra-regional variability in the extent to which elite sites engaged in animal rearing and production or consumption of animal products. More significantly it provides new evidence for the use of animal bodies in structured and potentially ritualised events at first-millennium AD elite sites in north-east Scotland.

8.8 An osteological assessment of the Rhynie Skeleton

Ellen McManus, Ermine Roshem and Marc F Oxenham

8.8.1. Introduction

Human skeletal remains were excavated from a cist burial at the Pictish site of Rhynie, Aberdeenshire in the summer of 2013 and subsequently transported, within a container of local sandy soil, to the University of Aberdeen for analysis. As the quality of bone was very poor, with extensive flaking and exfoliation of the cortical bone, no attempt at washing was made. However, a soft brush was used to removed adhering soil where possible.

8.8.2. Preservation and completeness

The condition of preservation of the bones is very poor. Eleven fragmentary and incomplete skeletal elements were preserved: both femora, left patella (which is complete), right os coxa, right tibia, right humerus, right temporal and four vertebrae. The only dentition preserved was the enamel crown of the first left maxillary incisor. Element completeness ranges from <25% to ~75%. The texture of the bones is extremely friable and fragile while the majority of cortical bone is exfoliating from most elements. In addition to the elements recorded on the skeleton record sheet a quantity of small, unidentifiable fragments (<3cm diameter) were recovered.

8.8.3. Sex assessment

Two elements were preserved with the potential for sex determination: the os coxa, one fragment of which comprises part of the greater sciatic notch, and the left mastoid process. The angle of the greater sciatic notch can indicate skeletal sex; a larger, wider

angle is likely to be female whereas a smaller, narrower angle male (Walker 2005). In this instance the sciatic notch appears relatively wide, which is consistent with this individual being female. However, the entire contour of the sciatic notch has not been preserved and it is difficult to be certain of the original shape. It is therefore possible that the apparent wide angle of the curvature is an artefact of the way in which the bone has broken. The size of the mastoid process is another indication of skeletal sex; a large mastoid process is more likely to be male, a smaller one female (Walrath et al 2004). The mastoid process of the Rhynie skeleton is relatively small with an estimated limited ventral projection which suggests female. The Rhynie skeleton is provisionally determined to be female.

8.8.4. Stature assessment

The right femur is preserved in three sections, each of which conjoin to a greater of lesser degree. The estimated maximum length of the right femur is 435mm. While there are no available population specific (ie, early Pictish) stature models available, Walther (2017) has developed models for males and females that lived in Romano-British and early medieval English sites that have been used here. Table 8.35 provides estimates assuming this individual is male or female. If female (which seems more probable), the stature estimate is between 156.9cm and 159.3cm with a standard error of the estimate of approximately 2.3cm. If male, the stature estimate is between 161.7cm and 162.5cm with a standard error of the estimate of between 2.5 and 3.0cm.

	Romano-British Female	Romano-British Male	Early Medieval Female	Early Medieval Male
Stature SEE	159.32 (5' 2.7") 2.3 (0.91")	161.74 (5' 3.7") 2.33 (0.92")	156.86 (5' 1.8") 2.33 (0.92")	162.53 (5' 4") 2.96 (1.17")

Table 8.35
Stature estimates (after Walther 2017)

8.8.5. Field Anthropology

A field anthropological assessment is best carried out in the field, or with the assistance of a comprehensive photographic record of the site and individual in question. In this case the burial was only assessed from a small number of images. Given the limited preservation, it is not possible to assess the burial in any detail. However, it is clear that this was an extended, supine burial with the lower limbs extended in a linear manner with no flexure at the knees or hips. The position of the patella in anatomical position (assuming it was not moved during excavation and preparation of the photos), in addition to the apparent articulation of the right femoral head and acetabulum, suggests an inhumation burial (grave immediately filled with soil after placement and positioning of the corpse) with no evidence for the maintenance of a void around the body during decomposition.

8.8.6. Further analysis

Unidentified bone fragments were radiocarbon dated to between AD 400 and 570 (SUERC-52935 1559±30, cal AD 420–570; MAMS-21252 1602±21, cal AD 400–540, both 95% probability) (Noble et al 2019c). Further, unidentified bone fragments were taken for stable isotope analysis (see Britton below).

8.8.7 Summary

This skeleton was found in a Pictish cist burial. Sex assessment based on the morphology of the greater sciatic notch and the mastoid process is consistent with this individual being female. Age-at-death assessment based upon epiphyseal fusion indicates the individual is an adult, but age cannot be further refined. Assuming this is a female, stature is estimated to be approximately 157 to 159cm (+/-2cm). The position of the remains suggests an inhumation burial with the body in an extended supine position. The condition of the bones makes further information concerning stature, pathology or more precise age determination impossible to obtain.

8.9 Multi-isotope analysis of the inhumation at Rhynie

Kate Britton, with Orsolya Czére, Lucy Koster and Jovita Fawcett

8.9.1 Introduction

The isotope analysis of human remains is a powerful means of investigating past dietary habits, childhood origins and lifetime movements (see overviews in Bentley 2006; Britton 2017; Britton 2020; Makarewicz & Sealy 2015; Richards 2020). These approaches can be particularly fruitful in contexts where archaeological contextual information is sparse, or when considering the archaeological record of periods and places that are less well characterised via conventional means, as is the case with the burial at Rhynie and of the Picts more generally.

Based around the principal of 'you are what you eat' the carbon ($d^{13}C$) and nitrogen ($d^{15}N$) isotope analysis is employed in archaeological case studies to create archaeological foodwebs and to determine past human diets. The isotope ratios of foods consumed are passed onto animals and humans, resulting in characteristic 'signatures' in the isotope chemistry of their bodily tissues. This includes tissues that can be preserved in the archaeological record, such as collagen – a structural protein found in bone. The combination of $d^{13}C$ and $d^{15}N$ isotope ratios, in particular, are especially useful in indicating the main source of protein in the diet in the last decade or more of life, depending on bone sampled (DeNiro & Epstein 1978; DeNiro & Epstein 1981; Schoeninger & DeNiro 1984; Schoeninger et al 1983). Although there are few published studies, when applied to Pictish burials, these approaches have so far suggested a diet rich in terrestrial resources, and with little or no contribution of marine fish to the Pictish diet (Curtis-Summers et al 2020; Czére et al 2021). These approaches can be complemented with sulphur isotope analysis which, while also being useful in dietary reconstruction, is perhaps most useful as a geographical indicator in the years before death, particularly in the identification of residence in coastal areas owing to the sea-spray effect (Nehlich 2015; Zazzo et al 2011). Unlike carbon, nitrogen and sulphur, strontium ($^{87}Sr/^{86}Sr$) and oxygen ($d^{18}O$) isotope analyses are normally targeted at the

mineral phase of the skeleton, in particular tooth enamel which is densely crystalised, compact, and resistant to diagenetic alteration in the burial environment (Hoppe et al 2003; Zazzo et al 2004). Strontium isotope ratios in tooth enamel relate to the strontium isotope ratios of foods consumed, particularly strontium-rich plant foods, which in turn relate to the strontium isotope ratios of local soils (which themselves are a function of the age and type of underlying lithology). Oxygen isotope ratios of tooth enamel relate to that of what consumed. As the $d^{18}O$ of local environmental waters are a function of local climatic conditions, and can vary predictably across landscapes, strontium and oxygen isotope analyses can be used in tandem as geolocational tools in bioarchaeological studies. As teeth, even permanent dentition, form in childhood, these signatures are used to infer childhood place of residence rather than that occupied before death.

In 2013 two square barrows containing single inhumations were identified at Rhynie, just south of the fortified settlement. While one of these graves contained only a body stain, the other contained skeletal remains (REAP13 B01 560). Although fragmentary and poorly preserved, likely owing to local acidic soils, this individual was identified morphologically as an adult and possibly (but not unambiguously) a female. Radiocarbon dating yielded sufficient high-quality collagen for dating, suggesting sufficient preservation for further analyses, and confirming that the date of the burial (cal AD 400–570) was contemporaneous with the main settlement (Mitchell & Noble 2017). The goals of further research using isotope analyses were 1) to characterise the diet of the individual in the years before death and 2) to ascertain whether they are likely to have been raised locally, or whether they spent their childhood elsewhere.

8.9.2 Methods

A bone fragment from the pelvic area of the individual was selected for stable carbon, nitrogen and sulphur isotope analyses. Collagen was extracted using the Longin method (Longin 1971) with modifications (Brown et al 1988; Collins & Galley 1998) as detailed by Britton et al (2012), a technique that removes the mineral components of the bone using a weak acid. The resulting bone pseudomorph is then rinsed and heated in an acidic solution to hydrolyse the collagen. The collagen (which is at that point in solution) is then filtered, ultrafiltered and finally freeze-dried prior to analysis via mass spectrometry. Collagen was analysed at SUERC, East Kilbride, Scotland, on a Delta V Advantage continuous-flow isotope ratio mass spectrometer coupled via a ConfloIV to an IsoLink elemental analyser. Data were normalised to international and in house standards, and reproducibility was ±0.3‰ or better across all three isotopes.

For strontium and oxygen isotope analysis, the dental (enamel) cap of a premolar was selected for analysis. As with the bone, the enamel was manually abraided using a stainless-steel diamond coated dental burr in order to remove the surface areas that had been in contact with burial matrix prior to sample preparation and analysis. The enamel cap was then ultrasonicated in ultra-pure water and dried. Sample preparation included acid digestion and sample purification via anion exchange chemistry using a strontium-specific resin, as detailed in Britton et al (2009), a modification of the method of Deniel and Pin (2001) with changes as detailed in Copeland et al (2008). Analysis was undertaken using a Thermo Fisher Neptune™ (MC-ICP-MS) at the Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany. Repeat analysis of internationally available reference materials indicated analytical error was better than ±0.00005 and that Sr concentrations were accurate to within ±31ppm (calculated following the method described in Copeland et al 2008). Oxygen isotope ratios were determined from the phosphate moiety, which was isolated as silver phosphate using a rapid precipitation protocol following acid digestion, following the techniques described in Britton et al (2015), a modification of the methods described in Dettman et al (2001) and Tütken et al (2006). Silver phosphate was analysed in using a Finnigan TC-EA coupled via a Conflo III to a Micromass 100 GC-IRMS at the University of Mainz, Germany, calibrated and drift corrected to repeat measurements of an international standard (with a value of 21.7‰). Measurements were undertaken in triplicate and had a reproducibility of ±0.3‰ or better.

8.9.3 Results and data interpretation

The carbon, nitrogen and sulphur isotope ratios of the collagen extracted from the bone fragment from the skeleton excavated at Rhynie are shown in Table 8.36, along with associated elemental content data. The latter are consistent with the collagen being well preserved and therefore likely to be preserving *in vivo* isotopic signatures (Nehlich & Richards 2009; van Klinken 1999). The strontium and oxygen isotope data are shown in Table 8.37, along with strontium concentration data. Strontium concentration data are typical of human tooth enamel (Montgomery 2002).

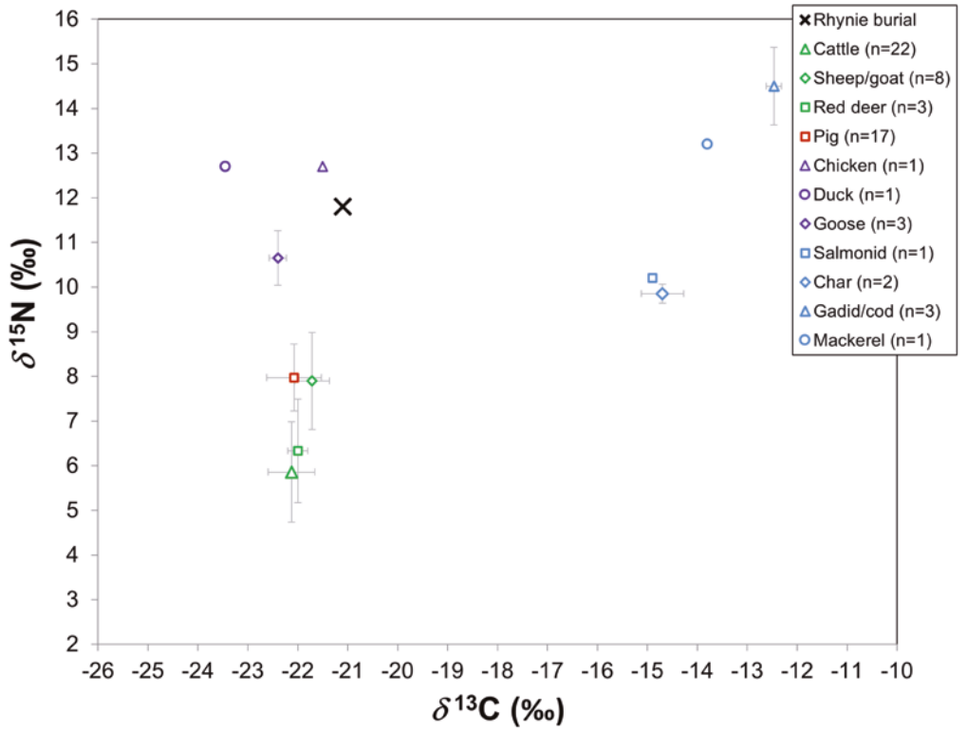
$d^{13}C$	$d^{15}N$	$d^{34}S$	%C	%N	%S	C:N	C:S	N:S
-21.1	11.8	15.8	42.1	15.6	0.25	3.1	456	145

Table 8.36
Stable carbon, nitrogen and sulphur isotope ratios measured in collagen extracted from the bone of the skeleton excavated at Rhynie (REAP13 B01 560)

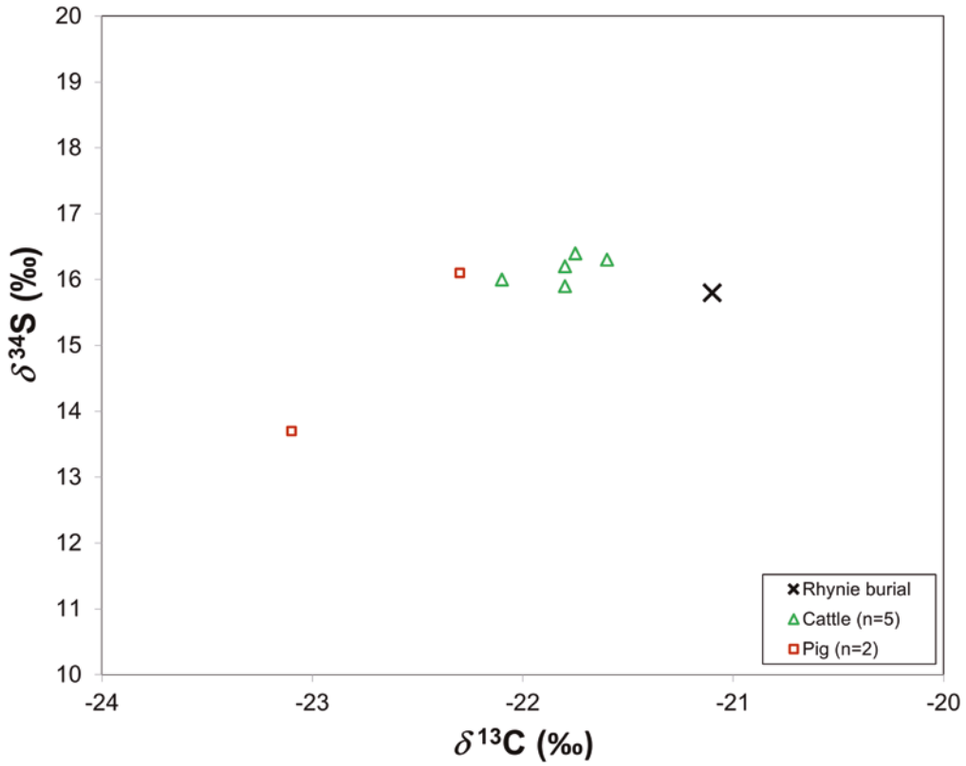
$^{87}Sr/^{86}Sr$	Sr conc. (ppm)	$d^{18}O_{v\text{-}smow}$
0.7107	81	17.1

Table 8.37
Strontium isotope ratio, strontium concentration and stable oxygen isotope ratio of dental enamel from a premolar of the skeleton excavated at Rhynie

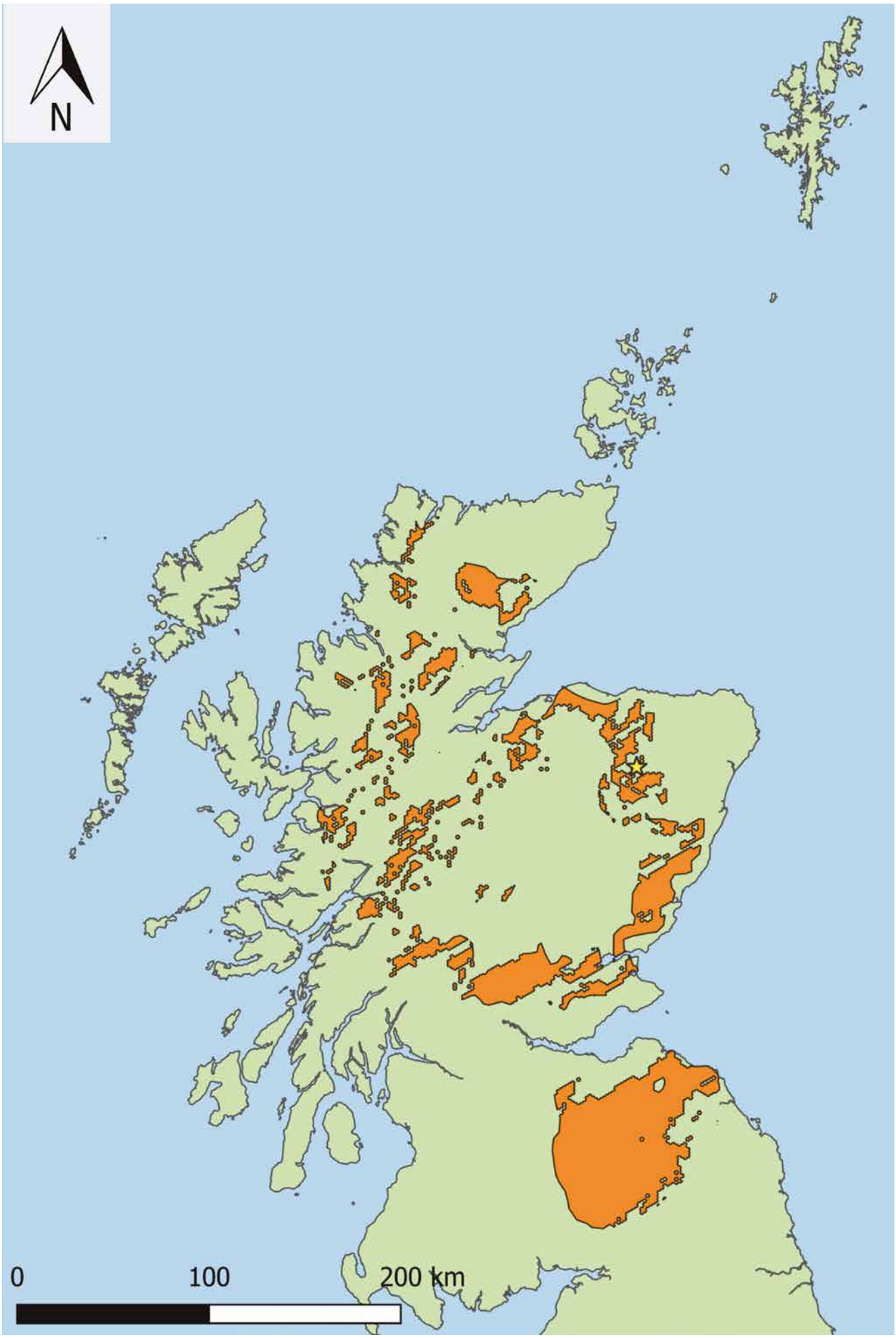
In comparison to early medieval faunal data from across Pictland (Czére et al 2021), the carbon and nitrogen isotope ratios of the Rhynie individual are consistent with a diet based mostly on terrestrial resources, as implied by the low $d^{13}C$ values. This diet likely incorporated higher trophic level animal foods, however, such as pork, as indicated by the $d^{15}N$ which is elevated in comparison to cattle for example (see Illus 8.28). This would imply that while cattle-based dairying may have been practised, dietary protein also included considerable quantities of meat and that animal products such as pork may have been regularly consumed. These relatively elevated values may also be related to enrichment



Illus 8.28
Stable carbon and nitrogen isotope data from the Rhynie burial in comparison to various animals measured from early medieval sites in north-east Scotland (Czére et al 2021)



Illus 8.29
Stable carbon and sulphur isotope data from the Rhynie burial in comparison to that of cattle and pigs analysed from Rhynie (Britton, Czére and Fawcett, unpublished data)



Illus 8.30

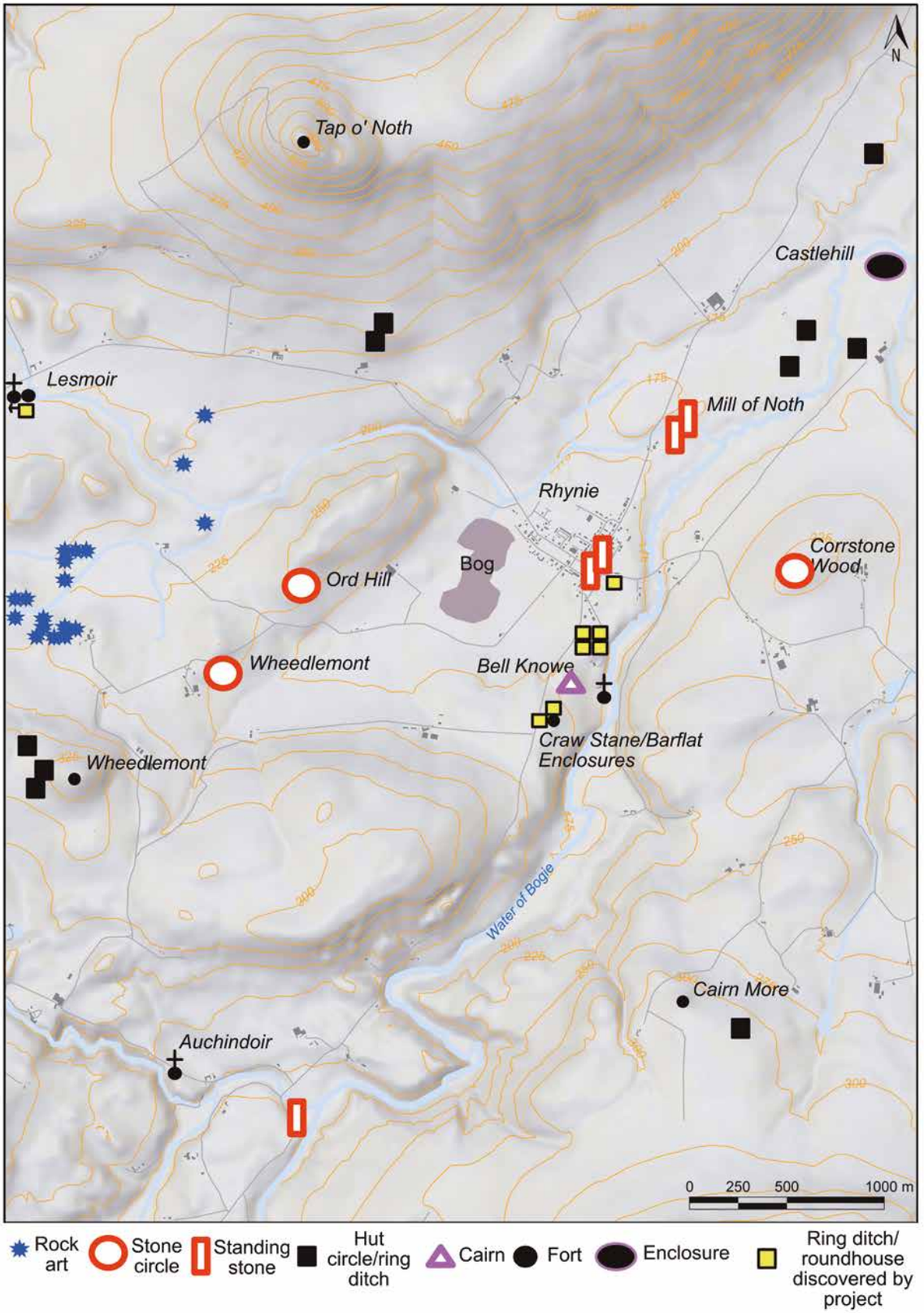
Map of Scotland and northern England highlighting areas where bioavailable $^{87}Sr/^{86}Sr$ (Evans et al 2022) and drinking water $d^{18}O$ (Hoogewerff et al 2019) match those determined in the dental enamel of the Rhynie skeleton. Enamel $d^{18}O$ values were converted to estimated drinking water values using Daux et al (2008, equation 6). The location of Rhynie is indicated. Contains data from British Geological Survey materials © UKRI [2023] and Ordnance Survey data © Crown copyright and database right [2023], https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

or improvement of soils by manuring when growing crops such as grains, which can serve to increase $d^{15}N$ values in soils (and therefore in plants, and in the humans that consumed them). While contemporary soils across Scotland do, variably, demonstrate enrichment which could be consistent with such practices (past and present), the soils around Rhynie are not particularly enriched in ^{15}N, at least in the present day (Thornton et al 2015). The sulphur isotope values are relatively high. Although such values (>14‰) can imply a significant marine dietary input or (due to the sea-spray effect) coastal proximity, these elevated values are consistent with the majority of local fauna analyses (see Illus 8.29; Britton, Czére and Fawcett, unpublished data) that likely means these values instead reflect local lithology, which is also a dominant influence in past sulphur isoscape variability (Nehlich 2015).

The lithology surrounding Rhynie, however, is fairly complex including local Devonian chert, sandstones, shales and andesite along with Ordovician granite and norites (Parnell et al 2022), leading to a varied strontium isoscape found within close proximity of the site (Evans et al 2022; Evans et al 2010). As such, local bioavailable strontium could range from relatively low values (0.708–0.709) to more elevated values (0.712–0.713) (Evans et al 2010). The $^{87}Sr/^{86}Sr$ value determined in the tooth of the individual measured at Rhynie (0.7107) is therefore not inconsistent with that which could be anticipated for a local individual. According to predictive models of geographical variation in the $d^{18}O$ of human tooth enamel phosphate, individuals who spent their childhoods in the Rhynie area could be expected to have $d^{18}O$ values of 17.2 ‰ (Pellegrini et al 2016). It should be noted, however, that this combination of bioavailable strontium and predicted tooth phosphate value is found in other regions of Scotland, and beyond. To further resolve this, the measured $d^{18}O$ value was converted to a predicted drinking water value (-7.39‰), calculated using published conversion equations (Daux et al 2008), and compared to $d^{18}O$ values of Scotland's freshwaters (Hoogewerff et al 2019). Considering predicted drinking water value alongside strontium isotope ratio, values measured in the Rhynie tooth enamel sample are again consistent with that expected for an individual who grew up locally (Illus 8.30).

8.10 Discussion and conclusions

The stable isotope data generated from the bone collagen and dental enamel of the skeleton excavated at Rhynie reveal insights not only into this individual's life, but also contribute to our wider knowledge of Pictish lifeways. Dietary data suggest a diet rich in pork and other ^{15}N-enriched foods, which could include poultry or wild fowl. This is consistent with the findings of other Highland individuals from early medieval Scotland, such as Blair Atholl man (Czére et al 2021). However, unlike Blair Atholl man or some of the early medieval individuals buried at Cramond (Czére et al 2022), the strontium and oxygen isotope data from the Rhynie individual suggest a childhood spent in the local area, and sulphur isotope ratios (in comparison to fauna from the site) suggest that this individual was also living in the area in the years before they died. While there are few published studies, this adds to our knowledge of wider early medieval mobility in Scotland (or the lack thereof). On a site-specific level, these data paint a picture of an individual, possibly a woman, with access to high-quality protein resources, who was raised locally and buried in a monument of noted location next to two square enclosures.



Illus 9.1
Location of key prehistoric sites in the Rhynie valley and the ring ditches discovered during project excavations

Chapter 9

TAP O' NOTH OBLONG FORT AND THE PREHISTORY OF THE UPPER STRATHBOGIE VALLEY

Gordon Noble

9.1 Introduction

Alongside the exciting evidence for Iron Age to early medieval activity in Scotland, this project has provided new data on the prehistoric record of the Upper Strathbogie valley. This includes new insights from the large-scale study at the vitrified fort at Tap o' Noth to more incidental findings of prehistoric features during excavations at the Craw Stane complex and the cemetery near the village. This chapter first considers how these earlier features fit into the wider prehistoric landscape of the valley, before the evidence from the excavations at the vitrified fort of Tap o' Noth is examined in greater detail. The discussion explores issues including the chronology and character of oblong-style forts in Scotland, the process of vitrification, the function and use of the upper fort at Tap o' Noth, and the manner of its eventual destruction.

9.2 Prehistoric occupation of the Upper Strathbogie valley

Previous surveys attest to a rich prehistoric past within the Upper Strathbogie valley (eg RCAHMS 2007; Gondek & Noble 2015) (Chapter 2). Evidence of occupation can be found in the numerous upstanding hut-circles and settlement remains that litter the landscape, with the various Rhynie projects identifying a number of previously unknown prehistoric features and monuments that complement this existing record. Prehistoric features discovered over the course of the Rhynie investigations include four ring-ditch houses and pits excavated in the cemetery area, one ring-ditch house in the village itself, ring-ditch houses near and downslope from the Craw Stane complex, a standing-stone socket in the cemetery area and a prehistoric barrow next to Ashvale Cottage (Chapter 5).

The roundhouses identified in earlier surveys appear to be concentrated to the west and north of Rhynie village, whereas the new examples were found in more free-draining lowland areas and were previously unrecorded. In general, both the excavated and unexcavated examples vary between 7 and 11m in diameter; the project revealed both Bronze Age and Iron Age ring-ditch roundhouses (RCAHMS 2007: 82–3). Though it is impossible to know the chronology of the unexcavated ring ditches and hut-circles found in the environs around Rhynie, it is likely that they similarly date from the Mid Bronze Age through to the later Iron Age (RCAHMS 2007: 82–109) (Illus 9.1). Not all of these sites may prove to be the remains of settlements – some of the ring-ditch cropmarks, for example, may represent ploughed-out barrows (or cairns). However, many of the hut circle/platform remains survive on the higher ground surrounding the valley and occasionally have accompanying field systems, suggesting they are likely to prove to be settlement remains.

A small number of cropmarks from the Rhynie valley may also indicate enclosed later prehistoric settlement, though without excavation the function and date of these features is uncertain. One possible enclosed site could be represented by the arc of a substantial ditch identified on Castlehill (Canmore ID 76553), just over a kilometre north-east of Rhynie village. The arc would suggest an oval enclosure *c* 35–40m in diameter, with possible interior pits or other features (Greig 1995: 33; RCAHMS 2007: 94) (Illus 9.1). To the south-west of Rhynie village, aerial photography identified two further possible oval/circular enclosures with internal features (Greig 1995: 32 – NRHE ID 106903); however the cropmarks of these are diffuse and in an area likely to have been encompassed by the Rhynie bog prior to its drainage (Chapter 2). As a result, they are more likely to be natural features than prehistoric settlement remains.

Aside from the vitrified fort on Tap o' Noth, the most substantial enclosed Iron Age site in the area is the fort at Cnoc Cailliche, which was evaluated as part of the Northern Picts: Rhynie Environs Project in 2017 (reported on in Noble et al 2020b). The fort, located around 3km south-west of Rhynie, is oval in plan and encompasses an internal area of around 0.11ha. A complex series of outer defences suggest the enclosing elements

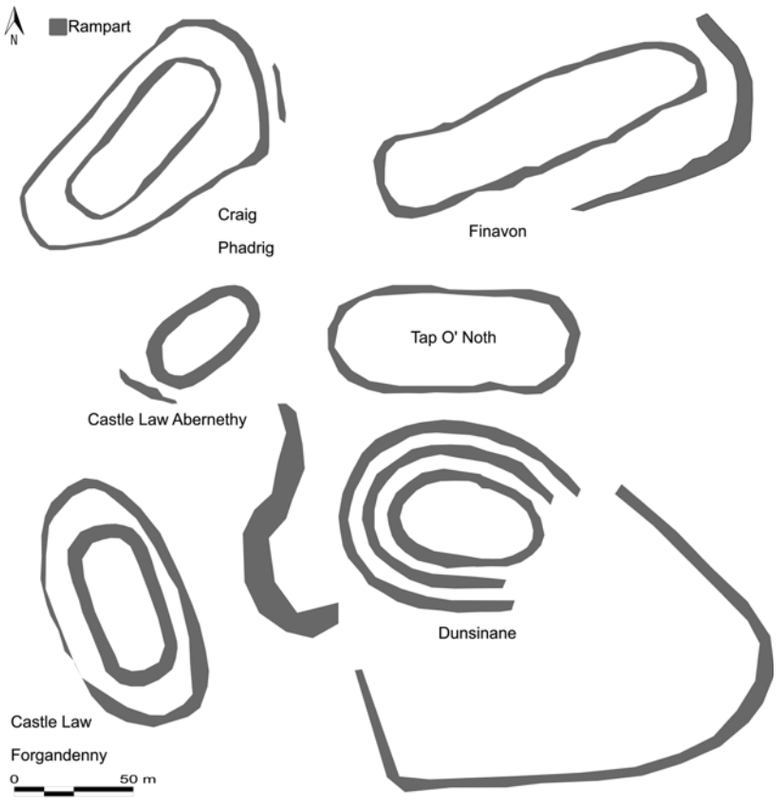
had a phased development, while trenches within the interior revealed poorly preserved traces of occupation (Noble et al 2020b). Dating centred on the period 400–200 cal BC – a similar range to the dates for the construction and use of the vitrified fort on Tap o' Noth, and to an unenclosed ring ditch [014] at the Craw Stane. This suggests that during this period there was a complexity, and perhaps even a hierarchy, to the settlement pattern in the area, with unenclosed and enclosed settlement occurring in the same valley.

9.3 Tap o' Noth oblong fort

9.3.1 Exploring parallels

GORDON NOBLE AND JAMES O'DRISCOLL

Undoubtedly the most spectacular prehistoric site in the Rhynie valley is the vitrified fort at the summit of Tap o' Noth (Chapter 4). At least 80 vitrified forts are known in Scotland (Lock & Ralston 2022: 432, Appendix 2), but forts of this type are part of a wider European phenomena with a small number of examples known in Scandinavia and Iberia, and a similar number to that of Scotland identified in France (eg Kresten & Ambrosian 1992; Kresten et al 1993, 2003; Ralston 2006: 144 –5; Berrocal-Rangel et al 2019; Sjöblom et al 2022). Dating evidence for vitrified forts in Scotland is generally poor, but given the numbers of examples known, the geographical spread and the size range (Lock & Ralston 2022: 430–1, table A2.1), then it is unlikely that the vitrification of forts was a unitary phenomena of one defined period of Scottish prehistory. Given the uncertainties of dating, seeking parallels and comparanda needs to adopt a cautious approach and here the discussion of parallels will concentrate on examples from north-eastern Scotland that share similarities in morphology, and where identifiable likely date. Within north-east Scotland there are a number of examples of vitrified forts that share close parallels to Tap o' Noth in terms of being distinguished by thick walls, a lack of an obvious entrance and an oblong/sub-oval ground plan (Childe & Thorneycroft 1938a: Feachem 1966: 67, fig 5; Harding 2004: 85–90; Cook 2013: 329, fig 2),[1] with some having dating evidence that points to a similar chronological range to the vitrified fort on Tap o' Noth (see discussion below).



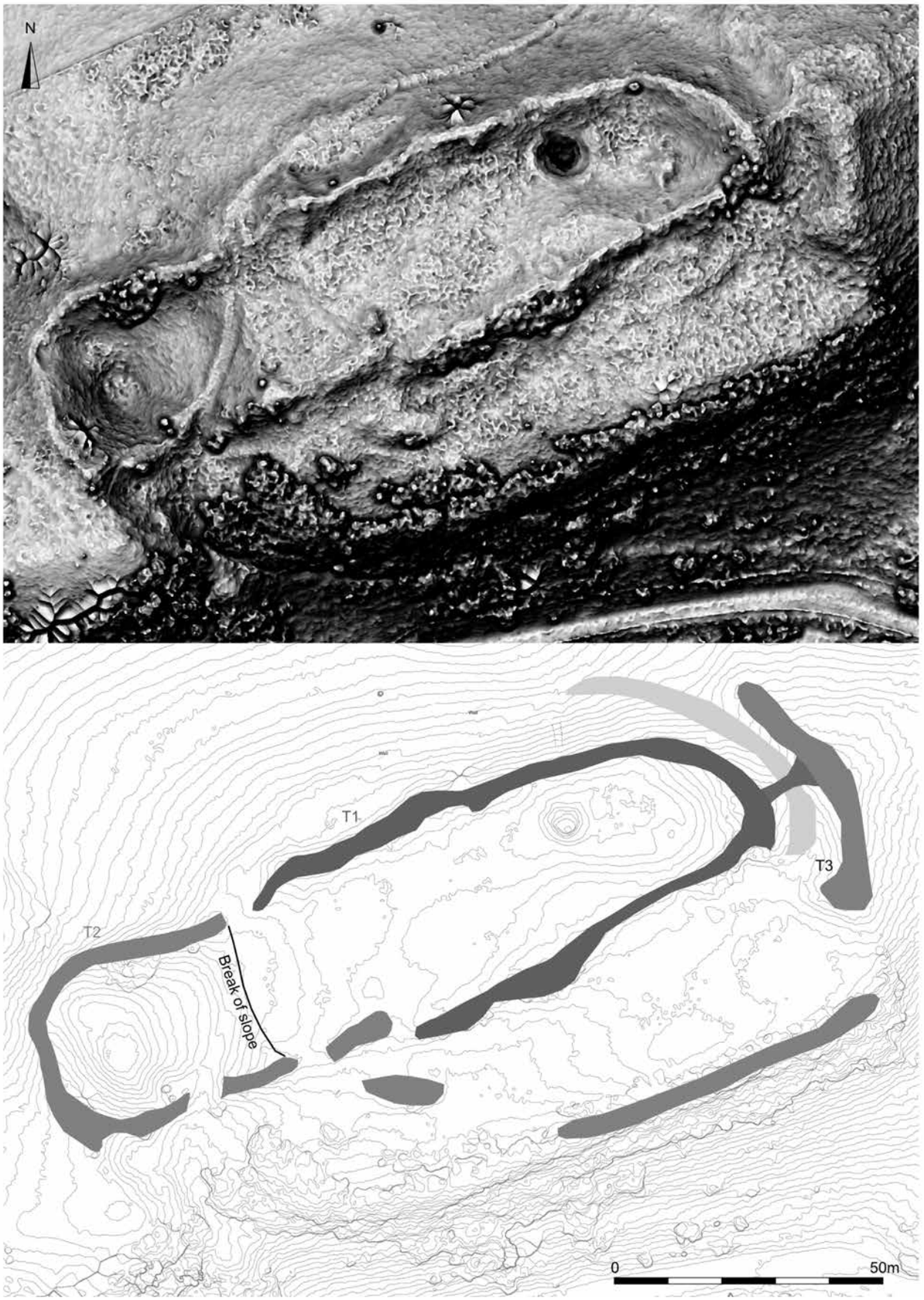
Illus 9.2
Examples of oblong/oval forts of north-east Scotland

Vitrified forts with an oval/oblong ground plan in north-east Scotland include examples such as Finavon, Barry Hill, Turin Hill and Laws of Monifieth (all Angus); Greencairn and Dunnideer (Aberdeenshire); Doune of Relugas (Moray), Craig Phadrig (Inverness-shire); and Castle Law Forgandenny, Castle Law Abernethy and Dunsinane (Perthshire) (Lock & Ralston 2022: 430–1, table A2.1) (Illus 9.2).[2] Examples of these have been the subject of investigation since the late 18th century (eg Greencairn at Balbegno, Kincardineshire and Dunsinane Hill, Perthshire); however, accounts of the early interventions at these sites rarely help illuminate the form and function of forts of this character (Christison 1900: 85; Wedderburn 1973: 1). Slightly more detailed accounts are available from the 19th century and include the Laws of Monifieth in Angus, excavated by James Neish in the 1850s who showed a *c* 0.45ha oblong fort to be enclosed by a massively thick-walled rampart and uncovered clear evidence for its destruction by fire (Neish 1859).[3] Castle Law at Forgandenny, Perthshire, first excavated in 1892 by Edwin Weston Bell (Bell 1893), was found to feature a complex series of earthworks at the summit of which lay an oblong fort (Illus 9.3). The oblong fort comprised a *c* 5.5m thick timber-laced wall that enclosed a 0.12ha area, around half the size of Tap o' Noth. Evidence for timber lacing within the walls of the fort was identified, along with clear signs for destruction by fire that included vitrified rock and abundant charcoal deposits abutting the inner wall faces (Bell 1893: 19). Bell also recorded numerous burnt and unburnt animal bones close to the inner wall face, reminiscent of the evidence from Tap o' Noth (see Chapter 4), and while artefacts were few in number they included part of a jet ring, handmade pottery, a spindle whorl and coarse stone tools. The site was re-excavated in 2013 and 2014 as part of the SERF project, which again established the monumental character of the vitrified fort wall and found traces of vitrification in the wall core (Poller & MacIver 2014). Radiocarbon dating suggested that the site was in use in the second half of the first millennium cal BC (Tessa Poller pers comm); however, 5th–7th century AD dates recovered from an external hut platforms and from activity in the interior indicate that the site witnessed some degree of early medieval reuse.

Another Castle Law, this time at Abernethy, provides a further parallel to Tap o' Noth. The upper fort at Castle Law, Abernethy, comprises a *c* 6m thick wall enclosing a small oval area around 0.06ha, with an outer rampart blocking access to the summit on the south-west side of the hill. Late 19th-century

Illus 9.3
Aerial image of Castle Law, Forgandenny, showing the complex enclosures and features revealed by antiquarian excavation

Illus 9.4
Oblique aerial image of Finavon fort in the foreground with the excavated well to the centre left of the image. The western rampart is under the trees to the right, with the fort rampart straddling a ravine that crosses the site

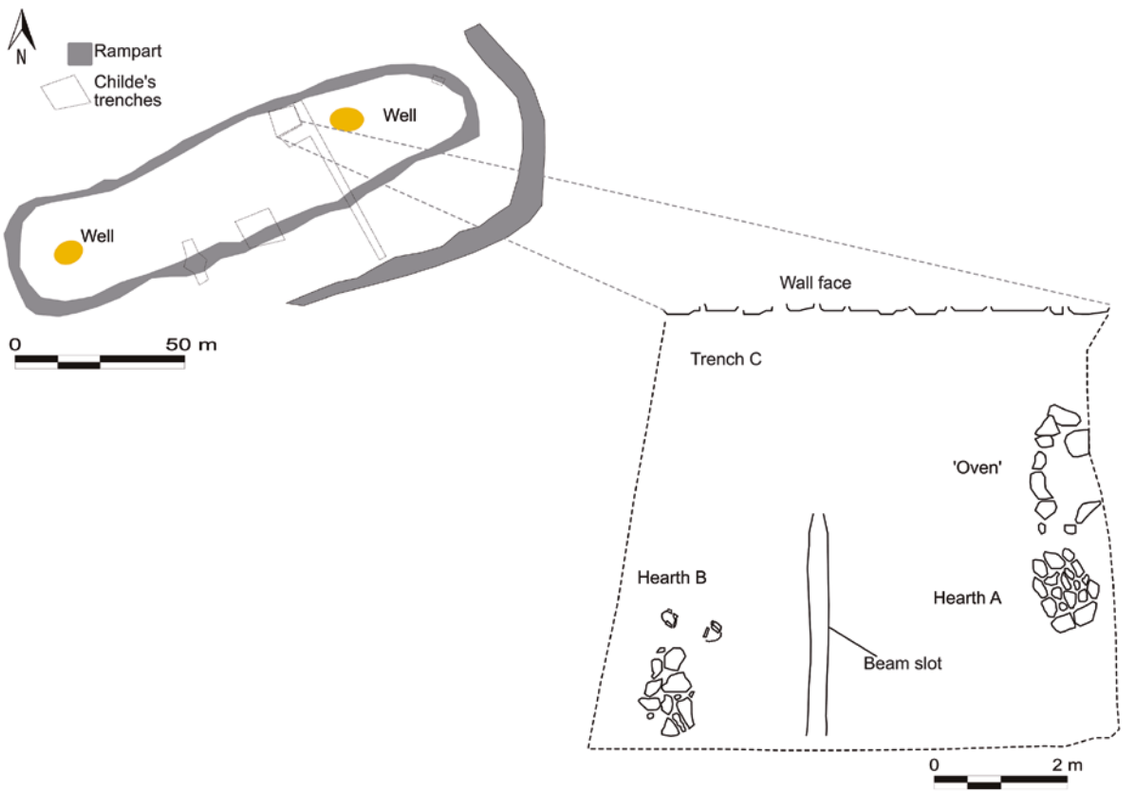


Illus 9.5
Photogrammetry derived model of Finavon (top) and transcription of the ramparts and features inside the oblong fort (bottom)

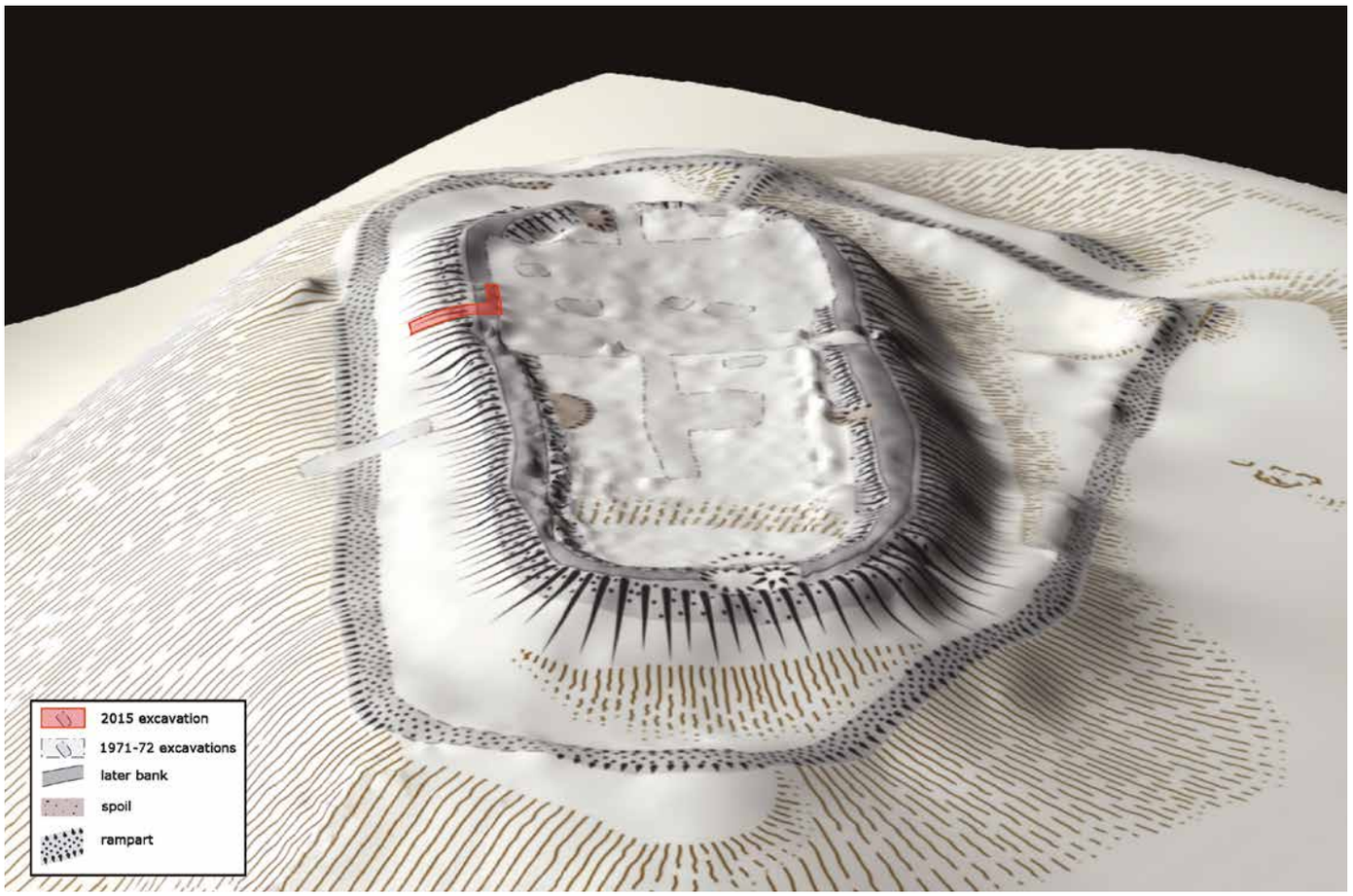
excavations revealed clear evidence for timber lacing on the outer side of the upper fort, with regular slots evident in the wall face. Timber beam slots were also found on the exterior face of the outer rampart, alongside evidence for timbers having been within the core of the rampart itself (Christison & Anderson 1899: 19–20). The interior of the vitrified fort was said to have been "thoroughly excavated" but no structural remains other than rough paving and a rock-cut cistern were identified (Christison & Anderson 1899: 23). Finds from within the fort were relatively few, consisting of a polished stone axe, a jet or cannel-coal ring, some other cannel-coal fragments, a bronze spiral finger-ring, coarse pottery, a La Tene style fibula brooch and fragments of iron. Within the cistern, large stones intermixed with charcoal and ash were found overlying lower deposits of brushwood and animal bone. The re-investigation of the fort in 2017 identified that some of the interior deposits had been left in situ (Strachan et al 2023: 212–13). A Late Bronze Age radiocarbon date was obtained for one phase of occupation, but a *c* 400–200 cal BC date for one of the animal bones recovered during the 19th-century excavations also suggests Iron Age activity (Strachan et al 2023: 216–17).

Moving further north, the site of Finavon in Angus provides one of the strongest and geographically proximal parallels for the upper fort at Tap o' Noth (Illus 9.4 and 9.5). The remains at Finavon comprise an oblong vitrified fort enclosing an area of around 0.45ha. Outworks on the south-east could be the remains of an earlier fort or an outer enclosure of some kind. Excavations by Gordon Childe in 1933–5 found occupation deposits abutting the inner wall face, but there was no evidence to suggest the centre of the enclosure had been used for dwellings or structures of any kind, providing an interesting parallel to Tap o' Noth. At the northern side of the interior, two hearths, two pits and part of a slot were discovered near the wall face (Illus 9.6), and further into the interior possible paving was located, though this latter feature appeared to be from a phase of use that post-dated the destruction of the oblong fort wall (Childe 1936: 349–50). The eastern rock-cut cistern was found to be almost 7m deep and 5m wide at the top, with a mid-fill containing small fragments of human skull intermixed with a stone-rich deposit. At a lower level, small fragments of pottery and degraded animal bone were also recovered. Later investigations were conducted at Finavon in 1966, when Euan MacKie undertook excavations to retrieve charcoal samples for radiocarbon dating (MacKie 1966a, 1966b). While the error margins on these dates are wide, the determinations produced by MacKie's work are broadly consistent with the dates obtained from occupation horizons at Tap o' Noth (Chapter 8). The dates are also consistent with the stratigraphic sequence recorded by MacKie, though how the dating evidence relates to the occupation features or finds located by Childe is uncertain.

Craig Phadrig in Inverness-shire provides another compelling parallel for Tap o' Noth, since it is a substantial oblong fort with outworks with radiocarbon dates suggesting broad contemporaneity



Illus 9.6
Outline plan of Finavon, showing the placement of Childe's trenches and plan of features found in Childe's Trench C



Illus 9.7
Terrain model of Craig Phadrig by Rubicon Heritage overlain by RCAHMS measured survey showing excavation areas in 1981–2 and 2015 © Forestry and Land Scotland

(Small & Cottam 1972) (Illus 9.7). Situated on a prominent hill to the west of Inverness, the site comprises a sub-rectangular summit fort with thick walls enclosing an area about 0.18ha. A lower enclosure loosely follows the line of the oblong fort, but diverges on the eastern and northern sides, where an additional short stretch of rampart defines a possible entranceway. The interior of the oblong fort has been extensively disturbed by excavations from the 19th century onwards (RCAHMS 2014: 3–14), with the largest interventions being two seasons of excavation undertaken by Alan Small and Barry Cottam in 1971 and 1972.

The Small and Cottam excavations revealed large masses of vitrified stone along the wall line of the oblong fort, including stone that had directly fused to the bedrock (Small & Cottam 1972: 22). The outer rampart was found to be of a different character to that of the inner, with only an outer facing identified. The feature also appeared more bank-like than the massive rampart wall of the oblong fort. Samples obtained in association with the rampart of the oblong fort and from the outer rampart were radiocarbon dated to the second half of the first millennium BC. Small and Cottam (1972: 36) argued that the inner and outer ramparts were broadly contemporary, as collapse from the upper rampart partly overlay that of the outer; however, the exact sequence requires more comprehensive investigation and dating.

Evidence of occupation was found within the upper fort of Craig Phadrig, though much of the clearest evidence of occupation appears to represent early medieval reuse of the fort (Small & Cottam 1972). Indeed, a lack of occupation remains were found near the inner wall face of the oblong fort, leading Small and Cottam (1972: 40) to conclude that it had not been extensively used in its original incarnation and had been destroyed by fire relatively soon after construction. Evidence for early medieval activity included various buildings, midden deposits and metalworking activity. Finds from the later occupation included sherds of E Ware and metalworking moulds, including that for an escutcheon of a hanging bowl.

More recent excavations at Craig Phadrig were conducted in 2015 as part of rescue work following storm damage to the rampart of the upper fort (Peteranna & Birch 2019). These excavations again pointed to early medieval reuse of the oblong fort, with a palisade cut along the crest of the inner wall and a dating sample suggesting a *terminus post quem* of the 5th to 6th century cal AD for this feature. Evidence of even later activity in the interior was identified and dated to the 11th–12th century cal AD (Peteranna

& Birch 2019). Overall (and of relevance to later discussion (Chapters 10 and 12)), what is particularly interesting at Craig Phadrig is the very direct evidence of the reuse of the oblong fort on the summit in the early medieval period. This is in sharp contrast to Tap o' Noth, where it was the slopes of the hill rather than the fort interior that saw the most activity in the later Roman Iron Age and the early Middle Ages (Chapters 10 and 12).

Other parallels for Tap o' Noth can be found in the north-east of Scotland, but few have been investigated to any meaningful extent. A probable oblong fort at Dunnideer, Aberdeenshire, was investigated in 2010 by Murray Cook. Charcoal from within the rampart and from probable wall collapse was dated to 360–160 BC, while archaeomagnetic dates from the vitrification spanned the period 606–275 BC (Cook 2010). The radiocarbon dates are broadly contemporary with those from Tap o' Noth, but the limited scale of excavation precludes any detailed comparisons about the character of the vitrified fort or its deposits. Radiocarbon dates are also available from a sub-oval, thick-walled fort at Greencairn at Balbegno, Kincardineshire. It was originally excavated in 1796 by Sir Walter Scott (an account of which survives in a letter – see Cameron 1899: 135–7) and later by Laurie Wedderburn (1973). The site was found to have a complex sequence of development and five radiocarbon dates returned a wide range spanning the Early Iron Age to early centuries AD (Wedderburn 1973). One final worthy mention is the upper fort of White Caterthun, Angus, an impressively large oval fort that lies within a complex series of earthworks (Dunwell & Strachan 1997: 75–89). Traces of vitrifcation have been found within the rampart of the thick-walled summit fort, but unfortunately none of the enclosures including the thick-walled oval fort on the summit of White Caterthun have been directly dated and the oval fort itself remains unexcavated.

9.3.2 Chronology

The dating of the vitrified oblong/oval forts of north-east Scotland has long been the subject of considerable debate. Several scholars have maintained that a later centuries cal BC date is the most probable scenario for the date of these (see Ralston 2006: 151), whereas others have suggested early medieval origins (eg Halliday 1991). Dating programmes by thermoluminesence and archaeomagnetism have produced different and conflicting date ranges (see Sanderson et al 1988; Gentles 1993) and many of the existing radiocarbon dates have wide error margins resulting from the use of bulk samples (eg at Finavon and Craig Phadrig). The dates from Tap o' Noth suggest that activity at the fort began in the 5th century cal BC and came to an end in the later 3rd or earlier 2nd century cal BC (Chapter 8). Dating from examples such as Doune of Relugas (Noble et al 2020b), Dunnideer (Cook 2010), Craig Phadrig (Small & Cottam 1972; Peteranna & Birch 2019) and Finavon (Mackie 1966a, b) suggests broadly contemporaneous activity during the second half of the first millennium BC. The radiocarbon dates from all of these examples overlap at the younger end of the radiocarbon spread with Gentles's archaeomagnetic dating of Tap o' Noth, Finavon and Craig Phadrig (and Knockfarril, Highland too), which suggested destruction in the closing centuries cal BC (Gentles 1993). However, this broad chronology is likely to hide many more localised sequences of construction, use and abandonment, and more detailed dating sequences for vitrified forts in general are sorely needed.

9.3.3 Vitrification

Other than their chronology and broad similarities in morphology, the other feature that unifies many of these sites is clear evidence for vitrification through the burning of timber-laced ramparts (Nisbet 1974: 10).[4] The characteristic feature of vitrified forts is the presence of stonework that has been transformed through heat during the destruction of these forts by fire, leading to the cracking and buckling of stonework, and the fusing together of individual stones and cobbles to form glassy-like concretions found in particular at the core of the rampart (Nisbet 1974, 1975; Ralston 2006: 146). The act of vitrification has long maintained the interest of archaeologists, with interpretation of the phenomena focusing on a number of potential causes and motivations:[5]

1. Vitrification as a deliberate act to strengthen the ramparts
2. The result of accidental fires
3. An act of conquest
4. A ritualised act to bring the use of a site to a spectacular end

In Scotland, the earliest research on vitrified forts goes back to the 18th century, when Williams and Anderson observed that the stonework of a number of hillforts in Scotland had been exposed to fire, with some of the stone fused together as a result (Williams 1777; Anderson 1779, 1782; Tytler 1790). Williams interpreted this as a method to strengthen the walls of the fort, though Tytler was more sceptical of this assessment. In the early 20th century,[6] the phenomenon attracted analytical and experimental approaches to demonstrate how fire, accidental or otherwise, may have transformed parts of the ramparts into molten masses. McHardy's experiments began with simply setting fires around piles of stone, though this failed to return the desired evidence of vitrification (McHardy 1906: 143). He subsequently turned to the earlier observations (eg Tytler 1790: 18), where burning with wood was identified as the catalysis for vitrification. As a result, McHardy's next experiments involved layering stone and wood and this did indeed produce minor traces of vitrification.

It was through the excavations by Gordon Childe at Finavon and Rahoy in Argyll that the actual mechanics of burning ramparts and the vitrification process was set on a firmer footing. In his own excavations of vitrified forts, Childe had noted pieces of charred timber within the walls and impressions of wood grain within vitrified masses. The large numbers of burnt wooden logs and brushwood found against the inner wall face of Finavon were also noted by Childe as an important indicator that the ramparts had been deliberately set alight. Alongside these observations, Childe was influenced by continental writers who had similarly concluded that vitrification resulted from the combustion of wood within a timber-laced or framed rampart (see Childe & Thorneycroft 1938b: 45; Ralston 2006: 148–9). Experiments conducted by Childe and Thorneycroft (1938b) subsequently proved that the burning of timber-laced ramparts enabled the vitrification process to occur.

In their paper to the 1937 *Proceedings of the Society of Antiquaries of Scotland*, Childe and Thorneycroft reported on two experiments on vitrification. At Plean Colliery, Stirling, they had a furnace manager supervise the construction of an experimental timber-laced rampart. The construction measured 3.6m long, 1.8m high

and 1.8m wide, and was made of old fireclay bricks and pit props with brick facings and a rubble core of basalt (Childe & Thorneycroft 1938b). Four tonnes of scrap timber and brushwood were heaped around the rampart and set alight. The experimental rampart burnt for three hours before the outer wall face collapsed, and after another 17 hours the construction was reduced to a smouldering mass of rubble. The experiment produced a substantial quantity of vitrified stone, weighing 736kg in total. A second, smaller timber-laced rampart experiment was conducted at Rahoy, Argyll, using the stones excavated from the vitrified fort (Childe & Thorneycroft 1938a). Though hampered by a lack of suitable timber, a small section of rampart was constructed and set on fire at 11am and burned into the night. The wall face was found to have buckled and sagged, and substantial pieces of vitrified stone were recovered from within the rampart.

Another large-scale vitrification experiment was undertaken in the 1980s by Ian Ralston, funded by Yorkshire Television as part of an episode of *Arthur C Clarke's Mysterious World* (Ralston 1986). On the edge of Aberdeen's waste disposal site at Tullos, a section of a timber-laced rampart was constructed to near full-scale proportions, measuring 4m wide at the base. The wall was constructed from granite and gabbro rocks, with around 8m of scrap pine used for the timber lacing. Repeated lorry-loads of timber, brushwood and even an old mattress and wardrobe were added to the fire over the course of the burning. Despite the amount of material consumed, the fire failed to get the core of the wall to a high enough temperature to initiate large-scale vitrification. The experiment had been hampered by inclement weather, including a change of wind direction, and the burning had been cut short while the rampart was still smouldering (Ralston 1986: 34). Nonetheless, a small amount of vitrified stone (around 3kg) was produced.[7] Whilst varied in success, the Childe and Ralston experiments showed that vitrification was not a process that would strengthen the ramparts, or at least not in a predictable fashion. Childe and Thorneycroft's experiments demonstrated that vitrification did not happen consistently across or through a rampart, and that the process of firing could lead to the sagging, buckling and collapse of the rampart wall face (Childe & Thorneycroft 1938b: 53). The firing at Ralston's Tullos experiment similarly led to great instability, with parts of the rampart collapsing and the wall face left buckled and cracked. As Ralston noted, even for substantially vitrified sites like Tap o' Noth, the vitrification is not entirely consistent around the circumference of the site and at others vitrification is concentrated in only small areas, with burning leading to the collapse of large sections of stonework (Ralston 1986: 37). Given that vitrification produces uncertain results in terms of consistency and impact, and often leads to much weaker sections of wall through destabilising the core and face, it is unlikely to have been a practical process used to strengthen the walls of forts.[8] The experiments by Childe and Ralston suggest that large amounts of timber would be needed to initiate vitrification and that this may not have came solely from the timber lacing itself. Additional fuel could have came from timber buildings constructed up against the wall face. In his Trench C at Finavon, Childe found hearths near the wall face of the northern rampart (Childe 1935: 63) (Illus 9.6). This was one of the few locations where signs of occupation were detected, and Childe and Thorneycroft believed that the conflagration of structures built up against the wall face was likely to be a potential source for the destruction of forts of this type (Childe and Thorneycroft 1938b). The excavations at Tap o' Noth (Chapter 4) similarly found some form of structure up against the wall face on the northern side of the rampart, though evidence of structures in the oblong series is not overwhelming. Little architectural detail was found during the excavations at Castle Law at Abernethy or at Castle Law at Forgandenny for example, and trenches up against the wall faces at Finavon and Tap o' Noth did not produce evidence of floor layers or structures in all locations, and where evidence was found there was little evidence for the substantial use of timber in any structures that were identified. It therefore seems unlikely that the accidental (or otherwise) firing of structures built up against the rampart would have provided sufficient fuel to produce the catastrophic levels of burning, destruction and vitrification evident at sites such as Tap o' Noth, even if these were continuous right the way around the inner circumference of the fort. The Tullos experiment demonstrated that vitrification may have also involved the need to maintain the fire with substantial quantities of fuel over an extended period of time, and Ralston in particular has argued that obtaining the level of vitrification evident at these sites could have taken days if not weeks (Ralston 2006: 163).[9] Deliberate firing seems the most likely scenario for the vitrification of the Iron Age oval/oblong forts of north-east Scotland, and there is certainly clear evidence at some sites to support this conclusion. At Finavon, there is little doubt that the walls of the fort had been set alight from the inside via extensive deposits of timber piled up against the wall faces. In Trench A, Childe found charred remains of willow and poplar logs, some with branches still attached, sitting directly on the occupation layer, while in Trench B a similar layer of burnt logs was identified surviving up to 0.33m thick that was full of willow, birch and oak timber (Childe 1935: 52, 55). In Trench C, immediately below the wall collapse, a 0.15–0.30m thick layer of charcoal and carbonised wood was found above the occupation horizons with 'the remains of numerous charred boughs discernible' (Childe 1935: 61–2). Where identifiable, the timbers were all oak and the wood appeared to be from dumps of branches with no discernible arrangement. In Trench D, charred trunks and branches were also detected near the wall face. In sum, the findings of Childe provides clear evidence for the deliberate destruction of the fort by fire through piling branches and timbers at the wall face and setting them alight (Childe 1935: 67).[10] Overall, it seems very likely that these forts were deliberately destroyed and that in the case of Finavon at least that large quantities of timber had been gathered to fuel the fires that led to the destruction of the fort. However, whether destruction was an act of conquest or a ritualised act of closure is a more difficult point to address. Burning following conquest certainly happened at forts in the early medieval period, and there is significant textual evidence to support its occurrence. The burning of forts, for example, is a regular feature of the accounts recorded in the Irish annals (see Noble et al 2022). Bede's record of a siege at Bamburgh in AD 651 also provides a visceral description of an attempt at burning. Bede states that Penda, King of Mercia, waged war against Oswiu, a Northumbrian king, and besieged the fort and settlement of Bamburgh. After failing to capture it, he attempted to set the fort

ablaze by piling timber sourced from the surrounding settlement against the walls of the fort. However, after prayers, an intervention from Saint Aidan is said to have saved the Bernicians, turning the wind in the direction of the besiegers (*HE* iii: 16; Colgrave & Mynors 1969: 262–3). Although our understanding of Iron Age vitrified hillforts is not enrichened by similar textual evidence, the destruction of these sites has been considered by many commentators to be evidence for the conquest of a site or landscape by an enemy force (eg Armit 1997: 59; Harding 2004: 91; Cook 2013: 81, 95).

Alongside interpretations that focus on the destruction of forts through warfare and conflict, there have also been suggestions that more esoteric motivations may have led to the burning of forts. Dennis Harding, for example, has argued that the oblong forts of eastern Scotland were non-defensive ceremonial structures (Harding 2004: 85–7). Cook (2010: 80) has followed Harding's interpretations and suggested the burning of oblong forts may have been part of a 'ritual closure' at the end of the site's active life (see Berrocal-Rangel et al 2019 for a discussion of potential examples of ritualised burning in Iberia). Certainly, a ritualised end to examples of these forts should not be discounted. For one, whether these sites were actually forts or settlements in the conventional sense remains to be fully demonstrated. As already noted there is in fact relatively sparse evidence for intensive settlement within many of these examples. At Finavon, Childe (1935: 77) identified only two hearths amongst 'a row of dwellings' on the north side of the interior (Childe 1935: 78) (Illus 9.6), and while Childe's excavations produced a substantial assemblage of finds that included coarse handmade pottery, crucible sherds, an iron ring and blade, six spindle whorls, a fragment of a rotary quern, coarse stone tools and a shale ring, the dating of much of this material and whether it was necessarily contemporary with the fort is not clear. The presence of a rotary quern fragment for example may suggest some level of later reoccupation (Childe 1935: 75–6). Similar uncertainty surrounds other early excavations – eg the dating and context of some of the spectacular finds from Laws of Monifieth (Neish 1859, 1865). The finds assemblage from other sites were certainly meagre: Castle Law Forgandenny and Castle Law Abernethy had very few finds despite extensive antiquarian interventions. Finds and deposits in the Iron Age phases at Craig Phadrig were so limited that Small and Cottam suggested the fort had not been occupied at all prior to its destruction (1972: 40). At Tap o' Noth, not a single artefact was found within the interior during two seasons of excavation and no finds were noted in Macdonald's account of his excavations in the 19th century (1891: 35–51). As a result, there is not as yet strong evidence that any of these enclosures were occupied intensively, though it is difficult to state this conclusively given that even in relatively extensive excavations such as at Tap o' Noth, the percentage of area revealed in the interior has still been relatively small.[11] There are other peculiarities about other elements of at least some of these oblong vitrified forts. At Finavon, for example, the fort appears to have been extended at some point to incorporate a second low summit, making for a very irregular interior. The lack of obvious entrances for most of these sites is also unusual (Harding 2004: 85). The emphasis at these sites therefore seems to be as much on containment and keeping things in, as it is on keeping people or other things out. In this respect, some commonalties with the large, internally ditched enclosures found at Irish late Iron Age ceremonial complexes such as Navan, County Armagh and Tara, County Meath, could be positied. Warner (2000a) suggests that the internal banks of Irish late Iron Age enclosures were built in order to defend the world from powerful forces within, perhaps enclosing places that may have been powerful or considered dangerous or taboo. Similar interpretations have been posited for Late Neolithic henge monuments in Britain (eg Barclay 2005; Brophy & Noble 2020), where deliberately blocked entrances may have acted to contain powerful forces unleashed by episodes of ceremonial activity (Bradley 2011: xviii). The form of the heavily vitrified forts of north-east Scotland is obviously very different to the internally ditched enclosures of Iron Age Ireland, and more so to the henge monuments of the British Late Neolithic, but there could be resonances here in how they were constructed and used. The absence as yet of intensive interior occupation and the lack of entrances could suggest other uses for these enclosures such as temples, seasonal gathering places or as assembly sites of some kind, though equally some of these roles may not be mutually exclusive with the use of at least part of each fort as a settlement of some kind.

Overall, it must be admitted that we know less about these forts, their function and the reason for their demise than we would like. However, whatever their exact function within Iron Age society, we can certainly highlight that the burning of these forts would have been a spectacular and memorable event – whether they were ritually decommissioned as part of long-term use as ritual spaces or settlements destroyed by enemy action during episodes of conflict. This destruction would have been a spectacle to behold, with Ralston highlighting the sensory qualities of their demise:

> . . . it is worth drawing attention to the matter of spectacle. The experimental wall at East Tullos, edged by flame and glowing red at night, made an impressive sight, even against the backdrop of a modern city. The progress of widespread vitrification around the 563m high summit of Tap o' Noth must have appearedawesome to the prehistoric communities of great tracts of the Garioch and neighbouring areas – a spectacular advertisement of power (Ralston 1986: 38).

As Ralston notes, these burnings would have been particularly visceral at night (see also Bradley 2005a: 111–12 and Svensson 2002 for discussion of the significance of fire and darkness vis-à-vis prehistoric monuments and their use and destruction). Ritual is dependent upon a sense of drama and is designed to afford the participants an intense experience (Tambiah 1979: 115; Bell 1992: 92). The deliberate burning of these forts would have certainly evoked powerful emotions, which may have been heightened by the danger involved in creating and perhaps maintaining such an intense conflagration. The deliberate burning of prehistoric monuments has been linked with the creation of memories and the ways in which we remember a place, people or events. It is aided by a phenomenon known as 'flashbulb memory', where memories associated with dramatic events result in a high level of recall, distinct clarity and vividness (Noble 2006: 57–8). The circumstances and drama of such events can form the basis of important collective memories (Brewer 1996:

49; Schacter 1995: 25; Groeger 1997: 216). The burning of the forts may have marked transformative events – the taking of the land and central place of an enemy group, or if we imagine a more ritualised act of closure, burning could have occurred following the death or replacement of a leader (cf Küchler 1987: 250), or followed a period of drought, famine, or other misfortune in the community. The possible reuse of sites like Tap o' Noth (as represented by the U-shaped banks) and Finavon (eg the putative post-destruction paving), after these burning events may have been attempts by subsequent generations to appropriate the significance of these sites, perhaps even to reinvigorate their former purpose and function by new leaders or particular social factions. However, there may have been varied temporalities, motivations and outcomes surrounding the significance and destruction of each sites within their own regional and social context. It may be wrong to try and identify one singular reason for the use and destruction of such sites. The construction and destruction of the massive timber-laced forts of the period *c* 400–100 cal BC in north-east Scotland may not have had unified causes or purposes – rather the construction, use and demise of each may have followed a whole range of unique and local circumstances.

9.4 Conclusions

Though we can find compelling parallels for the oblong fort of Tap o' Noth, without further excavation and much more extensive investigation the exact function and circumstances of the demise of such sites is likely to remain unresolved. Whatever the motivation behind the construction and destruction of such sites we can certainly identify the huge amount of resources and labour that communities utilised in their construction, and recognise that strong social imperatives must have lain at the heart of both their use and abandonment. Clearly these were sites that were significant at a regional and perhaps supra-regional level. Given the relative dearth of settlement remains found in the interior a ritualised role for Tap o' Noth can be entertained, but equally we cannot rule out that Tap o' Noth and some of the other sites highlighted in this chapter were major settlement locales that were destroyed through conflict and the powerful acts of conquest by one group over another. Overall, while our understanding of these forts remains limited, the results of fieldwork at Tap o' Noth has supplied the most secure and comprehensive dating programme for an oblong fort of north-east Scotland to date, and a new detailed dataset that will provide fuel for ongoing discussion for many decades to come.

Chapter 10

ROMAN IRON AGE AND EARLY MEDIEVAL RHYNIE I: TAP O' NOTH

Gordon Noble

10.1 Tap o' Noth lower fort

At 16.75 hectares, Tap o' Noth's lower univallate fort would have been the largest habitation in the Upper Strathbogie valley during the first millennium AD and one of the largest hillforts ever constructed in northern Britain. Prior to the excavations conducted during this project, there were few certain indicators that the site would date to this period, though a small but intriguing group of Roman items hinted at the possibility. This included three beads, plain grey ware and decorated Samian ware recovered near Tap o' Noth (NMRS ID 17206; Kilbride-Jones 1935: 448–54; Robertson 1970: 224–5). The pottery was said to be of a type likely to date to the early centuries AD; however, the whereabouts of this collection is currently unknown. Additional finds included an enamelled belt mount found through metal detecting to the north-west of Rhynie in 2002, in the area of Lesmoir (NMRS ID 267800). The belt mount is of 2nd-century AD type and has an unusual form that suggests it may have been a Roman military cavalry fitting (Curtis & Hunter 2006: 213). A number of Roman Iron Age finds are also housed in Aberdeen University's Marischal Museum, including beads, a Roman enamelled harness mount and a bronze terret (ABDUA accession numbers 17436-7, 15535, 15590, 15599 and 64918 – see Kilbride-Jones 1935 for a report on the bronze terret). Somewhat frustratingly, the latter two only have 'Rhynie' recorded as their findspots. However, the collection as a whole prompted Curtis and Hunter (2006: 213) to categorise the Tap o' Noth area as a potential major regional centre of the Roman Iron Age.

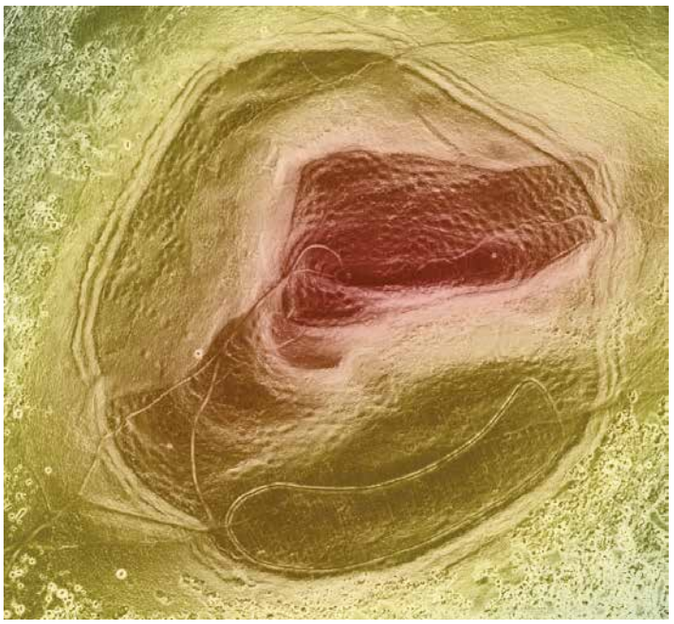
10.2 Chronology and Phasing

The radiocarbon dates obtained for Tap o' Noth lower fort and platform settlements indicate both a Roman Iron Age and early medieval use of the hillside, with overall activity likely to have taken place from the 3rd century AD onwards (Chapter 8). The dating suggests that platform settlements began to develop before the construction of the lower fort rampart, though it is possible that the stone rampart and associated palisade replaced an earlier boundary of some kind (Chapter 4). Platforms continued to be added to the enclosure after the rampart was in place, and activity endured until the late 6th or early 7th century AD. This dating confirms that Tap o' Noth is by far the largest confirmed fort of early medieval date known in Britain. At almost 17 hectares in extent, it dwarfs the previous largest examples of South Cadbury (*c* 7ha) and Tintagel (*c* 6ha), both in south-west England, and more locally the formerly largest first-millennium AD hillfort was the *c* 5.5ha promontory fort at Burghead in Moray, Scotland (Alcock 1972; Barrowman et al 2007). In order to understand Tap o' Noth's roles and monumentality, it is clear we must expand the search for parallels beyond the sites traditionally considered.

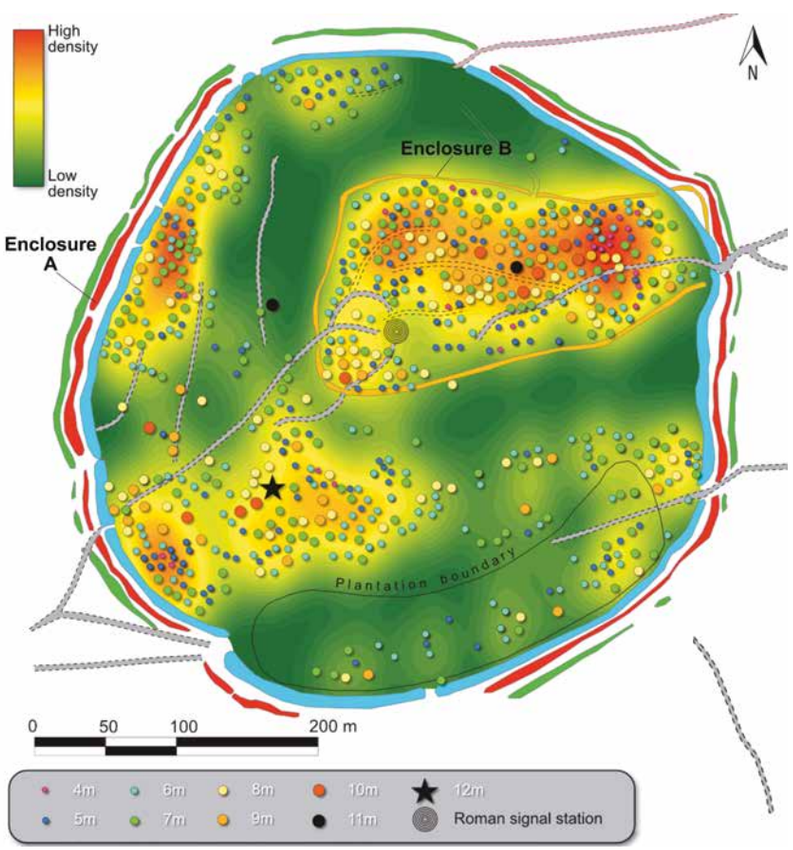
10.3 Exploring parallels: the 'big forts' of the north

James O'Driscoll and Gordon Noble

There are over 60 forts in Britain that match or exceed the 16+ hectares enclosed by the Tap o' Noth univallate fort. These cover a range of chronological periods and are primarily located in southern England, with the Atlas of Hillforts listing only two examples across northern Britain that are near or exceed the size of Tap o' Noth: Eildon Hill North in the Scottish Borders and Traprain Law in East Lothian (Owen 1992). At over 18.8ha, Eildon Hill North is the largest hillfort in Scotland and provides the closest parallel to Tap o' Noth morphologically, occupying a similar hillform and enclosing hundreds of house platforms. It is positioned on the eastern summit of three hills and is strategically located to overlook expansive tracts of lowland to the east and south, as well as a major routeway defined by the River Tweed. This became the renowned Dere Street, a Roman military route used to connect the valley to the large fort of Trimontium at the north-eastern base of the hill (Curle 1911). The hillfort itself has often been labelled as the 'capital' of the Selgovae – a Roman Iron



Illus 10.1
Photogrammetry model of Eildon Hill North, Scottish Borders



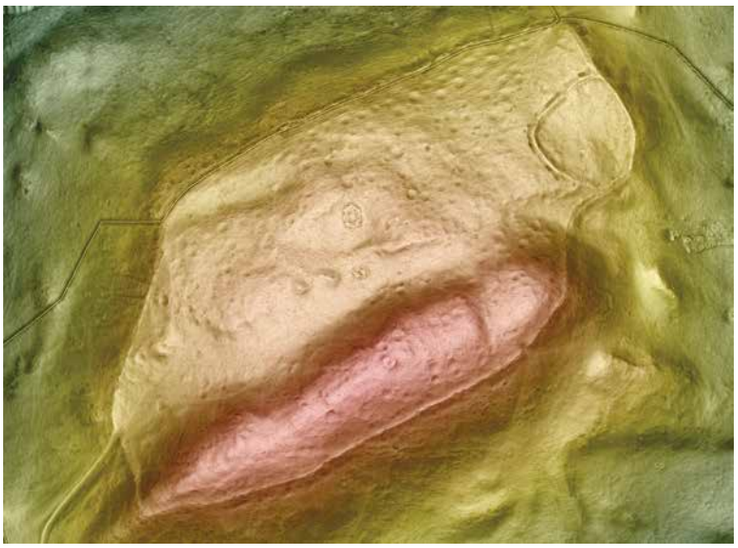
Illus 10.2
Analysis of the enclosure system and house platforms at Eildon Hill North

Age group mentioned by Ptolemy (Feachem 1966: 77; Hanson 1987: 93) – though it is perhaps best known for its Late Bronze Age remains.

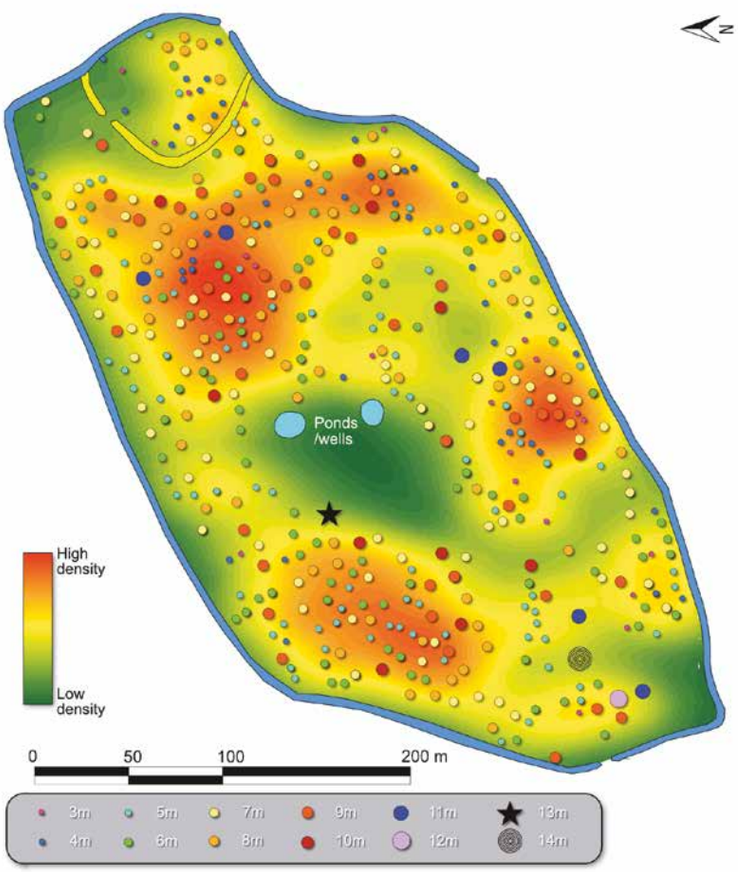
The Royal Commission recorded three main enclosing elements at Eildon Hill North: a small oval enclosure on the summit (Enclosure C), a lower sub-rectangular enclosure (Enclosure B) which defines a flat summit approximately 3.25ha in size, and a massive triple rampart surrounding the entire hilltop (Enclosure A) (RCAHMS 1956: 307). However, recent photogrammetry survey by the University of Aberdeen has revealed more nuances which suggest the oval summit (Enclosure C) may in fact be an ancient trackway associated with the western entrance to Enclosure B (Illus 10.1) (see also Lock & Ralston 2017: SC3327). There is also tentative evidence for an earlier enclosing work which broadly follows the perimeter of Enclosure B at the north, though excavation would be needed to clarify this. The Royal Commission argued that the large triple banks of Enclosure A comprised a single phase of construction broadly contemporary with many of the internal hut platforms (RCAHMS 1956: 309), but the recent survey showed that the inner rampart of Enclosure A truncates Enclosure B, while the outer two ramparts kink to avoid the north-eastern corner of Enclosure A (as also noted by Lock & Ralston 2017: SC3327).

Partial excavation of Enclosures A, B and C by Owen (1992) failed to produce any material to date their construction, though pits sealed by the inner rampart of Enclosure A did provide Late Bronze Age dates. This was supported by further Late Bronze Age phases for a small number of excavated internal hut platforms. However, each excavated platform also produced Roman Iron Age finds and radiocarbon dates of the 1st–4th century AD. Artefacts from the core of the inner rampart of Enclosure A similarly included fragments of a 1st/2nd-century AD glass bead and armlet and sherds of 2nd to 4th-century AD Roman pottery; however, Owen (1992: 65) identified this mixed artefactual assemblage as evidence of modern disturbance (Henderson 1992: 43). More recent work by the University of Aberdeen and the Trimontium Trust returned a further series of Late Bronze Age dates from trenches associated with the ramparts of Enclosures A and B, but also secured a 5th- to 6th-century date associated with a hut platform near the summit (O'Driscoll & Noble forthcoming). While the new dates support that this was a major Late Bronze Age settlement, the new first-millennium AD date and the previous Roman Iron Age finds also suggest that the hillfort was extensively reoccupied during the first half of the first millennium AD in the same period that Tap o' Noth was constructed and in occupation.

The programme of photogrammetry survey at Eildon Hill North suggests a similar density of settlement here. At least 619 hut platforms were recorded within Enclosure A at Eildon Hill North. The majority of these – 274 examples or 44% of the total – measure 7–9m in diameter. Over 96% of the platforms measure 5–11m in diameter (595 platforms), with 22 smaller platforms approximately 3–4m in size (3.6%) and only two larger examples *c* 12m in diameter. The overall dimensions of the platforms and spread of platform size strongly correlate with those identified at Tap o' Noth (Chapter 4). The structures at Eildon also corresponds with the spatial distribution patterns at Tap o' Noth, comprising distinct clusters of average sized platforms with larger



Illus 10.3
Photogrammetry model of Hownam Law, Scottish Borders



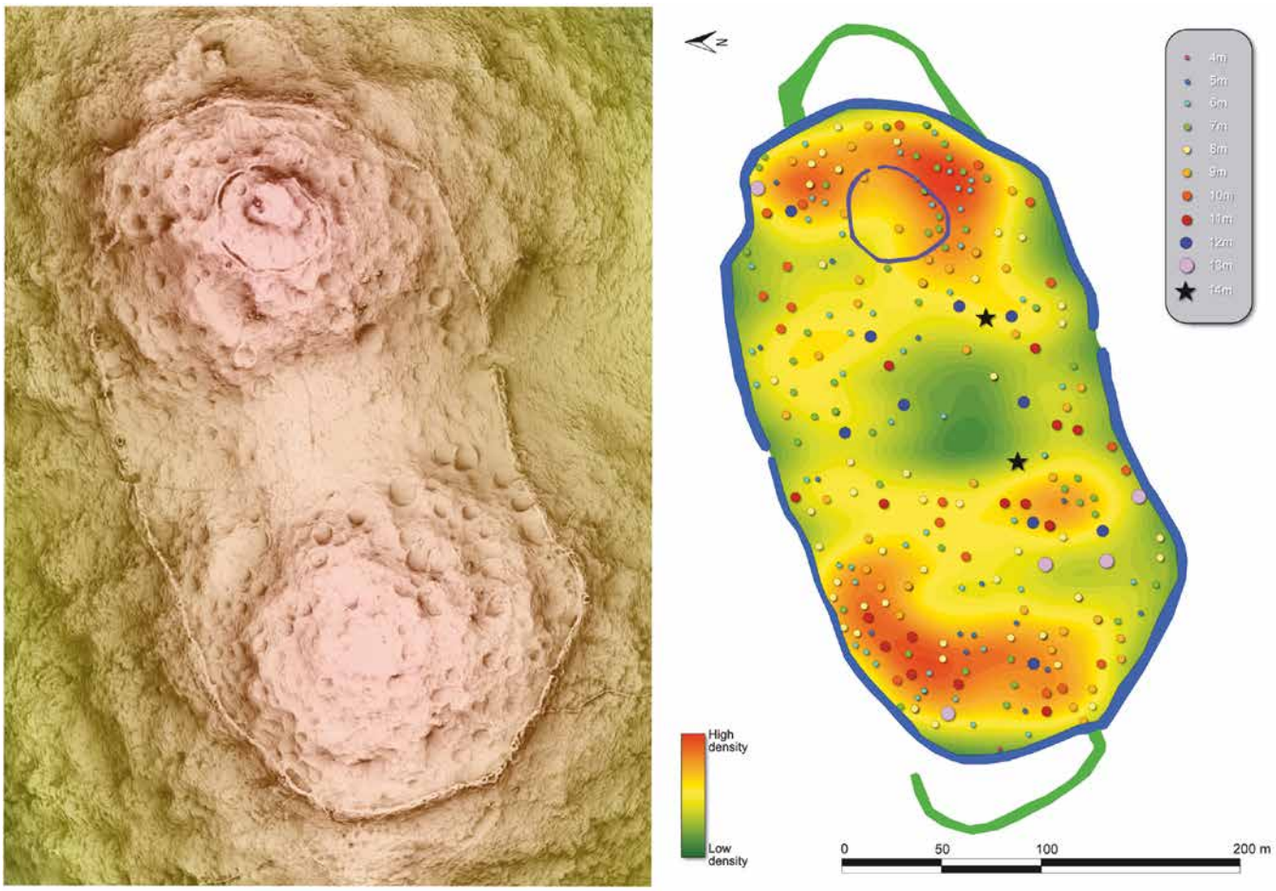
Illus 10.4
Analysis of the enclosure system and house platforms at Hownam Law

examples, either individually or in small groups, at their periphery (Illus 10.2). A cluster of platforms on the upper plateau of Eildon's Enclosure B may have formed the original settlement nucleus before the fort was expanded. Nonetheless, the complicating factor at Eildon Hill North is that the dense settlement conglomeration may date to both the Late Bronze Age and first millennium AD. Only much larger-scale excavation at the site would show how this distribution relates to its chronological sequence and how many of the hut platforms are likely to be Roman Iron Age or later. Thus, the extent to which Eildon Hill North is a direct parallel for the Tap o' Noth is yet to be fully established.

Dating is in fact the key problem that precludes a meaningful consideration of most of northern Britain's large hillforts. Hownam Law, also in the Scottish Borders, is comparable to Tap o' Noth in terms of size (just over 9ha) and a dense concentration of up to 445 hut platforms in its interior (Illus 10.3). The site is enclosed by a single 4–5m thick rampart and the platforms similarly range from 5–11m in diameter and appear in clusters. Like many large hillforts in northern Britain, it has been assumed to be Late Bronze Age in date (cf Armit & Ralston 2003: 180), but the Tap o' Noth evidence can certainly encourage a pause for thought on the dating of this site. However, only excavation can reveal more about the chronology and character of Hownam Law (Illus 10.4). White Meldon (3.9ha) and Cademuir Hill (2.1ha), both in the Scottish Borders, and Old Fawdon (2.4ha) in Northumberland, are further examples of densely occupied large hillforts that merit consideration as potential parallels to Tap o' Noth, though again there is little in the way of dating evidence. Burnswark in Dumfries and Galloway (*c* 7ha) has early accounts suggesting the existence of over 150 hut platforms at the site; however, excavations have not identified any evidence of activity after the early centuries AD (Jobey 1973).

Another striking parallel is Yeavering Bell, Northumberland, which encloses a substantially smaller area (around 6ha) than Tap o' Noth but contains a dense occupation of hut platforms surrounded by a 6m-thick stone rampart (Illus 10.5 and 10.6) (Oswald & Pearson 2005: 98; Oswald et al 2006: 97). There has been considerable debate about the chronology of Yeavering Bell, with Late Bronze Age and Iron Age dates again generally favoured; however archaeological investigation of the fort, like Eildon Hill North, suggests at least some occupation during the Roman Iron Age (Oswald & Pearson 2005: 98; Semple et al 2017). Tate's 19th-century explorations of Yeavering Bell revealed occupation surfaces on each of the six hut platforms excavated, with one example producing a rotary quern and Roman period finds (Tate 1863; Oswald & Pearson 2005: 104; Miket 2013: 148). In 1958, Brian Hope-Taylor opened 13 trenches within the fort, eight of which targeted hut platforms. While details of these excavations are scant (Miket 2013), finds from Hope-Taylor's digs included Late Roman coins and sherds of Samian ware, reminiscent of some of the finds from the Tap o' Noth house platforms (Miket 2013: 148). Indeed, the juxtaposition between Yeavering Bell and the Anglo-Saxon royal centre at Yeavering (see Hope-Taylor 1977) is an obvious parallel for the relationship between the Craw Stane complex and Tap o' Noth, though at present there is no confirmed evidence for settlement on Yeavering Bell during the period of occupation of the hall complex, and the full chronology

Illus 10.5
Yeavering Bell, Northumberland



Illus 10.6
Analysis of the enclosure system and house platforms at Yeavering Bell

of the hillfort and associated platforms will need to await further excavations and scientific dating.

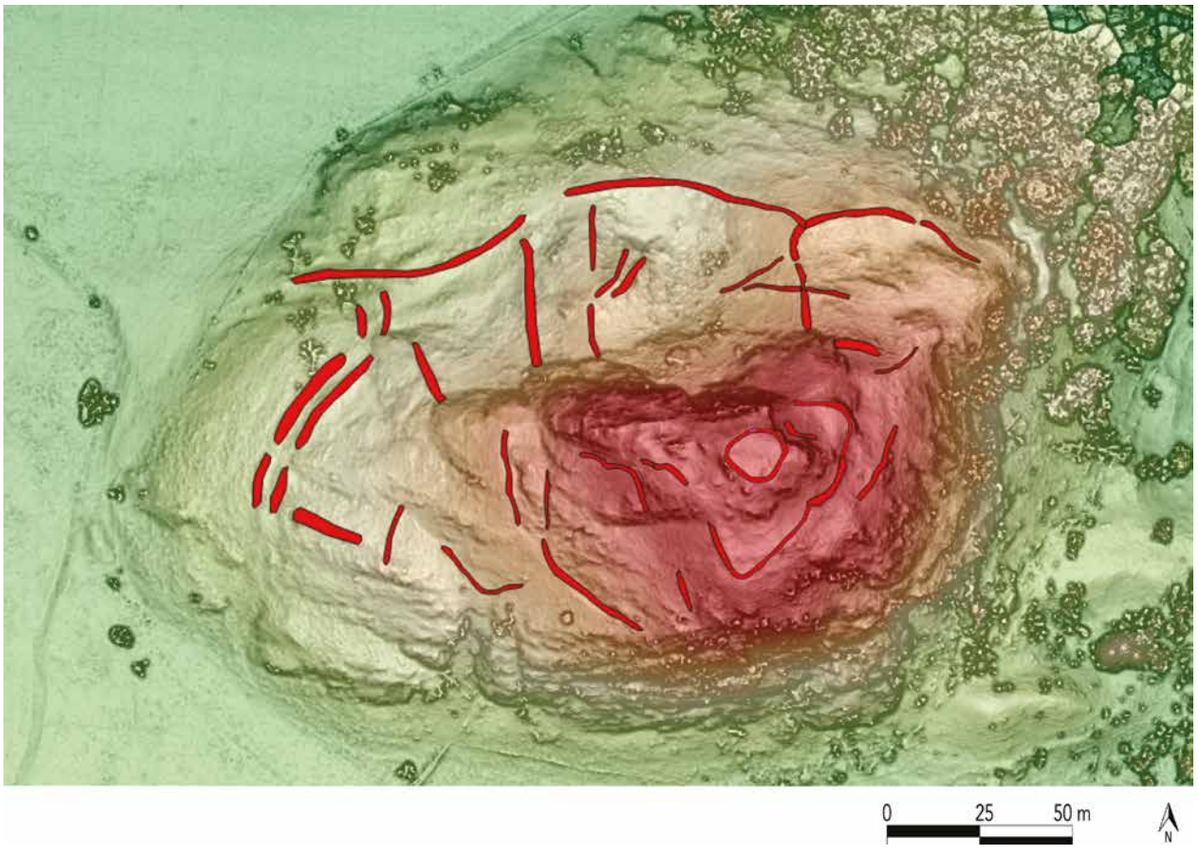
Returning to Scotland, another parallel to the evidence at Tap o' Noth is Traprain Law, East Lothian. At Traprain there were two major phases of occupation of the fort, again dating to the Late Bronze Age and Roman Iron Age. At its largest extent, Traprain Law enclosed an area of around 16ha and a stone wall, known as the Cruden Wall, appears to be a late enclosure, perhaps dating to the 4th or 5th century AD (Close-Brooks 1983; Hunter 2013: 4, 6), but the chronological resolution of the sequence of enclosing works is poor. However, the Cruden Wall may have been built to enclose the later phases of the dense settlement remains on the western slopes of the hill and summit, where the tightly packed circular, oval and sub-rectangular structures provide an interesting parallel for the evidence at Tap o' Noth (Armit et al 2002; 2006; Hunter 2013: 6). The excavations by Curle and Cree (1914–23), and more recently by the Traprain Law Summit Project (Armit et al 2002; 2006), uncovered deeply stratified deposits that again attest to Late Bronze Age and Roman Iron Age occupation. There is also evidence for post-Roman occupation – most famously the 5th-century Roman hacksilver hoard (Hunter 2022: 386–7), but also high-quality locally made pieces such as a silver chain and moulds for a doorknob spear-butt, glass and beads, These latter finds indicate the site's significance extended into the 5th and possibly the 6th century AD. (Hunter 2013: 7; 2022: 386, 389; Blackwell et al 2017: 104). Comparing artefact assemblages between these sites is also challenging. Differing scales of excavation along with patchy contextual information and missing finds from older excavations hinders any detailed understanding of the scale and nature of activity over time. At a broader level however, certain aspects of the assemblages are repeated at sites such as Tap o' Noth and Traprain Law, such as the presence of Roman material and the evidence for skilled metalworking, indicating these sites had similar levels of wider contact and specialised craft production.

Overall, when considering parallels for the huge scale and density of interior occupation evident at Tap o' Noth in the first millennium AD, there are few sites in northern Britain that can be firmly brought into the discussion. However, looking afresh at some of the larger hillforts such as Eildon Hill North and Traprain Law allows us to build up a wider picture and it is clear that a fuller reassessment of the presumed chronology of at least some of these sites is needed. Of the examples highlighted above, Traprain Law is the best understood and certainly appears to have had a comparable phase of Late Roman Iron Age or post-Roman enclosure as evidenced by the Cruden Wall (Close-Brooks 1983). Elsewhere the parallels are less definite, though Roman Iron Age phases for the platforms at Eildon Hill North and Roman material recovered from at least some of the platforms at Yeavering Bell are certainly intriguing. While we should be cautious in seeing these larger hillforts as a unitary phenomenon, there do appear to be striking similarities amongst some of the larger hillforts of northern Britain and tentative findings that may suggest a wider (but as yet poorly attested) phenomenon of dense hilltop settlement during the first millennium AD. Certainly, the dating and character of these sites is one ripe for re-evaluation.

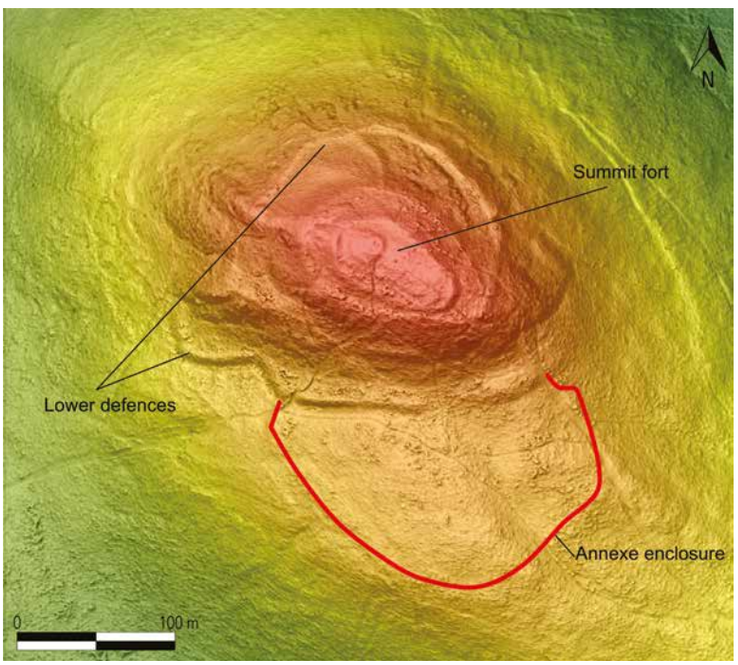
10.4 Parallels of known first-millennium AD date

In northern Britain, fortified sites dominate our knowledge of the form that central places of power and governance took in the second half of the first millennium AD (Alcock 2003: 179; Noble et al 2013; Noble & Evans 2022: Chapter 3). The literary sources for early medieval Scotland record sieges, battles and other important events that occurred at these locations, underlining their centrality in early medieval society. However, the sites that are identifiable from our limited sources provide few direct parallels to the site of Tap o' Noth. One issue is their dating; the classic 'nuclear' hillforts that we tend to associate with early medieval northern Britain appears to have been a feature of the 7th century or later, at least in their developed form, meaning that they existed largely after the time that Tap o' Noth had gone out of use (Noble & Evans 2022: 102). The other issue is their size; most early medieval forts tend to be relatively small – Dundurn in Perthshire, for example, is around 2ha in extent taking in the lower enclosures that surround the central stone-walled dun (Alcock et al 1989: 193–4, illus 3) (Illus 10.7). Dunadd, the 'capital' of Dál Riata, is less than 1ha in extent, and the early phases of this site are likely to have been even more modest, with at least some of the outer enclosures proving to have been late additions to the site (Lane & Campbell 2000: 8–18, 250–2). It could be that further settlement was located around the base of these forts but as of yet there is no clear evidence for this in the majority of cases. The one exception is East Lomond, where the remains of a sub-oval enclosure around 60m x 30m occupy the summit of the hill and a massive rampart and ditch appears to enclose a series of terraces on its south-west side (Noble & Evans 2022: 105–6) (Illus 10.8). The upper fort is unexcavated but morphologically provides a strong parallel for early medieval forts such as Dunadd and Dundurn. The lower slopes of the hillfort at East Lomond feature a *c* 2ha annexe enclosure that has only recently been identified through excavation and geophysical survey. The annexe is enclosed by a rampart that appears to date to the 5th–6th century AD and settlement remains of the 3rd–7th centuries have been found within. Multiple hearths and turf-walled structures suggest this was a densely occupied settlement, and a range of finds including Roman material, evidence for precious metalworking and post-Roman imports indicate the site was of a significant status. The evidence from East Lomond is reminiscent of that at Tap o' Noth, though as yet the settlement appears to have been more modest in size.

Prior to the discoveries at Tap o' Noth, the largest example of a known early medieval fort in Scotland was Burghead coastal promontory fort in Moray. The extensive defences of the fort covered an area of around 5.5ha, but only 2.5–3ha of this would have been usable space. Excavations at the site are ongoing but current dating suggests that the monumental ramparts (over 8m thick and up to 6m high) are of 7th- to 9th-century date, and most of the settlement remains are contemporary with the defences. As a result, the site does not provide a close parallel for Tap o' Noth in terms of dating, scale or topographic setting. The archaeology of Burghead perhaps shares similarities with what we might expect to find at late first-millennium AD *palacium* complexes including evidence for a church (Noble & Evans 2022: 108–11; cf Campbell & Driscoll 2020).



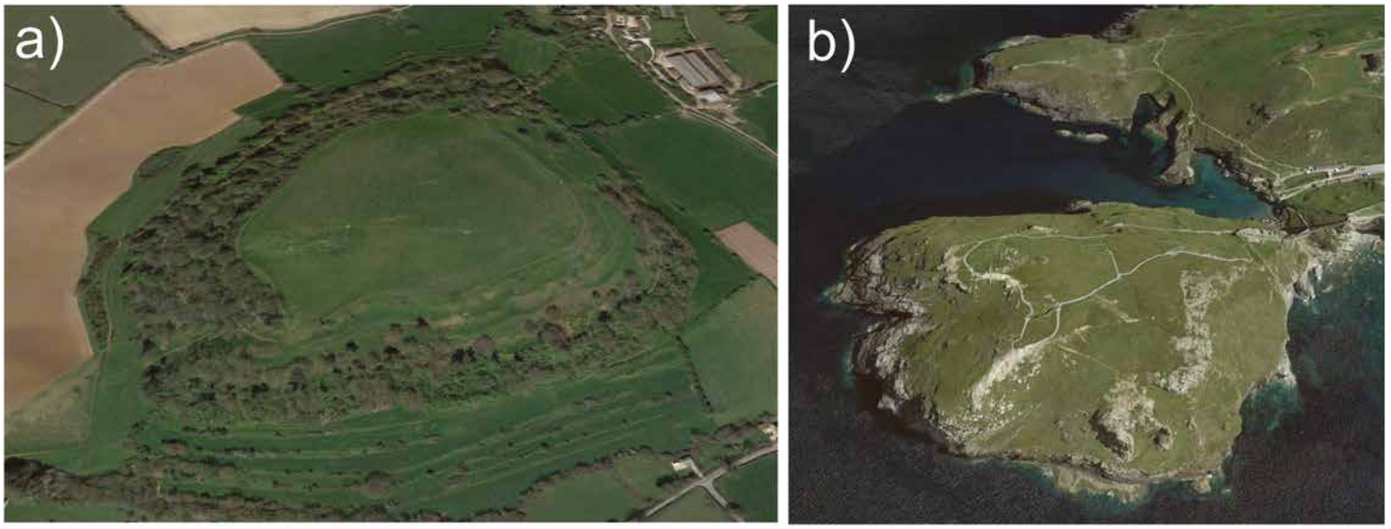
Illus 10.7
Dundurn hillfort, Perthshire – a classic 'nuclear' fort of central Scotland



Illus 10.8
East Lomond, Fife – an annexe enclosure extends to the south-east of the 'nuclear' fort

Looking further afield, a Late Roman to early medieval hillfort phenomenon can be identified in south-west England and Wales (Seaman 2023: 420; see also Seaman 2016). In many cases these hillforts were small in scale, but larger examples can be recognised at sites such as Cadbury Castle in Somerset, Badbury Rings in Dorset, and Tintagel and Killbury in Cornwall (Seaman 2023: 436). Of these four sites, the sequences at Cadbury Castle and Tintagel are the best understood. At Cadbury Castle (Illus 10.9), refortification of a complex Iron Age multivallate fort took place in the late 5th century and involved the addition of a timber-framed rampart to the earlier defences, resulting in an enclosure of around 7ha that was entered via a complex timber gate (Alcock 1995: 27–9). Inside, numerous features were found including traces of what could have been a substantial hall-like structure and at least one further building. Finds included sherds of Late Roman amphora and African Red Slipware. Like Tap o' Noth, Cadbury Castle is located inland rather than on or near the coast, as tended to be the case with Late Antique power centres in the west of Britain and in Ireland. The number of Mediterranean imports at Cadbury Castle were larger than that discovered at Tap o' Noth, but if we consider Tap o' Noth and the Craw Stane complex as an interrelated set of sites at least from the 4th to 6th centuries AD, then the comparisons with Cadbury may be more warranted (see discussion in Chapter 12).

Tintagel in Cornwall is the most famous of the south-west sites, whose coastal promontory settlement provides a loose but



Illus 10.9
Major Late Antique hillforts of southern Britain: a) Cadbury Castle; b) Tintagel. Images © Google Earth 2024

intriguing parallel to Tap o' Noth in terms of dating, finds and size (again particularly if we consider Tap o' Noth and the Craw Stane complex together: Chapter 12) (Illus 10.9). The islet at Tintagel extends to around 6ha but contemporary remains on the adjacent mainland, including a cemetery and finds of Late Roman amphorae, may suggest that the 5th- to 7th-century power centre extended beyond the promontory itself (Nowakowski & Thomas 1992). Following excavations in the 1930s and 1950s, Tintagel was interpreted as a monastic settlement for much of the 20th century (eg Radford 1935). However, from the 1970s onwards it was re-interpreted as a major elite centre, with the extensive assemblage of Late Roman amphora vessels and fine tableware including African Red Slipware from the excavations seen as key indicators of high-status secular activity (eg Burrow 1974; Thomas 1982). A fire in the 1980s revealed dozens of earthworks on Tintagel and up to 80 rectangular structures across the whole of the headland, suggesting the site was much more extensively settled than previous research had suggested (Bowden & Jamieson 2016). Excavations in the 1990s put the chronology of the site on a firmer footing, with the first absolute dates suggesting that post-Roman activity extended from the 5th to 7th century AD (Barrowman et al 2007). More recent excavations at Tintagel took place in 2016–17 on the southern terrace of the headland, which identified fragments of sub-rectangular buildings, extensive midden deposits and a finds-rich assemblage that dated to the mid-5th to early 6th century AD (Nowakowski 2019: 65, 69; Nowakowski & Gossip 2019). This included thousands of sherds of Late Roman Amphora 1 and 2, D-ware and African Red Slipware, alongside dozens of fragments of imported Atlantic glass. Parts of crucibles and furnace lining also suggested that metalworking was a feature of activity at the site. This early phase was built on level surfaces that had been quarried into the slopes of the promontory, and the buildings of this period lay under stone buildings of a later phase of occupation dating to the 8th and 9th centuries AD. As well as the post-Roman evidence, indications of activity on the site including structural evidence, a number of finds and an inscription of 3rd- to 4th-century AD date that may suggest an official Roman presence. This hints that the elevated significance of this locale may have extended back to the Late Roman Iron Age (Barrowman et al 2007: 309–13).

Overall, while there are few direct confirmed first-millennium AD parallels to Tap o' Noth, the larger defended settlements of south-west England provide some intriguing if broad parallels to Tap o' Noth. Some of the Late Antique hillforts of south-west Britain are likely to have been regional centres serving wide communities, with the fortification of sites such as Cadbury Castle requiring access to resources many times greater than that of even multiple households (Campbell 2007: 122; Seaman 2023: 436). At face value, centres such as Tintagel and Tap o' Noth can seem like quite different site types; however, the level of investment in marginal but easily defended topographic features, the remodelling of unpromising topography, and the evidence for extensive and dense settlement provides compelling parallels. Indeed, Tintagel is an important site to consider given that the Late Roman amphorae found at Tap o' Noth itself, and more abundantly at the Craw Stane complex (Chapter 11), may have ultimately come from direct or down-the-line exchange with this major import centre in southern Britain (Gerrard 2013: 176). Cadbury Castle too shows evidence for high-status activity including imports and at 7ha is also relatively large, though again it does not match the staggering scale of Tap o' Noth. It does, however, match the inland location of Tap o' Noth and the reuse of an Iron Age site is a feature of both – again further analysis and dating can begin to set the rather exceptional evidence from Tap o' Noth in a wider context.

10.5 Platform settlement architecture at Tap o' Noth

In Scotland, the roundhouse tradition that had dominated the settlement record for over two thousand years becomes much less evident in the archaeological record from around the 3rd century AD, with a dearth of settlement evidence traditionally characterising the mid to later first millennium AD (Hunter 2007: 48–50; Noble & Evans

2022: Chapter 2). The dense concentration of platforms on Tap o' Noth therefore provides a startling contrast to the traditional absence of settlement in the Late Roman Iron Age and early medieval periods in northern Britain. While the exact form of individual structures on the platforms at Tap o' Noth is difficult to identify due to the lack of earthfast structural remains, both circular and sub-rectangular forms are likely to be represented (Chapter 4). There is some pre-existing evidence for the continuation of roundhouse traditions in Scotland into the later centuries of the first millennium AD, though it is very limited. A roundhouse at Portmahomack, Easter Ross, for example, has been dated to dated 670–940 AD (Carver et al 2016: 68–9). Development-led excavations in the eastern lowlands have also occasionally identified truncated post-rings that suggest roundhouse architecture may have endured into the later first millennium AD (eg Dunbar 2012: 12; Cook 2016: 22). Rectangular structures are known to have been in use in the same period as Tap o' Noth, with evidence from Traprain Law and Dunnicaer in Aberdeenshire indicating rectangular forms of architecture were present from at least the 3rd–4th century AD (Noble et al 2020a; Hunter 2013: 6). Settlement forms in the Northern and Western Isles in the later first millennium AD tend to be better preserved due to the construction of buildings in stone, and here we find a diverse range of cellular, round and rectilinear house forms (Noble & Evans 2022: Chapter 2). What the Tap o' Noth evidence underlines is that increasing settlement diversity appears to have occurred in Scotland from the Late Roman period onwards. The platforms at Tap o' Noth could be considered relatively modest in size, given that even the largest examples are much smaller than the grandest Iron Age roundhouses known at sites such as Culduthel in Inverness-shire (Hatherley & Murray 2021). However, when we compare the structures on Tap o' Noth to contemporary roundhouses like that at Portmahomack, they are similar in size. Indeed, in early medieval Ireland the average early medieval roundhouse was only around 4–7m in diameter (Lynn 1994: 92; O'Sullivan 2008: 231), and the largest excavated building in early medieval Ireland was the 11.2m diameter structure found at Moynagh Lough crannog in Co. Meath, dated to the 6th–9th centuries (O'Sullivan et al 2014: 99).

10.6 Settlement centralisation, wider trajectories and settlement function

The length of the rampart and area enclosed at Tap o' Noth along with the number of hut platforms suggest a significant population conglomeration at the site from the Late Roman Iron Age through to the late 6th or early 7th century AD. The specific interpretation of the evidence from Tap o' Noth is explored further in Chapter 12, but for now there are a number of interpretive lines to consider that revolve around the permanency (or otherwise) of the settlement and its place in wider settlement tradition(s). We can ask whether this was this a permanent, year-round settlement, or one used on a more seasonal basis, perhaps as a major assembly place for the region.

10.6.1 Site of assembly?

While Tap o' Noth was clearly a large settlement with a significant density of buildings, it is possible that the site served a specialised function and was perhaps only used intermittently. Sites of seasonal or episodic assembly are thought to have played a crucial role in the structuring of early medieval societies across northwest Europe and appear in written sources relating to the 6th to 12th centuries AD (Pantos & Semple 2004; Iversen 2013: 5–6, 11; Semple & Sanmark 2013: 518; Semple et al 2020). These sources suggest assembly sites were places of periodic gathering for law making and judgements, though they could also be associated with a range of social roles and purposes such as festivals and markets, feasting and game-playing, and events associated with royal inauguration and peripatetic kingship. In the Nordic world, ritual and myth also played an important part and could be interwoven into the proceedings of assemblies (eg Løkka 2013: 25; Riisøy 2013: 30–1; Semple & Sanmark 2013: 519).

Unfortunately, we know very little about assembly practices in Scotland. A tradition of popular courts existed in the later medieval period (see O'Grady 2014) but earlier practices and places of assembly are much more difficult to draw out – though attempts have been made to trace such practices back to the Iron Age and to sites such as Eildon Hill North (eg Driscoll 2004). Moot Hill in Perthshire is the most prominent example of a later assembly site in Scotland, with the Chronicle of the Kings of Alba recording the proclamation of law at the 'Hill of Faith' at the royal *civitas* at Scone in AD 904 (Driscoll 2004: 74; O'Grady 2018).[1] Moot Hill is a large, flat-topped, oval mound that stands near Scone Palace on a terrace overlooking the River Tay. The later kings of Scotland were crowned upon the mound on the Stone of Scone; however, the antiquity of this practice is unknown. Direct archaeological dating of Moot Hill and a *thing* mound in Dingwall, Highland, suggests both are most likely to be 11th–12th century in date, and the Stone of Scone is first recorded in the 13th century AD (O'Grady 2018: 142). At medieval court sites in Scotland, the archaeological traces of assembly practices are slight; sites appear to have been sited on natural hills and/or reused prehistoric mounds that show little in the way of architectural elaboration in relation to this activity. Though the archaeological investigation of Scottish court sites is still in its infancy, as of yet no first-millennium AD examples have been confirmed (O'Grady 2014).

Assembly practices are better known in other parts of Britain and Ireland. In Ireland, historical sources suggest multiple different types of assembly were common in the early medieval period, the most important of which was the *óenach*. The *óenach* was the principal political assembly of each kingdom and was convened on an annual or biannual basis, when the entirety of a community came together to negotiate and renew ties of allegiance (Gleeson 2014: 171, 2017: 79). While it does appear common to find a place of inauguration and another for wider assembly both within a single royal estate, they could also be spread throughout a kingdom (Warner 1988: 53; Gleeson 2015: 33, 43–5). Assemblies could be held on hills, mounds or at prehistoric complexes, and various temporary structures might be erected including huts, enclosures and mounds or platforms (MacCotter 2008: 49–51; Bhreathnach 2014: 67–77). Very few *óenach* assembly sites have seen targeted excavation and as such their exact character, chronology and development is not well understood.

The archaeological identification of lower-scale assembly sites in Ireland has been proposed through interpretation of a relatively recently identified site type known as the cemetery-settlement. O'Brien (2009) and Gleeson (2015: 43) argue that these sites were

local community centres for assembly and burial for specific kin groups within a *túath*. Cemetery-settlements are enclosures that contain burials but host a range of other activities within their interiors. They are usually found in lowland locations and the enclosing elements appear to reflect phasing, with more enclosures added as the cemetery and contemporaneous activities expanded over time. It has been suggested that the majority of cemetery-settlements tend to cluster near parish boundaries and near *ferta* (ancestral burial places) (eg Gleeson & Ó Carragáin 2016: 104; Gleeson 2017: 75). However, the evidence from cemetery-settlements is quite enigmatic and open to interpretation, with other assessments stressing the settlement dimension of these enclosures alongside evidence for crop-processing, metalworking and consumption. The cemeteries have also been suggested to have been part of small familial church sites (eg O'Sullivan et al 2014: 306–11).

In southern Britain, the archaeological traces of assembly tend to be slight, with most appearing to have been held in open-air settings with little in the way of architectural elaboration. Written sources provide similarly few indicators of the formal infrastructure utilised in assembly events (Semple 2013: 90–1; Blair 2018: 105; Semple et al 2020: 7, 14, 17). However, sources suggest that sites for assembly included hills, forest groves and river crossings, and an amphitheatre-style structure is known from the royal centre at Yeavering, which may have been used during occasions of assembly (Hope-Taylor 1977: 119–22; Semple 2013: 90–1; Blair 2018: 105; Semple et al 2020: 7, 14, 17). Given the apparent predominance of open-air gatherings, this latter site speaks to a much greater architectural investment in assembly events.

In Scandinavia, assembly is thought to have been a major aspect of prominent royal centres such as Lejre in Denmark (Niles 2007: 89) and Gamla Uppsala in Sweden (Ljungkvist & Frölund 2015).[2] The archaeological signature of these large-scale assemblies is poorly understood, although some traces of buildings and activity zones have been found. For example, small enclosures with clusters of buildings set around an open courtyard area have been identified at Norwegian court sites (Storli 2010; Semple et al 2020: 159). The majority of these Norwegian court sites date to the first millennium AD and have been interpreted as *thing* sites that functioned at a supra-regional level.[3] The buildings identified have turf and timber components, and some artefactual material has been found during excavation, but in general the sites and enclosures are very modest in scale and the material culture assemblages meagre (Semple & Sanmark 2013: 526).[4] Buildings known as *búðir* or booths have also been found at Icelandic assembly sites, most notably at the main parliament site at Þingvellir in south-western Iceland, though again the traces of these are relatively modest and there is no evidence of enclosure, nor are they situated in hilltop locations (Semple & Sanmark 2013: 527).

Overall, none of the sites across Britain or Ireland provides a good parallel for Tap o' Noth as an assembly site. Few of the sites above show much in the way of investment in enclosure or in substantial settlement remains. The hilltop location is also difficult to parallel, and while the cemetery-settlements of Ireland provide some links in terms of enclosure and settlement traces, the exact function of these sites remains to be fully understood, and again they do not match the topographic position of Tap o' Noth. Assembly was clearly a crucial part of the functioning of early medieval society and is attested to historically, but as yet the archaeological signatures of these events and practices have been less successfully traced and characterised (see Semple et al 2020 for an extended discussion). Assembly practices are particularly poorly represented in Scotland and, if Tap o' Noth was a seasonal assembly site, it was of a character hitherto unrecognised in the region. The possible role and place of Tap o' Noth is further explored below and in Chapter 12.

10.6.2 A large-scale settlement?

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Given both the scale and density of settlement at Tap o' Noth (even if not all strictly contemporary), one possible interpretation is that the lower fort at Tap o' Noth was a complex, year-round settlement centre of regional significance. Certainly, the huge resource and labour investments required to build both the fort and the platforms is an indicator of long-term investment in a place that was utilised for between 260 and 390 years (Chapter 8). The construction of a 1.5km long and 4m wide stone bank and associated wooden palisade enclosing the site, alongside the hundreds of platforms dug into the tenacious subsoil of the hill, is a substantial sign that the hill was not used for only a few days a year nor only very intermittently. Nor does it seem likely that the platforms were a palimpsest built up over many centuries, given the overlap in dating of the platforms sampled and the close fit between the overall distribution of platforms and the extent of the area enclosed by the rampart. Settlement was found directly against the enclosure and platforms were situated cheek-by-jowl within, giving the appearance of a densely and intensively occupied site. Indeed, the necessity of such substantial and large enclosing works is questionable if there was not a large settlement or some form of activity to contain.

Prior to this project, Tap o' Noth and some of the large hillforts such as Traprian Law and Eildon Hill North have occasionally been considered as northern and perhaps late examples of the Iron Age oppida tradition (Feachem 1966: 77–82). Oppida in general date from the 2nd century BC to 1st century AD in western Europe. Many comprise large, enclosed, agglomerated settlements, with some examples hundreds of hectares in extent. Ten hectares is often the cutoff used to define an oppidum (Fernández-Götz 2018: 136). In northern Britain, only the hillforts of Eildon Hill North, Traprain Law, Hownam Law and Tap o' Noth would be a match or near match for this criterion. Scholars such as Feachem (1966: 79) have interpreted hillforts of this scale as minor oppida, with discussion focusing on examples in the Scottish Borders such as Eildon Hill North. Feachem interpreted the platforms there as being broadly contemporary and suggested that the site housed a population in the thousands. He argued for a complex social structure at these settlements, with the hillfort community at the settlement apex of the region and the community itself organised in relation to a steep social hierarchy (Feachem 1966: 79). Subsequent authors have been more sceptical of the labelling of any of the large hillforts in Scotland as oppida (eg Ralston 1979: 488). Indeed, Ralston (2015: 207) has cast doubt on the unitary nature of the larger hillforts of Scotland highlighting their heterogeneity and has questioned Feachem's mapping of 'oppida' that was focused on size alone (see Feachem 1966: 78, fig 13; see also Halliday & Ralston 2009: 467; Halliday & Ralston 2013). With regards to Tap

o' Noth specifically, the chronology for this fort is later than that generally ascribed to the oppida phenomena in Britain (see Chapter 8 for dating analysis).

10.6.3 The Late Antique hillfort phenomena

Given the chronology of Tap o' Noth we can also explore Tap o' Noth as part of the 'Late Antique' hillfort phenomenon. Across Europe, particularly in regions of Spain, France and Germany, there was a trend towards the (re)occupation of hilltops between the third/fourth and *c* 7th centuries AD (eg Brather 2006: 154–9; Quast 2008: 266; Walter 2016: 20). The rise of this late hillfort phenomenon seems to have come about as the fortunes of major lowland urban centres declined and coincided with the reduction or removal of overall state control and influence in areas of the Western Roman Empire. As with hillforts in general, the role of these sites has been debated, with functions ranging from military fortifications to sites of refuge, religious centres, and regional and/or supra-regional centres of power. Some sites in Provence, for example, have been suggested to have had a major administrative function situated in boundary locations, though these regional interpretations are unlikely to work for such a diverse phenomenon. The size of enclosures in Provence, for example, ranges from *c* 0.1ha to 7ha, indicating that even at a regional level these Late Antique sites had a variety of different roles and statuses (Constant et al 2015: 376).

Geographically, the closest examples are the Late Antique sites of Wales and south-west England, of which Cadbury Castle and Tintagel were outlined earlier. The construction and reoccupation of hillforts in this region has been identified at around 30 sites, where they are generally associated with the administration of power of peripatetic rulers of the 5th to 7th centuries AD – though some certainly emerged in the Late Roman period (Seaman 2023: 420; Alcock 1963; Campbell et al 2023). Like the wider phenomenon, the sites of south-west England and Wales seem to emerge around the time when the towns and infrastructure associated with Roman Britain were beginning to decline and be abandoned, appearing in particular at the western fringes of Roman Britain where Roman control appears to have always been weaker. Like elsewhere in Europe, these hillforts can range dramatically in size but the largest examples are interpreted as regional centres and provide the best parallels for Tap o' Noth (Seaman 2023: 426) Like Tap o' Noth, there is some evidence that the southern British examples were part of wider networks of power or broader 'central zones' that encompassed places associated with trade and production, assembly, ritual and religion, and economic specialisation. Individual sites themselves may also have encompassed a range of these functions (Seaman 2023: 426–9).

10.7 Site of inauguration?

A final role for Tap o' Noth in the first millennium AD can be briefly considered, if only to rule it out. On the lower slopes of Tap o' Noth at Scurdargue lies the Giant's Stone, a large boulder said to have the imprint of a foot on its southern face (Macdonald 1891: 254–5). Macdonald recorded that the boulder was associated with giants who lived at Tap o' Noth and nearby Dunnideer hill, who would throw stones at each other. The footprint is said to have derived from one of the giant's halting a falling boulder with his foot.

Carved footprints are found on rocky outcrops across Ireland and parts of Scotland, where they have been connected to the inauguration of early to later medieval rulers. They also appear to have had a devotional role at churches and were closely connected to later folklore, meaning their exact role and date is unknown in most cases (FitzPatrick 2004: 108–22). In Scotland, the footprint carved into the living rock at Dunadd has been linked to the inauguration of the kings of Dál Riata; however, the chronology of this and other carvings is uncertain (Lane & Campbell 2000: 18–20; Campbell 2003: 46). There are no secure early medieval contexts for a stone of this kind in Ireland, whilst some of the Scottish examples have later medieval associations. The stone at Finlaggan on Islay, for example, was associated with the Lords of the Isles, and 17th-century records of its use in inauguration certainly suggest later associations (Caldwell 2003: 63–7; Hunter & Hunter 2017: 65). A stone at Beinn a'Chlaidh, Berneray, has also been linked to the Lords of the Isles (Hunter & Hunter 2017: 65). Hunter and Hunter (2017) brought together the sites from Scotland and reported a number of eastern examples including the Scurdargue stone. Not one of these has a secure association, with little in the way of historical references or even folklore traditions being known. Many also appear to be natural features, which is the case with the Scurdargue example.

During the Rhynie project, photogrammetry of the Scurdargue stone was undertaken. The 'footprint' was found to consist of a largely amorphous, vaguely foot-shaped depression/area, with no definitive traces of human modification or carving. The 'footprint' is also on a vertical rather than horizontal surface, so is not closely comparable to the carved examples from sites such as Dunadd. Thus, the Scurdargue example is unlikely to have had any role in early medieval rites or rituals and is not discussed further in this volume.

10.8 Conclusions

At the height of its use, the lower fort at Tap o' Noth must have been a staggering sight to behold – one of the largest hillforts of any period ever constructed in Britain. With over 800 houses and an enclosure almost 17 hectares in extent, it is of a monumental scale previously unknown in this time period and region. The wider parallels explored in this chapter suggest at present there are few parallels for such sites in northern Britain, though there are possibly similar settlement horizons at sites such as Traprain Law and Eildon Hill North, though in both cases the chronological spans of these sites and their enclosing works remain to be fully established. There are also wider questions as to what wider tradition Tap o' Noth can be ascribed to, or indeed whether the evidence recovered from there is to date unique. Oppida and the Late Antique hillfort tradition in Britain were both outlined briefly in this chapter. The former in western Europe appear to have proliferated in some cases at least in response to the expansion of the Roman Empire, the latter due to its decline. The later 3rd-century dating for the apparent initial occupation of the lower fort at Tap o' Noth may suggest the latter is of more relevance, but the relationship of the sites in the Upper Strathbogie valley to the expansions and contractions of the Roman presence in the far north is a topic returned to in Chapter 12.

Chapter 11

ROMAN IRON AGE AND EARLY MEDIEVAL RHYNIE II: THE CRAW STANE COMPLEX, THE PICTISH CEMETERY AND SYMBOL STONES, AND CAIRN MORE

Gordon Noble

11.1 Introduction

Evidence from the Craw Stane complex excavations was laid out in Chapter 5 of this volume, while Chapter 6 explored the sequence identified from the investigations at Cairn More. In this chapter, the evidence from both sites is reviewed and considered in greater detail. Discussion includes the survival of archaeology in the valley and extends to a consideration of the phasing and parallels for both sites, which are currently few and far between. This leads into a wider discussion on the nature of early medieval settlement in eastern Scotland and the parallels for the buildings found at the Craw Stane complex and Cairn More. While there remains a dearth of settlement in the eastern lowlands of Scotland, the dataset is slowly growing and can help illuminate the surviving evidence at the two sites considered in this chapter. The material culture from both is also summarised and reviewed, with particular consideration afforded to the exceptional assemblage from the Craw Stane complex. Towards the end of the chapter, attention shifts to the cemetery and the fascinating Pictish symbol stone monuments found in the Rhynie environs.

11.2 The known unknowns

Even on well-preserved archaeological sites, elucidating the form and character of structures can prove problematic. Identifying what has been lost through agricultural activity, cultural practices and taphonomic processes is even more difficult to gauge and presents further interpretational challenges for the archaeologist. Key sites in Scotland provide stark reminders of the impact of these processes and how they can affect our understanding of complex settlement sequences. Of particular note are the rescue excavations conducted in the 1970s at Broxmouth hillfort, East Lothian – the most comprehensively excavated Iron Age fort in lowland Scotland. At Broxmouth, a remarkable series of well-preserved roundhouses were identified alongside a complex sequence of construction and refurbishment of the enclosing elements (Armit & McKenzie 2013). However, it became obvious during the excavation and write-up that crucial detail only survived in pockets where modern and historic agricultural regimes had not removed deposits. Reuse of the site had also impacted stratigraphic integrity, with the majority of early internal occupation seemingly removed through refurbishment and occupation during the final phase of activity. Traces of the earlier settlement phases appeared to survive only in places where post-depositional events had fortuitously protected the deposits. For example, fragments of roundhouse buildings were preserved in the abandoned fort defences due to floor layers and structural features having subsided into the loose fills of backfilled ditches. The level of fragmentation and partial survival of the settlement was described as 'sobering' and reflected upon in the discussion chapter of the excavation volume:

> Broxmouth is frequently touted as the most completely excavated hillfort in Scotland . . . Yet paradoxically, one of the major contributions of the Broxmouth excavation, through its capacity to reveal these occasional isolated windows into the vanished past, is to demonstrate how little we can ever expect to survive, even in such apparently favourable circumstances. When we extend our appreciation of these destructive processes to other sites and into the wider prehistoric landscape, the realisation of what we have lost is so overwhelming (Armit & McKenzie 2013: 494).

There is no doubt that agriculture and settlement (re)organisation, amongst other factors, have had a huge impact on the survival of deposits and structures in the Upper Strathbogie valley. At the

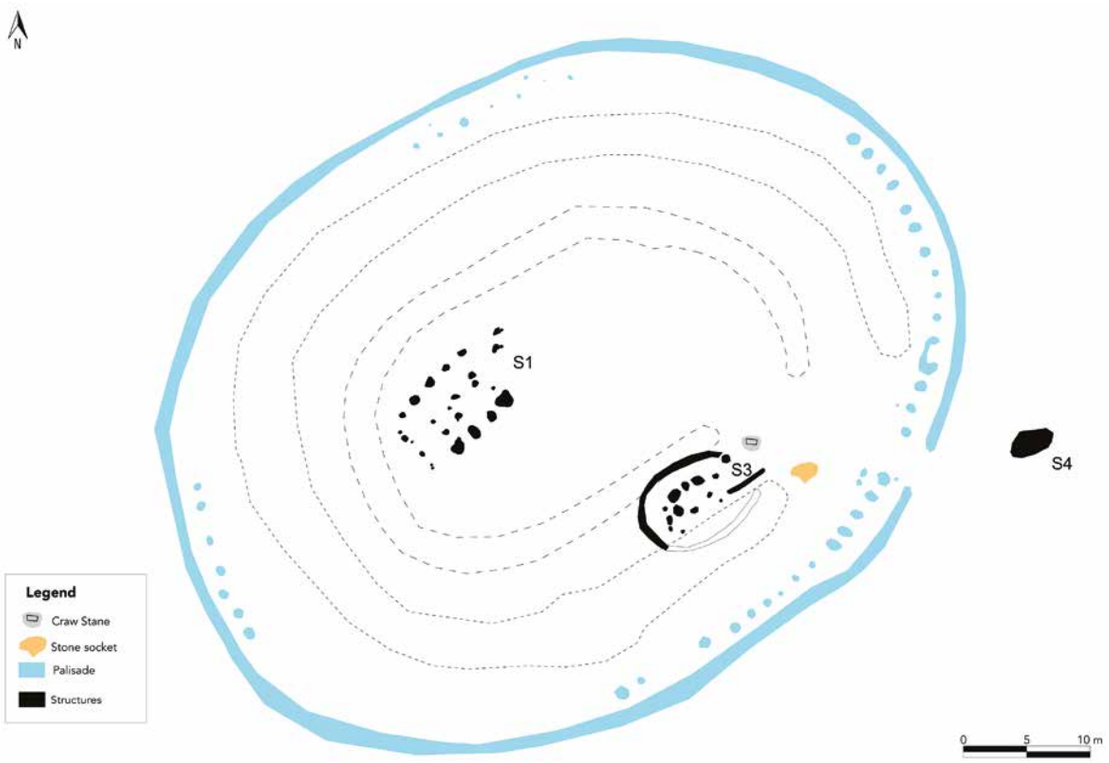
Craw Stane complex, the survival of material culture is related not only to preservation factors but also patterns of (re)deposition, with the vast majority of objects from the Craw Stane complex coming from the site's final abandonment phases. Workshop debris and midden layers appear to have been deliberately thrown or redeposited into the ditch, sometimes many years or decades after the initial formation of these deposits. Traces of buildings at the Craw Stane complex have also been undoubtedly damaged by agriculture and later use. Like at Broxmouth, the clearest traces of structures at the Craw Stane complex come from what is likely to have been one of the final phases, if not *the* final phase of occupation. Thus, the early phases of settlement of the interior of the Craw Stane enclosures could well have been removed/cleared away in the later phases of occupation, leaving only a partial picture of settlement for us to assess.

Archaeology has been most severely affected in the low-lying parts of the valley. Floor layers and hearths were identified at both Cairn More and Tap o' Noth. However, these were almost completely absent at the Craw Stane complex, with the exception of the fortuitous survival of features associated with Structure 4 (though here they are likely to represent only a very small percentage of the original building). Roy's Military Survey of Scotland (1747–55) shows that the Craw Stane complex and cemetery were situated in areas that have been cultivated from at least the 18th century onwards (Chapter 2). Periods of improvement as well as agricultural attrition are therefore likely to have affected these low-lying sites more than others. At the Craw Stane complex, impacts have undoubtedly been at the more destructive end of the scale and the ploughzone experiments reported on in Chapter 5 highlight the effects that recent agricultural episodes have had on the survival of material culture. Their impact on the architectural traces of the complex is likely to have been equally severe, with no evidence for the banks/ramparts which are likely to have accompanied the ditched and perhaps wooden components of the enclosing elements. However, even at Cairn More, which today is sited in marginal ground at the edge of a forest plantation, the impact of cultivation was clear. The large hearth in the centre of the enclosure, for example, was covered by a large spread of stones which appeared to be field clearance. Moreover, the ramparts of Cairn More consisted of only relatively modest-sized stones with very little evidence for facing, suggesting that any larger stones used in the defences had been robbed out for field walls and later buildings in the surrounding landscape (including in the substantial modern enclosure wall for the Cairn More woodland). These complex patterns of post-occupation activity must be kept in mind when considering the archaeology of the Upper Strathbogie valley.

11.3 The Craw Stane complex phasing

Located in the valley below, the Craw Stane complex was in contemporary use with the lower fort of Tap o' Noth (Chapter 4). Bayesian modelling suggests activity at the complex started in the late 4th century AD, when occupation at Tap o' Noth had already been ongoing for a century. However, the main phase of enclosure at Tap o' Noth coincided with the height of the Craw Stane

Illus 11.1
Phase 1 of the Craw Stane complex



Illus 11.2
Phase 2 of the Craw Stane complex

complex in the 5th and 6th centuries AD. There is clear stratigraphic phasing to the Craw Stane complex but separating the phases and modelling their chronology is difficult given the incorporation of residual material from the repeated recutting of features such as the inner and outer ditch. The backfilling of features after the removal of timbers, standing stones and other structural features further complicates the sequence, and a plateau in the radiocarbon calibration curve during the 5th and 6th centuries AD makes modelling even more problematic. However, the stratigraphic position of Structure 3 suggests it was built after both the inner and outer ditches had been backfilled, at least towards the entrance of the complex where Structure 3 was built. The dates for Structures 1 and 4 are more consistent given that these were built in areas that seem to have seen less in the way of reworking of earlier features or whose construction perhaps involved the removal of earlier occupation phases. The dating suggests Structures 1 and 4 were later elements of the complex (Chapter 8) and, as such, two major phases to the complex can be postulated:

Phase 1: An earthwork complex consisting of the inner and outer ditches and presumably associated banks/ramparts. No clear traces of buildings can be related to this period, though these could have been built with few earthfast elements and/or were entirely removed during Phase 2 (Illus 11.1).

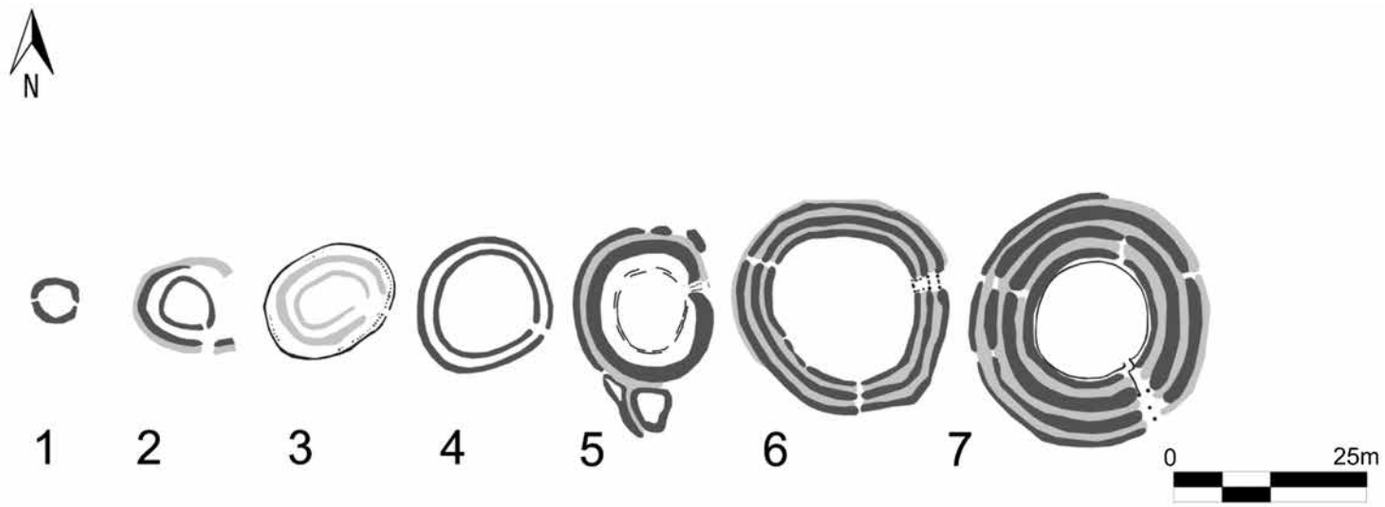
Phase 2: A timber-enclosed phase with a 'palisade' and post setting providing support for an earth or stone rampart with large internal timbers and turf-built structures within. Ditches were partly or entirely backfilled in places, though parts of the outer ditch may have remained open, particularly away from the entrance where its hollows were used as shelters for metalworking (Illus 11.2).

11.4 Exploring parallels

11.4.1 Early medieval northern Britain

The size and bivallate form of the Craw Stane earthworks closely resembles those at Cairn More, with each displaying a clear complexity to their enclosing elements. While no traces of ditched components were found in the defences at Cairn More during the University of Aberdeen excavations (though see work by Cook 2011b), the timber elements in particular indicate that their construction was a major investment in resources. The character of the *Pfostenschlitzmauern*-style ramparts may have shared direct resemblances to the outer timber enclosing works of the Craw Stane settlement, though they were not quite as complex. Radiocarbon dating has shown that the two sites were contemporary for a substantial period of time during the 5th and 6th centuries AD (Chapter 8).

The bivallate form and maximum external diameter (*c* 50m) of the Craw Stane complex Phase 1 earthworks are unusual, though limited parallels can be found in the corpus of enclosed settlements known from cropmark and upstanding examples in Aberdeenshire (RCAHMS 2007: 92–6, fig 6.20). Perhaps the most pertinent parallel is Maiden Castle, an early medieval



Illus 11.3
'Ringforts' in Pictland and Ireland: 1. Queen's View; 2. Maiden Castle; 3. Craw Stane; 4. Cairn More; 5. Clogher; 6. Garranes (Lisnacaheragh); 7. Ballycatteen

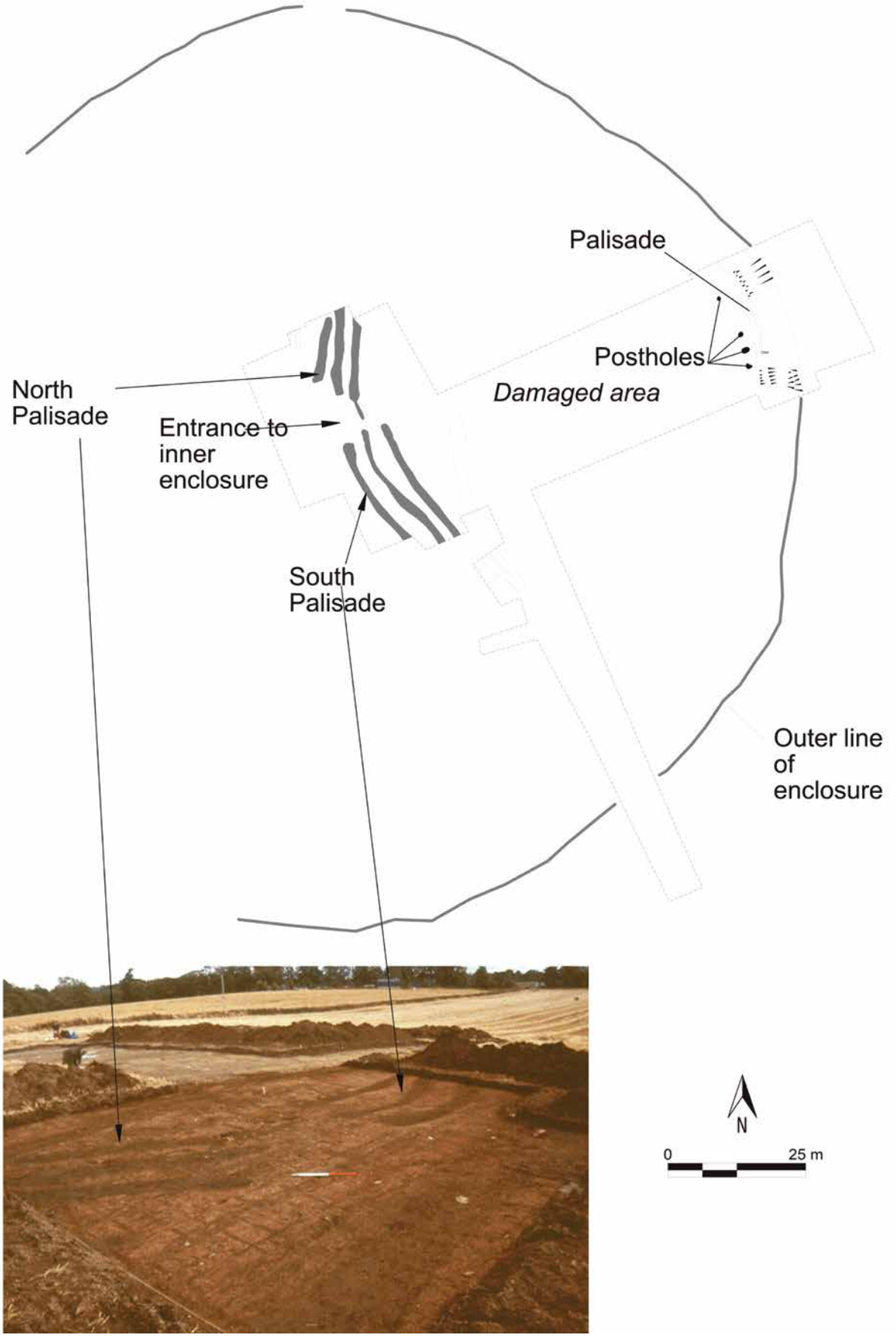
ringfort on the slopes of Bennachie, which has been dated to the 5th–7th centuries AD (Cook 2011a) (Illus 11.3). As noted in Chapter 6, Maiden Castle is an upstanding bivallate enclosure measuring *c* 35–40m in diameter with an outer ditch around 3m wide, an outer rampart 4m wide and an internal ditch 2.2m wide. A 2m thick stone wall defines an internal enclosure of around 20m in diameter. If the inner ditch of the Craw Stane Phase 1 enclosure was backed by a rampart/bank of *c* 2–3m thickness, then the internal area would have been around 25m x 14m – a similar area to that enclosed at Maiden Castle.

While the internal area at Cairn More would have been larger than that at Maiden Castle, both sites share similarities in their walled enclosures and were again broadly contemporary. One point of divergence is the lack of elaborate timber framing at Maiden Castle, although excavations there have been relatively small in scale. Both sites presented evidence for extra-mural activity, suggesting that settlement was not limited by their enclosing elements The landscape setting of the sites provides another compelling point of comparison. Maiden Castle is overlooked by Mither Tap o' Bennachie, an early medieval 'nuclear fort' built on the most prominent peak of Bennachie, that has recently had phases dated to the 7th–8th centuries AD (Noble & Evans 2022: 106–7). Close to both Maiden Castle and Mither Tap is the Maiden Stone, Aberdeenshire's most impressive early medieval cross-slab, as well as the Maiden Causeway, a linear earthwork which seemingly links the two sites (Cook 2011a). This landscape, like that of Rhynie, appears to have contained multiple high-status early medieval sites and monuments.

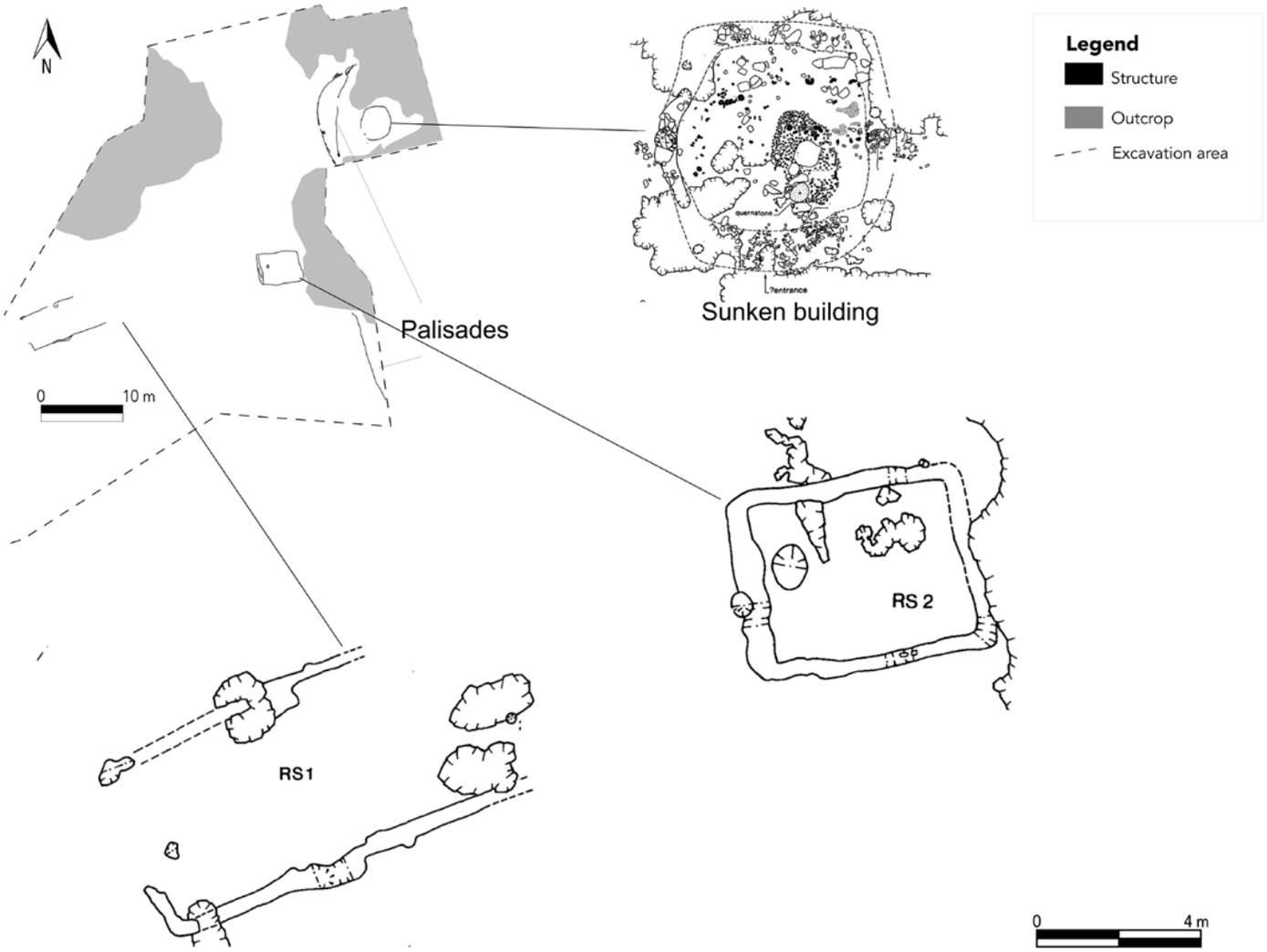
In contrast to Phase 1, parallels for the Phase 2 outer timber setting at the Craw Stane complex are harder to find. Comparison with the palisaded enclosures of early medieval Scotland highlights the complexity of the Rhynie example and the unusual material assemblage associated with the later phase of activity at the Craw Stane complex. For example, palisade lines that divided the interior of a ditched enclosure at Upper Gothens, Perthshire, appeared to be little more than relatively modest fences (Barclay 2001) (Illus 11.4). The excavator interpreted the site as a high-status settlement, and perhaps an estate centre; however, few finds were recovered to support this hypothesis (Barclay 2001: 43). The site is therefore likely to have had a more localised role and significance than the Craw Stane complex. Moreover, this was a much later site, with two radiocarbon dates from the exterior ditch and internal palisade lines providing broadly similar results that suggested a 9th- or 10th-century date for the enclosure.

Another example is the late first-millennium palisaded enclosure at Titwood in Mearnskirk, East Renfrewshire. Here, a sub-circular enclosure measuring around 36m north/south by 41m transversely was defined by a palisade slot that held closely set timbers and possibly planks (Johnson et al 2003). Within the interior of Titwood, a series of linear slots and posts may have been the very truncated remains of buildings constructed up against the northern side of the enclosure, though again there was none of the complexity of the Craw Stane enclosure complex nor the richness of finds (Johnson et al 2003: 136). A possibly earlier example of a palisaded enclosure in early medieval Scotland can be found at Ratho, Edinburgh, where two or three lines of palisade were found in association with a probable sunken-floored building and two rectilinear structures (Smith 1995) (Illus 11.5). Two curvilinear palisades *c* 14–15m in length extended between areas of bedrock and may have enclosed a building, while a third stretch of palisade to the south suggests the areas enclosed could have been more extensive. Though none of the palisades at Ratho were directly dated, one of the palisade fills contained a copper-alloy nail-headed pin comparable with examples found at Rhynie and Dunadd (Smith 1995: 103). A small number of radiocarbon dates recovered from the sunken building at Ratho suggests a 6th- to 8th-century AD date for the settlement, but again the palisades at Ratho were relatively slight and the finds comparatively few.

In expanding the search for parallels, more compelling examples of elaborate timber enclosures may be found in the early phases of hillfort complexes in northern Britain, where they are typically accompanied by much richer finds assemblages. One notable site is



Illus 11.4
Plan of the Upper Gothens palisaded enclosure



Illus 11.5
Plan of the palisades and timber buildings at Ratho, Edinburgh

Dundurn in Perthshire, where the early phases appear to have included a palisade or timber stockade of some kind that utilised complex carpentry and both post and plank elements – similar to that which must have been used in the Rhynie outer enclosure wall (Alcock et al 1989: 200, illus 8, 201). Both imports and evidence for locally produced elite material culture were found at Dundurn, including high-status metalwork production (Alcock et al 1989: 214–22). The associated dates for this 'palisade' centre on the late 6th century AD, again making it later than the Rhynie complex. Perhaps directly overlapping in date with the Phase 2 enclosure at the Craw Stane are the remains of some form of palisade and post setting at Craig Phadrig hillfort in Inverness. Recent work at the site identified a potential post setting dug into the remains of the rampart of the Iron Age vitrified fort, with charcoal samples from the fill dating to the 5th–6th centuries AD (Peteranna & Birch 2019). A post hole found within this line might suggest this enclosure was of a complex form, though the scale of trenching limits comment. However, if the line of the outer foundation slot followed the destroyed Iron Age rampart, it would have enclosed an area *c* 75m x 25m (0.18ha), only marginally larger than the area enclosed by the Craw Stane complex. Like Dundurn, both imports and evidence for high-status metalwork were found at Craig Phadrig (Small & Cottam 1972).

Looking further south, palisades or enclosing complex timber outworks have been suggested to be a feature of a number of elite Anglian settlements in south-east Scotland. At St Abb's Head in the Scottish Borders, Leslie Alcock found two lines of palisade under a complex rampart at a site that may be referred to in various Anglo-Saxon sources as *Colodesbyrig/Colodaesburg* (Alcock et al 1986: 262–4). The rampart could have enclosed an area up to 3ha, but whether the palisades followed the line of the later rampart for its full course is unknown and their relevance as a parallel to the Craw Stane is uncertain. Alcock linked the palisades with a secular fortification implied by the *burg* element in the *Colodaesburg* place-name. However, the enclosure could also be potentially associated with an early phase of the monastic settlement recorded at this location,

perhaps acting as a vallum enclosure of some kind. Another Anglian settlement in the Borders at Whitmuirhaugh, Sprouston, is associated with two different palisaded enclosures, one of which is around 0.72ha in extent, though neither has been directly dated (Smith 1991: 272). A confirmed early medieval palisade did form part of the defence of Phase 8 of Dunbar and would have enclosed an area of around 0.47ha, but here the palisade appears to have cut off a coastal promontory so again does not provide a direct parallel to the Craw Stane complex (Perry 2000: 59). However, the standing of Dunbar as a high-status *urbs regis* Anglian settlement is notable (Alcock 2003: 212–7; Perry 2000: 7, 29–63).

Further south, the 'Great Enclosure' at Yeavering was formerly believed to be a palisaded enclosure associated with an Anglo-Saxon elite centre (Hope-Taylor 1977). Recent work by the University of Durham has since shown that this was actually a prehistoric enclosure that was largely levelled by the time some of the fence lines associated with the Northumbrian palace complex were constructed (Sarah Semple, pers comm). Additional palisades can be found nearby at Milfield, where the largest example, a massive 12ha palisade, appears to have enclosed a royal hall complex (Gates & O'Brien 1988: 3, fig 1). This is obviously of a different scale to the enclosure complex at Rhynie, but similarities can be found in a smaller palisade that surrounded the main series of hall buildings at the heart of the Milfield settlement (Gates & O'Brien 1988: 3, fig 1). This smaller example measured 140m east/west by 50m transversely and was divided into three sections, with the largest hall straddling the middle and westernmost enclosures. The smaller halls were central to the middle enclosure, which was square and around 50m across. Given the position of the largest hall, it may be that the smaller enclosure with the smaller halls represented an earlier phase that would be comparable in size to the Rhynie enclosure complex. However, Milfield does not yet have a secure chronology other than it is likely to have post-dated Yeavering (Hope-Taylor 1977: 4–5). The danger of over-interpreting these sites based on morphology or perceived date alone is evident from the re-examination of the Great Enclosure at Yeavering, as well as Doon Hill in East Lothian (Ralston 2019). At the latter site, large timber longhouses were identified by Hope-Taylor as comprising a series of Anglian halls enclosed by a circular palisade, and were formerly cited as a direct parallel for the Craw Stane complex (Noble & Gondek 2011: 321). However, both the buildings and the palisade at Doon Hill have now been shown to be Neolithic in date (Ralston 2019).

11.4.2 Other Insular parallels

With regards to the evidence outwith northern Britain, no early medieval palisaded/timber enclosures have been identified in either south-west England or Wales, although several examples are now known from Ireland. Whilst Irish early medieval enclosed settlements have generally been classified into forms defined by earth and stone ramparts, a series of timber-defined enclosures dating to this period have been identified through development-led excavations. These include sites such as Lowpark (Co. Mayo), Ballynagallagh (Co. Limerick) and Adhadegnan (Co. Longford), all of which have historical associations or finds assemblages that indicate some degree of status. The initial settlement at Lowpark was unenclosed and associated with ironworking but a secondary phase included a double palisade around 40m in diameter (Gillespie 2007). The palisades were associated with a series of features including internal pits and post holes, a souterrain, and what may have been a large rectangular timber building and the remains of a large roundhouse. Over 1.34 tonnes of iron slag were recovered from the site, alongside a large assemblage of artefact that included iron knives, quern stones, copper-alloy ring-pins, a bone pin, beads and a gold filigree panel of likely 6th- to 7th-century date (Gillespie 2007: 19, 23). A larger double palisaded enclosure dating to the 8th–9th century cal AD was excavated at Ballynagallagh, Lough Gur, Co. Limerick (Cleary 2006). Here, small quantities of iron slag, furnace bottoms, iron objects, a copper-alloy tube and clip, and a possible clay mould indicated the presence of onsite metalworking (Cleary 2006: 27). The site may have been connected to the *Eóganacht of Áine*, a royal lineage from Munster, whose seat was at Knockainey a few kilometres to the south-east (Cleary 2006: 35). A further early medieval palisaded site at Adhadegnan, Co. Longford, comprised a multiphase enclosure around 24m in diameter and appeared to have been in use during the 4th–6th century AD, making it closer in date to the Craw Stane complex than the other examples (Kerr et al 2009: 395–6). Within the enclosure at Adhadegnan, ironworking debris was found alongside the remains of a possible smithing workshop. Overall, these recent findings from Ireland are a significant development in our understanding of early medieval palisaded enclosures. While none provide a direct parallel for the Craw Stane Phase II enclosure in terms of architecture, the connections to the *Eóganacht of Áine* at Ballynagallagh and the metalworking evidence from all three sites provides some indication that these enclosures held an elevated status. However, none of the sites showed evidence for Mediterranean or continental imports, nor the full density or richness of metalworking evidence found at the Craw Stane complex.

Perhaps better parallels for both the character of the enclosure complex and the finds assemblage of the Craw Stane complex are a small number of high-status and relatively early ringforts found at Clogher (Co. Tyrone) and Garranes (Co. Cork). Clogher was a royal centre of the kings of *Ui Chremthainn* of the chief kingdoms of Airgialla (Warner 1988: 58; Warner 2000b). The early medieval settlement at Cloghers was constructed within a 1.5ha Late Bronze Age hillfort and its early phases included a large wooden enclosure *c* 50m in diameter (Waddell 1998: 270, 277; O'Brien & O'Driscoll 2017: 25, 33). The post-built enclosure was constructed in association with an external flat-bottomed ditch, with counterscarp bank and an additional palisade on the outside (Warner 1988: 58). A series of midden layers in the primary ditch fill produced a multitude of high-status finds including imported glass and pottery, metalworking evidence such as crucibles and bronze droplets, and complete precious metal objects. Clay moulds attest to the onsite production of penannular brooches, as does workshop debris that was found scattered throughout the interior. Both the character of the finds assemblage and the architecture of the 5th- to 6th-century phases at Cloghers provide compelling similarities with the Craw Stane evidence.

Another intriguing parallel for the Craw Stane complex (and Cairn More) is the cluster of ringforts at Garranes, Co. Cork, the seat of the *Uí Echach Muman* of Munster. The largest ringfort in the Garranes landscape is Lisnacaheragh (Illus 11.3) – a circular

enclosure of around 110m diameter surrounded by three closely spaced banks and ditches (O'Brien & Hogan 2021: 1). Another large enclosure, Lisnamanroe, lies 80m to the west of the site (O'Brien & Hogan 2021: 1). Lisnacaheragh was the focus of extensive craft working and imported pottery and glass, with its Late Roman amphorae assemblage being the largest known in Ireland (O'Brien & Hogan 2021: 261, fig 7.28). Cruickshanks (Chapter 7) highlights the close parallels between the material assemblage at Lisnacaheragh and the Craw Stane complex.

The richness of its import evidence and craftworking marks Lisnacaheragh out from the more typical Irish ringfort, but another indicator of difference, is the complexity and number of its enclosing elements. Around 80% of Irish ringforts were univallate, with the majority of the remainder consisting of bivallate enclosures (Stout 1997). Only a very small number of trivallate enclosures like Lisnacaheragh have been identified. Across Ireland, larger multivallate forts tend to be associated with higher-status finds and this may reflect 7th-century legal texts that appear to link enclosure complexity and status (Stout 1997: 123–6; O'Brien & Hogan 2021: 6–7; though see discussion in O'Sullivan et al 2014: 82, 189–92; O'Brien & Hogan 2021: 353). Certainly, the rich assemblage of artefacts including Mediterranean and continental imports found at Lisnacaheragh, and at an even more complex ringfort at Ballycatteen (Co. Cork), suggest that multivallate ringforts did tend to have an elevated status (Ó Ríordáin & Hartnett 1943; O'Brien & Hogan 2021).

Overall, there are nuances in the early medieval Garranes landscape that mirror those of the Upper Strathbogie valley. At Garranes, the majority of imports were identified at Lisnacaheragh while only a handful of sherds of imported pottery and glass were found at Lisnamanroe, despite it being contemporary and only 80m away. The excavators interpreted the relationship between the two in terms of a steeply hierarchical society, with Garranes likely to be the residence of a petty king while Lisnamanroe may have been of less elevated status, possibly that of a dependent lord or high-status client (O'Brien & Hogan 2021: 314, 353, 357–8). This relationship may be pertinent for considering the links between the Craw Stane complex and Cairn More within the Rhynie environs (see Chapter 12).

11.4.3 Summary

At present, there are few direct parallels for the Craw Stane complex and Cairn More ringfort to be found amongst the archaeology of northern Britain. The earthwork elements can be paralleled in north-east Scotland across sites classified as ringforts, though there are currently very few with confirmed dates in the early medieval period (Noble & Evans 2022: 101–2). The timber enclosure at the Craw Stane complex is even more unusual and whilst very broad parallels can be drawn to the early phases of high-status hillforts such as Dundurn and Craig Phadrig, the hilltop setting of these is a contrast to the more low-lying setting of Rhynie. Scottish palisaded enclosures that *are* found in low-lying settings fail to match the richness of evidence or the complexity of the enclosing works of the Craw Stane complex, and currently the specific morphology and character of the Craw Stane complex remains unique in its regional setting. The most compelling non-local parallels are the Irish royal sites of Clogher and Garranes, where the size and character of the enclosures, their relatively low-lying location and the concentration of import evidence and craft production provide closer parallels to the Craw Stane complex and its material remains.

11.5 Settlement in eastern Scotland

11.5.1 History of research

In his chapter on 'Houses and Graves' in the 1955 volume *The Problem of the Picts*, Wainwright began with this sentence:

> It is a sad, if somewhat surprising, fact that we cannot with confidence affix the label 'Pictish' to a single dwelling or to a single burial (Wainwright 1955: 87).

Wainwright was at pains to identify what a Pictish house may have looked like, though he was aware of the potential of a settlement archaeology of the Picts and recognised that this would permit a much closer examination of their economy, lifestyle and vernacular traditions. Wainwright pointed to the post-broch settlements of sites like Jarlshof on Shetland as one way to proceed in recognising Pictish period dwellings. Indeed, in the decades that followed, a range of first-millennium AD settlement types were identified in the Northern Isles including cellular, figure-of-eight and rectilinear building forms at sites such as Scatness in Shetland and Howe, Buckquoy and Pool on Orkney (Ritchie 1977; Ballin Smith 1994; Hunter 2007; Dockrill et al 2010).

However, in eastern Scotland, identifying early medieval settlement has continued to be more problematic (eg Maxwell 1987: 33–5; Ralston 1997; Driscoll 2011: 257–64; Noble & Evans 2022: Chapter 2). One of the few breakthroughs was made in the Perthshire uplands, where a tradition of longhouses known as Pitcarmick-type buildings has been recognised. These comprise turf-walled longhouses with one end for residence and a paved byre end for housing animals (Carver et al 2012: 146, 161; Strachan et al 2019). What characterised early medieval settlement in the lowlands of mainland Scotland, however, continues to allude investigators. A few sites, such as those represented by cropmarks at Lathrisk, Fife or Newbarns, Angus (see below) may suggest that Pitcarmick-style buildings were a feature of lowland landscapes too, though this idea remains largely untested (Dunwell & Ralston 2008: 137). Indeed, much of the lowland settlement evidence appears to have been highly truncated and typically presents as isolated features such as crop-drying kilns, pits and post holes, and areas of paving. Frustratingly, this poor level of survival reveals little detail of the nature of lowland settlement and its economy (eg Coleman & Hunter 2002; Cook & Dunbar 2008: 149; Dunwell & Ralston 2008: 135–6; Noble & Evans 2022: Chapter 2).

Studies of the Pictish lowlands have tried to draw on the aerial record to fill the lacuna. Driscoll (1991), for example, attempted to use the aerial record in a consideration of state formation in lowland Scotland, but many of the sites highlighted remain to be investigated by the spade or have been shown to be earlier in date than the Pictish period (Driscoll 1991: 95, 104). Preconceived notions of what Pictish settlement in the lowlands may have looked like have also hampered progress. For example, since the 1970s, the aerial record of eastern Scotland has been

searched for hall-like buildings of the kind found at Anglo-Saxon royal settlements. This was largely influenced by Hope-Taylor's work at Yeavering and Milfield, and the (misinterpreted) findings at Doon Hill which suggested that early medieval timber halls could be identifiable in Scotland (Ralston 2019). Possible examples of halls were recorded in the earliest sorties of the Royal Commission and led to the excavations of the timber hall at Balbridie in Aberdeenshire, which (like Doon Hill) turned out to be Neolithic in date (Reynolds 1980; Fairweather & Ralston 1993). Other identified halls in the aerial record such as Boysack and Noranbank in Angus, and Newbiggins and Wester Fintray in Aberdeenshire are equally likely to be Neolithic (see Maxwell 1987: 33, fig 1). Elsewhere in Aberdeenshire, a cropmark at Mondboddo, cited in the literature as a likely Pictish hall (eg Foster 1996: 58; Ralston 1997: 29), proved to be a post-medieval barn set within a plantation enclosure (Noble & Sveinbjarnarson 2012: 18). Examples from Muirton in Moray and Glendruidh in Inverness-shire have also turned out to be doubtful (Carter & Russell-White 1993). The results here again warn of the dangers of interpreting too much from the aerial evidence and of presuming that certain structural forms found further south may have also characterised the architecture of Pictland.

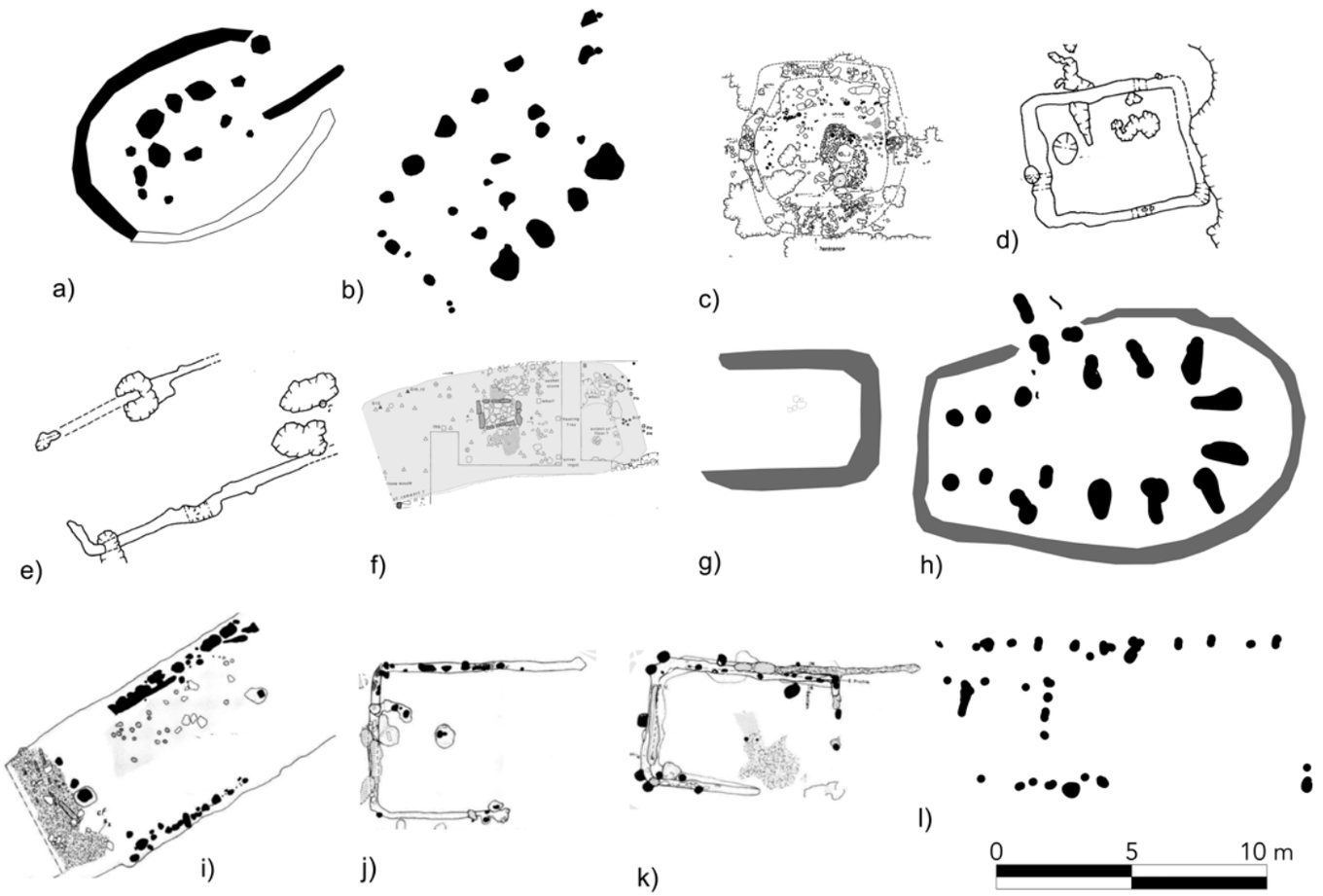
Only two large timber buildings dating to the first millennium AD are known from the eastern lowlands of central and north-east Scotland. A structure at Newbarns was excavated by the University of Edinburgh's Angus Field School in 1999, and was found to be rectangular with rounded ends and measured *c* 18m long and 6m wide (McGill 2004; Dunwell & Ralston 2008: 138–40). The wall line was defined by a shallow slot with the impressions of rounded and squared timbers evident at the base. External and internal posts may have formed the foundation of crucks or external buttresses, but the foundations for this structure were much more modest than the hall complexes of Anglo-Saxon England. Indeed, Newbarns may not have been a hall at all – it could have been a lowland example of a Pitcarmick-style byre-house (Dunwell & Ralston 2008: 140; Strachan et al 2019: 124) or even an agricultural structure, as no obvious hearth was identified and a range of crop-processing pits were found nearby. The Newbarns structure was also relatively late, with radiocarbon dates spanning the 8th–11th centuries AD. A further large timber building has since been identified at Callendar, Falkirk, immediately south of the Antonine Wall. The building was at least 15m long and 7m wide internally and defined by a shallow rectangular gully with rounded ends that may have held timbers that faced a turf wall (Bailey 2007: 49). A central line of post holes suggests the building was a two-aisled structure, and part of the building was paved. Like Newbarns, the building was relatively late, with radiocarbon dating suggesting 9th-century occupation, and scant finds evidence precluded any understanding about its status or function. Overall, despite decades of aerial photography, development and research-led fieldwork, only a handful of Pictish period structures can be identified in the lowlands of eastern Scotland. This is particularly pronounced for the earlier part of the Pictish period *c* 4th–7th centuries AD, and the remains that have been found suggest relatively modest structures. Consequently, the range of building forms found at the Craw Stane complex, Cairn More and Tap o' Noth, despite their fragmentary state, are very welcome additions to the settlement corpus of first-millennium AD lowland Scotland and can help situate and illuminate a number of settlement trends in this era.

11.5.2 Architectural trends

The Scottish Archaeological Research Framework notes the rarity of early medieval structures, with only a handful of examples known on the mainland (ScARF 2012: section 1.4). In the lowlands, it seems likely that the main reason for this was the character of early medieval buildings, whereby the majority were built with turf walls with timber framing that incorporated very few earthfast elements (Ralston 1997: 24; Noble et al 2020a; Noble & Evans 2022: Chapter 2). In areas subjected to repeated cultivation, the detection of non-earthfast timber or turf architecture will undoubtedly prove problematic and will likely continue to hamper our search for Pictish period settlement. While the likely hundreds of buildings at Tap o' Noth are a surprising addition to the corpus from first-millennium AD Scotland, it is a sobering thought that none of these structures would have survived in more low-lying settings given the levels of truncation in such prime agricultural zones.

Like those at Tap o' Noth, the structures identified at Cairn More had few associated post holes or earthfast structural features, despite large squared posts being used extensively in the revetment for the ramparts of the fort (Chapter 6). Shalen Prado's innovative analysis of the exterior structure at Cairn More (Chapter 8) has conclusively shown that this building did indeed have turf walls, which are evidenced by phytolith and micro-algae signatures preserved within the floor layers. Elsewhere in Pictland, similar evidence for turf walling is suggested by the few examples of buildings identified in early medieval hillforts in eastern Scotland. For example, at Clatchard Craig in Fife, investigations of the upper citadel revealed a floor layer and central hearth of a rectangular building *c* 9m x 4m but no outer wall or posts were identified (Illus 11.6f). The only evidence for a wall line of any kind was a pivot stone indicating a doorway at one end of the building. At Portknockie, a promontory fort on the Moray coastline, excavation revealed the truncated remains of a turf-walled, sub-rectangular structure around 7m x 5.5m that was aligned east/west with an open (or truncated) western end (Ralston 1987: 20–1) (Illus 11.6g). The only structural feature other than the wall identified was a probable post pad towards the centre of the building.

As a whole, the evidence from eastern Scotland strongly suggests that turf-walled cruck-framed buildings with few earthfast features were the norm in the Pictish era and that identification of such structures in the arable lowland zones will remain a challenge. The difficulty of finding settlement in eastern Scotland mirrors that of other areas such as western mainland Scotland and Wales. In Argyll, for example, the mid to later first millennium AD has a very sparse settlement record consisting almost entirely of enclosed settlements, principally hillforts and duns, along with a handful of crannogs. Within these enclosed settlements, few coherent ground plans of internal buildings are identifiable (Lane & Campbell 2000: 255–8; Campbell & Batey 2016). Likewise in Wales, it is principally through enclosed sites that the settlements of the early medieval period have been identified, though the corpus of unenclosed settlement has been very slowly growing (Edwards 2023: 137, 159). Here, the paucity of



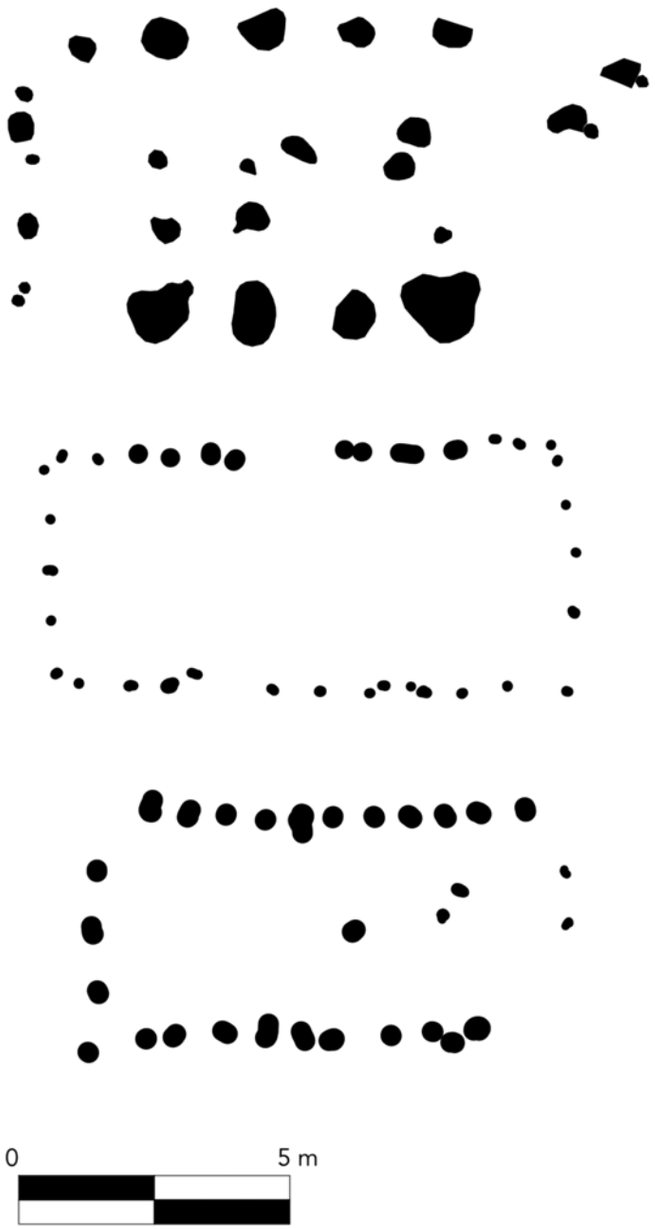
Illus 11.6
Comparative plans of select early medieval buildings in Scotland: a) Rhynie Structure 3; b) Rhynie Structure 1; c–e) Ratho; f) Clatchard Craig; g) Portknockie; h) Portmahomack S1; i) Dunbar Building 5 j) Dunbar Building 2 k) Dunbar Building 1; l) Lockerbie Phase I

early medieval buildings has similarly been ascribed to the use of turf and timber structures with few earthfast remains (Campbell & Lane 1993: 61; see also Edwards 2023: 173–6). Overall, the patchy evidence from western and northern Britain, and the commonplace use of turf and non-earthfast forms of construction, contrast strongly with the much more substantial post-built and timber-framed buildings in eastern England (eg Hamerow 2012), and makes the identification of any early medieval buildings in north-east Scotland notable.

11.6 The Rhynie buildings and their wider context

As evidence of Pictish architecture, the partial remains of Structures 1, 3 and 4 identified at Rhynie can seem very slight. However, given the general dearth of domestic buildings of this period (and the now clear evidence for the use of non-earthfast construction methods and turf walling in nearly all identifiable contemporary buildings on mainland Scotland), the finding of any sort of structural elements, however truncated, is noteworthy. Had the buildings within the Craw Stane complex been built solely in the manner of the turf or stone-walled structures excavated at Dunnicaer or Clatchard Craig (see Noble et al 2020a; Noble et al 2022; Close-Brooks 1986), it is unlikely that any trace would have survived the repeated ploughing of the field in the 1970–90s and that of any previous decades/centuries. Clearly the buildings at Rhynie did employ some earthfast elements, suggesting their construction was of a relatively unusual form for this era.

Structure 1 at the Craw Stane complex had the most obvious archaeological footprint, which consisted of a rectangular arrangement of large post holes, some of which supported squared timbers. These suggest that the structure was substantial, with the posts perhaps being roof-bearing or the foundation for cuppill trusses (see Strachan et al 2019: 121). If these were indeed central roof-bearing posts, Structure 1 would have had to have outer turf walls. In such turf-built traditions, rectangular structures are known to have extended up to 8–9m wide (Strachan et al 2019: 129). Alternatively, if the posts represented the outer walls, then the minimum size for Structure 1 would be around 5m x 8–9m. This would have been similar in size to the 7th-century building within the upper citadel of Clatchard Craig, which was also likely to have been a turf-walled building (Close-Brooks 1986: 143–5) (Illus 11.6f).



Illus 11.7
The Craw Stane Structure 1 (top) compared to two post-built structures from Mucking, Essex

In terms of its shape and size, Structure 1 resembles Buildings 1 and 2 found in Phase 7 of the high-status Anglian enclosed settlement at Dunbar, East Lothian (Illus 11.6i–k). Like Structure 1, both Buildings 1 and 2 were timber-built and had no evidence for a wall line on their eastern side. Other architectural parallels at Dunbar include the use of planks as well as posts, which were found at Structure 3 in the Craw Stane complex. The timber buildings at Dunbar were also relatively modest in size, ranging from around 6.5m to 13.5m in length. Though the chronology for Dunbar is generally poor, radiocarbon dates associated with the earlier buildings calibrate to the 5th and 6th centuries AD, suggesting they were broadly contemporary with the Rhynie examples. The probable Anglian trench-built rectilinear structures found at Ratho, East Lothian, were also comparable in size to Rhynie Structure 1 (Smith 1995: 100), as was a *c* 5m x 12m post-built structure that pre-dated a larger 7th-century Northumbrian hall building at Lockerbie in Dumfries and Galloway (Kirby 2011) (Illus 11.6c–e, l). Indeed, further south, the majority of Anglo-Saxon buildings in southern England prior to the 7th century rarely exceeded 12m in length (Gardiner 1993: 38; Hamerow 1993: 8, figs 54–6; Hamerow 2012: 22). Examples include the 5th- to 6th-century post-built structures at Mucking, Essex, and the 'hall-houses' of West Stow (West 1985: 10–4, 111–12; Hamerow 1993) (Illus 11.7).

Structure 3 at Rhynie was severely truncated, having been constructed on a notable slope with the downslope side of the building lost entirely. The interpretations of form and shape outlined in Chapter 5 would suggest this was an oval structure, with the only direct parallel being the heel- or bag-shaped buildings found at Portmahomack (Carver et al 2016: 214–16). Despite the Portmahomack examples being larger and constructed much later in the 8th–9th centuries AD, broad similarities can be identified. S1 at Portmahomack was supported by eight larger posts at the wider end of the building – similar to the six or seven posts that were present in the centre of the Rhynie structure (Illus 11.6h). Additionally, smaller posts like those found at Rhynie were also evident in the narrower north-east end of S1 (Carver et al 2016: 38). An outer wall trench of the Portmahomack structure was argued to consist of a stone foundation for a turf wall that was revetted on the inside by planks. Structure 3 at the Craw Stane complex may have been built in a similar manner, with the wall trench and charred plank fragments found in the interior perhaps the vestigial remains of internal wall cladding for turf outer walls. This interpretation is made possible by the very partial survival of the outer wall slot – a seemingly fortuitous consequence of the need to dig the upslope wall foundations into the subsoil. Without this survival, the building remains would have consisted only of a series of closely spaced post holes and the recognition of this structure as a building of any kind may have been missed.

The survival of Structure 4 was perhaps even more remarkable. The floor layer lay directly on the subsoil and extended for around 3m north/south by 2.8m east/west, and would have undoubtedly been removed by later ploughing had it not been for the hillwash in this area of the site. Despite this, the floor is still likely to be just a fragment of what originally survived. Indeed, this could have been a substantial building given the large, charred oak timbers found in the interior which may have come from roofing or timber framing (Chapter 5). The partly preserved remains of Structure 4 are reminiscent of the floor found just outside the outer enclosure of Cairn More, where phytolith analysis was able to confirm the presence of turf walling and provide possible evidence of a grass and heather thatched roof (Chapter 8). Many more of these turf-built, timber-framed structures could have been present at the Craw Stane complex but are highly unlikely to have survived the repeated ploughing of this field in the late 20th century (Chapter 5).

Despite their truncated nature, the limited structural traces from the Craw Stane complex can shed light on wider architectural transformations. The ground plan of Structure 1 suggests

that rectangular architecture was present at the Craw Stane complex from the 5th or early 6th century at the latest. Some of the structures on Tap o' Noth (Chapter 10) may have also been sub-rectangular. Recent discoveries at Dunnicaer, Aberdeenshire, indicate that rectangular buildings were present in north-east Scotland from at least the 3rd or 4th centuries AD. This adoption of rectangular architecture is notably earlier than what has been identified in Ireland, where the tradition was not common until the late first millennium AD (O'Sullivan et al 2014: 92–3). However, Structure 3, like the heel-shaped buildings at Portmahomack, appears to represent a transitional form between circular and rectangular architectural traditions, while the external building at Cairn More and many of the house platforms at Tap o' Noth imply that circular architecture simultaneously continued to be used. This suggests that Late Roman Iron Age to early medieval settlement in north-east Scotland was characterised by a diversity of architectural forms. This diversity is also evident in the post-broch phases of settlement in the Northern Isles in the early to mid-first millennium AD, where a range of cellular, rectangular and round structural forms are known and even intermixed at the individual site level (Noble & Evans 2022: 71–9). Such diversity may reflect increasing social stratification in this era, with different architectural forms potentially indicating differences in status (though functional differences and the independent evolution of vernacular form may also have contributed to the broad range of architectural types now recognised in Pictland).

Looking further afield, both rectangular and circular building forms are known from early medieval Wales and Ireland – a contrast to the dominant rectangular form that was present in Anglo-Saxon England (O'Sullivan et al 2014: 88–93; Edwards 2023: 134–82). In Ireland, early medieval roundhouses were built of stone, turf, or timber and wattle, and consisted of single or double-roomed dwellings that leave relatively ephemeral traces of their archaeological signature and materials (O'Sullivan et al 2014: 90). Rectangular buildings were built in a similar manner, with stone, earth or turf used for walling, though they may have been slightly more robust given the use of elements such as stone foundations (O'Sullivan et al 2014: 93). In either case, where early medieval buildings do survive in Ireland they tend to be of relatively modest proportions. For example, at Moynagh Lough crannog, a royal site mentioned in the Déisi genealogies, the largest house was found to be only *c* 11m in diameter (Bradley 2011: 23). At Garranes, the only surviving building within Lisnacaheragh ringfort was a 9m diameter roundhouse (O'Brien & Hogan 2021: 96). Rectangular dwellings in Ireland were similarly modest, with average lengths of around 6–8m (O'Sullivan et al 2014: 93). In early medieval Wales, both rectangular and round buildings were constructed using timber, clay, turf and stone, and were of generally modest scale (Edwards 2023: 174). Rectangular buildings are known from at least the 7th century, but the tradition may go earlier in some parts of Wales (Edwards 2023: 181).

Overall, while it is difficult to summarise patterns on an inter-regional scale, the evidence from Pictland for architectural diversity and the relative modesty of structure size and materials has much greater resonance with western Britain and Ireland than it does with Anglo-Saxon England. In the latter, nearly all buildings were rectangular from at least the 7th century onwards and even in rural settings could be of substantial size and built using comparatively robust materials (eg Hamerow 2012). Indeed, the buildings in Pictland contrast sharply with the monumental proportions of the hall complexes known at 7th-century *villa regis* centres (eg Thomas 2018), though Structure 1 may be comparable with the larger timber buildings known from 5th- and 6th-century Anglo-Saxon sites such as Dunbar, Lockerbie and Mucking (Hamerow 1993; Perry 2000; Kirby 2011). With regards to function, the truncated level of the structures makes it difficult to say much about the roles these buildings played at the Craw Stane complex or at Cairn More. Structure 1 is likely to have been the largest building and was located closest to the centre of the Craw Stane enclosure complex. In this respect, it may have played a central role in the functioning of the site, perhaps acting as both a residence and a place where feasting took place (Chapter 12). By contrast, Structure 3 appears to have been located right next to the Craw Stane and the socket for another stone. Its location and unusual architecture suggest it may have played a more specialised role, perhaps even some form of cult or ritual building similar to those found at magnate complexes in Scandinavia (see discussion in Chapter 12). Structure 4 shows that settlement also occurred outside of the enclosure complex and highlights the difficulties in interpreting the density of structures and their roles at the complex, given that other buildings of this form may well have been entirely removed by ploughing. Indeed, the geophysical evidence and aerial photographic evidence hint that more structures may survive outwith the immediate area of the Craw Stane complex (Chapter 5, Section 5.3); however, the dating and veracity of these features will have to await future exploration. At Cairn More, a building similar to Structure 4 survived better due to the collapse of the outer rampart and less intensive modern cultivation at this site, but even here the evidence was slight. In the interior of Cairn More, a very substantial hearth survived, though the outline of this building, and its size and form, again alludes full characterisation.

Nevertheless, while the structures identified at the Craw Stane complex and Cairn More were not well preserved, their survival is notable given the lack of domestic architecture from Late Roman Iron Age and early medieval contexts across lowland Scotland. Buildings appear to have been constructed using a range of non-earthfast materials including turf, timber and plank framing, but those at the Craw Stane complex were clearly more elaborate and of a different form to the majority of structures we know of from eastern Scotland during the mid to later first millennium AD. The external building at Cairn More has the most direct evidence for the use of turf (Chapter 8), but the structures at the Craw Stane complex and in the interior of Cairn More are also likely to have used such materials. The origins of the turf-built, late first-millennium AD Pictcarmick-style longhouses of central Scotland have been sought along the rim of the North Sea and further south in England (see Carver et al 2012: 191–3; Strachan et al 2019: 129–32, 150). However, the evidence from the Upper Strathbogie valley would suggest that traditions of turf-walled buildings – both round and rectangular – were already a feature of the local vernacular in lowland Scotland from at least the 5th and early 6th century AD, and almost certainly earlier (Noble et al 2020a).

11.7 The material assemblage

Gemma Cruickshanks

Almost 1,200 artefacts from the Craw Stane complex attest to the crafts, daily life and trade networks that defined early medieval activity in the Upper Strathbogie valley (Chapter 7). Metalworking debris dominates the Craw Stane assemblage, revealing large-scale production of exquisite animal figurines, jewellery and a range of other fittings. Items were worked from copper alloys and silver, while silver refining can be identified through rare evidence found in a number of stone vessels. A range of ancillary craft activities, such as the creation of intricate ceramic moulds and the carving of stone ingot moulds and crucibles, would have been essential to metalworking. Iron slag and glass waste attest to other high-temperature crafts, all of which required an array of resources, specialist knowledge and skill. The presence of ceramic tuyère fragments, for example, indicate that bellows were used to increase heat; however, these were likely made from wood and hide and as such do not survive. A small number of items illustrate other craft activity taking place: a spindle whorl indicates spinning plant or animal fibres into yarn, while two hide-rubber cobble tools and a fragment of worn pumice would have likely been used during the preparation of hides.

Fragments of imported glass vessels and Late Roman Amphorae from the Craw Stane complex reveal that the community of the Upper Strathbogie valley were connected to Mediterranean, Germanic and Atlantic trading networks (Campbell 2007). The Late Roman Amphorae would have held wine or olive oil from the Mediterranean. They are the first to be found in Pictland and the most northerly yet. More personal items such as the fine iron axe-headed pin, copper-alloy nail-headed pins, iron buckles, glass and amber beads are all glimpses of personal ornamentation. The mould assemblage shows that a range of more elaborate jewellery, such as penannular brooches and handpins, were also being made. Weaponry or fragments of weapons are uncommon finds on early medieval sites in general (Campbell 2007: Tables 16–19), but a copper-alloy dagger or sword pommel found at the Craw Stane complex indicates some level of martial culture. The pattern-welded knife evokes larger Anglo-Saxon 'fighting knives' or *seax* (eg Härke 1992), but whether they were viewed as the tool of a warrior or a wealthy craftworker in Pictland is unknown.

This combination of large-scale craft production, high-status objects and access to a range of exotic goods indicates that the community who lived in the valley held power, wealth and important continental connections. However, a complementary assemblage of more local material illustrates that there was not sole reliance on these trade networks. Handmade pots, for example, were being produced locally at the Craw Stane complex, despite its occupants having access to a range of imported vessels. Analysis of phytoliths on a sample of sherds revealed they were used to cook or store a barley-based meal such as porridge or stew, providing a glimpse of local agricultural production and consumption (Section 7.14). A range of stone tools were manufactured from local stone types, including rotary querns for the daily task of grinding grain to make flour for food (Section 7.10).

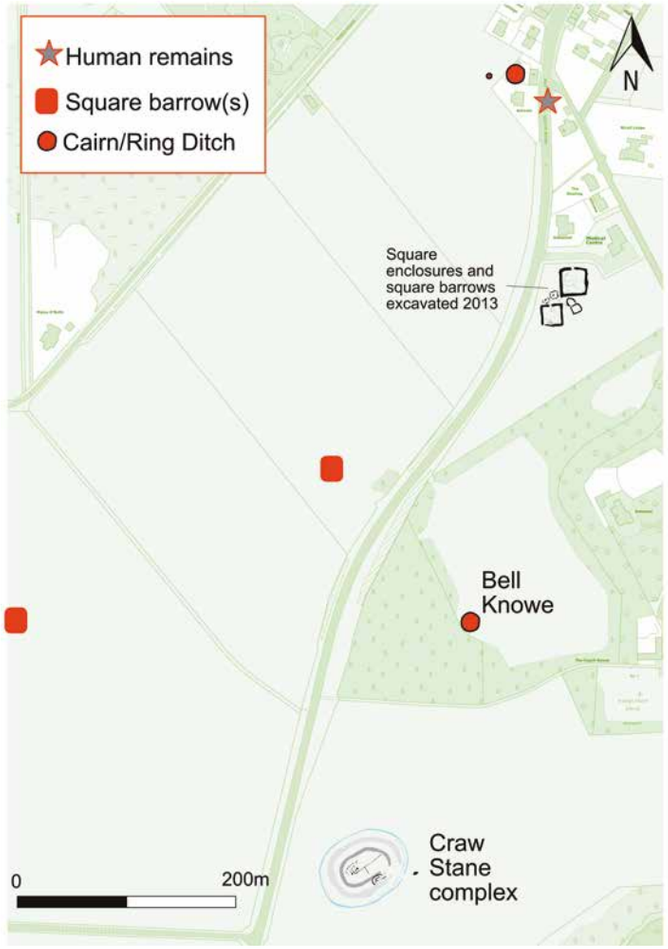
Analysis of patterns of deliberate artefact deposition is more commonly used to understand prehistoric assemblages in Scotland (eg Armit & Büster 2020: 169; Campbell 1991; Engl 2008: 223–5), but there are some striking examples at the Craw Stane complex which echo those older traditions. An intact rotary quern found in a ditch, ornate pins placed in the palisade, and a set of tongs that had been deliberately bent before being placed in a post hole with articulated animal remains are all likely to have been intentionally deposited as part of a ritual. They may have served as a foundation offering at the beginning of the site and/or structure's life, or a closing deposit towards its end. Though the Craw Stane complex was not solely a ritual or sacred site (see Chapter 12), a range of cosmological traditions are likely to have underwritten the lives of those who lived and worked here. Alongside familiar pottery traditions and stone tool types, these behaviours provide local roots to a range of sites which have assemblages which are otherwise difficult to parallel.

There are currently no known contemporary parallels in Scotland that cover the scale, range and quality of the Craw Stane assemblage. Sites like Eilean Olabhat (North Uist), Scatness Broch (Shetland), Trusty's Hill (Dumfries and Galloway) and East Lomond (Fife) cover parts of the same period and have produced evidence of non-ferrous metalworking, including some silver, but their assemblages are much smaller and less diverse than the Craw Stane complex (Armit et al 2008; Dockrill et al 2015; Toolis & Bowles 2017; Noble & Evans 2022: 66–70). The mould assemblage from the Craw Stane complex is particularly impressive, and represents the casting of a minimum of 67 unique objects. Considering that this assemblage was recovered from around just 14% of the surviving deposits in the outer ditch, the total number of items produced could be 600 or more. Closer parallels to this scale of production can be found at Dunadd in Argyll, the monastic centres at Portmahomack, and the Irish ringforts at Garranes (Campbell & Lane 2000, Carver et al 2016; Ó Ríordáin 1942).

Returning to Rhynie's more immediate environs, the metalworking assemblages from Tap o' Noth and Cairn More are much smaller in scale, but similar traditions of practice are evident. The small details of mould construction, crucible forms and products all indicate a shared workshop tradition between the three sites, if not the same metalworkers, implying collaboration amongst a series of interconnected sites (Section 7.8; See Chapter 12). Overall, the range and quality of artefacts recovered from the Upper Strathbogie valley are a remarkable survival which shine fresh light on crafts, adornment, long-held traditions, wide-ranging contacts and local collaborations in a previously poorly understood period.

11.8 The Rhynie Cemetery

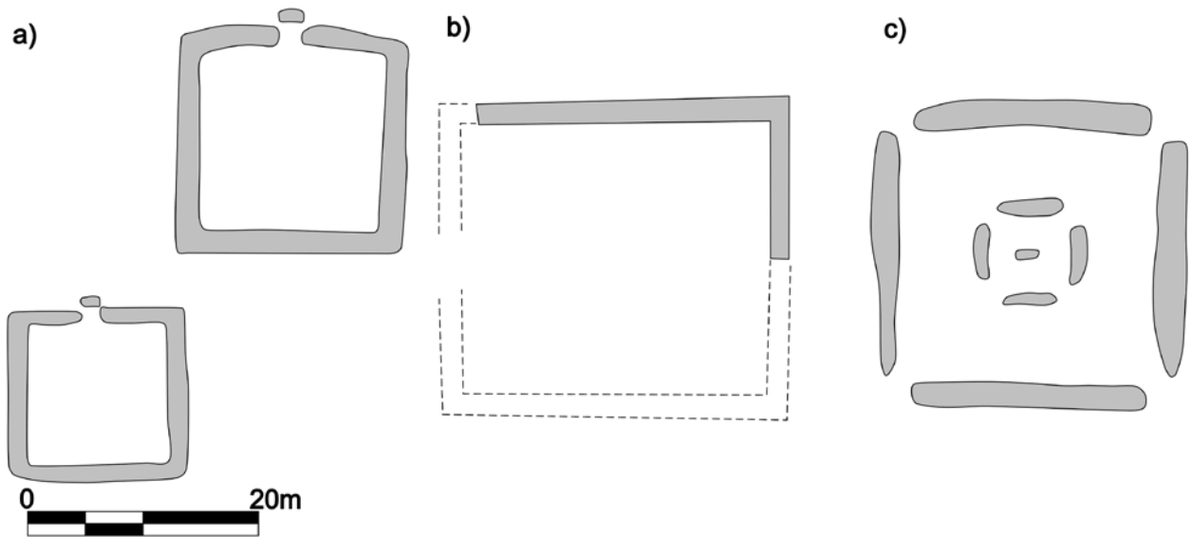
The 2013 season confirmed the presence of early medieval burial monuments in proximity to the Craw Stane complex. This was a significant result that built on the antiquarian identification of human remains at the southern outskirts of the village and the identification of square enclosures by aerial photography in the 1990s (Greig 1994) (Chapter 5). The two square barrows excavated in 2013 contained different styles of interment, with one showing evidence for a wooden coffin or split tree trunk and the other a well-built long cist. Dates recovered from the long cist



Illus 11.8
Map showing possible extent of early medieval cemetery as indicated by cropmarks of possible barrows, documented cairns and barrows and records of human remains found within the village. Based on OS MasterMap® 1:1000 map layer EDINA Digimap

burial suggest the interment occurred when the Craw Stane complex was at its peak. Rhynie is one of a growing number of early medieval cemeteries known in Aberdeenshire (see Mitchell & Noble 2017), most of which are modest in scale – though this seems at least partly due to the poor definition of cropmarks in this region (Fraser & Halliday 2011: 312). Indeed, it was only the larger square enclosures that showed up on the Rhynie aerial photographs rather than any of the square barrow monuments. While some additional potential barrow monuments were identified through geophysical survey, the square enclosures showed up only faintly and the two excavated barrows and graves did not show up at all, suggesting that many more could be awaiting discovery (Chapter 5).

As it stands, the remains at Rhynie constitute a small cemetery, but various strands of evidence suggest its original size could have been substantially larger and likely extended under the modern village (Chapter 5). Antiquarian finds of human remains and cists may allude to burials contained within barrows or cairns that were lost due to the expansion of the village in the 19th and 20th centuries (Henderson 1907: 163) (Chapter 5), while the presence of the cairn within the garden of Ashvale Cottage could represent the cairn Logan (1829) recorded as being found in association with Rhynie No. 3 symbol stone (Chapter 5). This was located around 200m north of the square barrows excavated in 2013, and cropmarks of additional possible square barrows were identified approximately 400m and 600m to the south. Logan (1829: 57) also recorded numerous circles, cairns and barrows on the Muir of Rhynie, none of which remain upstanding today. All in all, this suggests that the Rhynie cemetery could have covered an extensive area, making it of a similar scale (or perhaps even larger) than the known Pictish barrow cemeteries of north-east Scotland (Illus 11.8). These tend to follow gravel ridges or breaks of slope and can cover areas up to 100–200 m in length (eg Mitchell & Noble 2017: 12–16, figs 6, 9 and 10). Further investigations may well reveal more burial monuments and graves and begin to



Illus 11.9
a) Rhynie square enclosures compared to b) Forteviot square enclosure and c) large square barrow at Greshop, Moray

map the boundaries of this cemetery at Rhynie. However, a significant portion of any in situ remains, particularly to the north of the site, are suspected to have been removed by the modern village and the roads, paths and modern infrastructure to the south of the village.

Even though only a very small portion of the cemetery is likely to have been revealed, an unusual aspect is the juxtaposition between the barrows and the two larger square enclosures that measured up to 20m across. The enclosures were originally identified as possible barrows by the RCAHMS Donside survey due to a similar morphology and their association with the general findspot of human remains from around the southern outskirts of the village (RCAHMS 2007: 121). A recent survey of north-eastern Pictish cemeteries have identified a number of sites with larger square features around 20m across, and examples like Greshop (Illus 11.9c) and Pitgaveny in Moray have clear gravecuts evident in the aerial record or actual burials have been identified through excavation (Mitchell & Noble 2017: 30, figs 4–6). In contrast, the two Rhynie enclosures did not contain any surviving burial features, and their unusual entrance arrangements mark these monuments as atypical. The closest parallel to these features is the large square enclosure excavated at Forteviot, Perthshire, which was interpreted as a Roman Iron Age shrine (Campbell et al 2019; Campbell & Driscoll 2020: 66). The Forteviot enclosure appears to have formed an early focus for the Pictish cemetery at a site that subsequently became an early medieval royal centre in the later first millennium AD (Campbell et al 2019: 91; Campbell & Driscoll 2020: 66) (Illus 11.9b). Larger square enclosures are also known at some Anglo-Saxon inhumation cemeteries and have similarly been interpreted as shrines (Blair 1995).

Given their lack of material culture, the function of the Rhynie square enclosures is difficult to establish, but their unusual form, like the example at Forteviot, may indicate a specialised ritual role. Their proximity to burial monuments suggests that this was likely linked to death and funerary rituals, where they may have defined areas for gathering during the use of the cemetery. In this scenario, the peculiar entrance arrangements may indicate highly charged entrance points into areas of exclusion and restriction, and a desire to contain and control access to the interior and the activities that went on in that space. There was no clear evidence from their fills as to whether the ditches had an external or internal bank, but an external bank seems most likely given the possible presence of a standing stone on one side of the interior of Square Enclosure 1 (though it is possible that any standing stone was removed or already toppled by the time of construction). Should the monuments have featured an external bank, the projecting section of ditch at the entranceway would have created a significant barrier to access, perhaps even a void that had to be stepped over or bridged with some form of walkway. As noted in Chapter 9, the presence of external banks at Iron Age sites in Ireland are suggested to be a reverse of defensive architecture; a way of defending the outside world from something powerful, liminal and perhaps dangerous inside (Warner 2000a). In this respect, the enclosures may have served to demarcate a space associated with the rites of passage of the dead and to contain the powerful and perhaps malevolent forces that may have been associated with a transition to the afterlife. Should this be the case, they would represent another space within the overall central place complex of the valley that was associated with cult and ritual (Chapter 12). The dating of the square enclosures is uncertain, but it seems likely they were contemporary with the 5th- to 6th-century AD square barrows. Whatever the exact context and date of these enclosures, their presence, along with the square barrows and antiquarian records of a wider cemetery, suggests that what is now the south side of Rhynie village was a liminal place in the landscape and an important arena for death and ritual.

11.9 The Pictish symbol stones of Rhynie

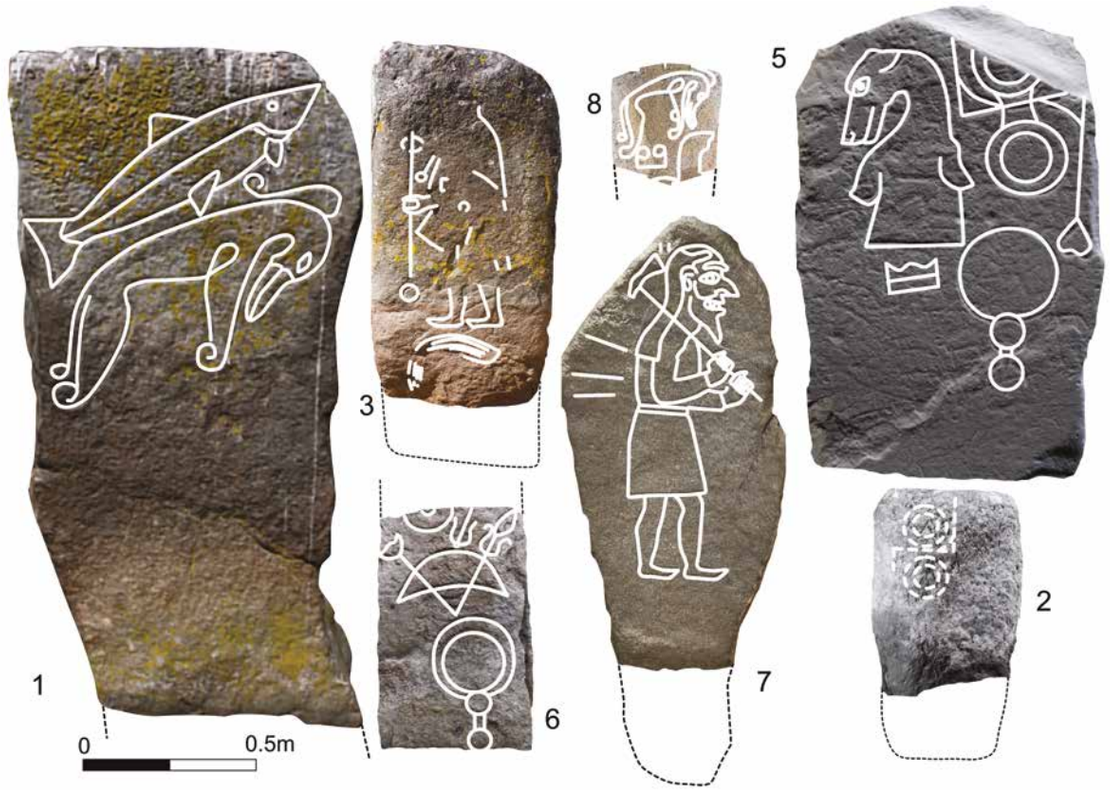
with Andy Hickie, Hamish Fenton and Joana Valdez-Tullett (Rhynie no. 5)

11.9.1 The context of the monuments

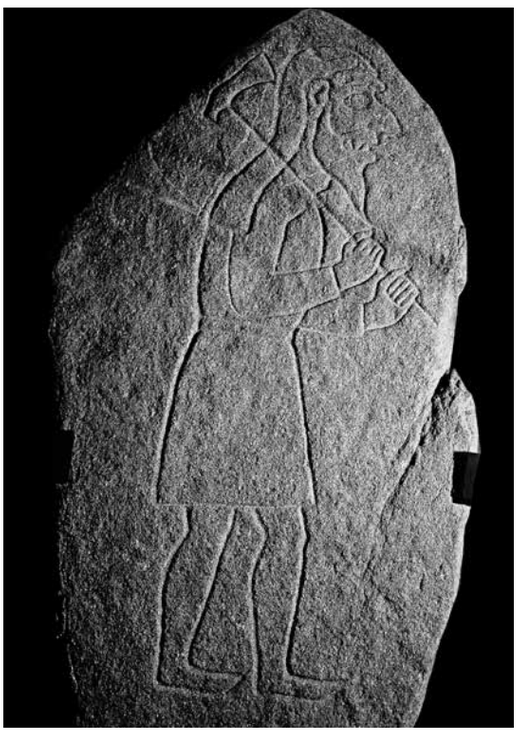
The concentration of symbol stones found in and around Rhynie village provided an early insight into the significance of the site and its environs (see Chapter 2 for a review of the history of discovery and for a description of the individual monuments) (Illus 11.10). Now, with the recent findings of this project, we can begin to understand more about their context and relationships. At least three of the stones were found in close association with the Craw Stane enclosure complex, and it is highly likely that two of these belonged to the primary phase of construction given that both the Craw Stane and the stone socket were located at the terminals of the inner and outer ditch. The Rhynie Man monument (Illus 11.11) was found directly downslope from the Craw Stane, near the entrance to the complex, and so it is reasonable to assume that this stone originally stood in the socket by the outer ditch (Chapter 5). Structure 3 was located immediately next to the Craw Stane, with the likely entrance of the building facing the symbol stone and the socket for the other stone. It is therefore possible that the Craw Stane may have been erected at the same time as Structure 3, though the proximity to the entrance of the complex was perhaps the most important element in the positioning of the stones.

The Craw Stane has traditionally been identified as a reused standing stone (eg Clarke 2007: 33), and it is possible that it was already upright when the Pictish complex was established. In this instance, it may have been used to mark a prehistoric burial, with the recovery of a Bronze Age Beaker only a few metres from the Craw Stane in 2005 appearing to support this hypothesis (Cook 2005). However, very limited evidence for prehistoric activity was identified during project excavations (Chapters 5 and 9). Moreover, there were no features found directly next to the Craw Stane that would suggest the stone actually related to anything other than the position of the first-millennium AD enclosures and the structures within. In this respect, it seems more likely that the stone was established in association with the enclosure complex rather than being an in situ prehistoric monument.

Aside from the Rhynie Man (No. 7), the other stone found in the vicinity of the Craw Stane complex was Rhynie No. 8. This stone is of a different character to the others in the Rhynie corpus, being much more modest in size (Illus 11.10). Its size and form are comparable to Dunnicaer No. 1, a symbol stone recovered from



Illus 11.10
The Rhynie symbol stones



Illus 11.11
Rhynie Man © Aberdeenshire Council Archaeology Service

the Late Roman Iron Age promontory fort in south-east Aberdeenshire (Noble et al 2018a: 1342). Both Rhynie No. 8 and Dunnicaer No. 1 contrast with the typical standing-stone style monument that dominates the Pictish symbol stone corpus, and several of the Dunnicaer examples have been interpreted as 'plaques' suitable for being set into a rampart (eg Alcock & Alcock 1992: 282; Alcock 1996, 2003). It is therefore conceivable that Rhynie No. 8 was built into the rampart of the Craw Stane Phase 1 enclosure (Noble et al 2018a: 1342).

Rhynie No. 5 and No. 6 came from the Rhynie churchyard and were found built into the foundations of the parish church. Thus, little can be said about their original context – they may have come from either the cemetery, the Craw Stane complex, or a different location entirely. The other group of stones, Nos 2–4, all came from near the village. The exact location of No. 4 is uncertain but is said to have been standing at the Mains of Rhynie in the 18th century, seemingly near the village on the southern outskirts of the settlement. Rhynie No. 2 was recovered during ploughing of a field near the village, while No. 3 is said to have been found in association with a stone cairn (Logan 1829: 56). The potential funerary context for No. 3 is intriguing given that its warrior figure imagery has close parallels with the individual featured on a stone from Collessie, Fife, which was similarly located adjacent to a cemetery with large square barrows (Hall et al 2020: 56, Plate IV) (See also Chapter 12). Though a burial context for symbol stones has been questioned (eg Clarke 2007), there is little doubt that some stones were associated with funerary monuments. The symbol stone at

Dairy Park, Sutherland, for example, was found directly above a burial mound during ploughing (Close-Brooks et al 1981). A number of the Highland examples, such as Garbeg in Inverness-shire and Ackergill in Caithness, also appear to have been deployed in direct association with burials or more generally located in proximity to cemeteries (Wedderburn & Grime 1984; Ritchie 2011 – see also Noble et al 2018a).

11.9.3 Dating

The relationship between the location of the Rhynie stones, the Craw Stane complex and the cemetery strongly suggests that the carved stone monuments belong to the main period of activity of those sites – ie the 4th–6th centuries AD (Noble et al 2018a: 70). As noted above, the Craw Stane and the socket of another probable standing stone, possibly the Rhynie Man, stood at the terminals of the inner and outer ditch of the Phase 1 enclosure at the Craw Stane complex. They could, of course, have been set up after the complex went out of use, but the relationship between these monuments and the terminals of the Phase 1 enclosure is compelling. Moreover, by the time Structure 3 was constructed, the outer ditch had already been at least partly backfilled, meaning that the placement of the stone in relation to the terminal after this date would have been rather fortuitous. There are also telling links between the art on the stones and objects found in the ground that indicate they were contemporary, most notably the axe carried by Rhynie Man and the axe pin found in secure and dated deposits in the palisade upper fill.

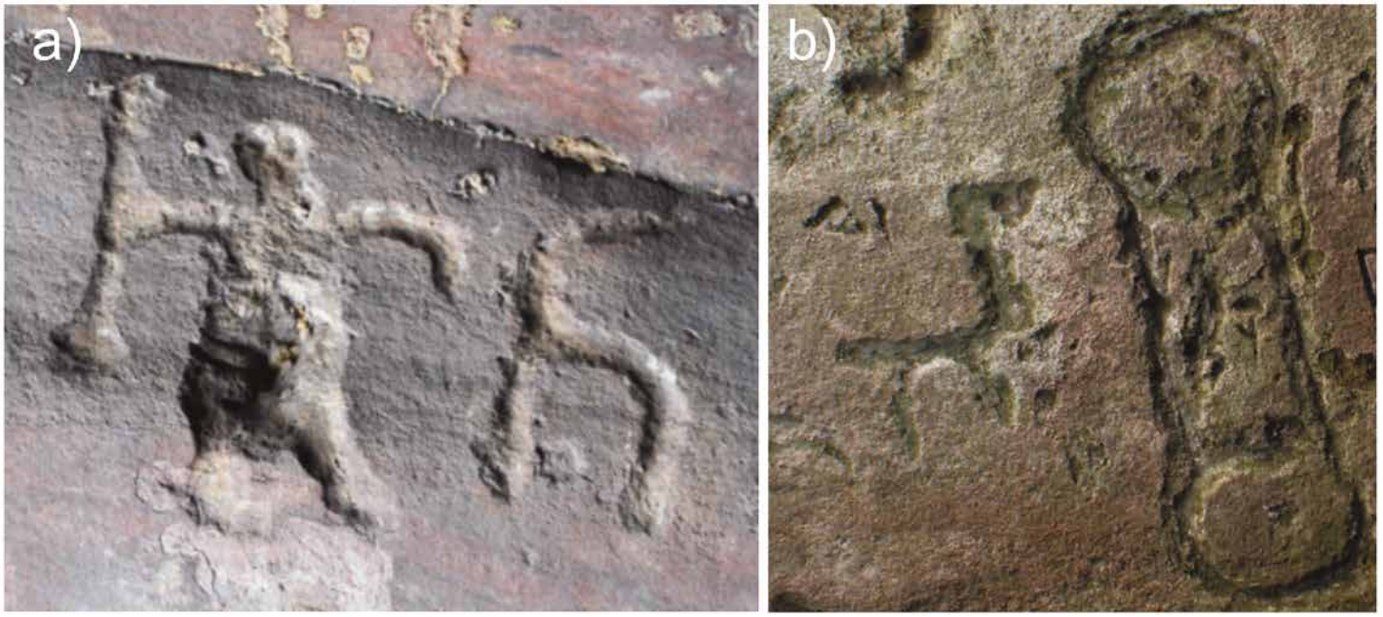
Regarding the stones found nearer the village, the relationship between the findspots and the cemetery is likely to be a key in understanding their phasing. Square barrow cemeteries of the form found near the village generally date between the 4th and early 7th century AD (Maldonado 2013; Mitchell & Noble 2017: 22). The only dated monument from Rhynie was the square barrow with the central long cist, which provided a 5th- to 6th-century determination. Typological assessments of the stone imagery may offer further clues to their date: the warrior carving on Rhynie No. 3, for example, carries a spear type that has associations with moulds for spearbutts found in 4th- to 6th-century AD contexts (Hall et al 2020: 138).

In general the style of carving and the motifs selected on the Rhynie monuments has been given a date range of the 4th–6th centuries AD based on a contextual understanding of their context, some stylistic parallels and a typology of carving style developed for the wider Pictish symbol stone corpus (Noble et al 2018a: 1341–2). In this context, ascribing a date to the likely earlier zoomorphic motifs identified on Rhynie No. 5 (Chapter 5) is a major challenge. Although Scotland has many examples of rock art, animal depictions are rare. Moreover, dating any form of stone carving is difficult due to the lack of associated contexts, but finding parallels for such rudimentary designs is particularly tricky. The simplicity of the motifs' morphology and the lack of defining stylistic characteristics make it very difficult to establish comparisons. Geographically, the closest parallels are the simple animal designs found in a series of caves in Fife. Within Constantine's Cave, there are a series of deer carvings in a similar pose to the Rhynie examples – ie in profile and depicted by linear lines (Wace & Jehu 1915: 242, fig 7; Stuart 1867: plate 29) (Illus 11.12). Other potential parallels are a possible animal depiction within Court Cave in East Wemyss (Illus 11.13a), where

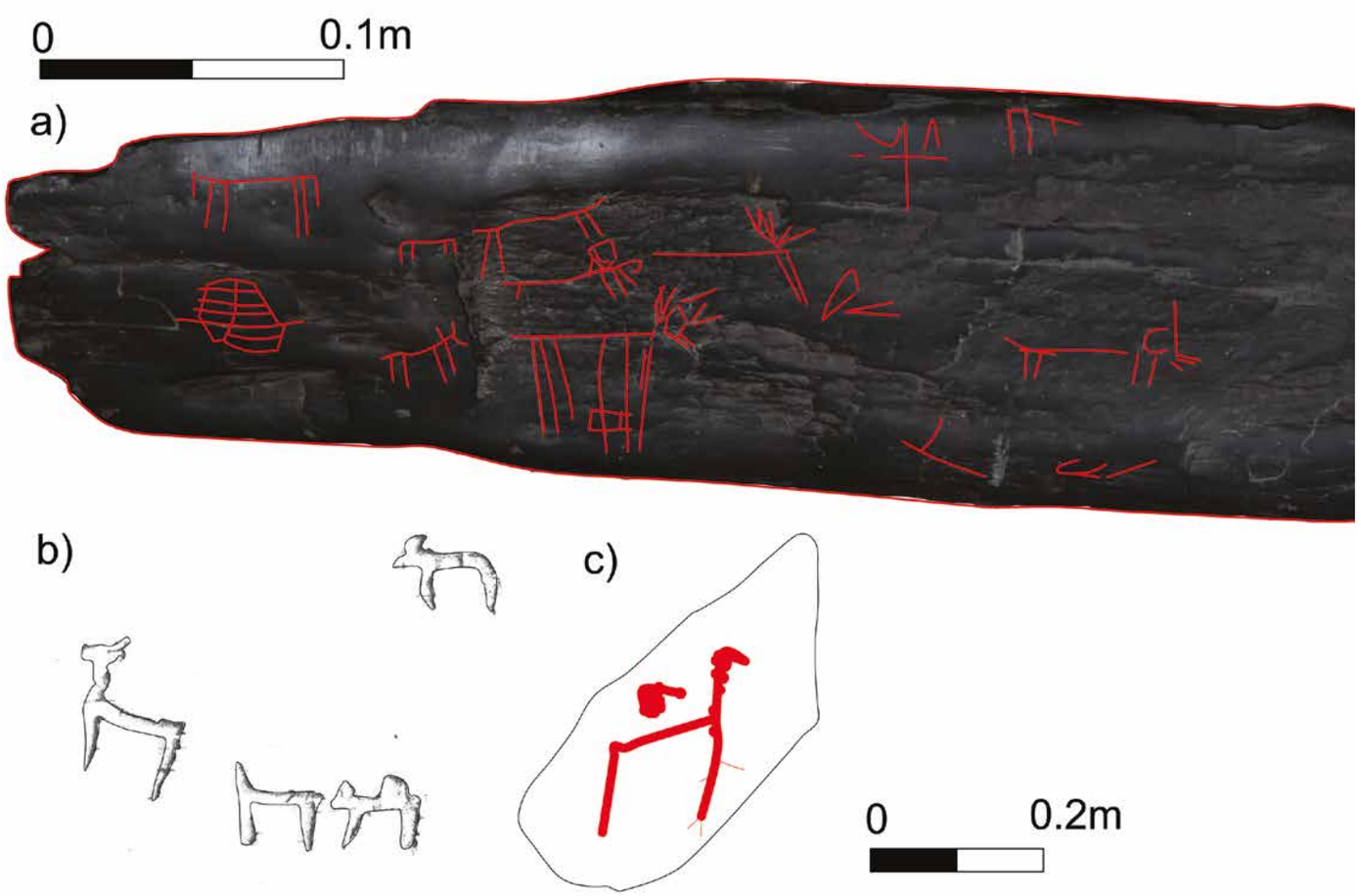
Illus 11.12
Constantine's Cave, Fife: above) QGIS visualisation of a rock art panel at the back of the cave showing two zoomorphic designs; below) transcription of the designs

a similar animal-like depiction is found side-by-side with a human holding a club or a spear. Another example is found in Jonathan's Cave, which appears to be paired with a double-disc carving (Illus 11.13b). The Pictish symbol carvings found in caves, like the one found next to the zoomorph in Jonathan's Cave, have recently been attributed to the 2nd to 4th centuries AD, based on their stylistic similarity to the carvings from Dunnicaer, Aberdeenshire, found within the rampart of a securely dated promontory fort (Noble et al 2018a, 2020a). It is therefore possible that the Rhynie No. 5 zoomorphs belong to this period given their resemblance to one of the animals at Wemyss and the latter's apparent association with a Pictish symbol (Illus 11.13b).

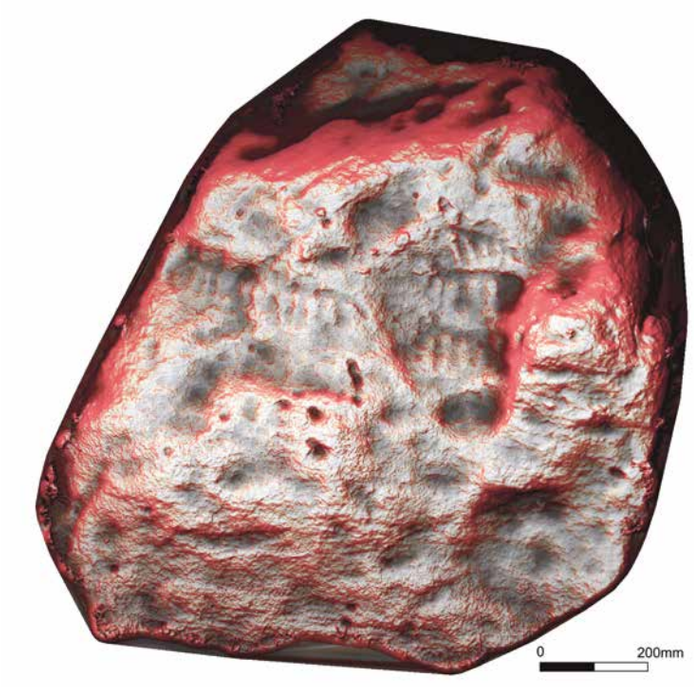
However, further afield relatively simple zoomorphs have been ascribed prehistoric dates such as on standing stones from the Isle of Man and on chalk blocks from Sussex (Illus 11.14) (Darvill et al 2005: 292; Russell 2000: 50–1; Teather 2015), and



Illus 11.13
East Wemyss, Fife: a) Court Cave; b) Jonathan's Cave. Images © Save Wemyss Ancient Caves Society



Illus 11.14
Parallels for Rhynie No. 5: a) incised examples from Cronk ny How, Isle of Man; b) Goatscrag, Northumberland; c) Cissbury, Sussex. Cronk ny How RTI base image provided by Manx National Heritage



Illus 11.15
QGIS visualisation of Escaravelhão I – R1 (Monte Faro, Valença, Portugal). Original imaging by Joana Valdez-Tullett

even further afield the occurrence of both cup-marks and zoomorphic images is also broadly congruous with prehistoric examples of zoomorphs from Iberia (Illus 11.15). While figurative art remains rarely attested in prehistoric Britain, more examples including zoomorphs have been discovered in recent years (eg Valdez-Tullett et al 2023), thus we should certainly not rule out a prehistoric date for the motifs on Rhynie No. 5, but dating evidence for all of these examples is problematic. Perhaps the closest parallel for Rhynie No. 5 in Britain, other than the Fife cave examples, is Goats Crag, Northumberland, where a number of roughly pecked deer carvings are found on living rock. These latter carvings have been ascribed both prehistoric and Roman Iron Age dates (Burgess 1972; van Hoek & Smith 1988: 34) (Illus 11.14b), highlighting the uncertainties of establishing a chronology for such schematic designs. Overall, without the ability to directly date the carving or the stone's context, the chronology of the motifs on Rhynie No. 5 is likely to remain uncertain, but they are likely at least to pre-date the Pictish symbols on the same stone as the mirror appears to cut through two of the quadrupeds. The Pictish symbols on Rhynie No. 5 would fit comfortably within the 5th- to 6th-century date range suggested in the symbol typology outlined by Noble et al (2018a), but how much earlier the zoomorphic carvings are is much less certain.

11.9.4 A naming tradition?

The function and meaning of the Pictish symbol stone tradition has been debated for well over a century (Noble et al 2018a: supp mat S1). Over 200 stone monuments with carved symbols are known from eastern and northern Scotland; approximately two-thirds of these are incised symbol stones and the other third are cross-slabs (RCAHMS 2008). Attempts to decipher the meaning of the symbols has resulted in wide-ranging interpretations that include icons of pagan or Christian religion (Earl of Southesk 1893; Allen & Anderson 1903), symbols of rank or tribal identity (Diack 1944; Thomas 1963; Henderson 1967), symbols of marriage alliances (Jackson 1984) and memorials to the dead (Laing & Laing 1984; Driscoll 1988; Mack 2007), as well as countless 'fringe' ideas and speculations (see Noble et al 2018a). The most persuasive interpretation is that monuments featuring paired symbols represented some form of naming system (for a fuller summary, see Noble et al 2018a; Noble & Evans 2022: Chapter 6). The roots of this research lie with Samson (1992), who saw the common pairing of symbols as key to their interpretation, arguing that the symbols did not work in isolation but rather as pairs to represent personal names, perhaps acting as two elements of a dithematic name. Forsyth (1997) also identified symbol pairs as 'the fundamental syntax' of the Pictish symbol system, and more recent work utilising statistical analysis has supported the interpretation that the messages conveyed by the symbols are likely to have been names (Lee 2010; Lee et al 2010 – though see Sproat 2010). A naming system or other form of identity marking is clearly suggested by some later monuments such as the cross-slab from Dunfallandy, Perthshire, where two seated figures and a mounted individual are shown with symbol pairs directly next to them. The correlation of symbols with human figures can also be identified on other monuments, such as Meigle in Perthshire and Woodwrae in Angus (eg Allen & Anderson 1903: 38; Stevenson 1955a: 123; Noble & Evans 2022: 243, fig 6.13).

So what if we apply the naming interpretation to the stones from the Rhynie environs? The Rhynie Man (No. 7) does not feature any additional symbols and appears to be an isolated example in the Rhynie corpus. However, the paired symbols on Rhynie No. 1 and No. 8 may denote the names of individuals, perhaps significant elites, who were intimately associated with the Craw Stane complex. The two stones found in association with the parish church, No. 5 and No. 6, also have paired symbols, as do Rhynie No. 2 and No. 4 found near the village. The warrior, Rhynie No. 3, may additionally have had a single symbol or pair of symbols carved towards the base of the stone (Hall et al 2020: 130). Thus, a possible seven of the eight monuments from Rhynie appear to have displayed symbol pairings, with some also featuring the mirror and comb motif (Illus 11.10). More unusually, the symbol(s) on No. 3 were accompanied by a human figure – a combination that can also be observed on the Collessie warrior stone (Hall et al 2020: 132). Each of the Rhynie stones feature a unique set of symbol combinations, meaning that if they were indeed communicating names or identities of some kind, these were likely to denote different individuals. Given that the Craw Stane complex was in use for a period of up to 200 years (Chapter 8), this could reflect a generational commissioning in which a new stone was erected every *c* 25–30 years (the approximate length of a human generation). However, it is equally possible that all, or at least the majority, of the stones were carved within a relatively short period of time. For example, the pairing of the Craw Stane and stone socket by the terminals of the Phase 1 enclosure might indicate that a pair of monuments was erected in association with the construction of the earlier ditched

monument. It has also been proposed that the small, plaque-like No. 8 might have been built into the rampart of bank of this same enclosure, again suggesting broad contemporaneity of at least this group of stones. Unfortunately, without the ability to directly date the carvings themselves, there is little more we can say about the relative date or sequence of the corpus.

11.10 Conclusions

The evidence uncovered at the Craw Stane complex, Cairn More and the Rhynie cemetery comprise remarkable discoveries that will enrich our understanding of the archaeology of Late Roman Iron Age and early medieval Britain and Ireland. While modern agriculture has undoubtedly had a huge impact on their survival, the excavations still provide an unprecedented insight into a 4th- to 6th-century AD elite centre in north-east Scotland, which can now be related to other contemporary sites in the valley such as Tap o' Noth (Chapter 10), and helps situate the eight symbol stones known from the Rhynie environs. At the Craw Stane complex at Rhynie in particular, we can point to the huge implications that the material assemblage will have for our knowledge of society of this period, the craftworking traditions that were in place in early Pictland, and the elite culture that this assemblage reveals. The settlement evidence also marks a huge leap forward in our knowledge of the scale and complexity of society of this era, as well as the settlement traditions and trends of northern Britain in the Late Roman Iron Age and post-Roman period. There are currently few parallels for the Craw Stane complex, and indeed for Tap o' Noth and Cairn More, but those that can be identified indicate that these were quite exceptional sites whose significance will only fully emerge through comparison and debate in the years to come. Nonetheless, tentative exploration of the significance of these major sites of the Upper Strathbogie valley and the carved stones from the Rhynie environs, and how these diverse landscape elements were interrelated, forms the focus of the final discussion chapter (Chapter 12).

Chapter 12

A POWERFUL PLACE OF PICTLAND: LONG-TERM SOCIAL DYNAMICS IN THE FIRST MILLENNIUM AD

GORDON NOBLE WITH NICHOLAS EVANS

12.1 Introduction

The discovery and investigation of the Craw Stane complex, Cairn More and the lower fort at Tap o' Noth have begun to fill a major lacuna in our knowledge of the development of Late Roman to early medieval power centres in this area of Pictland. However, their findings also have much wider relevance to our understanding of Britain and Ireland as a whole. While we have detailed information for elite centres in Britain from around the 7th century and later, there are far fewer sites that illuminate the 4th–6th centuries AD. In England, the most obvious materialisations of new power structures in the post-Roman period were the large residential hall complexes that emerged sometime in the late 6th to early 7th centuries AD (eg Hope-Taylor 1977; Hamerow 2012: 23, 102–9; Thomas 2013: 126; Brennan & Hamerow 2015; Blair 2018: 114–30). However, what characterised elite centres of the 5th–6th centuries AD, when settlement hierarchies are harder to identify, is much less certain (eg Esmonde Cleary 1989: 138–61; Ulmschneider 2011: 157–60; Hamerow 2012: 102–9). The situation is similar across Wales and western Britain more generally, with the 5th–6th centuries proving notoriously more difficult to address both historically and archaeologically (eg Davies 1982; Edwards & Lane 1988; Arnold & Davies 2001). Ireland is a stark contrast to this shortfall, with 5th- to 6th-century evidence providing a welcome relief from the major lacunae of the Irish Iron Age, but even here there are still fewer sites and textual sources to illuminate this period than that of the 7th century onwards (see Charles-Edwards 2000; O'Sullivan et al 2014; Stout 2017).

The Craw Stane complex and the hilltop settlement at Tap o' Noth both emerged within a Late Roman Iron Age context beyond the frontier of Roman Britain in the north-east of present-day Scotland. This is a period when the archaeological record for the area north of Hadrian's Wall has traditionally been considered sparse and suggested to have been characterised by crisis and collapse (Hunter 2007). The sites in the Rhynie valley developed throughout this period and reached their height in the 5th to early 6th century AD, with the abandonment at the Craw Stane complex in the mid-6th century and the cessation of activity at Tap o' Noth and Cairn More by sometime in the 7th century. These three sites provide rare evidence for continuity through the Roman Iron Age to early medieval period, but how and why did these sites emerge? What was their character and how can we interpret their function? Given that all three sites were in contemporary use in the 5th and 6th centuries AD, how did they interrelate? These are the questions this chapter will explore.

12.2 Interpreting the Rhynie landscape – 4th to 7th century AD

12.2.1 Pictish royal centres

With regards to the Craw Stane complex, the place-name and mapping evidence (Chapters 1 and 3) suggest that this was a place of nascent or consolidated royal power associated with an elite. There is generally little known of Pictish elite centres; the few relevant written texts we have for Pictland include references to sites that were fortified hilltop centres, but as is so commonly the case the sources tend to be 7th century or later. References to Dundurn in Perthshire, for example, cite it as the location of a siege in AD 682, and in the 880s the Alba king-lists refer to the death of King Giric son of Dúngal at the fort (Alcock et al 1989: 192–4; Woolf 2007b: 120; Anderson 2011: 267, 274, 283). The Craw Stane complex could have been a forerunner to these more elaborate and heavily defended elite centres that appear to be a feature of the 7th century onwards (Noble & Evans 2022: 102). However, the lowland situation of the Craw Stane complex (in only a marginally naturally defensive location set on a low knoll) stands apart from the hill- and promontory-settings of sites such as Dundurn and Dunnottar.

Pictish lowland royal complexes are known from later first-millennium AD sources but have previously been thought to date only from this late period. Their references occur from the 9th century onwards and are thought to mark a shift in royal focus from hilltop locations to the more accessible but less defensible lowland locations (Driscoll 1998: 169–70).

Lowland elite centres in Pictland include Forteviot in Perthshire, recorded as the *palatium* of Cináed son of Alpín (Kenneth MacAlpin) who died there in AD 858. Forteviot sits on a gravel terrace near the confluence of the Water of May and the River Earn, and the complex comprised a cemetery, church and early medieval carved stone monuments including two free-standing crosses which appear to have framed and marked the entry to the royal estate (Campbell & Driscoll 2020: Chapter 2). No trace has been found of the *palatium* itself, but the site appears to have been enclosed by a rectilinear enclosure and could have included timber halls and other buildings. The cemetery consisted of square and round barrows, flat graves and was centred around a square enclosure argued to have been modelled on a Roman Iron Age shrine (Campbell et al 2019: 91; Campbell & Driscoll 2020: 66).

Another later first-millennium AD lowland complex is thought to have existed at Meigle, Perthshire. The *St Andrews Foundation Legend Account B* states that the text was written by Cano son of Dubabrach in the *villa* of Meigle for King Uurad (*c* 839–42) (Taylor & Márkus 2009: 575, 579; Noble & Evans 2022: 117). Meigle has one of the largest known collections of Pictish sculpture that includes a series of cross-slabs. Like Forteviot, this may have been a royal centre with a church, or perhaps Uurad had a royal hall within an ecclesiastical complex (cf Woolf 2007b: 105, 313). However, no contemporary archaeological traces of a royal hall or associated buildings have been found in the landscape itself.

Similarly attested royal centres, not yet pinpointed archaeologically, existed close to the River Tay near Perth. The *Chronicle of the Kings of Alba* stated that King Domnall mac Alpín (858–62) died 'in the *palatium* of *Cinnbelathoir*' (Anderson 2011: 250). It is likely that this was in or close to *Rathinveramon*, the location of Domnall's death and of the killing of King Constantín mac Cuilén in 997 according to the king-lists of Alba (Anderson 2011: 267, 274–5, 283–4). The name *Rathinveramon* indicates this *palatium* was near the mouth of the River Almond, a tributary of the Tay, where Bertha Roman fort lies. The Roman fort could well have been reused for a Pictish *palatium* but unfortunately this is yet to be confirmed by investigation. Overall, the only broad correlations we can make between sites such as Forteviot and the Craw Stane complex are the royal associations and the relationship between some form of elite ritual, political and burial locale in a non-hilltop setting. However, the symbols of power deployed at Rhynie speak to a very different world than the late first-millennium AD monuments of Forteviot, whose overt imperial symbolism and Christian ethos underpinned their deployment and significance (Campbell & Driscoll 2020; Chapter 10).

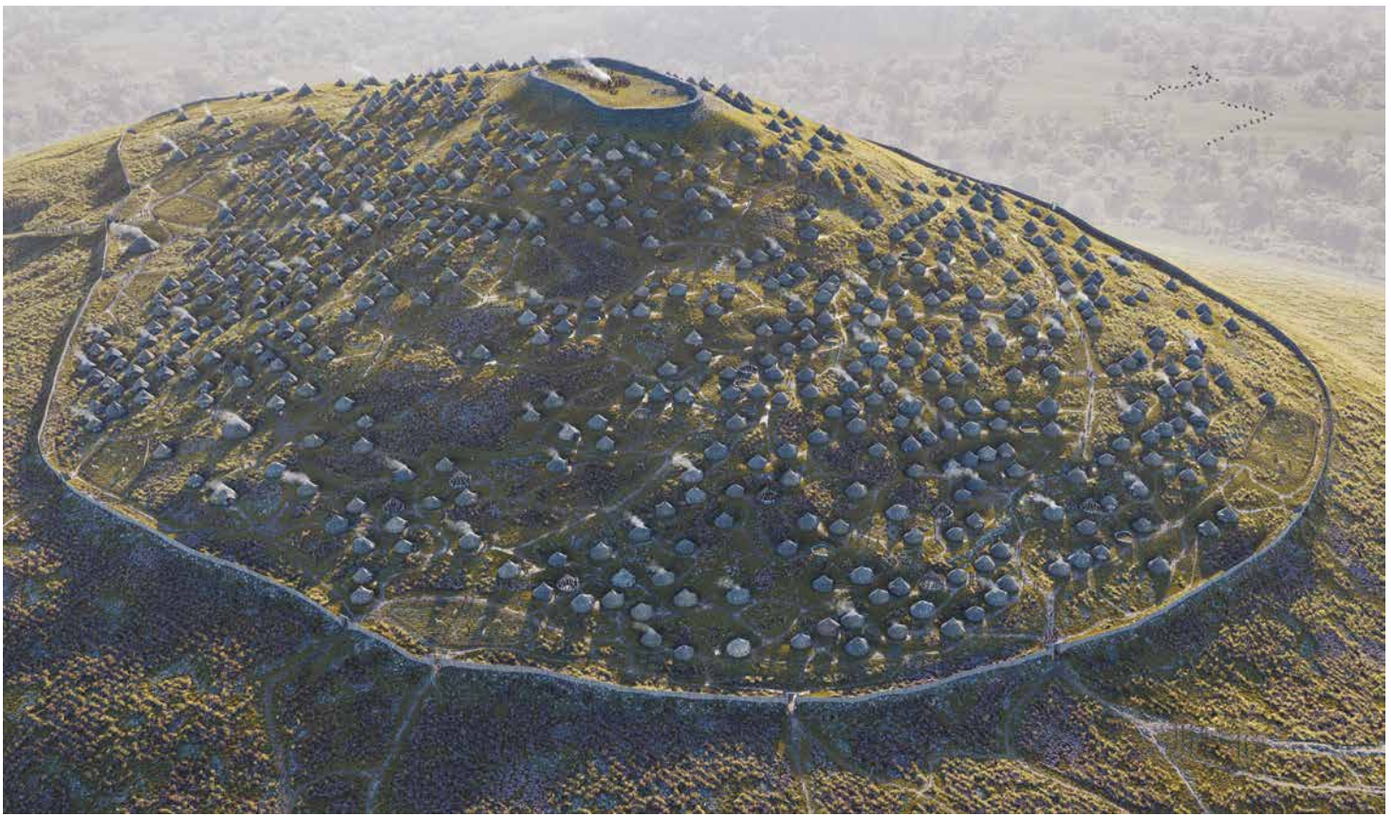
12.2.2 A multinodal, multifunctional central place complex

It is unwise to consider any site in isolation when attempting to understand the evidence from the Upper Strathbogie valley. Clearly there were several foci in contemporary use, which served differing but complementary functions and held unique significance. Perhaps the best comparison for the series of contemporary high-status places contained within the valley are the polyfocal and multifunctional 'central places' found elsewhere in early medieval northern Europe (eg Brink 1996: 238; Blair 2018: 125–31). This concept is most developed for Scandinavia, where over 20 years ago Stefan Brink highlighted the need to discuss central place complexes rather than focusing on the function of individual sites (Brink 1996: 238; 1999: 425; see also Hedeager 1992: 17; Skre 2010). Here it was noted that specialised and individual terms, such as cult place, assembly site or hall complex, did not fully characterise the range of activities being carried out at either an individual site or its wider landscape. Brink suggested that elite nodes of power did not comprise a single site or function but embraced many different facets. For example, they may have included a hall for gathering and feasting; a magnate's residence; places for production, trade and the collection of tribute; farms to sustain specialised craftsmen like smiths and other dependents; places for cult and ritual; a locale for military activity or mustering; accommodation for the king's retinue; a major cemetery (or multiple cemeteries); and a place for periodic assemblies of a wider polity. Such a listing includes just a portion of the type sites and functions that may have been present within particular elite landscapes. Moreover, the function of each location is likely to have fluctuated over time (Brink 1999: 434).

Brink proposed that these settlement districts were controlled by elite families but would attract a diverse range of people during assembly events, as documented at later royal palaces in Europe (Iversen 2009: 108). These would be held in the presence of the ruler whose power was sacral and militarily-defined, with justice giving and the proclamation of laws being further elements that marked the significance of these landscapes. Brink's work in Scandinavia was a clever combination of archaeological, historical and toponymic evidence. The rich archaeological record comprised halls, cemeteries, and artisanal workshops associated with such central places, while place-names, iconographic material and weapons deposits revealed both their importance as places of cult and ritual and the presence of warriors and retinues (Brink 1996: 241–2; 1999: 432; Hedeager 2002: 13; Larsson 2007). This richness of evidence cannot yet be matched in northern Britain. However, the findings of the work at Rhynie can provide inspiration to search for archaeological concomitants of all the different dimensions of power and authority that may have been integral to the emergence of similar central place complexes.

12.2.3 Assembling the evidence

Considering the Upper Strathbogie valley as a 'multifunctional central place complex' can provide several pointers for our interpretations. In terms of timings and tempos of activity in the first-millennium AD landscape, the sequence appears to begin with the settlement that developed on Tap o' Noth from the 3rd to early 4th centuries AD (Illus 12.1). Two main interpretations were explored in Chapter 10 for Tap o' Noth: a major regional settlement and a site of assembly. Should it have been a major year-round settlement, Tap o' Noth must have formed the focus for a very significant population that numbered into the thousands. In this respect, it seems unlikely that the settlement could have been supported economically by solely farming the immediate



Illus 12.1
Tap o' Noth reconstruction. Image © Bob Marshall/University of Aberdeen

hinterlands. The projected population living on the hundreds of platforms on Tap o' Noth is likely to have substantially outstripped the population of Rhynie parish even in the 19th century (around 1000 in 1841 – NSA 1845 (Vol 12)), which is substantially larger than the modern population of the area. Resource acquisition in the form of food renders and tribute from a much wider client-base (and perhaps the product of slave labour) may have allowed a major community living at Tap o' Noth to be maintained.

Tap o' Noth could also have been a place of assembly, albeit of a character poorly attested in the archaeological and historical record of northern Britain. However, as briefly noted in Chapter 10, assembly has been identified as an important dimension of Scandinavian central places and possibly even a central function of the upper tier of elite centres. In Denmark, for example, the place-name Lejre, royal centre of the Skjoldungs, refers to 'a place with tents' implying that it may at times have been the site of temporary assemblies or courts (Niles 2007: 89). Later evidence from royal centres such as Gamla Uppsala also indicates that these were places where assemblies and cult gatherings took place, with Snorri Sturluson describing Uppsala as 'the assembly of all Swedes' (Ljungkvist & Frölund 2015; Semple et al 2020: 89).

At Tap o' Noth the scale of investment in the platforms and the presence of metalworking and amphora sherds and other exotica on the platforms indicates that if this was the locus for assemblies then these were not fleeting events – the scale of investment in place suggests extended and repeated periods of assembly in a locale for gathering that must have had regional or supra-regional significance. Assemblies in Ireland could be of differing scales and significance from the local to the larger royal (*rígdála*), with legal glossaries suggesting it was the responsibility of a king to hold the latter on royal land. These *rígdála* were a provincial or inter-regional phenomena marshalled by particularly powerful kings (Bhreathnach 2014: 71). These events could be held annually or more intermittently, as well as being held on the hoof at times of crisis. The obvious part of Tap o' Noth that could be used in the actual events associated with assembly would be the summit Iron Age fort – the destroyed ramparts potentially acting as terracing for an audience, with a large central space sheltered out of the wind inside the ramparts for events such as proclamation, law giving and deciding on supra-regional matters such as setting the footing for war or peace, deciding on new leaders, and so forth.

At present it is difficult to differentiate between the two interpretations of Tap o' Noth – as a place of assembly or one of permanent settlement. In terms of the archaeology there were resonances between the form of the structure found outside Cairn More and the platform settlements at Tap o' Noth – it is only the landscape position of the Tap o' Noth structures that perhaps question a residential and permanent function.[1] However, the platforms at Tap o' Noth actually had more obvious floor layers than the structure at Cairn More and a range of objects and activity suggesting a great deal of investment in place occurred in relation to the Tap o' Noth platforms – amphorae vessels and large

locally made pots are unlikely to have been particularly portable and clearly metalworking was carried out on some platforms. The feeding of barley to horses on Tap o' Noth may indicate the over-wintering of animals (Chapter 8), again supporting the idea that this was in part at least a year-round settlement. There were no quernstones found on any of the platforms excavated, but these were rare at the Craw Stane complex and absent at Cairn More in the areas investigated – it could be that cereal processing was centralised or was carried out in zones that lay outwith the areas uncovered by the University of Aberdeen digs.[2] Overall, the evidence perhaps favours Tap o' Noth having been a permanent year-round settlement. However, the two interpretations of assembly and settlement may not be mutually exclusive – some of the platforms could have been permanently occupied whilst others could have been for an assembled community who gathered here at certain times of the year. Nonetheless, and no matter how we interpret the evidence, it cannot be doubted that Tap o' Noth must have been a hugely significant place in Late Roman and early medieval northern Britain, and it was undoubtedly this significance that enabled a royal centre to develop in the shadow of this spectacular hilltop settlement.

12.2.4 A very royal place

Elite focus began to centre on the Craw Stane complex in the late 4th century AD and endured until the mid-6th century (Illus 12.2). Its associated place-name, meaning 'place of or associated with a great king' (Chapter 3), suggests royal power was focused here, and though we cannot conclusively link the coining of the place-name to this early period, it seems likely given that the Craw Stane was abandoned by the 6th century and the known major sites in the wider landscape were abandoned by the 7th century at the latest. The place-name appears to have been particularly linked with the area to the south of the modern village of Rhynie – the very location of the Craw Stane complex (Chapter 3). This lowland element of early medieval occupation in the Strathbogie valley is likely to have been instrumental to some form of royal rulership associated with this wider landscape, and thus it was the emergence of this site that perhaps marked an important step in the rise to power of the individuals or lineages that controlled the Upper Strathbogie valley.

Within a Strathbogie 'central place complex', it was likely this node that held the most diverse roles and functions. One significant role explored in this volume and other publications of the Craw Stane complex (Noble et al 2013; Grigg 2018: 46) is a relationship to cult and ritual. The ritualised dimensions of Scandinavian magnate residences have been underlined by the discovery of cult buildings at sites such as Uppåkra, Sweden (Larsson 2007), and ritual appears to have been a prominent part in both a pre-Christian and Christian context of the well-known royal hall complex at Yeavering, Northumberland (Hope-Taylor 1977: 95–118). Rulers at Rhynie may therefore have drawn upon ritualised elements of the site and its iconography to bolster and maintain their position. For example, the 'Rhynie Man' stone is likely to represent a mythical figure or a pagan god, whose axe may serve as a conduit for practices associated with sacral kingship (Noble et al 2013: 1147) (Illus 12.3). The depiction of the axe, with its very distinctive double-ended blade and extremely thin shaft, is a strong parallel for the axe-hammer found in the Sutton Hoo Mound 1 ship burial, which has been interpreted as an implement for sacrificing cattle

Illus 12.2
Reconstruction of Phase 2 Craw Stane complex. Image © Alice Watterson/University of Aberdeen

Illus 12.3
Rhynie Man: QGIS visualisation

(Dobat 2006). In a compelling article on the topic, Dobat wove together comparative imagery and textual associations to suggest strong links between cattle, animal sacrifice and a cultic ritual role that may have underpinned the status and position of early Germanic kings and chieftains in a pre-Christian context (Dobat 2006: 889; see also Henderson & Henderson 2004: 102). Some of the animal bone evidence from the Craw Stane site, notably the dominance of cattle remains, may well support such an interpretation (Chapter 8) (Illus 12.4).

The Craw Stane complex could have similarly been utilised in ritual ceremonies. While the elaborate timber enclosing works would have provided protection, they may also have acted as a viewing platform from which to witness ceremonial events. The position of the Craw Stane at a liminal entry point to the entrance of the complex and close to Structure 3 has resonance with the context of carvings that have been associated with prominent sites in south-west Scotland. At Trusty's Hill in Dumfries and Galloway, a pair of Pictish-style symbols (a double-disc and Z-rod and a serpent and sword) were carved on an exposed rocky outcrop at the entrance to the summit enclosure of an early medieval Brittonic fort and have been interpreted as part of inauguration rites within the Brittonic kingdoms of south-west Scotland (Toolis & Bowles 2017: 1, 137). At Dunadd in Argyll, a boar, an ogham inscription, a footprint and a rock-cut basin were similarly carved into rock close to the entrance of the summit citadel, and may have been used in royal inauguration ceremonies associated with the overkingship of Dál Riata (Lane & Campbell 2000: 18, 247–9; see also Nieke & Duncan 1988: 16). Similar functions could conceivably have been

Illus 12.4
A cattle sacrifice at the Craw Stane complex. This is pure speculation of course, but it is based on the suggestions of what the style of axe the Rhynie Man holds may have been used for. Image © Alice Watterson/University of Aberdeen

associated with the Craw Stane and Rhynie Man at the Craw Stane complex, given that they were situated at the entrance to the site and located adjacent to a building (Structure 3) that itself could have had some form of ceremonial or ritual function.

12.2.5 Residing at Rhynie

The possible ritualised role of sculpture and presence of specialised buildings such as Structure 3 do not rule out a more prosaic role for the complex. Some commentators have proposed that the site was purely ceremonial in nature (eg Carver 2015: 7; Grigg 2018: 46); however, this underplays the diverse nature of the recovered evidence and more fundamentally misunderstands the intimate blend of power that operated in this time period.[3] Elements of the Craw Stane assemblage, such as the locally made pottery, spindle whorls and quern stones, indicate residence of some kind was also a feature of the site. The faunal assemblage, and the dominance of cattle in that assemblage, can also be closely compared with other early medieval fortified residences in Pictland. This suggests that the Craw Stane complex may well have acted as an elite residence, at least at certain times of the year.

A relationship between sacred and secular power is found at elite settlements across Europe in the first millennium AD. The evidence from Yeavering, for example, suggests that cult and ritual played an integral role in dictating the spatial layout of the royal hall complex (Hope-Taylor 1977: 95–118). The interplay of cult and residence has also been explored in Ireland and Scandinavia; sites like Gamla Uppsala, Lejre and Lagore are argued to have performed many functions including assemblies and ceremonies, but elite residence (whether intermittent or permanent) may have been a central role from which these other functions sprang (Brink 1996: 237; Ringtved 1999: 50; Watt 1999: 173; Newman 2007; Hedeager 2011: 152; Schot et al 2011; Gleeson 2012; Gleeson & Carty 2013: 39).

The habitation component at Rhynie may have included the use of large timber buildings for residence (Illus 12.2). Structure 1 appears to have been the largest building in the complex, but the presence of Structure 4 suggests there may have been further buildings outwith its enclosing elements. We may also be missing structures due to the lack of earthfast timbers utilised in the regional architecture of this era (Chapter 11; Noble & Evans 2022: 32, 55–66). The buildings identified during the excavations may well have held different statuses and functions. Structure 4, for example, is one of the few places in which cereal grain was found in any quantity, indicating that the processing of cereals for consumption may have largely occurred outside the complex (though the presence of horse harnesses also may hint that this building may have been associated with the stalling and feeding of animals).[4] An unfinished quernstone recovered from the outer ditch fill suggests that objects associated with agricultural tasks were fashioned on site and may have been used in the everyday routines of subsistence and/or during grander occasions of assembly and feasting.

Residence was likely reserved for the elite and their followers, though this might have been limited to special occasions rather than year-round occupancy owing to the itineracy of royal households. However, the extent to which itineracy was the norm for first-millennium AD kingship in Britain and Ireland has been debated. In the case of Anglo-Saxon England, Blair has argued that early rulership was characterised by 'extensive lordship', where a king constantly moved around the kingdom living off food renders (2018: 104). More fixed centres and a more permanent royal presence only became a feature of the late first millennium AD (Blair 2018: 104). In contrast, Gleeson (2021) suggests that the royal *iter* in Ireland may have been a developed feature of Irish kingship, with little evidence for kings controlling estates outside of their own dynastic lands or kingdom or having extensive rights to hospitality before the late 7th or 8th century. Indeed, the peripatetic framework may have only emerged once supra-regional kingdoms began to develop and in Pictland this may have been from the 7th century onwards (Noble & Evans 2022: 16; see discussion below). Either way, the residential component of the Craw Stane complex and the temporalities of residence are likely to have fluctuated through time. Particularly in its early years, the scale of the polity in which the Craw Stane complex was a part may not have been large enough to warrant the need for extensive hospitality, multiple residences or elite nodes. This could have changed as the polity expanded (or contracted) and with the waxing and waning of the fortunes of individual rulers. Thus the extent to which this was a residence, and the centrality of that residence, may likewise have fluctuated through time.

12.2.6 Crafting kingdoms

One clear role of the Craw Stane complex was the production and redistribution of wealth in the form of high-status metalwork.[5] The material signatures of both production and exchange, perhaps associated with acts of gift giving, indicate that these were prominent elements of the activities conducted at the Craw Stane, and provide close parallels to other early medieval elite centres of power (Campbell 2007: tables 16–19). Whether the Craw Stane complex was involved in year-round production, or attracted the intermittent patronage of craftworkers during times of assembly or when the king was in residence, is difficult to assess (see Alcock 1963: 55; Laing & Longley 2006: 174). While the majority of the production evidence comes from the final phases of the Craw Stane complex, artefacts were found from the lowest to the highest fills of the outer ditch, suggesting that metalworking was conducted throughout the lifespan of the complex. However, discerning the relative scale of metalwork production over time is problematic. The bulk of the evidence comes from deliberate infilling during the final phases of the site, and prior to that the site appears to have been kept relatively clean, with debris clearly deposited elsewhere (for example, within surface middens that no longer survive). Campbell's study of import and metalworking distribution at a range of early medieval sites has shown that interiors were often kept clean, with middens being built up as part of a staged process in which waste was eventually transferred off-site (Campbell 2007: 108). In this respect, it is only when this process was interrupted or the site abandoned that large middens tended to remain in situ. Nonetheless, as it stands, the Craw Stane evidence is one of the most extensive metalworking assemblages in early medieval Britain, with unusual and notable characteristics – eg the number of handpin moulds, the evidence for high-quality blacksmithing and silver refining (Cruickshanks; Chapter 8). All of this is particularly impressive given the plough-truncated nature of the site and the fact that only around 14% of its extent was excavated.

Illus 12.5
Wild boar cast in silver from a 3D reconstruction of one of the Rhynie animal moulds by artist Jennifer Gray. Were these gaming pieces? Image © Jennifer Gray

The focus of production appears to have been on elite markers of identity – handpins, brooches, other dress accessories and perhaps gaming pieces (Illus 12.5). The Irish *Críth Gablach* suggests that one of the attributes of a lord was a brooch of precious material, and certainly in Ireland brooch moulds are generally restricted to the highest status sites, where their exchange may have been a key conduit in reinforcing ties of allegiance (MacNeill 1923: 297; Etchingham & Swift 2004; Campbell 2007: 111). More generally, the production and circulation of metalwork between a leader and his followers appears to have been an important means of cementing the relationships of hierarchy and subservience (Nieke 1993: 128–9). Indeed, as *Críth Gablach* suggests, objects such as penannular brooches may have literally materialised these relations, perhaps being markers of roles within the royal court or insignia of allegiance within the military retinue of a ruler (Grigg 2015: 68–72). Other objects such as handpins that had their origins in forms found in Late Roman military contexts may have also been badges of elite status and military honour or prowess (Youngs 2007: 86; 2013: 415, 421; Gavin 2013: 430).

In general, group bonds would have been created and maintained through the gathering and redistribution of wealth. In Germanic contexts, kings were known as the 'givers of rings' or the 'breaker of treasure' (Nicolay 2014: 6; Skre 2020: 201). Wealth was clearly being accumulated and utilised at the Craw Stane complex and the presence of ingot moulds, possible silver-refining vessels and the production evidence more generally show it was being transformed and redistributed. The raw materials (and indeed possibly objects themselves) may have been the product of complex social processes such as tribute gathering and raiding. Precious metalwork would have provided one commodity to trade but other materials such as iron, animal pelts, leather goods, foodstuffs and slaves were also potential 'goods' that could have been exchanged with neighbouring polities and further afield (Alcock 1963: 53; 1995: 142; 2003: 129; Campbell 2007: 124, 129).[6]

12.2.7 The feast of wine

The amphorae and the glass sherds from the Craw Stane complex attest to high-status feasting and drinking. Feasting and the consumption of alcohol are well-known ways in which groups forge, underline and remake relations of power and status. Consequently, feasting is a major feature of socio-political group bonding and peer polity interaction in complex societies (Russell 2012: 377; Hayden 2014: 44; Hastorf 2017: 179–221). Feasting is also a recurring feature of 'gift economy' societies of the type suggested by the production and redistribution evidence at the Craw Stane complex (Russell 2012: 378). Feasts can be highly ritualised and imbued with socio-political, religious and economic significance, with the events often involving very obvious displays of wealth and power that can lead to other elements of status marking and bond creation such as gift giving, ritual ceremonies, storytelling, dancing, music and singing (Mauss 2002: 49; Russell 2012: 379). These activities often play upon and underscore social hierarchies and relations through cues such as seating arrangements or the dress worn by participants, alongside the visibility, actions and gestures of those hosting the events.[7] Feasts are consequently often at the centre of the political life of a socially stratified society and thus major conduits for social inequality, given the prestige it brings and the costs it entails (Hayden 2014).

In early medieval society, feasting was likely to fulfil the royal obligation of hospitality (Alcock 2003: 49), engendering the reciprocal duty of the beneficiaries to fight for their lord, as is implicit in this stanza from *Y Gododdin*:

> The generous chieftain of most bitter fighting,
> A prince in the bloodshed after the wine-feast, Gwenabwy
> son of Gwen, in the conflict of Catraeth
> *Y Gododdin* (Jarman 1988: 20–1).

The sherds of imported glass found at Rhynie are likely to have been fragments of drinking vessels used at the site, rather than raw material used to produce other glass objects and inlays (Campbell 2007: 92–6). It is highly likely that these vessels were used in episodes of feasting and drinking, the latter indicated in the *Life of Columba* which depicts the magus Broichan drinking from a glass (*uitrea . . . bibera*) while in the royal house of King Bridei (Anderson & Anderson 1991: 140–3). Such vessels may have been exchanged between elites during high-level economic and political exchanges (Campbell 2007: 39, 60, 92–6) (Illus 12.6). The amphorae too may have been related to drinking, with wine being a likely content

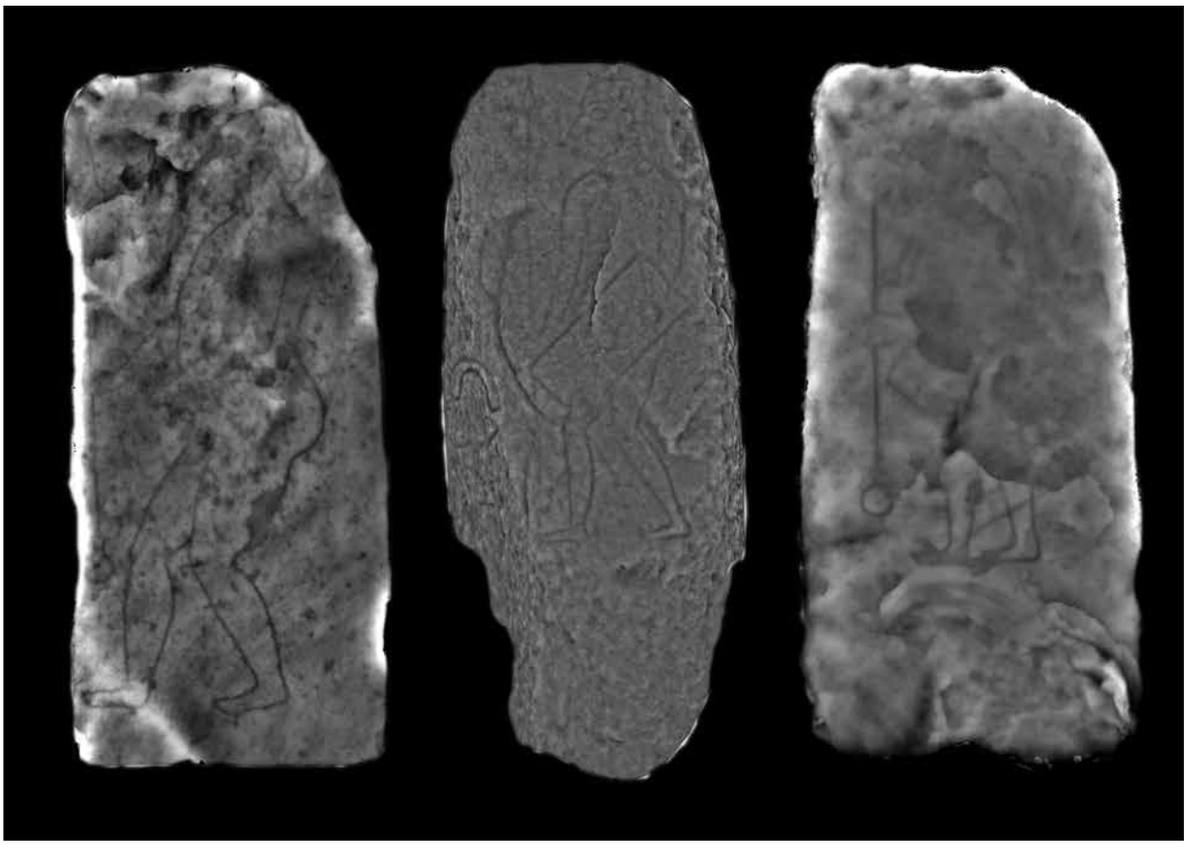
Illus 12.6
Replica of an Atlantic conical beaker with white trail decoration © Cold Case Whithorn project. Both beakers and a more unusual bowl forms appear to have been present at Rhynie (Chapter 7)

(though amphorae are also thought to have stored oil which again could have also been utilised in feasting). In general, the presence of these imports testifies to the continuation or reinvigoration of Romanised tastes in drinking and eating, traditions that were well-established amongst the Roman Iron Age elite of northern Britain during the 1st to 4th centuries AD (Alcock 1963: 50; Hunter 2007). While the number of vessels from Rhynie is relatively modest, it must be remembered that we are reliant on the chance preservation of vessel sherds and abandonment-phase deposits in a heavily plough-truncated site. The distance from the coast is also a factor, with Campbell (2007: 110) suggesting that the sherd count of such imports at inland sites should be multiplied by a factor of 20 due to the difficulties in moving such large vessels overland. As discussed in Chapter 11, Rhynie shares parallels with Clogher in Ireland, which has the greatest prevalence of imports on any Irish site and yet was 70km from the coast (compared to around 50km for Rhynie). The amphora sherds from Tap o' Noth also show that consumption of Mediterranean exotics was occurring at *c* 550m OD near the summit of the hill. The amphorae and glass recovered at the Craw Stane complex (and the foodstuffs they contained) would have been extremely rare and exclusive objects in Pictland. Their presence would have been a very visible marker of access to exotic goods and more refined culinary tastes and social customs, and a prominent indicator of the accumulated wealth of those hosting these feasts. These served to highlight the power of the hosts and the rarefied connections they could secure to procure the fineries of the feast.

Such feasts are also likely to have required more locally sourced food but preservation limits the insights that can be gained. Faunal remains were recovered from the Craw Stane but were very poorly preserved due to soil conditions (Chapter 8). Nonetheless, what was notable during the excavations was the ubiquity of charred animal bone and the number of animal bones did survive in a lowland setting of eastern Scotland where acidic soils almost always prevent bone preservation. Both of these observations suggest that there was probably a very large animal bone assemblage prior to its degradation. Like other elite secular sites of the period, such as Dinas Powys and Dunadd, it is likely that at least some of the animals were consumed in the context of feasting (Lane & Campbell 2000: 58, 96; Seaman 2013: 8). Cross-culturally, meat tends to be a frequent feature of feasting events (see Russell 2012: 378), and at Rhynie there was a notable percentage of pigs within the bone assemblage, reflecting a prevalence of pig bones that has been identified at other power centres in Pictland (Masson-MacLean et al 2023). Indeed, texts indicate that pork was the most prominent dish in early medieval Irish feasts (Kelly 1997: 358), and in Anglo-Saxon England pigs were high-status animals found mainly on elite sites (Banham & Faith 2014: 98).

12.2.8 A warrior ethos

One other dimension worth exploring is the use of the Craw Stane complex and environs in relation to warriorhood and weapons-bearing. Weaponry and the right to bear arms were largely controlled by the elite classes in early medieval Britain, with the ability to muster and lead troops into battle being the preserve of kings and lords (Alcock 2003: 31). In the Irish annals, kings are regularly mentioned in reference to armed conflict or warfare, especially against rival peoples and their leaders. In better documented parts of early



Illus 12.7
Warrior carvings from Tulloch (left), Collessie (centre) and Rhynie No. 3 (right) © Andy Hickie

medieval Britain and Ireland, kings and lords had personal war bands, bodyguards and sometimes war-leaders (Alcock 1972: 184; 2003: 55–6). Pictish war bands may be indicated in the *Life of Columba* which mentions Artbranán, an elderly pagan who is referred to as *Geonae primarius cohortis*, the leader of a military retinue from Ce (Sharpe 1995: n 149). Certainly from the 7th century onwards, when we have more detailed historical records for northern Britain, it is clear that war and warfare underpinned early medieval rulership – as was the case elsewhere in Europe. Elites in early medieval northern Britain were first and foremost leaders in war, with the ability to secure successful outcomes in conflict one of the main qualities sought amongst aspiring rulers (Woolf 2007b: 26).

Given that Tap o' Noth and the Craw Stane complex appear to have been foci for assembly, sustained a concentrated large population and hosted an elite residential, cult and manufacturing centre, it could be that this landscape was also one in which war-bands were mustered. Warbands would have been necessary for the security of a polity; they could protect its boundaries and maintain a threat of violence needed to gather tribute and food renders from subordinates and vassals (eg Alcock 2003: 401; Bhreathnach 2014: 122). Weaponry has been associated with high-status sites of the period, with swords found on early medieval Scottish sites such as Dunadd and Dumbarton Rock and at elite Irish crannog sites such as Lagore and Balinderry (Campbell 2007: 111, tables 18–19). However, the recovery of weaponry is very rare, so the pattern-welded knife blade and sword pommel from the Craw Stane assemblage are unusual finds. The martial basis of the Rhynie elite society is perhaps also reflected in the carving of the warrior figure, Rhynie No. 3 – one of only a handful of warrior depictions in eastern Scotland (Hall et al 2020) (Illus 12.7). The gruesome appearance of Rhynie Man and the axe he bears are other symbols of violence and possible warrior attributes (Grigg 2018: 27).

The elaborate defences and fortification of the Craw Stane enclosures, Tap o' Noth and Cairn More further allude to the martial nature of society. The construction of defences appears to have been a means by which the bonds of subordination between followers and their king were embodied in early medieval society. Irish law tracts, for example, state that the clients of kings and lords were required to perform a fixed amount of labour, which included building and maintaining the ramparts of the king's fort (Kelly 1988: 30). In Anglo-Saxon England, fortress-building formed part of the 'common burdens' from the 8th century onwards (Wickham 2009: 163) and became a feature of the 12th-century kingdom of the Scots (Taylor 2016: 91–113). If similar obligations were present in early Pictland, constructing these defences on power nodes within the landscape would have helped cement and materialise the bonds between a ruler and their clients. The addition of the much more elaborate timber elements in

a secondary phase of the enclosure of the Craw Stane complex, and the addition of a rampart to Tap o' Noth in the 5th or 6th century, may suggest the labour and material obligations of a client community grew over time. The construction of these defences would have involved the organisation and control of substantial labour forces to provide both physical and metaphysical protection for the wider community who lived and perhaps gathered at these key nodes of power (cf Schødt 2003: 100; see also Nieke & Duncan 1988: 11; Warner 1988: 49).

In terms of defence and enclosure, one interesting aspect at both the Craw Stane complex and Cairn More is the contrast between the small size of the enclosed area and the monumentality of the defences. This is a wider phenomenon in early medieval Britain and Ireland with significant numbers of early medieval hillforts and enclosures being relatively diminutive in terms of internal area vis-à-vis the scale of the surrounding ramparts (Seaman 2013: 10–1). The fact that such a small area was enclosed at both sites suggests only a very limited number of people could have occupied them at any one time. The labour force employed in the construction of the defences must therefore have been the product of a much larger population than the sites themselves contained (cf Alcock 1988: 26). While the defences may not have been designed to withstand prolonged attack, they would have provided some refuge against skirmishes and protection from raiders. The enclosing elements would have also marked those inside as being of a particular status, with the boundaries perhaps helping to contain as well as exclude. Hostages, for example, could have been present inside the Craw Stane complex. The Irish law tract *Críth Gablach* depicts 'forfeited hostages' in chains in the king's banqueting hall (Bhreathnach 2014: 67) but other hostages presumably experienced better conditions, as people could become hostages for various reasons (Kelly 1988: 172–6). While hostages are not mentioned in relation to the Picts, lesser subordination is found in the *Life of Columba*, which refers to dependent kings at the court of the Pictish king Bridei (II.42; Sharpe 1995: 196) and slaves in the Pictish royal court (II.33; Sharpe 1995: 181–2). In an earlier period, Patrick's 5th-century *Letter to the soldiers of Coroticus* claimed that slaves were bought by the Picts from Britons (§12, 14–5: Hood 1978: 37, 57–8). Therefore, slaves may well have been present in the Upper Strathbogie valley to help provision and maintain the households of particular elite lineages.

12.2.9 The dead of Rhynie

Closely connected with the multifunctional Craw Stane complex was a cemetery located a short distance to the north, perhaps along a routeway that would have passed by the complex heading south. Unfortunately, a proportion of the early medieval cemetery at Rhynie is likely to have been destroyed by the construction of the modern village. Nonetheless, fragments of information survive to suggest that a significant place of commemoration was located here, with the findspots of three symbol stones coinciding with the cemetery location (Logan 1829; Chapter 9). Estimating the size of the cemetery is difficult but it may have been extensive. Two unusual square enclosures were identified around 200m from the findspot of the warrior carving (Rhynie No. 3) near which funerary features were identified in the 19th century and during the work of this project (Chapter 5). Antiquarian finds of cists during the construction of the turnpike road suggest that there were burials between the square enclosures and the northernmost findspots of the symbol stones (Henderson 1907: 163). Cropmarks and geophysical survey indicate that the cemetery may have also extended southwards (Chapter 5).

The square and round barrow cemeteries that emerged somewhere around the 4th or 5th century AD in eastern Scotland were a notable innovation (Maldonado 2013; Mitchell & Noble 2017). In this region, after the urnfield cemeteries of the Late Bronze Age, there was little in the way of identifiable or standardised burial types until the long cist and monumental cemeteries like that at Rhynie flourished in the late- and post-Roman era (eg Ashmore 1980, 2003: 35; Armit 2016: 116–22). As well as following wider trends marked by the greater visibility of burial monuments across Britain and Ireland in this period (see O'Brien 2009; Hines & Bayliss 2013; O'Sullivan et al 2014: 283–318), the occurrence of these cemeteries may mark a critical period in Pictland in which lineage, status, territoriality and claims to land became more visibly emphasised. With regards to social status, it cannot be coincidence that these formal cemeteries emerged in an era in which there may have been an increased emphasis on the importance of individual families and particular status groups. Monument building and the creation of new forms of mortuary practice often occur at horizons of social change and centralisation during transitional periods in the establishment of elites (Cherry 1978; Barrett 1994: 29–32; Whittle 1997: 45). Emulation, competition and the desire for status within an emerging society may therefore have been strong motivating factors behind the construction of monumental cemeteries (Maldonado 2013; Mitchell & Noble 2017). The construction of the cemetery at Rhynie was part of a wider phenomenon, but the potential size of this cemetery and its unusual proximity to sculptured stones and the two large square enclosures suggest that it may have been one of the more significant creations of this period. The cemetery, located at the crossroads of major routes through the valley, would not only have served as a site for ritual and the commemoration of the small group of people buried here but also have been a very visible and powerful demonstration of the authority and standing of the elite lineages who controlled this landscape.

12.2.10 Cairn More

In the Upper Strathbogie valley, the latest addition to the central place complex was Cairn More, an elaborate bivallate ringfort. The ramparts here show a very unusual construction that included dozens if not hundreds of timber posts. While the present evidence does not indicate that Cairn More matched the material or cultural richness of the Craw Stane complex, the investment in the elaborate defences certainly suggests this was a site of high social standing. Given its enclosed nature and small internal size, Cairn More must have been the domain of a single family or extended family group – though, like the Craw Stane complex, Cairn More also shows evidence for external structures outwith its enclosing wall. Ringforts of this type are few and far between in Scotland. Cairn More may therefore be interpreted as a lordly residence that was dependent upon the Craw Stane complex in the valley below. Notably, this smaller settlement stayed in use for a century after

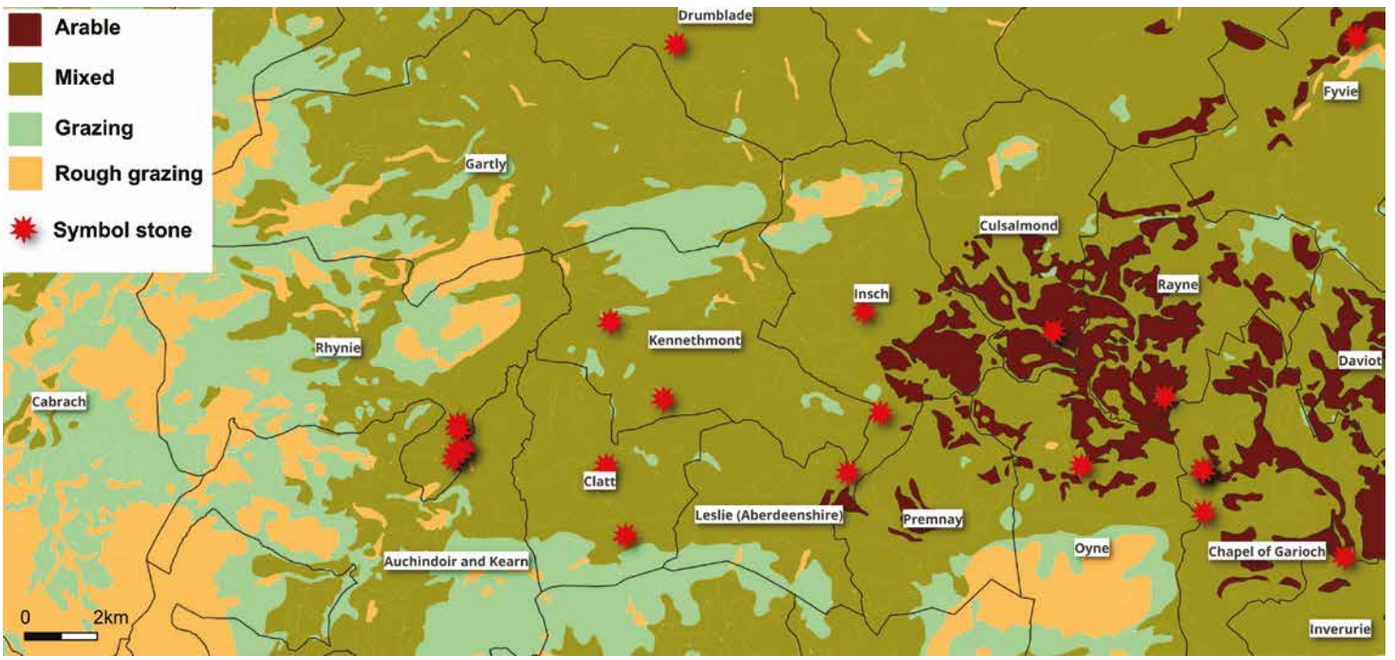
the Craw Stane complex was abandoned, perhaps remaining a lordly residence even when the nearly royal centre disappeared.

Campbell has suggested that some of the high-status sites in the wider environs of Dunadd may have controlled access routes into Kilmartin Glen (Crone & Campbell 2005: 126–7; Campbell 2007: 134). Similarly, around Garranes, Co. Cork, a number of ringforts were found in the wider environs of Lisnacaheragh, the likely seat of the *Uí Echach Muman* (O'Brien & Hogan 2021). According to the 1770s plan of Kearn parish, roads from the south ran on either side of Cairn More; one to its west heading northwards and the other on its south side passing between Hare Hill and the higher Clova Hill. Thus its location may have been good for controlling routeways to the south and east of the Craw Stane complex. There is potentially a similar relationship between Mither Tap o' Bennachie and Maiden Castle in Aberdeenshire, with the latter sitting downslope from the summit nuclear fort.

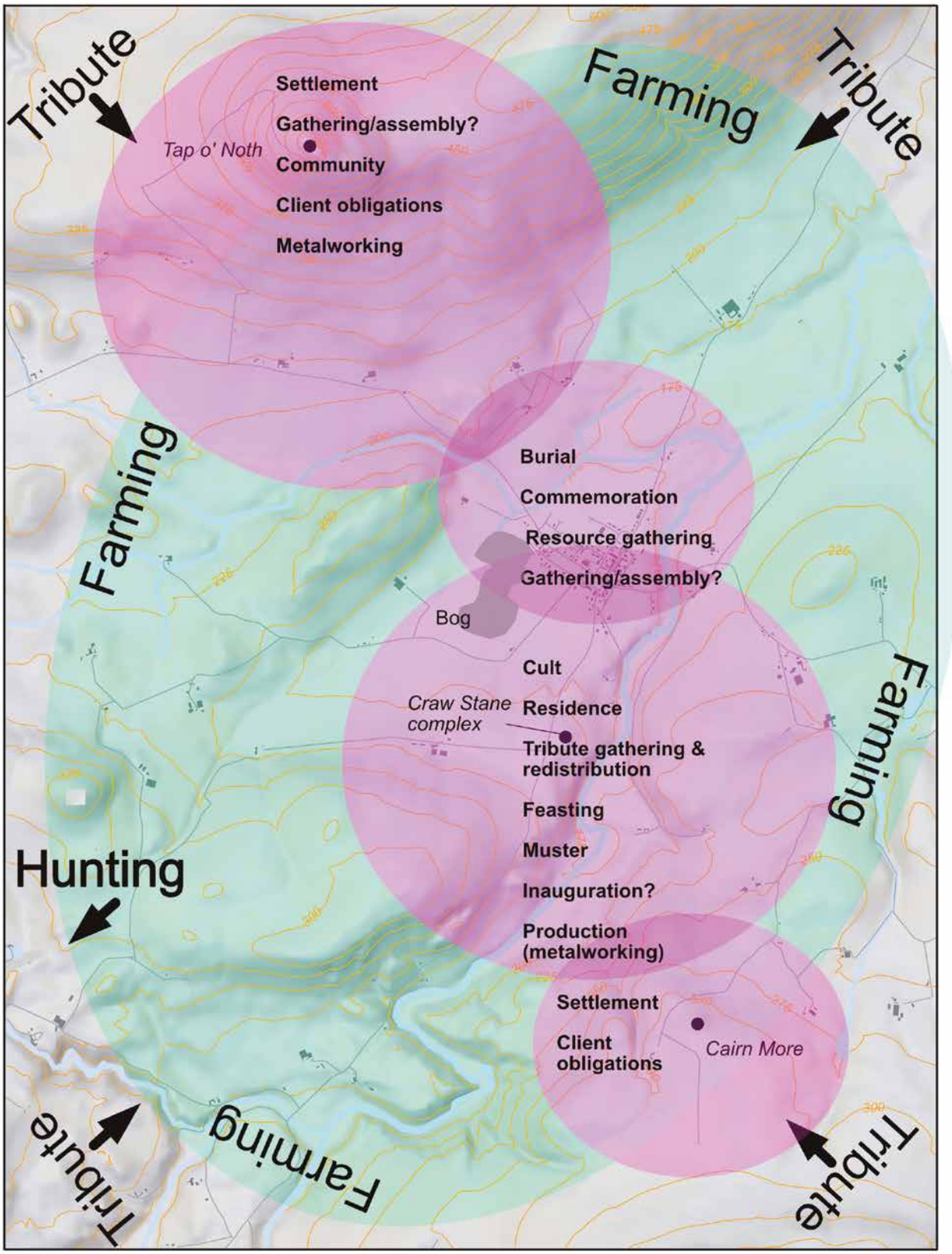
12.2.11 The wider landscape

The establishment of a major central place in the Upper Strathbogie valley was likely due to the strategic and connected elements of its landscape. It was situated towards the margins of the fertile lowlands of Aberdeenshire in a valley that gave ready access to Moray in the north, and Deeside, Donside and the Urie valley to the south and east. Many Scandinavian and southern Britain elite centres are similarly positioned on important routeways (eg Brink 2004: 209; Seaman & Sucharyna Thomas 2020; Seaman 2023: 426). The Upper Strathbogie valley was also located on the threshold of different landscape types that held various land-use potentials. Today, the valley bottom is characterised by the presence of good-quality brown earth soil that are well drained and suitable for both crops and pasture, while the valley is the western extension of a large area of productive soils that extends from the Urie and Don valleys to the east. The Macaulay Land Capability Classification for Agriculture map of Scotland marks the Rhynie soils as of average to high yield and suitable for a narrow to moderate range of crops (Illus 12.8). The pollen core from the Water of Bogie and the botanic remains from the Craw Stane complex (Chapter 8) suggest that a wide range of resources were available in the immediate catchment including mixed woodland, arable and pasture, and fruit- and nut-bearing trees. Even within the upper echelons of society, wealth and status would have ultimately come from an ability to marshal the resources of the land. The economic evidence from the valley is a reminder of the inseparability of landed wealth and status in this era.

Other resources may have made this region attractive. Rhynie lay at the edge of upland areas in the Cairngorm Mountains and Cabrach Hills that may well have been partially forested and provided the source of timber required for the enclosures at Tap o' Noth and the Craw Stane complex. These upland areas may have also provided a suitably rich landscape for hunting. The Cabrach contained royal and baronial forests in the late medieval period (McNeill & MacQueen 1996: 216–7), and the position of this valley at a transition between cultivatable lowlands and hunting upland zones mirrors the liminal position of some Anglo-Saxon and continental royal sites and potentially some of the enclosed sites of early medieval south-west England and Wales (Blair 2018: 104–6, 109; Seaman 2023: 426–7). For example, the Anglo-Saxon medieval royal centres at Cheddar, Somerset, and Rendlesham, Suffolk,



Illus 12.8
Macaulay Land Capability Classification for Agriculture map of Scotland in relation to the symbol stone distribution around the Rhynie and Bennachie areas. Base map © Soil Survey of Scotland Staff (1981). Soil maps of Scotland at a scale of 1:250 000. Macaulay Institute for Soil Research, Aberdeen



0 250 500 1000 m

Illus 12.9
A polyfocal centre of the Upper Strathbogie valley: a potential model

were likely situated partly due to the proximity of favoured hunting grounds (Blair 2018: 112). Carolingian rulers similarly sited their centres in relation to hunting: Charlemagne's palace at Aachen was less than a day's ride from royal hunting grounds in the Eifel highlands, and his successor, Louis the Pious, held assemblies in the latter parts of the year at prime hunting locations (Goldberg 2020: 85, 106). At Rhynie, references to wild animals and perhaps the hunt can be found in the zoomorphic moulds at the Craw Stane complex (and possibly on the early motifs of Rhynie No. 5: Chapter 11) but unfortunately we are able to say little about wild animals in the faunal assemblage given the poor bone preservation (Chapter 8). Nevertheless, access to a different range of resources, and the proximity to good hunting land, may well have been important factors in the location of an elite focus within the Upper Strathbogie valley, since hunting was likely an activity carried out in the developing power centre.[8]

12.2.12 A powerful place

Overall, many lines of evidence converge to suggest that the Rhynie landscape, and particularly the Craw Stane complex, formed an important polyfocal nexus in which rulership was forged and maintained during a formative stage spanning the Late Roman Iron Age to early medieval period (Illus 12.9). Judging by the place-name evidence and the material wealth of the site represented by the scale of metalworking production including possible evidence of silver refining, it is clear that the Craw Stane complex was perhaps the key node in the orchestration and materialisation of rulership in the Upper Strathbogie valley. However, the Craw Stane complex must have derived some of its significance from its relationship with other major sites in the landscape, namely the enclosed settlement of Tap o' Noth (the largest enclosed settlement yet identified in early medieval Britain and Ireland) and the more modest enclosed site of Cairn More. Along with the cemetery, these three sites are likely to have formed a polyfocal complex or 'central zone' within the Rhynie environs (for discussion of the central zone model, see Blair 2018: 128–30, 174).

The Craw Stane complex can be associated with an elite group whose power was underpinned by a warrior ideology and sacral notions of kingship, and was most likely the inspiration for the place-name 'Rhynie'. Feasting, gift giving and ceremonial gatherings are likely to have been integral functions of rulership, though the complex may also have played a residential role. The agricultural production of the valley and the wider resources of its hinterland are likely to have underpinned such activities and highlighted the significance of the landscape. The rich artefact assemblage reveals the material wealth of this node of the central place complex with the evidence suggesting that the Craw Stane complex attracted talented craftworkers to this landscape, and within the site exotic foodstuffs were consumed and more local resources were processed and perhaps redistributed. All in all, a diverse range of activities are likely to have been hosted at the Craw Stane complex and each may have been integral to the administration of rulership in their own unique way.

Within the Craw Stane complex, we can envision the year-round presence or regular reappearance of the household of a Pictish ruler. The Irish legal tract *Críth Gablach* describes a king's house as having servants and guardsmen, the king's judge, wife, steward, guests, poets, musicians and various other entertainers, as well as hostages given by the king's unfree clients and others taken from enemies, messengers or envoys from other polities (Bhreathnach 2014: 108–11). This is the kind of diverse community which may have resided at the Craw Stane complex. A source closer to home, the *Life of Columba*, refers to a Pictish king's *senatus* residing at the king's fort. This was most likely a core group of nobles or 'council' who supported the king and probably included the *familiares*, his close followers or retinue (II.33–5: Anderson & Anderson 1991: 142–7; Sharpe 1995: 181–4, n 301). In Bridei's case, his council also included his *magi*. While we should be cautious about this source given its Christian outlook, it seems plausible that in a pre-Christian context the king would indeed have had pagan intermediaries who may have orchestrated more ritualised activities at the Craw Stane complex and its associated cemetery. The figure of the Rhynie Man, so supernatural in appearance, may plausibly refer to figures such as a *magi* in the king's court.

The identification of the massive hilltop settlement at Tap o' Noth and its dating to the same era as the Craw Stane complex is perhaps the most startling find of the project. Tap o' Noth may have been a huge population hub for the area; a place of regional significance and a node where settlement began to coalesce from the 3rd century onwards. If this was the case, then those living on the hill must have been resourced by a much wider regional population bringing food renders and tribute. In this interpretation, the labour investment required to construct the platforms and rampart are testament to an enduring place of social and political significance in north-east Scotland during the Late Roman Iron Age and early medieval period. The scale of settlement and the complexity of society that it suggests were most unexpected for this era. We can also interpret Tap o' Noth as a place of assembly. Assemblies may have been held at particular times of the year, perhaps following harvest and major events such as Beltaine, Lughnasa and Samhain (or their equivalents), inaugurations, victories in war or a whole host of other potential events of intra-community interest (Russell 2012: 381). The ancient oblong fort at Tap o' Noth could have been a locale for assembling elements of the community for particular forms of assembly such as proclamations, meetings and religious festivals.

Gatherings of differing scales could also have been held within the Craw Stane complex or in the wider landscape. We know that Anglo-Saxon hall complexes hosted episodic assemblies – Bede's account of Paulinus spending 36 days at Yeavering in the 620s teaching and baptising is an example of how royal centres could attract a wide and diverse group to an elite power centre (*HE* ii.14: Colgrave & Mynors 1969: 188). Large assemblies within the Carolingian empire were also frequently held at royal centres (Iversen 2009: 108), and in Scandinavia major royal places were also used for annual or episodic gatherings.

If Tap o' Noth acted as a place of assembly, then these events must have been central to the orchestration of society in this region. The architectural investment suggests it was clearly not a place for one-off or intermittent assembly but instead a central node integral to social reproduction of a nascent polity of Pictland, whose rulership was unusual in this era for having reached a considerable and unusual extent (Wickham 2009: 151). The complexity of power centres such as that present within the Upper

Strathbogie valley may therefore have been integral to the rise of the powerful polities which constituted the Pictish kingdoms. Overall, the evidence from the Upper Strathbogie valley is a major step forward in our understanding of the transition from the Late Roman Iron Age to early medieval northern Britain and the pathways to power that led to the development of the early kingdoms in this part of Europe.

12.3 The development of kingship

What were the processes and trajectories that led to a major centre seemingly associated with a royal lineage emerging in the Upper Strathbogie valley in the Late Roman Iron Age? And what enabled this central place complex to endure till the 6th or 7th centuries AD? In recent years the consolidation of the Pictish over-kingdom as a cohesive polity has tended to be assigned to the late 7th century rather than earlier, and the idea of Pictish as an identity marker and political consolidation at all prior to this period has been questioned (eg Fraser 2009; Woolf 2017a). However, Evans (2022) has argued that Picti was known as a term in northern Britain from the Late Roman period onwards, but the continuity and development of polities and kingship remains a murky issue.

The Pictish king-lists place the origins of the royal line further back in time than even the earliest Roman references to the Picts, in what would generally be calculated as the first millennium BC (Evans 2011). However, while some of the earlier kings may have been real, the text was most likely a compilation of multiple sources and the prehistoric section demonstrably contains some fantastical elements (Fraser 2009: 226–7). Indeed, it is the late 6th century before we have a Pictish king confirmed in multiple sources: Bridei son of Mailcon, who according to Adomnán's *Life of St Columba* met Columba in Bridei's fortress at Loch Ness (II.33–5; Sharpe 1995: 181–4).

Examining our earlier sources, there are no certain references in any Classical sources to kingship north of the Forth, aside from an arguably medieval addition to Solinus's *Collectanea rerum memorabilium* which refers to the *Ebudae* islands off western Scotland having a *rex* (Mommsen 1895: 219). Tacitus mentions *duces*, 'leaders', from the Caledonian region (*Agricola* 29.4; Ogilvie & Richmond 1967: 111), and Cassius Dio stated that the peoples north of the Roman frontier, presumably the Maeatae and Caledonians, were 'democratic' though they had ἄρχοντεσ, 'rulers, chiefs, magistrates' (Cary 1927: 262–3), but he does not refer specifically to kings. However, there may have been some understanding of kingship in northern Britain. Ptolemy's *Geographia* has the name *Rerigonion* for (Loch) Ryan in Wigtownshire, containing Celtic *rīg*, 'king' in what was presumably a British-speaking area (Grigg 2015: 85–6; Chapter 3). There were also kings in Ireland, as evidenced by at least one place called *Rhegia* in Ptolemy's *Geographia* (Isaac 2004) and Tacitus's account of an exile who was 'one of the little kings' (*unum ex regulis*) on that island (*Agricola* 24.3; Ogilvie & Richmond 1967: 108). At the time of the Roman invasions in the 1st and 2nd centuries AD, there are also references to kings and queens of the Britons south of Hadrian's Wall, though various kingdoms were eliminated as Roman rule was consolidated (Mattingly 2006: 90–1, 94–119, 138–9). Thus, a concept of kingship may have circulated within the early centuries AD north of the Forth but may not necessarily have been present as an actual practice. The presence, nature and conceptualisation of kingship are unlikely to have remained static or uniform during the 1st millennium AD in northern Britain.

Little has been written on the origins of the Pictish kingdoms from an archaeological standpoint, and the scholarship on how early medieval polities north of Hadrian's Wall coalesced has tended to look south for models, particularly amongst the kingdoms of Anglo-Saxon England. Here, historical sources attest to the rise of hereditary rulership by the late 6th century and certainly by the 7th century, which appears to be accompanied by the onset of richly furnished burial traditions and the emergence of hall complexes (Scull 1993: 66; Scull 1999: 17; Yorke 1999: 25; Wickham 2009: 157; Scull et al 2024: 402). These kingdoms replaced polities where the hierarchies were relatively flat in the 5th and 6th centuries AD (eg Scull et al 2024: 405). Exactly how the Anglo-Saxon kingdoms emerged, and the relationship of these to the end of Roman Britain, has remained uncertain. For a start, the levels of continuity between Late Roman and early medieval southern Britain are a topic of huge and contentious debate ('the continuity-discontinuity debate' – see Gerrard 2013: 5). This has centred on the extent to which the end of Roman administration led to socio-economic collapse and the knock-on effects on post-Roman society (eg Esmonde Cleary 1989; Dark 1994, 2000; Faulkner 2000, 2004; Ward-Perkins 2005; Fleming 2022). While the specifics of this debate are difficult to resolve, there can be no doubt that society in the south of Britain in the 4th and 5th centuries AD faced immense challenges. These included socio-economic decline or transformation (Wickham 2009: 151; Gerrard 2013: 5, 73, 94; Fleming 2022: 32); massive changes in the material provisioning of settlements and the end of urban life (Fleming 2022: 32–3); large-scale migration and population change (Welch 1993; Heather 2009; Scull et al 2024: 405, 422); internal conflict, the usurpation of Roman rule and the end of formal taxation (Gerrard 2013: 7; Scull et al 2024: 421); the removal of the field army and major ruptures in the ability to enforce practices of government (Scull et al 2024: 421); and widespread social and cultural realignments more generally. While some of these impacts would have been felt in the 4th century, it was within the power vacuum left by the withdrawal of Roman administration that the kingdoms of southern Britain really began to take shape.

In his examination of the late 4th to early 6th centuries AD, James Gerrard (2013: 14) has characterised southern Britain's transformation as a shift from state control (where a civilian ideology was forefront) to a fragmented landscape of power in which personal lordship was 'backed by the point of a sword'. Changes in material culture during the 5th and 6th centuries reflected the growth of militarised ideologies, with the trappings of martial display becoming a very obvious element of the furnished burial tradition in eastern England (Gerrard 2013: 13–14, 201). Following the collapse of imperial control and the demise of Roman military protection and subsidy, the use of military retinues may have become one means by which authority was maintained in the much 'smaller worlds' of the post-Roman era in southern Britain (Gerrard 2013: 208, 249; Wickham 2009: 153; Fleming 2022: 187).

Further north at Hadrian's Wall, a similar process of fragmentation and the instigation of local rule has been suggested to

have occurred. The state-controlled military command of the frontier progressively disaggregated, with soldiers and their descendants perhaps forming war bands to exercise some semblance of local or regional control and to take power into their own hands (Collins 2012: 109). In western England and Wales, while the military symbolism did not find its way into the burial traditions, surplus resources and labour were put into the construction and refortification of hillforts in a post-Roman context. This was a different, but perhaps related, manifestation of the militarisation of society by emergent kings who surrounded themselves with armed retinues (Gerrard 2013: 117, 160, 265; Wickham 2009: 151).

While the processes of change that occurred in southern Britain may resonate with our interpretations of northern Britain, there are also numerous points of contrast. The complete absorption of southern Britain into the Roman Empire and the subsequent withdrawal of state administration would have had far reaching and disruptive consequences. The lack of continuity between Late Roman and post-Roman society would have been particularly notable for southern Britain compared to most areas of Gaul (eg Esmonde Cleary 1989; Dark 1994; Halsall 2013: 87–101, 174–81). In contrast, the social and cultural impact of the dissolution of Roman Britain north of the Firth of Forth may have been much less readily felt, but the opportunities for increased influence may have grown with the weakened military and civic organisation of those areas formerly under Roman administration.

In these respects, developments in southern England may not provide the best model for what occurred in Pictland. Instead, closer resonances may be found with other areas that lay beyond the edge (but not the influence) of the Roman Empire, such as parts of northern Germany and Scandinavia. Some of these regions also present with a similar absence of literary sources and rely more heavily on archaeological rather than historical evidence. Scholars in Scandinavia, for example, have been more willing to trace alternative trajectories for the emergence of the hierarchical warrior kingdoms that dominated the later first millennium AD. Here, the early centuries of the first millennium AD are considered crucial in setting the foundations of the societies of its latter half. In Denmark, for example, elite dynasties that emerged in the 1st to 4th centuries AD are suggested to have 'pioneered the development of the structured societal form that provided the basis for the emergence of the oldest kingdoms' (Storgaard 2003: 107). Despite its physical distance from Scandinavia, the influence of the Roman Empire has been seen as a catalyst for developments well beyond the frontier (Jørgensen 2003: 13).

In Scandinavia, the discovery of elite hall complexes that appear to emerge during the 2nd and 3rd century AD has led to major re-evaluations of the scale and complexity of first-millennium AD society.[9] One interesting model for social change has been developed by Dagfinn Skre, who argues that Roman influence in Scandinavia inspired a new type of leader in the early centuries AD – the *dróttinn* (2020: 193). The *dróttinn* was essentially a leader in war whose emergence was prompted by the territorial expansion of the Roman Empire, which escalated the 'martial proficiency and level of armament among neighbouring peoples' (Skre 2020: 222; See Skre 2025 for the most in-depth study). Parts of northern Europe directly encountered Roman military forces, but Iron Age individuals and groups would have also served in the Roman army and experienced the military hierarchies and organisation firsthand. Skre also suggests that large units of Germanic *auxilia* settled in parts of Scandinavia around the end of the 2nd century AD, bringing with them new ideas around social and military organisation (Skre 2025: 13–14). These new polities were ideologically focused on the centrality of lordship and the apex position of a leader protected by a retinue. Skre proposes that the hall complexes of the 2nd–3rd century AD (inspired by a knowledge of Roman institutional buildings) were the economic and political centres of these new military leaders, who increased their power and wealth through military prowess and an expansionist ethos, building larger lordships that set the foundations for later developments in socio-political evolution. The hall complexes that these lords controlled had surrounding farms for followers, and these hall complexes were also manufacturing centres for the locality where long-distance trade was controlled. In the same era other developments took place such as the development of market sites and runic writing, stepping stones to increased wealth, social stratification and social advancements that allowed the crystallisation of new elite identities (Skre 2020: 222; Skre 2025: 13–14, 397–400).

Skre argues that the mid-first millennium AD marked another profound period of change, which may have gone hand-in-hand with the formation of yet larger-scale polities and a new form of leader, the *konungr* or **kuninga-* (Skre 2020: 197, 222–32; Skre 2025: 455), whose rise coincided with the demise of the Western Roman Empire that led to a reduction or cessation in trade and contact that had been going across the *limes*. As a consequence leaders refocused their commodity production and trade more closely on the Scandinavian homelands and on further regional expansion of their territories. In Skre's eyes these groups were creating a 'Rome in the North' on the back of the fall of the Western Roman Empire, based on the idea of one sovereign, a defined realm and where succession was defined by a dynastic hereditary system (Skre 2025: 559–60). Skre argues that archaeological examples of redevelopment and expansion at what became major royal centres, such as Gamla Uppsala, Lejre and Borre, can be traced to this period, and he suggests that the legitimacy of new rulers was based on an increased territorialisation of rulership, a more stable wealth base and forms of distribution, and a royal ideology and lineage with more developed forms of status and religious display (Skre 2020: 291, 229; Skre 2025: Chapters 13–15).

While there is a huge amount to digest with Skre's work, and much to debate, his underlying argument – in particular a shift to a more martial form of leadership in the early centuries AD and then to a more narrowly dynastic, ideologically differentiated form of rulership – could be relevant to the region north of the Firth of Forth. Of course, the territory that became Scotland is different from Scandinavia. In contrast to Scandinavia, a Roman presence did recurrently extend into the domain of Iron Age groups, including the 1st-century AD occupation of the lowlands up to the Mearns and the invasion of Agricola, whose temporary camps reached as far north as the River Spey (Fraser 2005, 2009: 17–22). In the 2nd century AD, the Romans again campaigned and subdued lands in the southernmost part of what would later

be Pictland, when the linear frontier was shifted north to the Forth and Clyde, the Antonine Wall was constructed, and some forts at sites like Ardoch were reoccupied (Hanson & Maxwell 1986). In the early 3rd century, lands north of the Forth were once again invaded in the major punitive campaigns of Septimius Severus and Caracalla in 208–11 who reached at least the Tay (Fraser 2009: 28). These interventions meant many communities within wider Iron Age society would have witnessed firsthand the Roman army in operation and reacted to Roman military campaigning.

One consequence of the Roman Empire may have been greater political consolidation of the groups that lived beyond its frontiers (Mann 1974; Heather 2009: 36–150). Certainly, the multiplicity of population groups that inhabited northern Britain according to Ptolemy's *Geographia* is not found in later written sources, which focus on only a few named groups. While it is likely that our limited textual evidence simplifies a complex web of local power structures, some political consolidation is probable. According to Cassius Dio, the Maeatae and Caledones who colluded to attack the empire in the late 2nd and early 3rd centuries were amalgamations of multiple polities (Cary 1927: 216–7, 262–3). Subsequent references are more limited, since Roman infighting and other frontier incursions dominate our sources from the 230s to 280s (Kulikowski 2016: 111–18, 137–201). However, after Rome's control of Britain was re-established by 297, conflicts in northern Britain resumed and often involved the Picts (*Picti*).

Collaboration and the geographical scale of contacts among barbarian groups, including Picts, *Scotti*, Saxons and others, appears to have increased in the 4th century with the *barbarica conspiratio* (the 'Barbarian Conspiracy' – AD 367–8) (see Fraser 2009: 54–8). Roman campaigning in Scotland may also have continued into the 4th century, with the text *Origo Constantini Imperatoris* stating that Constantius Chlorus died (AD 306) after obtaining a victory over the Picts, suggesting that the situation north of the frontier in Britain required repeated imperial interventions (Rolfe 1935–9, vol 3: 510–11). Ammianus Marcellinus described the *Picti* as a 'savage' *gens* in 365, two years prior to the 'Barbarian Conspiracy', who were 'harassing the Britons with constant disasters' (*Res Gestae* xxvi, 4.5; Seyfarth et al 1978, vol 2: 9; Rolfe 1935–9, vol 2: 586–9). Thus, the Late Roman period was marked by significant warfare and conflict, with more effective long-range attacks by late Iron Age groups on the empire and particularly vicious attacks by the Romans against these group in the 3rd and 4th centuries (most notably Severus's punitive campaigns).

It is in this context of an active military frontier and contact (including trade), with an advanced state-based military organisation, that new forms of society may have emerged. Military prowess and skills in warfare are likely to have been desirable qualities sought in leadership, with Cassius Dio remarking that in the years around AD 200 raiding and general martial ability appear to be a major determinant of who ruled the peoples north of the Hadrianic frontier (*Roman History*: Cary 1927: 262–3). Even the initial Roman invasion appears to have had an impact, with Tacitus stating that the leaders of the Caledonian polities appointed Calgacus as a war leader to fight the Romans (*Agricola* 29.4: Ogilvie & Richmond 1967, 111) – though the fact that his Celtic name means 'swordsman' indicates that warfare was probably an established part of society in northern Britain. Following Skre's model, we can perhaps imagine the emergence of a class of military leader similar to his *dróttinn*, who cultivated lordships supported by hierarchical warrior groupings. This process may have become most prominent in areas to the north of the Roman frontier in Britain, with the expansion and contraction of the Roman presence beyond Hadrian's Wall creating waves of escalation in martial proficiency and leadership amongst non-Romanised groups around and beyond the frontier.

Roman frontier policy sought to control and divert such activity. It often provided material support to local leaders through gifts of money and objects, and sometimes military assistance, particularly for local rulers who gained Roman protection from their neighbours and increased access to Roman markets. The enemies of Rome were thus not only devastated by imperial armies, but also had heavy tributes imposed in the forms of grain, cattle, horses and men for the imperial army, and could even have internal affairs such as assemblies regulated and supervised by Roman officials (Elton 1996: 36–7, 48–51; Goldsworthy 2016: 366, 385–402; see Cassius Dio, *Roman History* Cary 1927, 12–17, 34–7, 58–61, 72–5, 314–15, 378–9). After the 230s, when Roman armies were pre-occupied elsewhere, this system probably broke down and is likely to have disrupted power relations. The dearth of coin-hoards identified in the archaeological record after this period may well be evidence of such a situation (Hunter 2007). However, it may also have enabled new structures to emerge, as trade and military connections with other frontier peoples could have developed – as is indicated by traditions of material culture shared with Ireland (Hunter 2007: 46–8). Less direct Roman intervention in the far north in the Late Roman period (in terms of attempts at conquest at least) may therefore have allowed more permanent landscapes of power to solidify.

These altering trajectories of Roman military influence in the north may provide a context for the origins of the multifunctional central place that developed in the Upper Strathbogie valley from the 3rd and 4th centuries AD onwards. First, some form of centralised settlement or place of assembly developed at Tap o' Noth, concentrating surplus material and labour resources. By the late 4th century, a more obvious node of rulership emerged at the Craw Stane complex. It is notable that the start date for the Craw Stane complex overlaps with the *barbarica conspiratio* events of the AD 360s, and the wider context surrounding this event may have been a further catalyst for the consolidation of power by a restricted warrior elite within late Iron Age society. The emergence of the Craw Stane complex might also correspond with the elevation of warband leaders perhaps initially associated with Tap o' Noth to a more exclusive (royal) status, with leadership centralised at a dedicated site for orchestrating and administering power. The position of these leaders may then have been assured in the generations that followed and power perhaps centralised through the dynamics of peer competition and competitive exclusion (cf Scull et al 2024: 403). Once the Roman administration had left Britain, and the organised state-led frontier system based on Hadrian's Wall had collapsed, the threat of the empire was removed. In this respect it is interesting to note the increased resource investment in the Upper Strathbogie valley in the 5th and early 6th centuries AD; the stone-built rampart enclosing the settlement at

Tap o' Noth was built and more elaborate timber works were likely constructed at the Craw Stane complex during this period. The development of the elaborate ringfort at Cairn More may have also begun in the 5th century, perhaps reflecting the growth of a wider elite and the development of dependent lordly sites.

Overall, whatever the exact processes and timings that led to the development of kingdoms and kingship in the north, the evidence from Rhynie, Tap o' Noth and Cairn More suggests that the social and political cohesion that underpinned the Pictish kingdoms had much deeper roots than originally believed. This ultimately permits a reappraisal of the continuities and connections between the Late Roman Iron Age and the early medieval period in Scotland. While militarised ideologies at the civilian level were an outcome of the collapse of state control in southern Britain, in the far north this was a process that had a much longer history and prominence. Rulership at the 'point of a sword' was a phenomenon that perhaps found new expression during the Roman Iron Age and did so in an area of intense military conflict at the northernmost limits of the Roman Empire. While the impacts of military intervention and conquest were first felt in the late 1st century AD, it was the events of the late 2nd to 4th centuries that further shaped the contours of northern society. Severus's massive and genocidal campaigns in Scotland occurred in the early 3rd century following a generation of trouble on the frontier. In the following generations no conflict is recorded, but in the late 3rd century our sources once again speak of conflict between the Roman military and Iron Age groups – this was the period (late 3rd century) in which the settlement at Tap o' Noth began to take shape. By the late 4th century, the Picts were able to muster warbands to take part in military raids that relied on long-distance connections to other barbarian groups. This may have required a more centralised social organisation that included sites of assembly where a large army or multiple raiding parties could convene – the kind of place that Upper Strathbogie was becoming.

12.4 Mapping early polities

Deciphering the type of area an elite centre at Rhynie might have served is very difficult, considering this is a place and time period for which the historical sources offer little to no clues. There is evidence that later land units inside the parishes of Rhynie and Kearn probably provided some food and resources to support the centres at Tap o' Noth, Rhynie and Cairn More (Chapter 3). In addition, it has been proposed that Strathbogie had once been more focused on Rhynie rather than Huntly (the later medieval caput of the lordship), so the territory here could have related to the core of the Tap o' Noth and Rhynie polity in its final 6th- and 7th-century phase. For England, it has been suggested that the origins of Anglo-Saxon kingdoms lay with relatively small territories equivalent to the size of a small English county or less (Bassett 1989; Wickham 2005, 2009). By AD 600, kingdoms such as East Anglia, Wessex, Deira and perhaps Mercia and Hwicce were around the size of two English counties, though the *Tribal Hidage* records much smaller polities still in existence even in the 7th century (Wickham 2005: 313; 2009: 151; see also Arnold 1997: 208–9). In early medieval Wales, the petty kingdoms recognised by land grants in the *Book of Llandaff* appear to have been small in scale, no bigger than 15–20 miles across. These kingdoms fluctuated and were largely unstable, with their borders and extent defined socially rather than spatially (Seaman 2013: 13).

The evidence for Pictland is scant, particularly for the 4th to 6th centuries when the Craw Stane complex appears to have been active. Certainly for this period, it is not tenable to imagine a contiguous patchwork of kingdoms making up the areas that later became the core Pictish kingdoms at their height. Even in later periods there may have been areas that remained independent of royal authority and ones that resisted or embraced royal power to a lesser or greater degree (eg Fraser's 'farmer republics' (2009: 348) which draw on Wickham's 'peasant-mode' economic model (2005: 304–6, 536–47)). There will also have been propertied individuals of wealth and status, including a range of nobles and religious figures who retained at least some power and influence independent of kings. Nonetheless, the development of Rhynie may mark an important threshold in the evolution of elite society in north-east Scotland, with warrior leaders of the Late Roman to early post-Roman period laying the foundations for the more extensive kingdoms of the Picts in the 7th century and beyond. Whether these developments related to wider changes, such as a move from identities primarily based on population groups (like the Caledones, Verturiones and Maeatae) to more territory-based allegiances (such as Fortriu, Ce and Fife), is as yet unclear.

One possibility is that relatively extensive kingdoms arose earlier than the 7th century. If Adomnán's portrait of Bridei's late 6th-century court at all reflected the contemporary situation, then some Pictish kings had already begun to extend their dominance over substantial areas of land and sea. The presence of a sub-king from Orkney would certainly suggest that Bridei had overlordship of a territory stretching at least 150km northwards from his fort near the mouth of the River Ness (though it could be that Adomnán's writing represents the late 7th-century socio-political situation of his own time than the late 6th-century reality). Similarly, the *Annals of Ulster* contain two items (duplicates of the same record) in *c* AD 558 and 560 stating 'The flight before the son of Maelchon' (either Bridei or an otherwise unrecorded brother), which suggest Bridei was indeed a notable king who caused significant unrest and perhaps the displacement of opposing leaders and peoples. It may be that extensive political territories were already beginning to take shape in Pictland in the 6th century (and perhaps earlier) and that this formed the basis for the later Pictish kingdoms (Wickham 2009: 155).

We must therefore question whether it is possible to identify further contemporary or near-contemporary centres to Rhynie and assess the reach of these power nodes. Three main elements marked out Rhynie as a potential site of interest prior to excavation – its place-name, the unusual form of the enclosures at the Craw Stane complex, and a concentration of Pictish symbol stones. In terms of place-name evidence, it would be useful to explore names that contained the Celtic word for king (**rīg*) or other elements (like *dún*, *ráth* or *lios*) that could relate to Pictish power centres. Some exploration has been made of these names (eg Taylor & Márkus 2012: 359–60, 426–8, 477, 480) but there has been little concerted effort to combine the place-name evidence with archaeological and historical sources. With regards to enclosure morphology, there are few parallels in the cropmark record of eastern Scotland (Chapter 11) and indeed no clear-cut

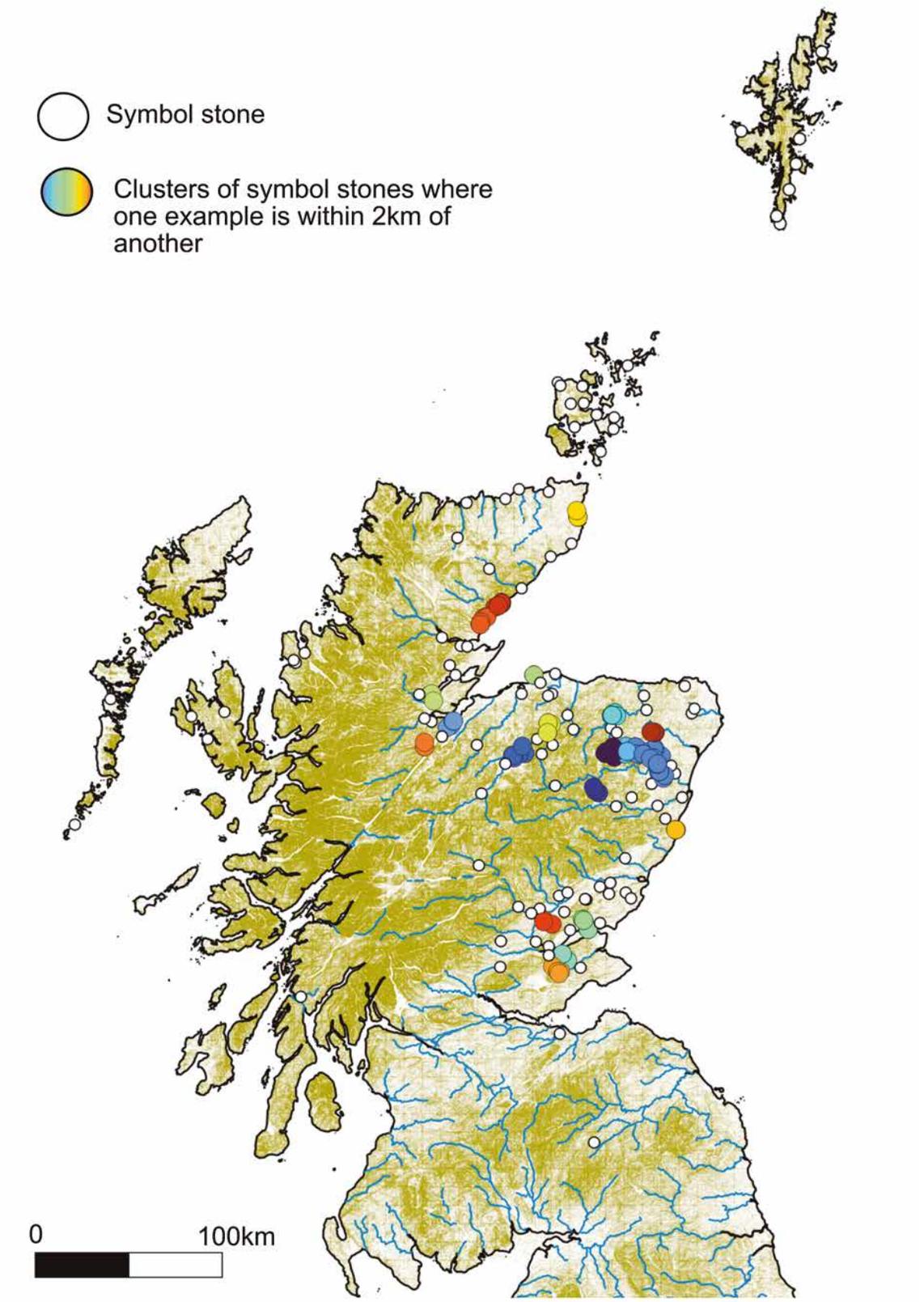
Illus 12.10
The symbol stone at Broomend of Crichie, Inverurie

Illus 12.11
The horse symbol stone from Inverurie, Aberdeenshire. QGIS visualisation based on an original model by Hamish Fenton

method for identifying forts or enclosures of the early medieval period based on morphology alone (eg Ralston 2004; Noble et al 2013; Noble et al 2020b).

Instead, areas of Pictland with concentrations of (Class I) symbol stones may be one stream through which to target fieldwork. A notable concentration of stones can be found close to Rhynie around the modern town of Inverurie; these comprise a dispersed distribution of stones at Broomend of Crichie (Illus 12.10), Brandsbutt, Drimmies, East Balhalgardy, Keith Hall and the Bass of Inverurie (RCAHMS 2008: 14, 16, 20, 22, 26). The latter are a group of four stones which now stand in a graveyard next to a motte and bailey castle but were found in the walls of Inverurie's original parish church prior to its demolition in 1775. One stone that now stands at Keith Hall (RCAHMS 2008: 26) was found on the same area of Haughland between the Don and the Urie, meaning that five stones were found in proximity to their confluence. None of the surviving stones feature warrior or human figures like those at Rhynie, but there is an unusual image of a horse (Illus 12.11). Unfortunately, no sites are recorded at this location and much of the area has succumbed to modern development. In general, concentrations of symbol stones tend to be located in northern Scotland, with much smaller numbers of monuments found in the areas that encompassed the heartlands of southern Pictland (Angus, Fife & Perthshire). A simple cluster analysis in GIS that groups stones within 2km of one another shows larger concentrations of stones in the Urie-Don valley, in the mid to lower Spey, around Inverness, and around the Brora-Golspie area in Sutherland (Illus 12.12). However, little is known about the landscape context of any of these concentrations and much more could be done to understand their settings through targeted fieldwork. The Inverness area would certainly merit further attention – notable stones include two large animal carvings of boars at Dores and Knocknagael, and the warrior figure at Balblair.[10]

Returning to the Rhynie landscape, it is the traditions of the carved stone monuments that allow us to take some very tentative steps in identifying the potential catchment of the central place. Noble et al (2018a) have suggested a typological development for

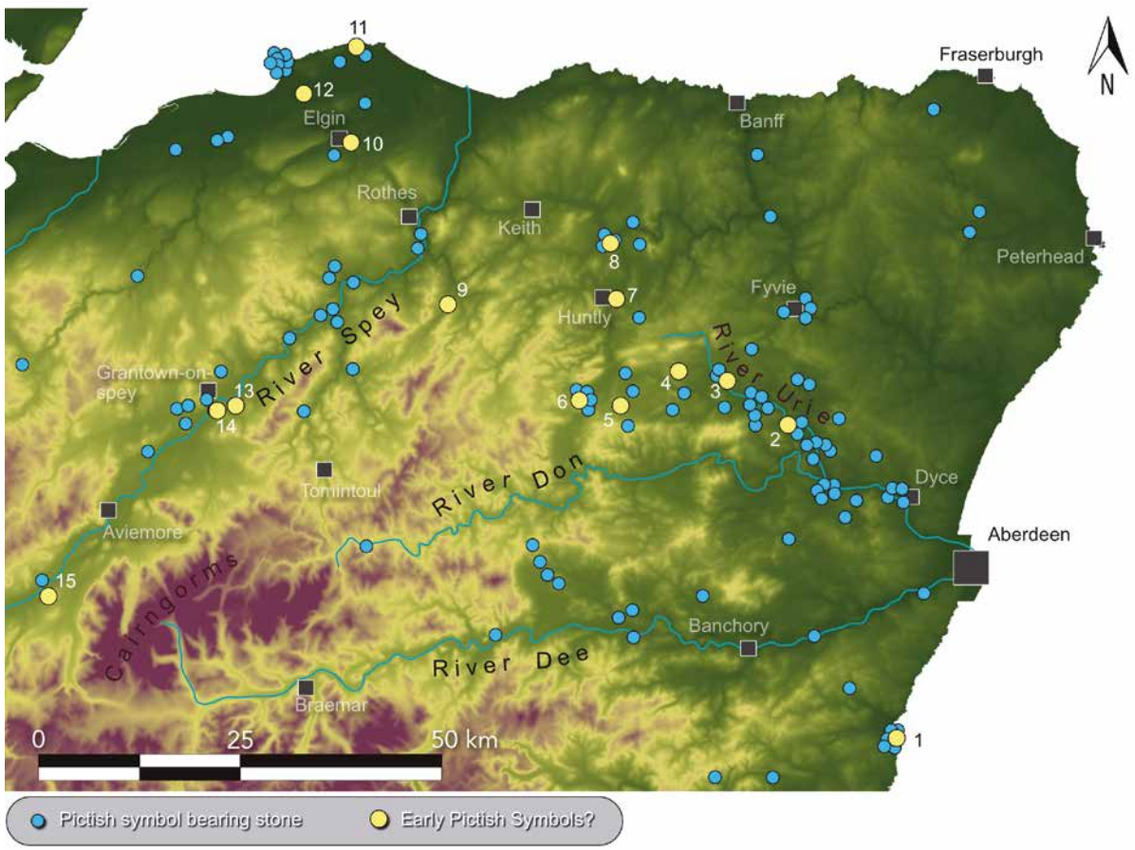


Illus 12.12
Symbol clusters defined as groups of symbol-bearing stones within 2km of one another

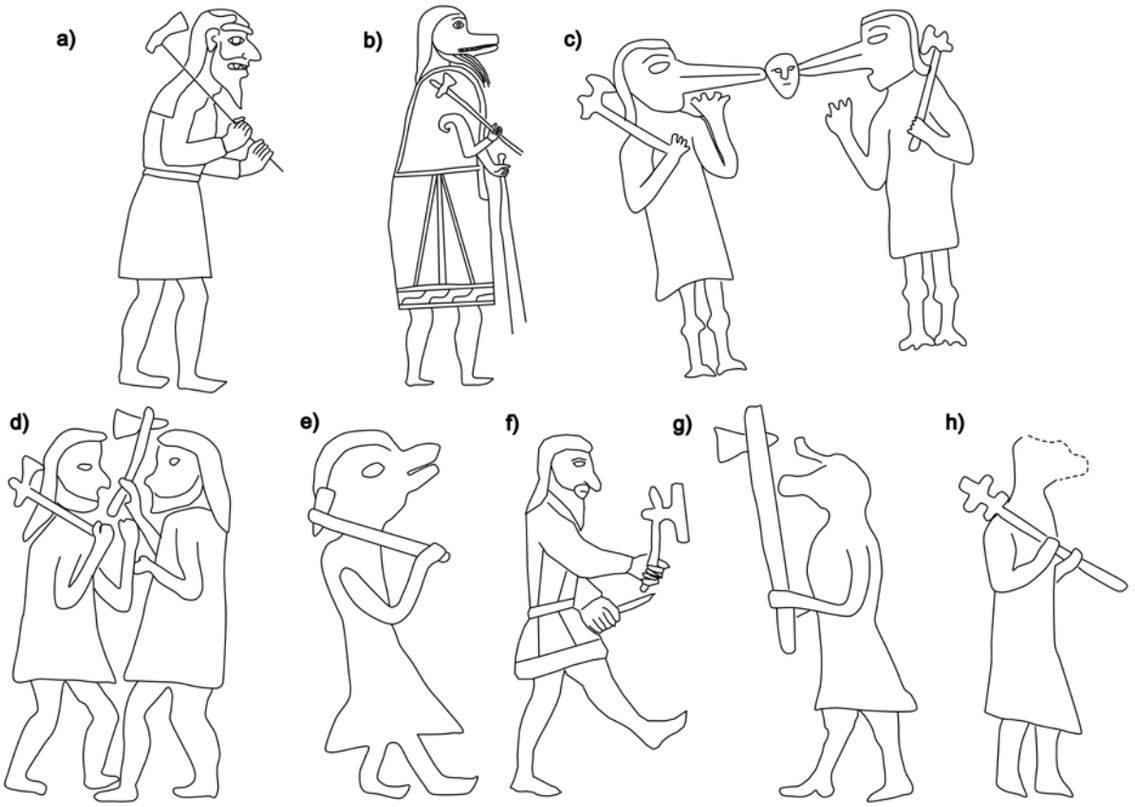
Pictish stones that may help us identify monuments that could be broadly contemporary with the styles of carving found at Rhynie. The typology is based on the dating of sites that can provide relatively secure contexts for groups of stones and indicates that unelaborated carvings may belong to the earlier phases of the symbol tradition. This suggests that relatively plain symbols – as found in association with the 2nd- to 4th-century promontory fort at Dunnicaer, Aberdeenshire – were present in the earlier forms of the Pictish symbol tradition. A relatively simple but clear linear style is also consistent across the cluster of 4th- to 6th-centuries stones found at Rhynie, while more elaborate symbol forms with internal detail are found from the later 6th century onwards.

If we examine the Pictish stones of north-east Scotland, following the typological implications sketched out in Noble et al (2018a), then around five sites in Aberdeenshire have symbol stones that share characteristics with the Rhynie carvings (Illus 12.12). These examples have the same bold yet unelaborated style of carving found on the Rhynie monuments and include impressive standing stones such as the Picardy Stone. More modest examples, such as the stone from Newton of Lewesk, resemble the plaque-like stones of Dunnicaer (and Rhynie No. 8) and may therefore indicate an early date. The context of most of these stones is uncertain, but those from Tillytarmont and possibly the Picardy Stone may mark cemeteries (Stuart 1856: xxiv; Woodham 1975). Further west, a small number of sites in Moray also share the simplicity of line and design remarked on in the symbols at Rhynie. These include a symbol stone at Mortlach that bears a Pictish beast and an unusual symbol resembling a double-sided clasp. Some examples, such as Congash, are relatively unembellished but show some greater internal decoration (eg within the arch of Congash No. 1).

Mapping stones that show a similar simplicity of line and unadorned carving style to that at Rhynie highlights an interesting concentration of examples in the upper stretches of the Urie and the Deveron, Isla and Bogie catchments – a distribution spread over an area of around 25km^2 (Illus 12.13). A distribution that broadly coincides with the size of territories that characterised the polities of early medieval southern Wales in the 7th century (Seaman 2013: 13). No putative early styles of carving are found on the upper stretches of the Don, along the Dee or further north in Buchan. A smaller concentration is found on the coastal plain of Moray, while there is also a dispersed group strung along the mid-upper stretches of the Spey/Fiddich from Mortlach to Dunachton. We tend to identify the Spey as an important dividing line in Scottish geography, but given the paucity of our historical sources we do not know if that was the case in the early first millennium AD. Indeed, the stones showing style characteristics similar to that of Rhynie encompass western Aberdeenshire and the Spey catchment. Could it be that a region spanning parts of the Spey and western Aberdeenshire was the focus of a



Illus 12.13
Pictish symbol stones bearing early characteristics: 1) Dunnicaer; 2) Drimmies; 3) Newton of Lewesk; 4) Picardy; 5) Clatt; 6) Rhynie; 7) Huntly; 8) Tillytarmont; 9) Mortlach; 10) Birnie; 11) Covesea; 12) Easterton of Roseisle; 13) Congash; 14) Inverallan; 15) Dunachton

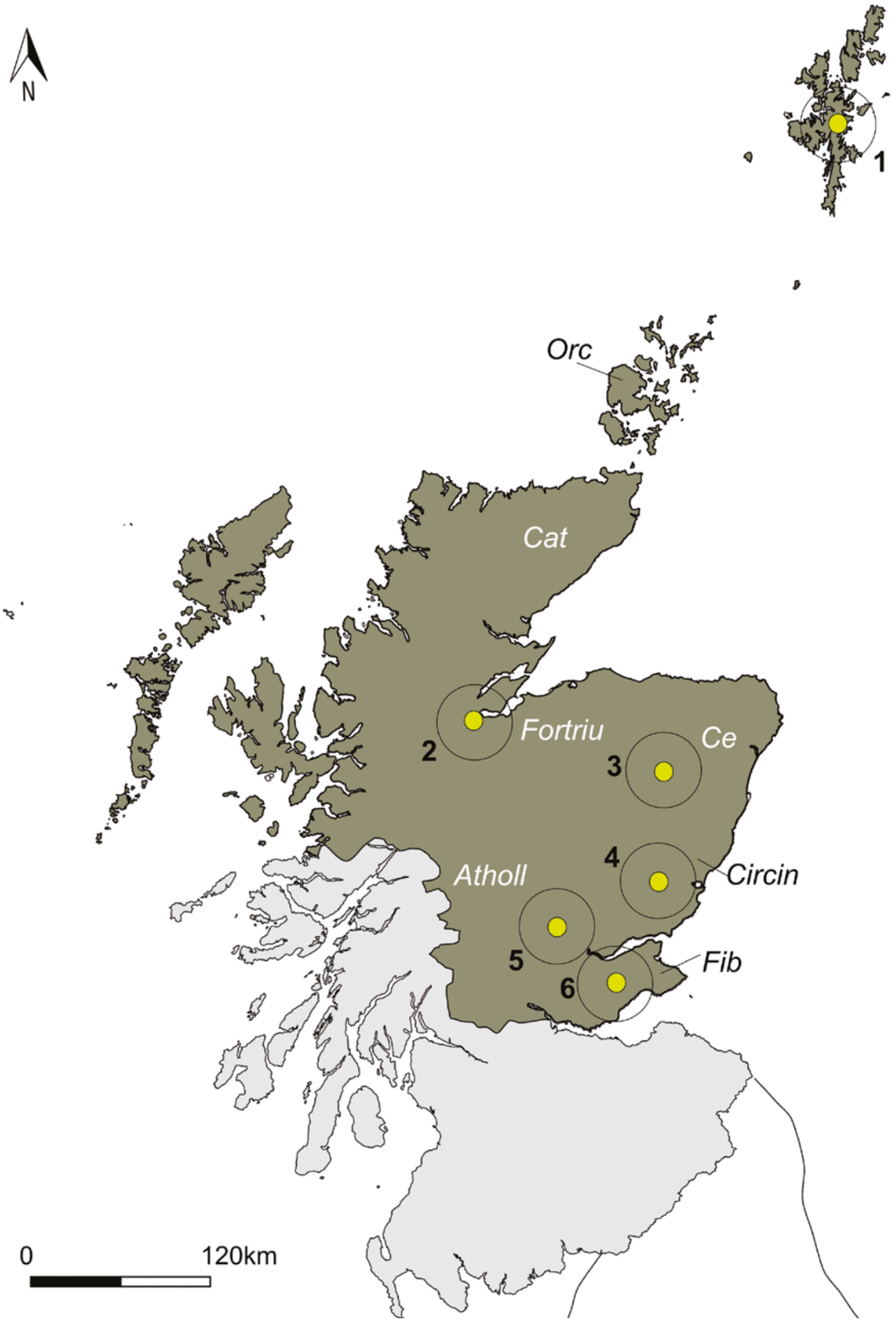


Illus 12.14
Axe-wielders from Pictish sculpture: a) Rhynie; b) Mail, Cunningsburgh, Shetland; c) Papil, Shetland; d) Glamis, Angus; e) Hunter's Hill, Glamis, Angus; f) Golspie, Sutherland; g) Rossie, Perthshire; h) Strathmartine, Angus

developing Pictish polity? However, the case that the stones from this latter group belonged to the earlier phases of the Pictish tradition is the least convincing, and their chronology may stretch into the later 6th or 7th century.

What further marked the Rhynie stones as distinctive was the inclusion of human or human-like figures. Such depictions are very unusual in the symbol stone (Class I) corpus and only a small number of parallels can be highlighted (Illus 12.14). For the warrior carvings, this includes examples from Collessie, Fife; Tulloch, Perthshire; and possibly Westerton, Angus (Illus 12.7). Balblair No. 1 in Inverness-shire also shows a possible weapon-bearing walking figure, though this figure is less martial in character as he wears a short tunic and carries a club or a staff rather than a spear (Stuart 1867: 72; Allen & Anderson 1903: 95; Fraser 2008: 80). As well as the warrior figure there is also Rhynie Man who wields an axe rather than a spear. Amongst the axe-bearing figures shown on Pictish symbol stones the closest stylistically (and probably in date) to Rhynie Man is the axe-carrier from Mail in Cunningsburgh, Shetland (Turner 1994) (Illus 12.14b). A number of axe-wielders are also identifiable on cross-slabs from Glamis, Papil and Golspie for example, but given that these are on Christian monuments they are likely to substantially post-date the Rhynie Man carving, perhaps being of 7th or 8th century date at the earliest (Illus 12.14).[11] The Mail stone is a particularly intriguing parallel, given that the place-name Cunningsburgh derives from Old Norse *konungsborg* meaning 'king's fort' (Stewart 1987: 48–9). While obviously a later coinage, it could reflect the perceived high status of this site in the 1st millennium AD. Rune-inscribed stones from the site and its locale further attest to the importance of this location in the Norse period. Additional carved monuments from Cunningsburgh include two ogham-inscribed stones and a fragment of a stone with a double-disc and Z-rod and interlace that may be the remains of a cross-slab (Turner 1994: 317–19). To the south of the stone's findspot lies a broch or dun on a tidal islet from which a probable gaming piece in the form of a small, carved human figure was recovered (Goudie 1924: 17). This 'fort' (perhaps a reused broch), the sculptural evidence, and the place-name of Cunningsburgh may indicate the presence of a Pictish to Norse power centre in this part of mainland Shetland.

The parallels for the warrior figure depicted on Rhynie No. 3 suggest that other examples were also situated within locally and perhaps regionally important landscapes. The warrior figure at Collessie, Fife (Illus 12.7), for example, comes from the immediate vicinity of a square barrow cemetery (Mitchell & Noble 2017: 12, 27). Less than a kilometre to the east at Melville Farm lies another barrow cemetery. Both cemeteries are likely to date between the 4th and early 7th centuries AD, making them broadly



Illus 12.15

Class I Pictish stones with axe-wielders and weapons-bearing figures with 1500km^2 circles drawn around the findspots. 1) Cunningsburgh/Mail, Shetland; 2) Balblair, Inverness-shire; 3) Rhynie, Aberdeenshire; 4) Westerton, Angus; 5) Tulloch, Perthshire; 6) Collessie, Fife. Note the relationship of these findspots to the Pictish regions is speculative – see Chapter 3 and 12 for discussion of Rhynie's relation to Fortriu/Ce for example

contemporary with the Craw Stane complex. Collessie was probably the centre of a larger territory than its later medieval parish (Taylor & Márkus 2010: 46, 211). The name probably includes the Gaelic element *lios*, which in eastern Scotland often denotes the presence of an aristocratic residence or administrative centre, perhaps from the Pictish era (Taylor & Márkus 2010: 211; 2012: 426–8). Though the exact context of the Tulloch warrior carving (Illus 12.7) is uncertain (it was found during landscaping for the construction of a road), it similarly appears to have been located next to a barrow (Hall et al 2020: 129). Tulloch sits in close proximity to a number of later Pictish power centres and overlooks the final stretch of the River Almond that houses Bertha Roman fort, which may have been *Rathinveramon* (the fort at the confluence of the Almond) where King Domnall mac Ailpín, King of the Picts, died in AD 862 (Woolf 2007b: 104). At the same confluence, opposite Bertha and across the Tay, is Scone, the royal inauguration site of the kingdom of Alba and later medieval Scotland (Woolf 2007b: 134–8). Similarly, the Westerton stone is located just 4km south of Aberlemno, which has a notable collection of Pictish stones, and is placed a similar distance to the north-east of Dunnichen – one of the mooted locations of the pivotal 7th-century Battle of Nechtansmere (Woolf 2006). Recent excavation at Balbinny Farm, near to Aberlemno, has identified an oval-ditched enclosure of the same approximate dimensions of the Craw Stane complex. Evaluation of the site in 2019 produced 5th- to 6th-century AD dates for the ditch fills, suggesting that the Aberlemno landscape may have been the focus for a Pictish elite presence from the 5th century onwards (Noble & O'Driscoll 2023). The context of the Balblair stone is less certain, since it has no obvious large cemetery or high-status site in the vicinity, though there is a single possible barrow recorded by aerial photography in the same field as the stone (NRHE ID: 12692).

These stones and their distribution may therefore offer some clues as to the location of elite Pictish centres around the mid-first millennium AD. It is notable that the distribution of this group of carvings is fairly evenly spread across eastern and northern Scotland, from Fife to Inverness-shire, with a more distant example in Shetland (Illus 12.15). This is a distribution that extends more than 500km north to south. Given that these carvings are clearly of a similar tradition and likely to be elite expressions of power, their wide spread suggests sustained interaction between high-status groups over an extensive part of what were to become core territories of the later Pictish kingdoms.

The distribution of Pictish symbol stones and carving styles thus provides some interesting directions for future research, though it must be acknowledged that this is a highly speculative means of trying to assess the extent of Pictish socio-political groups. Zooming out to consider where other possible contemporary centres were located is also highly conjectural. Nevertheless, given the lack of historical sources for this period and region and the limits of archaeological survival, there is relatively little else to go on and this marks one of the few ways in which we can make tentative suggestions on these matters.

12.5 Abandonment

Just as the emergence of a site can offer insight into political and social trajectories, so too can its abandonment. The dates from both Cairn More and Tap o' Noth suggest early medieval occupation in the Upper Strathbogie valley continued beyond the lifespan of the Craw Stane complex, which appears to have been abandoned in the later 6th century AD. The staggered end dates for the three known settlement sites in the valley suggests that there was no catastrophic end to the polity that controlled this region. Rather, it seems there was a gradual shift away from the valley as a central place. By the 7th century, new types of elite fortifications and settlements were being consolidated in northern Britain – most prominently the complex 'nuclear' hillforts that became iconic elements of its early medieval archaeology. Few sites in north-east Scotland provide close parallels for these relatively small but complex forts, though the most notable example is Mither Tap o' Bennachie, just 20km to the east of Rhynie and visible from Tap o' Noth. The place-name Bennachie has been translated as 'Mountain of Ce', suggesting that Bennachie may have been a major site in this region in the period the king-lists were written down. Recent dating suggests 7th- and 8th-century AD activity on site. The site and region are possibly referred to in 10th- and 11th-century lists of Gaelic sagas under the title *Orgain Benne Ce*, 'The Ravaging of Bennachie' (Dobbs 1949; Fraser 2009: 109). The hillfort of Mither Tap consists of an upper citadel and lower enclosure surrounding a distinctive granite tor that is highly visible from the surrounding landscape. The importance of the Bennachie landscape appears to have extended into an earlier period, with the nearby ringfort of Maiden Castle dating to the 4th–7th centuries AD (Cook 2011a; Chapter 11). A sherd of continental glass from middens at Maiden Castle suggests the occupants had access to some of the same imports as did those at the Craw Stane complex. Mither Tap o' Bennachie continued in use after the abandonment of Maiden Castle and may have become one of the central places in Ce, its rise to prominence partly at the expense of the settlements in the environs of Rhynie. The Bennachie hill range overlooks a catchment including more productive land than Rhynie (Illus 12.8), hence the agricultural and economic potential of this area may have contributed to a shift in their relative significance. More locally, Lesmoir in Essie parish was perhaps Rhynie's main successor as a secular elite centre (Chapter 3).

Why the Craw Stane complex itself was abandoned in the mid-6th century, earlier than the other two major foci nearby, is an intriguing issue. As well as broader shifts in polity centres, natural phenomena and a whole host of other events and processes could have contributed to the abandonment of the Craw Stane complex. In much of Europe, including Ireland, there is evidence that the mid-6th century was punctuated by plagues, famines and major environmental catastrophes (eg Campbell 2007: 132; Fraser 2009: 68–9), and similar events are attested in England (Scull et al 2024: 406–7). Given that much of the population is likely to have survived only at subsistence level, and that plagues affected elites along with everyone else in society, if these phenomena reached Rhynie they could have undermined the site of rulership that existed at the Craw Stane complex.

Given the mid-6th-century date of the complex's demise, it is also important to consider the growing importance of Christianity across Pictland. Saint Columba is credited with having

converted the Northern Picts, with Adomnán stating that the saint founded many Pictish monasteries (II.46; Sharpe 1995: 203). Bayesian modelling for the Craw Stane complex suggests that it was abandoned by the 570s at the latest, but while Columba is credited with having brought Christianity to northern Pictland in the 560s, mass conversion in the Rhynie area by him is improbable; the process is likely to have been much more complex and drawn out than is perhaps credited (Clancy 2008: 363; Fraser 2009: 68–115). The winds of religious change may have already been felt in the elite circles of northern Pictland by the early 6th century, and the pagan associations of the site could have been seen as increasingly out of place in a changing medieval world. In Wales and south-west England, Seaman has linked a decline in traditional power centres, primarily hillforts and enclosures, to a resurgence in the Church and the growth of monasticism (Seaman 2023: 424). Likewise, the abandonment of rulers' sites has also been linked to the adoption of Christianity in Scandinavia, albeit in a different era to that of Rhynie (Skre 2020: 232). In Pictland, this religious change could well have led to major shifts in how power was administered and symbolised, perhaps resulting in the cessation of residence and ritual at a site intimately linked to paganism and sacral kingship. While these are certainly possibilities, the actual factors that led to the demise of the Craw Stane complex are difficult to uncover. Its abandonment could have been due to social issues such as local rivalries, the weakening of the legitimacy of the kings in the light of contemporary events, or more general environmental and economic factors. Indeed, it could be that the combination of all of these factors saw the demise of the Craw Stane complex (and its ruler) but not necessarily the wider polity.

12.6 Conclusions

The investigations reported on here have revealed a polyfocal and multifunctional central place similar to those known elsewhere in early medieval north-western Europe. The nodes included a major non-hillfort elite complex at the Craw Stane and surrounding lowlands which comprised a high-status residence with cult dimensions, a major centre for production and exchange, and a contemporary cemetery. Overlooking this to the north was the remarkable site of Tap o' Noth, which may have been a major regional settlement and/or a site of assembly of regional or supra-regional significance. Cairn More, a very elaborate ringfort, stood to the south and was possibly the domain of a single family or extended family group. At the Craw Stane complex, some sort of elite focus took shape in the late 4th century and endured until the mid-6th century AD. This appears to have sprung up in relation to the site of Tap o' Noth, which began developing in the 3rd century. The place-name evidence suggests that it was the lowland complex that was the most instrumental node in the development of royal rulership in this landscape. Settlement began at Cairn More in the 5th century and may have served to monitor the southern and eastern routes into the valley. The whole valley may have been in control of warrior kings who resided (perhaps periodically) at the Craw Stane complex, where they feasted with clients, followers and possibly other rulers, gathered tribute and redistributed some of that wealth. Through multiple nodes, the social, jurisdictional and economic centralities of this royal place was enacted.

The origins of the central place and the social hierarchy that emerged may have related to the frontier situation of northern Britain with the arrival of the Roman Empire in the 1st century AD with the military presence beginning to shape society in the north in new ways. By the mid-millennium, rulership at the 'point of a sword' may have been emphasised by the need for a martial ethos in the face of conquest attempts and punitive retribution by the Roman military. Opportunities to attack the Romans, and to take control of plunder and trade, would have also encouraged the consolidation of elites with substantial armed forces. Simultaneously, the failure of the Romans to engage more aggressively in Pictland after AD 211 could have given the peoples north of the Forth the space and opportunity to develop and solidify these new power structures. Overall, our understanding of the nature of late and post-Roman central places of northern Britain has been hindered by the lack of historical sources and the limited scale of archaeological investigation, but also perhaps by conceptual divides between the Late Roman Iron Age and the 'early medieval'. The evidence from the Upper Strathbogie valley goes some way to build bridges between these two eras and provides a rich dataset for future reconsiderations of the Late Roman to early medieval period in northern Britain.

Chapter 13

CODA

Gordon noble

So often our understanding of the late and post-Roman central places of northern Britain has been hindered by a lack of historical sources and the limited scale of archaeological investigations. Yet here we have been able to illuminate, in unprecedented detail, the development of a polyfocal and multifunctional 'central place' of the late Roman Iron Age and early medieval period in an area of Pictland that had seen little concerted work. The resulting monograph emerged from a project that started off with very modest goals but transformed into a much broader research endeavour with grander ambitions. This was largely due to its unprecedented success in uncovering sites that could address some of the big questions surrounding the development of Late Roman Iron Age and early medieval society. Some of this was serendipity, but it was also about having the funding and freedom to address uncertainties in the archaeological record and to take an evaluative approach to sites of unknown date or character at a landscape level. Academic funding has shifted somewhat to reward the next 'big thing', or indeed support projects that will deliver certainty in results. As such, there can be real difficulty in finding the funding framework for projects that are more evaluative and exploratory – in this respect, we have to laud the small charitable funders and the individuals who have donated funds to the University of Aberdeen Development Trust to allow this project to proceed, and to Historic Environment Scotland who latterly permitted the expanded scope and approach to come to fruition.

It was not so long ago that Pictish studies were characterised in unflattering terms – the research area languished 'on the disciplinary peripheries' (Grigg 2018: 8) and was seen to focus on a people 'lost, found, repossessed or argued away' (Carver 2011: 1482). As recently as 2011, Martin Carver wrote that the topic of the Picts was 'ripe for archaeology, but archaeology has so far done rather little [for Pictish studies]' (2011: 1483). The paucity of both historical texts and archaeology was seen as a major deterrent to wider engagement with the Picts, meaning that they were rarely integrated into wider academic studies of the early medieval period and were portrayed as part of a 'vision of an isolated people adrift from time' (Grigg 2018: 1, 5). Given the paucity of historical sources, archaeology undoubtedly had more to contribute and new discoveries were expected to reinvigorate the discipline by increasing the range of evidence to draw upon. New

Illus 13.1
The Craw Stane, Rhynie

discoveries could also help overturn established views of the Picts that had developed in relation to a paucity of evidence and the subsequent reliance on external models to try and fill its lacunae.

When setting forth research questions and objectives for the future of Scotland's archaeology, the Medieval Panel of the ScARF National Framework highlighted a need for new large-scale excavation projects:

> However much progress can be made through survey or analogy alone . . . high quality excavation is needed. Excavation in Scotland has to move beyond the mechanistic techniques of trial trenches recorded by single context planning and stratigraphic diagrams alone to a multi-method approach (ScARF 2012: Section 1.4).

It was recommended that a freer approach to scheduled monuments should be taken on board by government agencies such as Historic Environment Scotland (HES) (then Historic Scotland), with small numbers of type sites 'released' for large-scale investigation rather than keyhole trenching that was identified as 'damaging' (ScARF 2012 referencing O'Sullivan 1999). Within the Rhynie Environs Project, HES responded favourably to research designs that moved beyond this approach and embraced the open area investigation strategy planned for the Craw Stane complex. Nonetheless, given the continuing difficulties in identifying early medieval sites, it was clear that no single strategy could address the issue and here the ScARF Medieval Panel comment was perhaps misguided. Keyhole trenching undoubtedly has its value (in the eyes of this author at least) and was the method of evaluative excavation that led to the successful identification of a number of 'new' early medieval sites in Aberdeenshire (eg Cook 2011a, 2011b; Noble & Gondek 2011).

Overall, the scale of investigation in the Upper Strathbogie valley and the project's interdisciplinary focus has allowed new understandings of Late Roman and early medieval society in north-east Scotland to be developed. Major gaps in our evidence highlighted by the ScARF Medieval Panel are beginning to be filled, including the formation of early medieval polities and the lack of early medieval settlement. The need for integrated landscape studies, interdisciplinary environmental research projects and better chronological resolution using large suites of radiocarbon dating from well-stratified sites with plentiful artefacts has also been addressed (ScARF recommendations 2.8, 3.7.1, 3.7.2 and 3.7.4, 6.4.5). The evidence presented in this volume provides innovative new insights into the development of a Pictish central place in a region that, up until recently, was seen as marginal within wider first-millennium AD society, a 'peripheral zone between the two power blocs of Moray and southern Pictland' (RCAHMS 2007: 116; see also Henderson 1958: 55; 1972: 166 for much older, but similar views on Aberdeenshire).

This perception of the nature and character of Pictish society, both in Aberdeenshire and beyond, can now be revisited. Rather than being marginal, Aberdeenshire may have been a central zone within Late Roman to 7th-century society. The clustering of Pictish symbol stones in this region is certainly marked, and the new evidence perhaps brings light to the few brief references that we have in early sources, such as the appearance of the Pict Artbranán, *Geonae primarius cohortis*, 'leader of a warband in the region of Ce', in the *Life of Columba* (Sharpe 1995: 294, n 149; Kilpatrick 2021: 424–5). However, by the 7th century – the date at which our (albeit limited) literary sources begin to increase – there may have been a shift in the importance of this region. There are few (Class II) cross-slabs in the Rhynie area and few places identifiable from Aberdeenshire in later sources, with the exception of the much later references to Bennachie. By the beginning of the 7th century, the fortunes of the Upper Strathbogie valley may therefore have been beginning to wane. However, even after the end of Tap o' Noth and Cairn More there was not wholesale abandonment of the valley. The pollen evidence certainly suggests there was no major hiatus in the agricultural use of the valley, and by AD 800 there was a new period of intensification in land-use, attested to by increased burning and erosion. Nevertheless, it does seem likely that the 7th century marked a decline in the importance of the area. The lack of early Christian sculpture from the Upper Strathbogie valley, for example, suggests that no major early church centres were established here. Given the relative obscurity of this landscape into the high medieval period, it is interesting that a place-name associated with elite status endured, even if its royal focus had shifted elsewhere. It may be that Rhynie was seen as an important origin point for royal authority in north-east Scotland even in the centuries after the abandonment of sites such as the Craw Stane complex and Tap o' Noth, 'a foundational estate' for Pictish society (cf Brink 1996: 270).

So where can the study of Pictish central places go from here? While much progress has been made, we cannot rest on our laurels. The archaeology and early history of Pictland still remains far behind that of early medieval England or Ireland, and we continue to rely on these regions to interpret our evidence. As Brink highlighted more than two decades ago, there is a continuing need for interdisciplinary approaches to the study of central place complexes, even in areas with limited historical sources (1996: 268). Uncovering other 'Rhynies' will no doubt prove a challenge; even with later royal centres there have been huge issues in identifying the sites mentioned in our scant sources or uncovering the physical traces of those that can be located (eg Campbell & Driscoll 2022). New fieldwork initiatives need to allow for failure as well as success, and thus the search for these nodes of early medieval power must be ambitious, armed with blue-sky approaches and backed by adequate funding. Where we can identify such central places, culture resource managers need to be open to research that goes beyond minimal impact. They must recognise that, particularly in lowland zones, we are likely to be dealing with ever declining quantities and qualities of data given the regimes of ploughing, acidic soils and impacts of climate change that will continue to threaten our heritage resource in eastern Scotland. While these are exciting times in Pictish studies, there is certainly much still to do and many challenges to tackle.

APPENDIX 1: SCIENTIFIC ANALYSIS OF GLASS FROM TAP O' NOTH AND THE CRAW STANE COMPLEX

MARY DAVIS

Method

Limited elemental analysis was carried out. The very small and unpolished samples did not allow for detailed examination of the nature of inclusions and colourants, though these potentially could give some valuable information about composition of the glass.

The glass was sampled using the method devised by Bronk and Freestone (2001), which employs a re-usable diamond-coated file, the edge of which is scored across a small section of the surface of the object to produce fine glass flakes. All sampling was carried out under a low-powered optical microscope and the flakes were collected from the file itself, and also as loose pieces collected onto a polyester film sheet. These were picked up by pressing an adhesive carbon tab mounted on an SEM stub onto the fragments, while pressing down onto the polyester sheet to make the microscopic flakes lie as flat as possible. The stubs were then carbon coated.

The fragments could be examined thoroughly by a combination of both secondary (SEI) and back-scattered electron (BSE) images in the Scanning electron microscope (SEM); the two images when viewed in tandem allowed the selection of a flat, clean surface, not shadowed by other pieces (SEI image) and with a lack of surface abnormalities or corrosion (BSE image). At least five measurements were taken from each sample, where possible from different flakes or different areas on a flake and from as large an area free from contamination or corrosion as possible. The protocol devised by Bronk and Freestone (2001) requires analyses to be as close to 100 per cent as achievable; in practice the analyses fell within 90–110 per cent. The overall percentage totals varied due to surface irregularities and variation in orientation of the flakes towards the primary beam and the detector. All the totals were normalised to 100 per cent so they could be compared to one another and to other results. As with Bronk and Freestone's initial study, the standard deviation for the flakes was slightly greater than that for polished samples; but also as with the polished samples, the largest errors occurred in sodium, possibly due to its volatility, and lead, antimony and tin, probably due to uneven dispersal of these metal compounds within the glass matrix, especially when used as colourants.

TAP		Na2O	MgO	Al203	SiO2	P2O5	SO2	Cl	K2O	CaO	TiO2	MnO	FeO	CoO	CuO	SnO2	Sb2O5	PbO	PbO
1124	green block	15.23	0.52	2.33	68.58	0.11	0.2	1.08	0.71	7.12	0.09	0.53	0.84	0	1.56	0.01	0	0.19	1.3
1603	blue bead	17.25	0.64	2.42	68.48	0.07	0.45	0.83	0.71	6.33	0.12	0.46	0.94	0.06	0.59	0.03	0.05	2.13	0.33
1701	blue bead	18.33	0.93	2.38	66.01	0.06	0.45	0.84	0.72	7.64	0.16	1.07	1.06	0.08	0.28	0.03	0	0.17	0.17
1701R	red decoration	14.69	1.18	2.27	53.37	0.09	0.06	0.07	1.09	6.44	0.05	0.65	2.04	0.03	2.67	0.68	4.81	0.02	9.15
1701W	white decoration	15.96	0.82	2.18	62.7	0.01	0.38	0.07	2.54	6.94	0.11	1.24	0.67	0	0.34	0	1.97	0	3.57
1702	turquoise bead	16.56	0.64	2.37	65.54	0.12	0.37	0.88	0.69	6.38	0.11	0.39	0.76	0	2	0.17	0.16	1.29	2.81
15008	vessel fragment	18.37	0.57	2.23	69.41	0	0.41	0.96	0.63	6.07	0.09	0.36	0.47	0	0.25	0	0.04	0.55	0.11

Table A1.1
Summary of Tap o' Noth glass composition

Results

Tap o' Noth

All the beads were of a mineral soda-lime-silica composition (Table A1.1), and base glass compositions (achieved by normalising lighter and glass forming elements to 100%) indicate that most of the glass was similar to glass made from a combination of both manganese and antimony decoloured Roman glass, typically circulating in the Roman Imperial period (Freestone 2015a & b), which Jackson and Paynter (2016) have shown constitutes the majority of naturally coloured glass circulating near the northern frontier by the 4th century AD.

SF 1124: green glass block

This appears to be a block or tessera of Roman glass. These were imported into Britain as convenient sized lumps of coloured glass during the Roman period where they were often re-used to form enamels and inlays. Later tesserae, probably looted from Roman buildings, continued to be traded into northern Europe during the early medieval period as primary raw glass became more difficult to obtain (Crocco et al 2021: 15). The base composition of this glass is very similar to Roman glass made from a mixture of antimony and manganese decolourised glass cullet (Freestone 2015a: 32, 34), with the deep green colour obtained by the addition of copper and lead in an oxidising environment; the quantities of these oxides as colourants in the glass fit well with dark green tesserae analysed by Crocco et al (2021: 15). Heck and Hoffmann (2002: 72) state that tin oxide was the most common opacifying agent used in the early medieval period; its absence here points to a Roman coloured glass.

SF1702: TURQUOISE/GREEN GLASS BEAD

The base composition of this glass is also similar to Roman glass made from a mixture of manganese and antimony decoloured glass, as seen by the levels of several constituents including alumina, lime, antimony and manganese oxides (Freestone 2015a: 32). Copper seems largely responsible for the colour, but it is likely this was originally added to a near colourless glass as gun metal (copper/tin/zinc alloy) as tin and zinc quantities are roughly proportional to 8% tin oxide and 8.5% zinc oxide of the added copper oxide. Antimony oxide is present in quite large quantities, and this, in conjunction with slightly elevated lime levels imply further deliberate addition to opacify the glass.

SF1701: CRUMB BEAD

The base composition of the blue glass has similarities to Roman manganese glass, thought to be manufactured from Egyptian sand; the higher ratio of soda to silica also indicates an Egyptian provenance. However, the quantities of titanium, iron and manganese suggest similarities to glass produced from the 4th to 7th centuries, related to HIMT glasses, also from Egypt (Freestone & Stapleton 2015). The presence of some lead and antimony and zinc suggests a level of recycling. The glass is a deep rich blue colour formed by the addition of small amounts of cobalt.

The coloured decorative elements show some unusual qualities, which could infer glass cullet was being coloured at a more local level to use for the decorative surface inclusions as there are some elements present in unusual quantities.

The additional red glass is coloured by the inclusion of copper and lead, used in relatively low quantities, as for Roman and Anglo-Saxon red glass. However, there is a large amount of tin present, in far higher proportions than would be expected for colouring glass (Heck et al 2003; Barfod et al 2022: 17), the addition of which may be due to the lead being added in the form of a lead/tin alloy, as the two metals were often combined to form pewter objects or solders. Tin, unlike lead, was not necessary for the coloration of red glass; however, Barfod et al (2022: 18), in their study of beads from Ribe (derived from Frankish and Merovingian glass cullet, in turn derived from Roman glass (2022: 5)), believe that 'moderate Pb and Sn concentration combined with low Sb concentrations also indicate Pb stannate as the opacifying agent for red beads', and so could indicate the very deliberate addition of this combination of lead and tin to form the red glass decoration in this bead.

Zinc was also present and also not necessary in contributing to the main composition or colour of the glass, and this could have been incorporated with the copper by using brass, or gun metal (possibly also contributing to the addition of some of the tin present); and if leaded copper alloys were added they could also contribute some additional lead. This could mean that raw materials in the form of copper, lead or their oxides were not available to those colouring the glass, but there was enough knowledge to understand that certain lead alloys and copper alloys, if added, would contain the correct elements needed to form the red glass. Heck and Hoffmann's analysis and experiments show the addition of metal alloys was probably used to produce coloured Merovingian beads (2002: 75) and believe that 'the composition of early medieval copper alloys can be found in the composition of the glass beads'.

The red glass also contains elevated levels of elements contained in clays (eg magnesium, iron, potassium); these could have been incorporated during the secondary process of colouring the leaded glass by heating in a clay crucible (absorption of clay minerals is a phenomenon noted for red and yellow leaded glasses where 'the chemically aggressive nature of the crucible charge against the ceramic, . . . is almost exclusively based on the corrosive action of lead oxide' (Heck et al 2002, 38; Davis and Freestone for red glass 2018: 121–2)). Any ash added or absorbed during this process, possibly to maintain a reducing atmosphere, would also lead to increased potash in the glass matrix (Freestone and Stapleton 2015; Freestone 2015a: 30).

The decorative white glass has a lower amount of lead and tin present, but in similar proportions to the red glass, so may have been coloured using a similar lead/tin alloy in the same workshop. Although tin and lead were often used together to form a yellow colourant, Heck et al (2003) have evidence that where less lead was used, the intention was to produce a white coloured rather than yellow coloured glass. Heating to high temperatures results in the dissociation of lead stannate crystals leading to white rather than yellow coloration. High levels of potash are also present in the white glass, possibly from ash mixed in during secondary working.

Both these coloured additions appear to be made from manganese decolourised glass rather than a recycled mixture of different glass types (Freestone 2015b: 252); it is possible imported Roman tesserae were used to produce the colours.

It was not possible to obtain a sample of the light blue decoration; the colour suggests that the element responsible for the colour was copper rather than cobalt.

SF1603: BLUE BEAD

This bead appears to have a base Roman glass composition where both manganese and antimony decolourised glasses have been remelted together, probably as cullet. Further recycling is indicated by the relatively high level of titanium from recycled Egyptian glass produced in the 'late antique'/early medieval period (Barfod 2022: 8, 21).

Both traces of cobalt and a small amount of copper are present which would colour the bead blue. The presence of antimony (probably combined with lime) might originally have been present to opacify the original glass, especially if the bead was formed from Roman tesserae, but SEM analysis shows there is an absence of calcium antimonate crystals in this bead which would have made the glass opaque rather than translucent. This suggests relatively clear cullet was mixed with opaque blue tesserae modifying the composition and appearance of the glass (Barfod et al 2022: 22). The formation of calcium antimonate crystals within glass is complex, depending on a number of factors (Barfod et al 2022: 20), and Barfod et al conclude that 5–7% lime in combination with antimony oxide with concentrations below 2.5% were not conducive to the extensive formation of calcium antimonate crystals, which seems to be the case for this glass bead.

SF15008: VESSEL GLASS

This has a composition similar to many clear or pale coloured Roman vessel glass type compositions, where both manganese and antimony decoloured glasses have been mixed together.

The Craw Stane Complex

SF161337: YELLOW-GREEN LUMP

This is a muddy green coloured lump of glass with a streaky surface where the colourant has not been fully mixed into the base glass. Its composition largely resembles a Roman glass using a mix of both manganese and antimony decoloured glass from different original sources. The colour is not particularly bright and is probably coloured by a combination of minor element oxides including iron, copper and lead. Antimony in combination with calcium probably contributed to the opacity of the glass.

SF1884: WHITE GLASS ROD

This is a section of white glass rod; its pitted surface has picked up a reddish colour from the surrounding soil giving it a pink appearance. The composition looks predominantly Roman; it has slightly higher lime and antimony oxide levels, which have probably contributed to its opacity and colour.

SF161507: GREEN GLASS ROD

This appears to be a Roman glass made from a mixture of manganese and antimony decoloured glass. However, it has large amounts of additional oxides which have formed the deep green colour. The quantities of lead and copper present are often seen in the production of opaque red glass made under reducing conditions; however, if lead/copper coloured glass is heated in air, it will produce a green colour. There is also a significant quantity of iron present which could also have contributed to the final colour. It is impossible to say whether this rod was originally derived from a remelted red tessera, but that is a possibility considering the proportions of the additional lead, copper and antimony.

Craw Stane		Na_2O	MgO	Al_20_3	SiO_2	P_2O_5	SO_2	Cl	K_2O	CaO	TiO_2	MnO	FeO	CoO	CuO	SnO_2	Sb_2O_5	PbO
1884	white rod	17.05	0.55	2.49	70.34	0.1	0.24	0.97	0.97	6.53	0.1	0.35	0.32	0.05	0.22	0	0.77	0.17
161337	green piece	18.21	0.58	2.52	68.81	0.08	0.26	1.01	0.56	6.21	0.13	0.4	0.43	0.05	0.23	0	0.39	0.89
161507	green rod	13.86	0.56	2.62	58.92	0.07	0.06	0.73	0.73	5.46	1	0.32	1.06	0	3.9	0.24	0.31	11.3

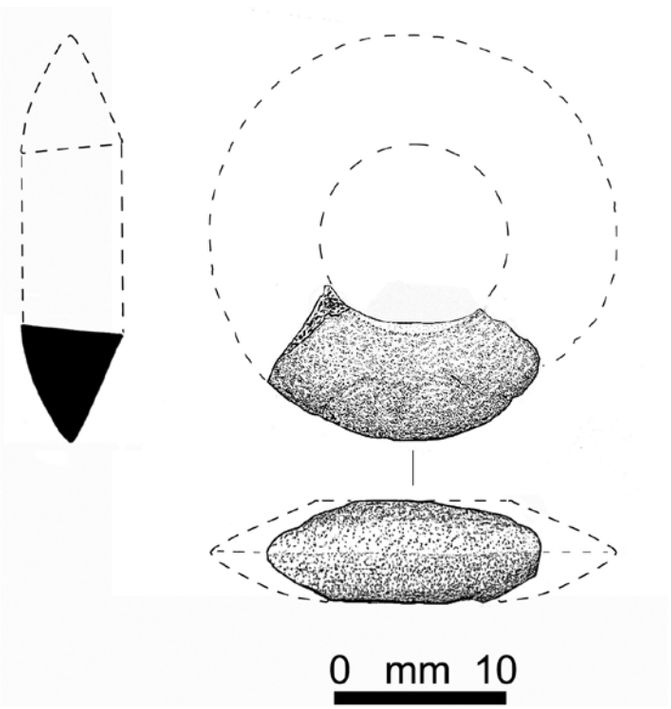
Table A1.2
Summary of Craw Stane Complex glass composition

APPENDIX 2: THE FRAGMENT OF EARLY BRONZE AGE FAIENCE QUOIT BEAD OR PENDANT FROM THE CRAW STANE COMPLEX

ALISON SHERIDAN

This item (SF219) was found in the fill of an early medieval enclosure ditch (C297) but is clearly residual, as it is unquestionably of Early Bronze Age date.

It is a fragment of a quoit-shaped bead or pendant of faience with a triangular-section hoop, measuring 16.1mm in length, 6.65mm in maximum thickness and 7mm in the width of the hoop (ie, from inner to outer edge) (Illus A2.1 and A2.2). Just under a quarter of the circumference of the bead is present; the



Illus A2.1
Reconstruction of the Rhynie quoit bead or pendant. Drawing by Linda Sheridan

Illus A2.2
Views of the Rhynie quoit bead or pendant fragment. Photos by Alison Sheridan/National Museums Scotland

estimated diameters of the outside of the hoop and of the hole are *c* 23.5mm and *c* 11mm respectively. The surviving part of the hole shows that the edge of the hole slopes slightly. The hole will have been made by wrapping faience paste around a small stick, then removing the stick once the paste had dried and the bead was ready to be fired.

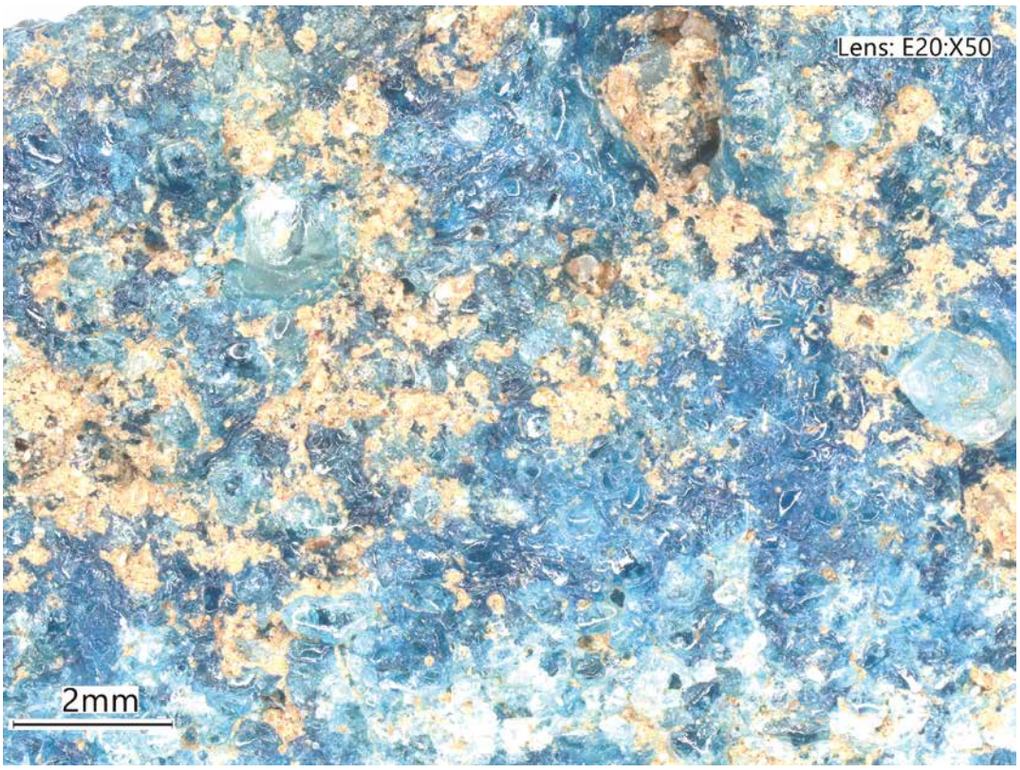
It is impossible to tell whether the item had been worn as a bead, with a thread passing through the large hole, or as a pendant, with a thread passing through a small loop fused to the edge of the hoop; both designs are known among Early Bronze Age quoit-shaped faience jewellery in Britain (eg, at Longniddry, East Lothian: Sheridan et al 2004, illus 21.8.12, left).

The surface colour and texture of the fragment vary from one side to the other, and there is further colour variation between the sides, the core and the edge of the hole. On one side it is a medium blue colour with a matte appearance, while on the other – the bottom view in Illus A2.2 – it is mostly a darker blue and has a glossy finish. This relates to the differential degree of vitrification – ie, fusing of the constituent sand grains – from one side to the other during the firing of the faience paste. The core colour, visible in the fracture surfaces, is a light grey-brown, matte in appearance, and the edge of the hole, where the glaze is thin, is a mottled pale blue and grey-brown colour, with a matte appearance. The core colour reveals that the glaze had been applied as a thin slurry to the surface of the object, rather than being mixed in with the paste. The surface texture (Illus A2.3) is fairly smooth, with only a small number of vesicles (relating to the escape of gas during the firing of the faience paste); on the matte side, individual sand grains can be observed under a microscope, and on the shiny side, only a very few such grains can be seen. There is no trace of any heat damage – a feature sometimes seen on faience beads.

The composition of the side with the best-preserved glaze and of the core was examined using qualitative X-ray fluorescence spectrometry at the National Museums Collection Centre, Edinburgh, by Dr Mary Davis; details of the analytical method are appended below. Copper – which would have been the glaze colourant – and iron were detected in both locations, but interestingly, not tin; tin is frequently encountered in British and Irish faience beads, and often in amounts greater than that expected had bronze shavings been used as the source of the copper colourant, so its absence from the Rhynie bead is of interest. The iron could derive either from iron particles in the sand used to make the faience paste, or from extraneous sediment attaching to the surface of the object.

Discussion

Quoit beads and pendants of faience form part of the repertoire of faience ornament shapes in use during the Early Bronze Age in Britain and Ireland, although they are not very common: this is the 31st such find, out of over 300 Early Bronze Age faience ornaments overall (Sheridan et al 2004, 265, 273, illus 21.7.3; Sheridan 2021; with additions). Geographically the closest example of this shape from north-east Scotland to Rhynie is that from a faience necklace found at 102 Findhorn, Moray (Shepherd & Shepherd 2001); that example was associated with two star-shaped beads and 23 segmented beads, buried with the remains of



Illus A2.3
Surface texture (at x50) of the darker blue side of the faience object, where the glaze is glassy. Occasional incompletely melted sand grains are visible, for instance at the upper part of the right edge of the photo. Photo by Alison Sheridan/National Museums Scotland

a young adult female and a neonate in (and above) a large inverted Cordoned Urn.

Radiocarbon dates associated with quoit-shaped beads and pendants, including the Findhorn example, place this ornament type firmly in the second quarter of the second millennium: in addition to the dates for the examples from Findhorn, Trelowthas (Cornwall) and Longniddry (East Lothian) shown in Sheridan and Shortland's publication (2004, illus 21.1), there are dates of 3353±24 BP (1735–1560 cal BC, SUERC-77887) for the Petersfield (Hampshire) example (Sheridan 2021) and of 3212±29 BP (1510–1410 cal BC, modelled, SUERC-74039) for one from Kingsgate, Boscombe Down (Wiltshire); both dates are cited at 95.4% probability (Sheridan 2022).

All the quoit beads and pendants for which contextual information is available have been found in funerary contexts, so it is highly likely that the Rhynie example had originally been deposited in a grave. It is assumed that the first millennium AD activities in the area destroyed that grave, leaving just this fragment surviving as a residual find in the early medieval enclosure ditch. There is evidence suggesting Early Bronze Age funerary activity in the area, in the form of an unexcavated round cairn, the Bell Knowe, around 200m north of the Craw Stane (Gondek & Noble 2015: 130); moreover, sherds of an All Over Cord Beaker, of Chalcolithic or Early Bronze Age date, were found in a cattle scrape to the north of the Craw Stane and these may have come from a grave (Cook 2005). The quoit bead will have postdated the putative Beaker grave and the construction of the Bell Knowe cairn, but it is common for areas to remain in funerary use over generations, so this is likely to have been the case here. The bead predates the Middle Bronze Age roundhouse to the north of the Rhynie Enclosure Complex that was excavated in 2005 (Gondek & Noble 2015).

Note: analytical conditions

The XRF system used was a Bruker CRONO XRF. The analysed area was irradiated with a primary X-ray beam produced by a Rhodium Target X-ray tube and collimated to give an analysed area of about 1 mm × 1 mm. Secondary X-rays were detected with a silicon drift detector with large area (50 mm^2 SDD with CUBE technology). Spectra were collected at an operating voltage of 40 kV and a current of 50 μA without a primary beam filter to ensure detection of all elements of atomic number 19 or above. Analytical time was 40 sec.

Catalogue entry

SF291, context 297. Fragment of Early Bronze Age quoit-shaped bead or pendant of faience, 16.1mm long, 6.65mm in maximum thickness and 7mm in hoop width. Extrapolated diameters (assuming a fairly symmetrical quoit shape): exterior, *c* 23.5mm; hole, *c* 11mm.

NOTES

Chapter 1

1 See footage recording the circumstances of the find here: https://www.youtube.com/watch?v=D4rxHpT5nxA.
2 See the Scotland Archaeology Strategy (http://archaeologystrategy.scot), Aim 4 *Encouraging Greater Engagement* and the HES Corporate Plan, *Heritage for All*, specially *Heritage and Society* (https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=1f65f457-a602-4ddc-af61-aa2500933d61).

Chapter 2

1 In the paper it was noted that nearly 40% of Class I stones were found in a pair or a part of a group of monuments, suggesting that the relationships between monuments were an important avenue for research.
2 The objectives of the project as set out in the 2011 paper included moving beyond art historical analyses of the symbol stones and their styles: 'REAP is not attempting to offer new "translations" of the symbols [at Rhynie]; we have approached looking at the symbols and monuments in new ways, by looking at the wider monumental landscape, rather than focusing on the symbols alone. The monuments are treated as markers within a socially significant landscape; the monument is not merely the venue for symbol display, and the display of symbols may not even be the reason why a monument was erected (see also Clarke 2007). By altering our focus on these monuments, we aim to break down preconceived notions of symbol stones as isolated objects and attempt to recontextualise them within their surroundings through our landscape approach to fieldwork' (Gondek & Noble 2011: 285).
3 And now see work by Peteranna and Birch 2019, confirming early medieval phases of the 5th–6th century AD and 11th–12th century AD.
4 Erroneously called Strathdon – Donside is the correct name for the area.

Chapter 3

1 We thank Gordon Noble, Dauvit Broun, Jacob King and Alex Woolf for their comments on the contents and drafts of this chapter, and Gordon Noble for his help with all the images.
2 *arduis atque horrentibus montium iugis.*
3 We are grateful to Professor Carole Hough for confirming this reading.
4 Pronounced /straþˈbogi/, locally /straˈbogi/ (Alexander 1952: 382); Gaelic *Srath Bhalgaidh* (Watson 2002: 205). Macdonald (1891: 31) gives the Gaelic pronunciation in Strathspey in English orthography as 'Stravalagyn or Stravolagyn', while Diack gives 'sra-bhalgan, sra-valgi, sra-valagi' (Alexander 1952: 382).
5 William dean of Strathbogie witnesses several charters 1223 x 1227 eg *Moray Reg.* no 62.
6 In their discussion of Irish place-names, Flanagan & Flanagan (1994: 143) render it *holm*, ie flat land beside a river or lake.
7 This appears in another source as **Rath Ethairt*. There is little to decide between the two forms, although the *Srath-* reading is slightly more likely to be correct.
8 Originally Strathdighty Martin, 'the strath of the Dighty Water' whose parish church was dedicated to St Martin.
9 'The strath of the Water of Feugh'.
10 *Strathbolgyn* 1223 x 1226 *Moray Reg.* no 62; *Strathbolgy* 1226 *Moray Reg.* no. 69; *Stratbolgin* in the Verse Chronicle added to the Melrose Chronicle (Anderson et al 1936: xxv), from the same source as additions to the Alba king-list (Anderson 2011: 268, 276, 284, 288–9), whose archetype probably had **Strathbolgin*. Early forms are all compounded with *Strath*.
11 NJ522388. Described in the OS Name Book both as a deep pool and a deep pot (OS1/1/25/33 and OS1/1/40/183).
12 NJ521350 OS Name Book OS1/1/36/105–106: 'A deep Pot in the Bogie Water . . . Tradition records this as being the place where an infant son of Baron Barclay of Gartly was drowned, on returning, from being baptized at the Chapel of Brawlandknows, when the "Bogie Water" was flooded after a great fall of rain; and the place where the infant was drowned, is still called "Lord John's Pot".'
13 For a discussion of this suffix, see Taylor & Márkus 2012: 409–11.
14 All these parishes are in the medieval deanery of Strathbogie, Moray diocese.

15 The early forms make it clear that the first element is Gaelic *dabhach*: (church of) *Dauendor* 1236 *Mor. Reg.* no 88; (church of) *Dauachendor* 1270 x 1279 *Abdn. Reg.* ii, 52; *Dauachyndore* 1361 *Abdn. Reg.* i 89. It would seem to have been re-interpreted as *achadh* 'field, farm' in the 15th century, first appearing as *Auchindoir* in 1445 (Alexander 1952: 153).
16 *New-mardrom* and *Auld-mardrom* 1511 *RMS* ii no. 3599 (in the barony of Strathbogie); *Auld-Mardrum* 1576 x 1578 *RMS* iv no. 2814.
17 For the creation of parishes in Scotland, with particular reference to the diocese of Moray, see Taylor 2014.
18 It should be noted that the foundation account of the bishopric of Mortlach recorded by John of Fordun, a priest of the diocese of Aberdeen writing in the late 14th century, ascribes its foundation to King Máel Coluim II (1005–34) (Woolf 2007: 300).
19 Between Mortlach and the Spey lay the parish of Inveravon (Strathspey deanery, diocese of Moray), and the parishes of Aberlour and Artendol, westerly outliers of Strathbogie deanery, diocese of Moray.
20 *Abdn. Reg.* I, 6, 85. The Latin is somewhat unclear here, but this is the meaning in the later text *Aberdeen Reg.* II, 125.
21 The first is from Hector Boece (XXX Book XI, chapter 77); the second from *Aberdeen Breviary*, 155.
22 e.g. *Abdn. Reg.* I, 411 (1537).
23 *ecclesia sancti m'huluoch' de Tharuelund St A. Lib.* 246–7; described and dated to 28 March 1165 × 1171 at Beam et al (https://poms.ac.uk/record/source/2823/# [accessed 17 April 24]).
24 1724 *Geog. Coll.* I, 30. See saintsplaces: Saints in Scottish Place-Names – St Luke's Well, Kildrummy (Mo Luag's) (gla.ac.uk), where it is given as *Sammiluaks*.
25 He also gives its form as Clochmaloo (Macdonald 1891: 253), with the stress on the final syllable, which reflected local pronunciation. The name St Luag's Church used by Canmore to refer to the medieval parish kirk of Rhynie is a modern back-formation from Cloch Maluidh.
26 Bearing in mind the problems of the Bannatyne edition, for which see Ross 2006.
27 All now digitised and almost all transcribed online on ScotlandsPlaces.
28 See for example *Lind. Cart.* no LIX.
29 Out of the six davochs in the parish of Rhynie identified by Alasdair Ross, three are in the land of Noth, namely Smithston, Milton of Noth and Old & New Noth (Ross 2003: vol 1, 100; vol 2, 115).
30 Gregory Toner, in his detailed study of this element in medieval Ireland, identifies a wide range of referents including 'a (large) settlement, probably within an enclosure, and by extension a city'; 'part of a (monastic) complex'; 'a palisade or stockade'; and 'a ringfort, circular earthwork, or cashel', with the common feature running throughout being the notion of enclosure (Toner 2000: 21).
31 *Carynyndard* 1532 *RMS* iii no 1194, probably a scribal or editorial error for **Carnyndard*; *Carndard* 1552 *Aberdeen-Banff Ill.* 4, 425. Both Cairnmore (as a settlement) and Cairnbeg do not appear until the OS 6-inch map of 1870. *Cairnbaird c* 1771 RHP260/1 is clearly an error on the part of the surveyor.
32 Duncan de Forbes receives a charter from Alexander III *c* 1271 of the lands Forbes and Kearn in free barony (*RRS Handlist/Alexander III* no 198). This is the earliest reference to the Forbes family.
33 *Drumynour* 1440 *Aberdeen-Banff Illust.* 4, 395. The name is pronounced with the stress on the medial syllable *-inn-*.
34 Anglicised as *inver*, sometimes as *inner*, found in place-names throughout Scotland.
35 *Blairindynnie alias Hauch of Bogy* 1557 Alexander 1952, 178. The farm steading itself is at NJ51742893.
36 It can be compared with the Fife name Pitdinnie (*Peddunin* 1223), which certainly contains this element. See Taylor & Márkus 2006: 217–18.
37 (church of) *Kerin c* 1250 *St A. Lib.*, 356; *Kierne c* 1250 *Abdn. Reg.* ii, 52; *Kyern c* 1250 *Abdn. Reg.* ii, 55.

Chapter 6

1 The term ringfort has been utilised in this monograph to denote thick-walled enclosures (generally around 60m diameter or less) that lie on lower ground in hilltop or hillslope locations without major 'natural' defences (Taylor 1958: 19; Noble et al 2013: 1141–2).

Chapter 9

1 Interesting parallels can also be found further west: for example, the *c* 0.08ha oval enclosure at Dun Mac Sniachan in Argyll with its massive vitrified wall; the finds-rich and likely multi-period 0.15ha enclosure at Dunagoil, Bute; or the oval 0.1ha fort at Carradale Point, Kintyre (Stratford Halliday pers comm). However, given the geographical location of Tap o' Noth, the discussion in this chapter concentrates on those examples from north-east Scotland.
2 Overall, there are a number of parallels for the upper fort at Tap o' Noth in eastern Scotland, but few sites have clear sequences and few were excavated to modern standards. With regard to size, these sites enclose total areas ranging from 0.08ha (Greencairn) to 0.68ha (White Caterthun) (Lock and Ralston 2022: 430–1, table A2.1). The majority of the forts outline here are therefore around the size of Tap o' Noth or smaller and fall within the generally modest size range of most vitrified forts within Scotland (Lock and Ralston 2022: 430–1, table A2.1).
3 An outer wall found by Neish may represent an earlier fort (Canmore ID 33450). Neish reports many finds from the dig including weaponry, a bronze spiral ring, a stone cup, and a bronze enamelled pin, but details on the findspots and the arefacts themselves are lacking.
4 Requiring fires of between 1040 and 1215 Celsius (Nisbet 1975: 7).
5 Excluding the early debates on whether these sites were actually volcanos! eg see Nisbet 1974: 4; Ralston 2006: 147. For a useful and detailed rundown of these theories (and others) see Nisbet 1974: 4–5.
6 Nisbet 1974: 7 lists earlier experiments on vitrification in the 19th century that mainly involved the uses of kilns.

7 As well as negative impacts of the weather and the termination of the burning prior to natural extinguishment, the relative lack of vitrification was also ascribed to the freshness of the wall timbers and rampart superstrucutre, and the use of softwoods rather than hardwoods (Ralston 1986: 34).
8 Similar debates have surrounded the burning of (migration era where identified) forts in Sweden with debate over a number of decades oscillating between those supporting vitrification as a deliberate act to strengthen the ramparts and those arguing for incidental vitrification following accidental burning or burning through enemy action (See for example Kresten & Ambrosian 1992; Kresten et al 1993, 2003; Sjöblom et al 2022; Bornfalk-Back 2022). The most recent study argues against the deliberate construction idea (Bornfalk-Back 2022).
9 However, it must be noted that there has not yet been an experimental burning that involved the comparable amount of oak timbers likely utilised in timber-laced ramparts of the type found at these oblong forts. Burning on hilltops would have also led to much greater levels of updraught in the fires on the forts as opposed to the experimental ramparts built at lower elevations.
10 Nisbet 1974: 5–6 assessed where vitrification was most obvious in relation to the inside wall face, outside wall face and the central core – top to bottom. Clearly there are differing patterns of vitrification with some showing evidence of vitrification on the inside wall face only, whereas others show the outside only and some show both. The overwhelming pattern, however, is for vitrification to be most obvious in the wall core due to the intensity of the fire concentrating here. Indeed, Nisbet suggests that instances where vitrification is evident at the inside or outside edge is due to the destruction of the wall faces themselves. Nisbet's work suggests it would be difficult to trace where fires had been started at vitrified forts in relation to the concentrations of vitrified material alone.
11 At Tap o' Noth there is the pollen evidence from the well that could be suggestive of the stalling of domesticated animals within the summit enclosure (Jones, Chapter 8). The presence of carbonised barley grains from trench 3 and within some of the peat layers may also suggest settlement and occupation within the fort. However, some of the evidence could come from pre-fort occupation (eg the dates from trench 3 are early in the sequence) and from the redeposition of material, eg the use of clay from more lowland contexts for lining the well.

Chapter 10

1 This is a 11th-century source, so it is not certain it provides a contemporary record.
2 Some of the residences of rich magnates in first-millennium AD Scandinavia have also been interpreted as sites of seasonal assembly (eg Riisøy 2013: 35).
3 These sites have previously interpreted as central places for minor kings or chiefs (Semple et al 2020: 162), perhaps mirroring some of the potentially multiple roles explored in relation to Rhynie (Chapter 12). The courtyard sites can date back to the early centuries AD and appear to have been a long-lived phenomenon.
4 Each 'house' may have been the preserve of representatives from each local assembly unit within particular administrative units.

Chapter 12

1 The microbotanic and phytolith signatures from Cairn More building and Tap buildings were very similar (Prado; Chapter 8).
2 Cereal grains from the Craw Stane complex and granary weavils from Cairn More provide direct evidence for the use of cereal products at both sites (Niehaus and Ramsay; Chapter 8).
3 And in the pre-modern period more generally – see Brück 1999 and Bradley 2005b for detailed overviews of the blurred divide between ritual, the everyday and elite practice.
4 Small amounts of cereal grains were found in association with Structure 1 within the complex too (Niehaus and Ramsay; Chapter 8).
5 And perhaps other objects (eg pelts or meat that would be archaeologically difficult to document).
6 The presence of seaweed at the Craw Stane complex provides interesting evidence for connections to coastal areas (Niehaus and Ramsay; Chapter 8).
7 One trope of Irish tales (found in the possibly comic Old Irish Ulster Cycle saga-text *Scéla muicce Meic Dathó*) is the dispute at the feast over the 'champion's portion', the first, best part of the prize food, the order by which food and drink was distributed being important for status and honour (Ní Bhrolcháin 2009: 43–5).
8 Access to a diversity of landscape resources through wide networks of dependent settlements was central to Glanville Jones's 'multiple estate model' (Jones 1961a, 1961b). Jones's ideas perhaps created overly static and schematised views of the landscape and were based on administrative and fiscal arrangements drawn partly from the high medieval period (Roberts & Barnwell 2011; Seaman 2012: 174). Nonetheless, the idea that early medieval centres may have been positioned to exploit a range of landscape types with a series of subservient settlements related to an estate centre and linked by render and service dues seems a pertinent idea for considering landscapes such as that of the Upper Strathbogie valley.
9 The formation of the Scandinavian kingdoms has witnessed intense debate. Previously scholars such as Hedeager (1992) and Näsman (1999) have suggested that the kingdom of the Danes its royal centres took shape in the 6th or 7th century AD, but others, such as Johan Callmer (1991: 269), have been reticent to date this any earlier than the 8th century AD. However, the discovery of earlier hall complexes has led to re-evaluations of the evidence.
10 See MacLean (2014) for a review of the archaeology of this region, including an intriguing enclosure at Tomnahurich.
11 Further axe-wielding figures are known from cross-slabs at Rossie in Perthshire, Hunter's Hill in Angus, and the now lost cross-slab from Strathmartine, Angus (Shepherd & Shepherd 1980: 216; Kilpatrick 2011) (Illus 12.14d, g and h). While the presence of these axe-wielding figures on obviously Christian cross-slabs could indicate a later date for the Rhynie Man style figures, the relief carving and the obviously Christian

context of the cross-slab depictions of these individuals provides marked differences. The depiction of these fon Christian cross-slabs may represent the continuing relevance of important mythical figures associated with Pictish identity and belief (Kilpatrick 2011), but it could also indicate the Christian castigation of earlier pagan practices associated with these otherworldly figures. The axe carriers on a cross-slab from Papil, Shetland, for example have been considered an antithesis to the Christian imagery found on cross-slabs, interpreted as a depiction of hell (Henderson & Henderson 2004: 156). Here we may be seeing a process by which figures that were highly significant in a pre-Christian context were increasingly recast in the Christian world in a deliberately unfavourable light.

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