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Storm damage at Craig Phadrig hillfort, Inverness: results of the emergency archaeological evaluation

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ABSTRACT

In January 2015 severe winter storms caused substantial damage to Craig Phadrig fort (Scheduled Monument 2892) after two wind-blown trees exposed a section of the inner rampart. Prior to consolidation and reinstatement, Scheduled Monument Consent was granted for an archaeological evaluation of the damaged area. This revealed three principal phases of construction, the earliest a massive timber-laced wall burnt in the 4th–3rd century BC*. The upper elements of this ruined structure were incorporated into two secondary phases of refortification comprising construction of a palisade along its crest followed several centuries later by reprofiling of the rampart upper bank. The chronology of the second and third phases is more equivocal, with a single 5th–6th century* AD *radiocarbon date providing a* terminus post quem *for the erection of the palisade, while the other features indicate activity in the 11th–13th centuries.*

BACKGROUND

Wind-blown trees exposed a section of the inner rampart on the north side of the fort on Craig Phadrig (Scheduled Monument 2892; Canmore ID 13486) during winter storms in January 2015. In February 2015, AOC Archaeology and West Coast Archaeological Services conducted an emergency archaeological evaluation on behalf of Forestry Commission Scotland (now Forestry and Land Scotland). The purpose of the fieldwork was to assess the level of damage and to record the nature of surviving archaeological deposits prior to consolidation and stabilisation. Scheduled Monument Consent from Historic Scotland (now Historic Environment Scotland) also allowed for the excavation of a trench across the rampart to compare the damaged section with undamaged deposits and to evaluate the bank of the rampart.

Craig Phadrig is a steep-sided, wooded hill of conglomerate located to the west of Inverness (NGR: NH 6400 4527). This provides a prominent position, overlooking the mouth of the River Ness valley to the east and the Beauly Firth to the north (Illus 1). This landscape forms the southern margin of the wider Moray Firth region, which extends northwards to the Dornoch Firth – a region that the 2nd-century Roman geographer Claudius Ptolemy associated with the *Decantae* tribe. The fort occupies a clearing on the north-east end of the hill and roughly opposes a hillfort site on Ord Hill across the firth to the north-east, while a much smaller earthwork, identified as a motte in the Scheduled Monument description (SM3806), lies at Torvean (Canmore ID 13549), on the north-west bank of the River Ness, some 2km to the south.

In contrast to these other forts, Craig Phadrig displays a markedly rectilinear plan, with parallel sides and rounded ends, an oblong style characteristic of a group of forts in eastern Scotland, from Knock Farril (Canmore ID 12782) overlooking Strathpeffer, 19km to the north, to Dunnideer (Canmore ID 18128) and Tap O' Noth (Canmore ID 17169) in Aberdeenshire, Finavon (Canmore ID 33673) and Turin Hill (Canmore ID 34899) in Angus, and Castle Law, Forgandenny (Canmore ID 26583), above Strathearn in Perthshire (Harding

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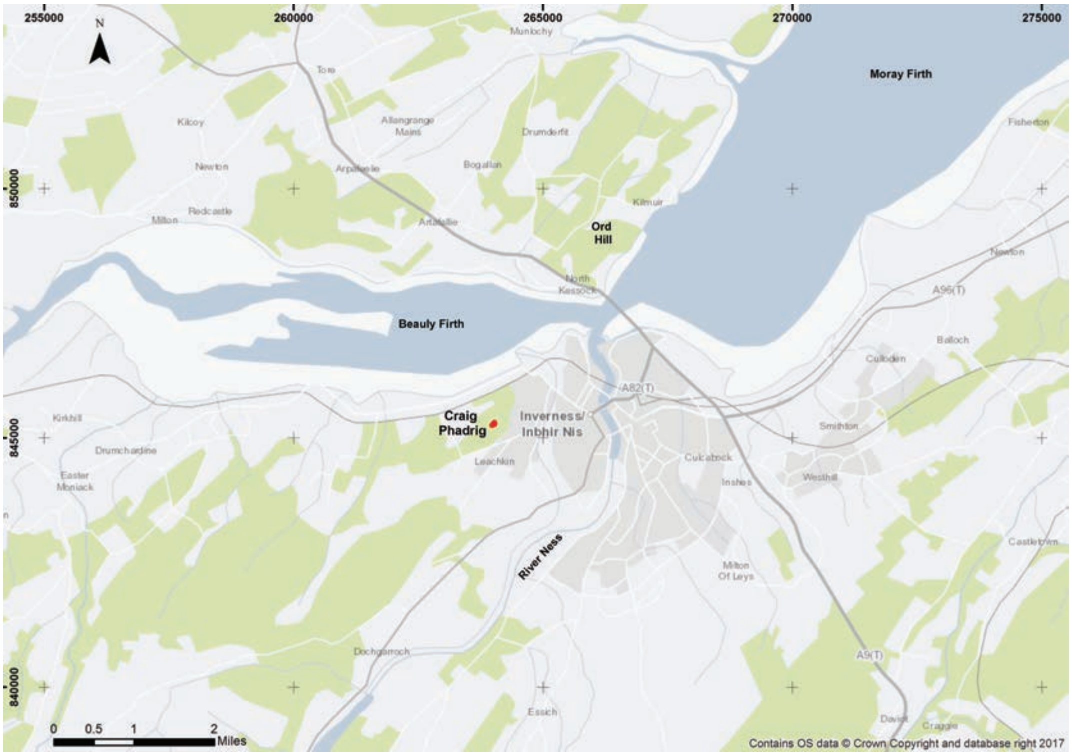


Illus 1 Site location plan (contains OS Open Source data)

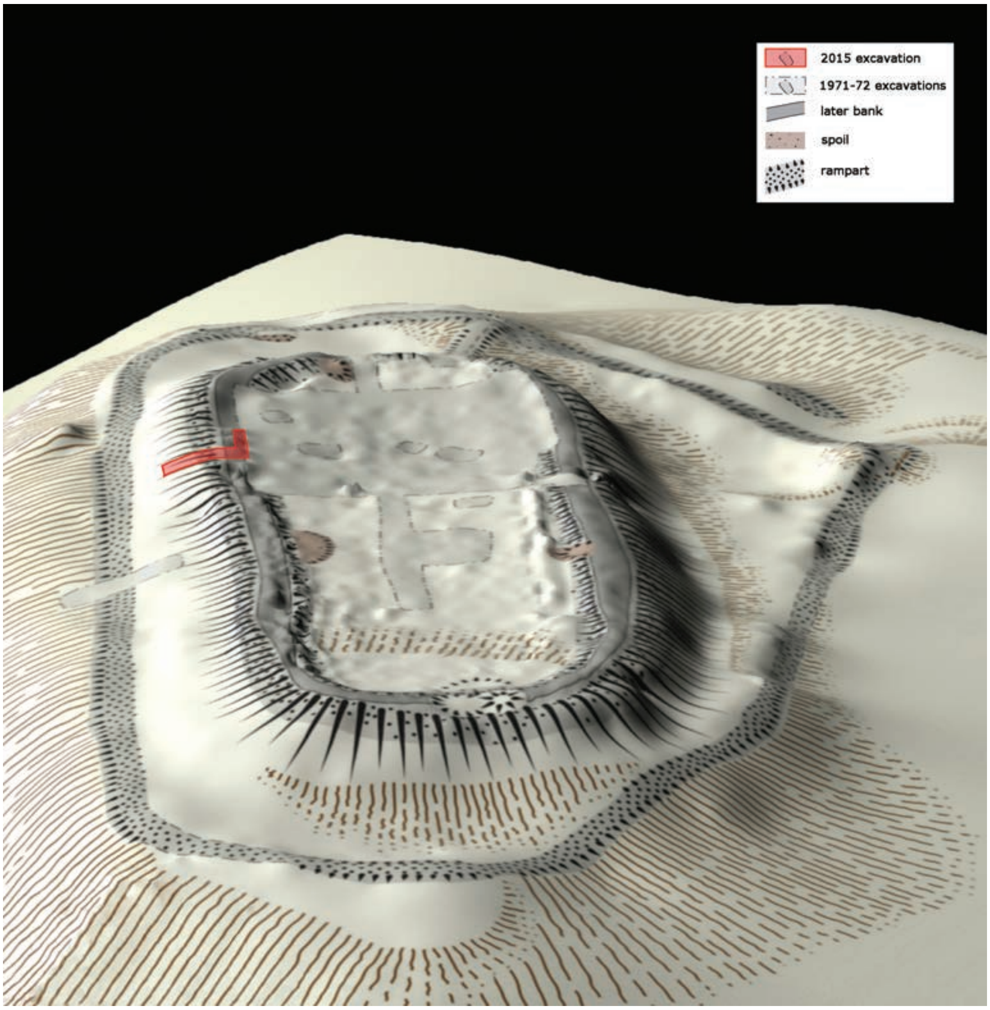
2004: 85–90). These forts are characterised by their apparent lack of an entrance and massive timber-laced walls, which in most cases have been burnt, displaying varying degrees of vitrification. Research suggests that vitrification was the result of deliberate destruction (Ralston 2006: 143–63; Harding 2012: 188–90), although the method and purpose for this are still under debate. Some of the oblong forts occupy sites that had previously been fortified in the Middle Iron Age and some, like Craig Phadrig, were also occupied in the early medieval period, indicating that these prominently placed strongholds continued to hold significance as locations that could be drawn upon to confer authority (Harding 2004: 90, 232; Cook 2010).

The inner rampart of Craig Phadrig encloses an elongated sub-rectangular area measuring 72m from north-east to south-west by 22m transversely. The rampart itself is largely reduced to a turf-covered bank up to 12m in thickness and 1.4m in internal height. The grass- and bracken-covered interior is mostly flat, with a group of trees encroaching on the northern corner of the main rampart from the surrounding woodland. A mostly concentric outer rampart can be traced through the fringes of the clearing in which the fort stands, and a third bank can be identified on the north-east side (Illus 2, 3).

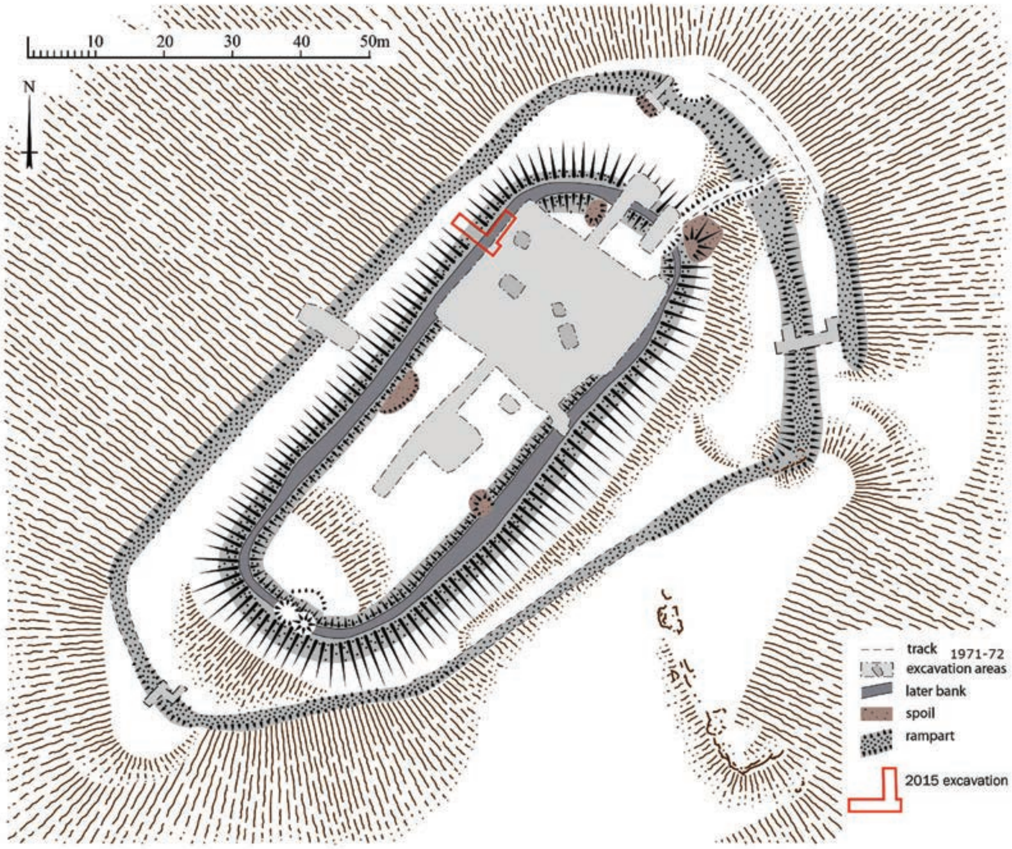
Numerous archaeological surveys and interventions have taken place on Craig Phadrig (Illus 2) and are documented in a report by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS, now Historic Environment Scotland) (McCaig 2014). The first reference to the fort appears in Thomas Pennant's *A Tour in Scotland 1769* (Pennant 1774: 221), though it must have been well known in the locality before his visit. A detailed examination was undertaken in the 1770s by John Williams

(1777), who also excavated at Knock Farril. While this is the first recorded excavation at the fort, there were various other 18th- and 19th-century interventions that likely resulted in most of the north-east end of the interior being cleared out during these periods.

The first modern excavations were undertaken in 1971 and 1972 by Alan Small and Barry Cottam, who dug a trench through the inner rampart at the centre of the north-east end and along the axis of the fort to roughly halfway along the interior. They also excavated trenches over the outer rampart on the north-east, east and south-west respectively. The excavations were summarised in Small and Cottam's interim report in 1972 and in an article in The Inverness Field Club's *The Hub of the Highlands* (Small 1975). Much of the archive has been lost, but a number of items, including site notebooks, are preserved in the collection of Historic Environment Scotland and are catalogued in the report drawn up by RCAHMS (McCaig 2014: 23–4) and detailed in the Canmore entry. The 1971 excavation revealed that the inner rampart concealed a massive stone



Illus 2 A hill-shaded terrain model of Craig Phadrig, showing the location of the various excavations (© Forestry and Land Scotland by Rubicon Heritage, using topographic plan by RCAHMS 2014)



Illus 3 Topographic plan of Craig Phadrig by RCAHMS (2014), showing the location of the excavation trench (© Historic Environment Scotland)

wall constructed of larger blocks at the base with smaller stone above. They found evidence for horizontal timber beams extending into the core from the inner wall face (Small 1975: 81–2) and radiocarbon dates were interpreted as evidence that construction took place in the 4th century BC (Small & Cottam 1972: 23). The character of the outer rampart is less clear: vitrified material was apparently present only on the west within both inner and outer revetting walls and evidence for timber lacing was present (ibid: 33–4). Small and Cottam believed that elsewhere on the south-east and north-east it was of secondary construction, and possibly unfinished, comprising 'an embankment of earth, turf and detritus from the inner rampart, enclosed by rough revetments' (Small 1975: 84–5) and accompanied by a third bank around the north-east end. This contrasts with RCAHMS' interpretation (McCaig 2014) that the outer rampart marks the line of an earlier rampart perhaps robbed for the construction of the inner rampart. The sequence of construction of the defences is evidently more complex than these early excavations revealed.

Within the interior, Small and Cottam identified two potential occupation horizons separated by a layer of soil build-up, which most likely represented an abandonment phase. Although much disturbance was noted, the two horizons appeared to represent an Iron Age occupation followed by an early medieval period of use, the upper dated by E-ware pottery and a mould for a hanging bowl escutcheon (Small &

Cottam 1972: 42–3). At the north-east end of the interior they uncovered the remains of a structure with a possible earlier sequence of structural remains below it. The associated deposits contained animal bone, peat ash and charcoal, and a bronze pin from the lower occupation layer (ibid: 40–2). Over the 'building horizon' and below the heat-shattered rubble on the interior Small and Cottam also described a distinct burnt turf layer representing the fire that destroyed the rampart. The burnt layer was located on the surface of a soil horizon that continued across the fort (ibid: 15). During the 1971 excavation, a section cut through the inner rampart revealed that it was laid partly on bedrock and partly on till (ibid: 21).

Craig Phadrig was also amongst the first Scottish forts where radiocarbon dating was applied. Taken after the 1971 excavation, the results from seven charcoal samples appeared to broadly confirm the chronology provided by the artefacts, but with modern calibration the margins of error are too wide to be useful, ranging from 800 BC to AD 100, 550 BC to AD 350 and AD 200 to 800 (see Scottish Radiocarbon Database).

FIELDWORK 2015

Root plates from two fallen trees (an ash and a beech) from the January 2015 storm exposed an area of the inner rampart (Illus 4) measuring 7.5m north-east to south-west by 2m transversely. Loose soil, tree roots and rampart debris were removed from the exposures and sections were cleaned back for recording. An evaluation trench, measuring 9.5m-long north-west to south-east by 1.7m wide, was excavated across the rampart perpendicular to the south-west end of the exposure. Upon completion of the fieldwork, the trenches were backfilled and the rampart was consolidated and reprofiled.

Following excavation, a total of 22 bulk environmental samples were analysed by AOC Archaeology. The environmental finds were composed of charred macroplant remains, charcoal and burnt bone. The results of the analysis (Robertson 2015) are incorporated into this paper. Ten samples were submitted for radiocarbon measurements by Scottish Universities Environmental Research Centre (SUERC). Nineteen samples of vitrified stone were also assessed and catalogued by AOC Archaeology (McLaren 2015; Kyle & McLaren 2016).

TREE EXPOSURES

Excavation and recording of the tree root plate revealed that the uppermost deposits of the rampart had been destroyed in an irregular area 7.5m long by 2.0–2.5m wide, extending along the inner margin of the rampart. The sections exposed the loose upper core of the primary wall. Many of the stones were heat-affected and some were vitrified. With the exception of a short

Table 1
Scottish Radiocarbon Database – Craig Phadrig 1971

Laboratory code	*Material dated*	*Uncalibrated date (BP)*	*Uncalibrated date (BC/AD)*	*Calibrated date*
GX-2441	Charcoal (n.i.)	2130 ± 110	180 BC ± 110	550 cal BC to cal AD 250
N-1118	Wood (n.i)	2030 ± 100	80 BC ± 100	400 cal BC to cal AD 350
N-1119	Charcoal (n.i.)	1540 ± 85	AD 410 ± 85	cal AD 200 to 800
N-1120	Charcoal (n.i.)	2250 ± 100	300 BC ± 100	800 cal BC to cal AD 50
N-1122	Charcoal (n.i.)	2280 ± 100	330 BC ± 100	800 cal BC to cal AD 0
N-1123	Charcoal (n.i.)	2220 ± 100	270 BC ± 100	800 cal BC to cal AD 100
N-1124	Mixed (n.i.)	2320 ± 105	370 BC ± 105	800 to 50 cal BC

TABLE 2
Radiocarbon dates – Craig Phadrig 2015

Laboratory code	*Context No.*	*Description*	*Uncalibrated (BP)*	*Calibrated 1-sigma (68.2%)*	*Calibrated 2-sigma (95.4%)*	*$\delta^{13}C$%*
SUERC-62801 (GU-38672)	007c	Charcoal: birch; lower fill of Ditch [022], under stone layer and intermediate fill (007b)	1571 ± 30	AD 429–536	AD 416–556	–27.50%
SUERC-63281 (GU-38862)	011	Charcoal: alder; under (006); over [010] outer wall face; from base of lowest layer of collapse wall core outside of outer wall face	2305 ± 29	402–373 BC	409–235 BC	–25.60%
SUERC-62799 (GU-38669)	018	Plant: hazelnut shell from Sample 12; under (016) and over (007b) ditch fill; possible later post setting	907 ± 29	AD 1045–1165	AD 1036–1205	–25.30%
SUERC-62800 (GU-38670)	020	Charcoal: birch; under (005); lower fill of Pit [033] which overlies (015) rampart core	967 ± 29	AD 1022–1149	AD 1018–1155	–27.60%
SUERC-63280 (GU-38861)	023	Charred nutshell: hazel; under post-abandonment soil buildup (025); upper fill of Pit [028] which overlies upper/main layer of collapsed wall core against inner face	921 ± 29	AD 1045–1157	AD 1028–1183	–25.50%
SUERC-63285 (GU-38863)	031	Charcoal: birch; under (024); compact charcoal-rich layer against base of inner wall face – possible hearth; overlies primary layer of collapse (032) against inner face	2188 ± 29	355–199 BC	361–176 BC	–27.60%
GU-38674	024	Bone: animal rib from lowest layer of collapse inner face	FAILED	FAILED	FAILED	FAILED
GU-38671	031	Bone: large mammal	FAILED	FAILED	FAILED	FAILED
GU-38668	023	Bone: animal rib	FAILED	FAILED	FAILED	FAILED
GU-38673	015	Bone: large mammal from rampart core	FAILED	FAILED	FAILED	FAILED

Illus 4 Looking north-east over the tree erosions on the inner rampart (© AOC Archaeology Group)

length of an inner boulder kerb [029] at the north-east end, the damage had removed any structural features that may have been present. There were no other archaeological deposits and no artefacts identified within the exposures.

EVALUATION TRENCH

The evaluation trench (Illus 5–12) proved more informative, revealing that the rampart comprised three principal elements: the 'primary wall' ([010], [013] and (015/021/026)), some 6.5m in thickness by at least 1.8m in height; the vitrified/heat-affected 'upper core' of the primary wall (026) into which a narrow ditch or palisade trench [022] had been cut; and an 'upper bank', defined by a stone kerb [029] on the inside, with traces of a kerb on the outside and possible post settings. In profile, the crest of the rampart appeared as two low banks lying to either side of the ditch [022], the inner portion rising 1.5m above the top surviving course of the outer face of the primary wall. A turf and vegetation layer (001) over a mid-brown sandy soil horizon containing occasional small fragments of heat-affected stone (002)/(025) had formed over the upper bank and associated features, and was interpreted as post-abandonment soil formation over the area.

The upper core of the primary wall (026) to both sides of the ditch was formed by heat-affected and vitrified stone cobbles and fragments – remnants of the upper section of the rampart after its destruction. Context (021) on the north-west side and Context (015) on the south-east side of the rampart were the same as (026), forming the lower deposit of the wall core between the faces, differentiated because of a noticeably smaller amount of vitrification and for the purposes of sampling.

The excavators believed that the upper core had been reprofiled into a bank supported by a low kerb of stones [029] on its inner margin. Immediately outside the kerb, a probable post

Illus 5 Excavation trench, facing north-east (© AOC Archaeology Group)

hole [033] cut through the lower rampart wall core (015). It contained upright packing stones within a predominantly oak charcoal-rich fill (005/020), possibly representing the presence of an in situ burnt post (Illus 13). Small amounts of birch and alder charcoal were also present in the pit and a single entity birch charcoal sample from the lower fill (020) of the post hole provided a radiocarbon date of cal AD 1018–1155 (95% probability, SUERC-62800).

A deposit (016) which contained oak charcoal was identified on top of the outer portion of the upper bank and was initially interpreted as the fill of a possible pit or post hole. Excavation of the deposit revealed several large stones that had slumped into the top of the underlying palisade trench. These may have formed a collapsed revetting wall on the outer margin of the upper bank. Removal of this deposit and the adjacent deposit (007a) revealed a distinct cluster of vertical and angled stones (018/019). These were interpreted as packing stones representing a secondary post setting cut into the top of the ditch [022]. Deposit (018) contained oak charcoal and carbonised hazelnut shell, a sample of which provided a radiocarbon date of cal AD 1036–1205 (95% probability, SUERC-62799).

Also on the outer portion of the upper bank, two surface deposits (012) and (014) may also have formed the fills of shallow pits or post holes. A small amount of alder charcoal was present in (014). The mixed condition of the deposits and the unclear cuts made these possible features difficult to interpret, which was likely due to the voided nature of the rampart core into which any posts or pits would have been cut. The kerb/stone revetment and post settings identified on the upper bank were interpreted as the remains of a later refurbishment of the circuit.

The earlier palisade ditch [022] cut through the eroded upper core of the primary wall. It was almost V-shaped in section, with fairly steep sides measuring 1.1m wide at the top, narrowing to 0.2m at the base. The upper fill of the ditch (007b) was packed with stones, many of which were steeply inclined into the feature, and contained a charcoal-rich fill from which no vitrified material was recovered. A distinct change in context was noted within the lower third of the fill of the ditch, with smaller stones and grittier sediment (007c) forming a firmer packing in the narrowing base.

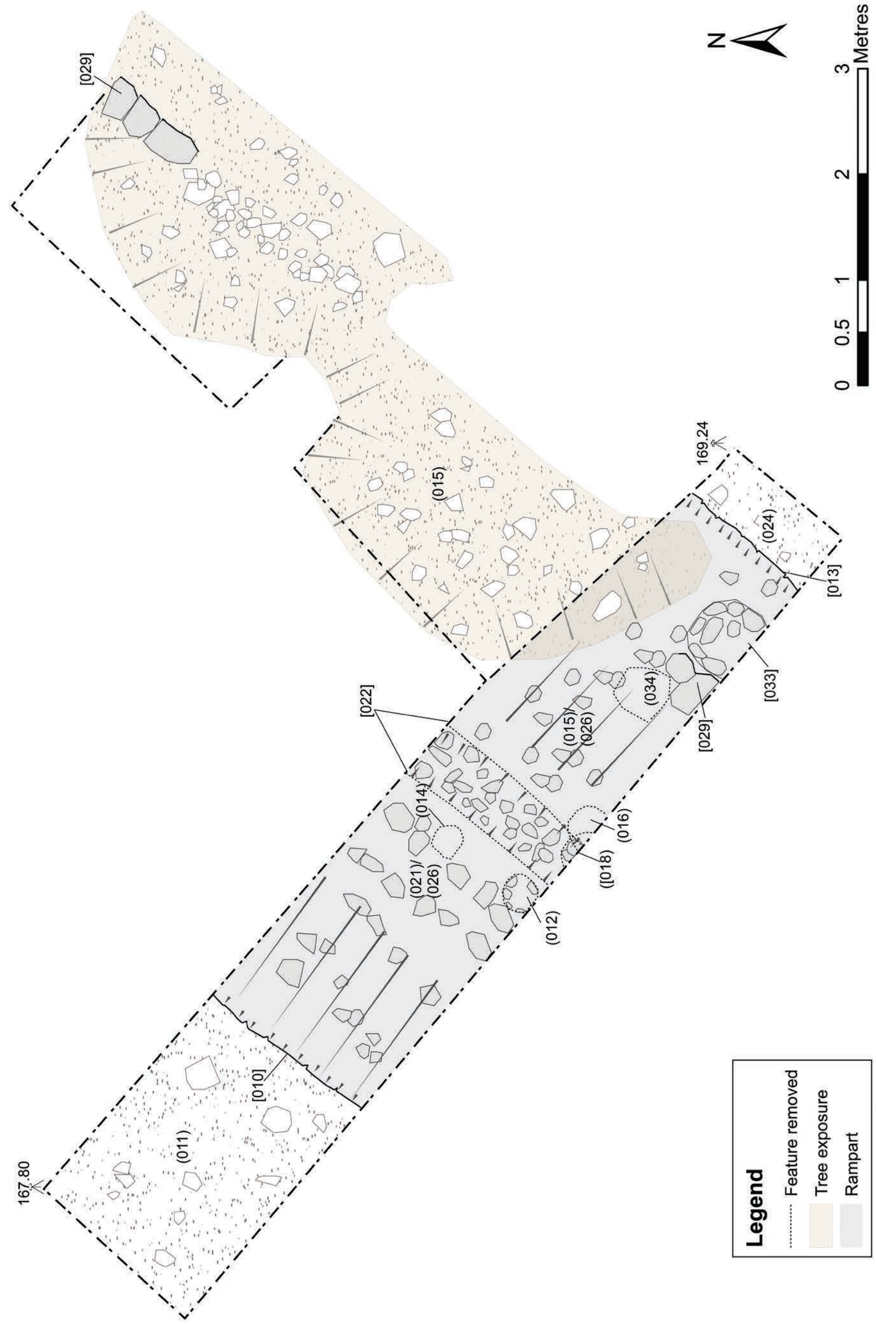
Oak charcoal (28.3g) formed 97% of the carbonised remains within the fill of the ditch

Illus 6 Looking south-west over the surface of the upper bank, mid-excavation of the ditch [022] showing the compact stone layer in the top of the fill (007b) (© AOC Archaeology Group)

Illus 7 Looking south-west over the tree erosions and evaluation trench, recording in progress (© AOC Archaeology Group)

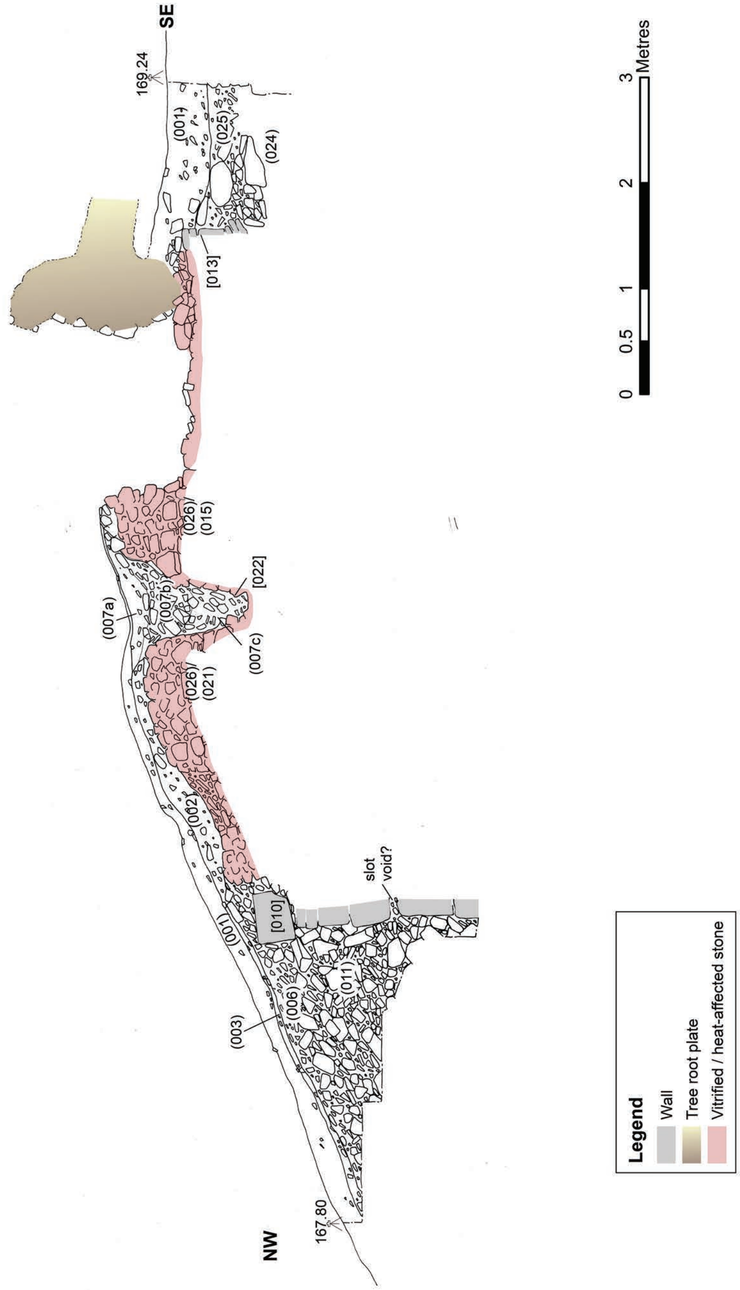
Illus 8 Looking over the north-east-facing section through the upper rampart banks, showing the palisade slot at the centre, facing WSW (© AOC Archaeology Group)

Illus 9 Looking over the south-west-facing trench section, showing the tree root plate exposure (© AOC Archaeology Group)



Illus 10 Trench plan (© AOC Archaeology Group)

Illus 11 North-east-facing trench section (© AOC Archaeology Group)



Illus 12 South-west-facing trench section (© AOC Archaeology Group)

Illus 13 Close up image of the upper bank [008] with Post hole [033] to left (© AOC Archaeology Group)

and was possibly derived from in situ burning of timber posts. The predominance of oak charcoal and tightly packed stones inside the ditch, together with the steep shape of the cut, suggested to the excavators that it had held vertical timber posts most likely forming a palisade. The palisade was cut into the upper core (026) of the primary wall and there was a clear separation between the vitrified material within the core of the wall and the fill of the ditch, which contained a distinct lack of vitrified and heat-affected stone. A single entity birch charcoal sample from the basal fill (007c) of the ditch provided a radiocarbon date of cal AD 416–556 (95% probability, SUERC-62801). Although this result correlates with the previously known evidence for early medieval occupation of the interior of the fort (Small & Cottam 1972), the date can only provide a *terminus post quem* and may not date the time at which the palisade was erected.

Excavation of the upper core (026) of the wall revealed concentrations of heavily vitrified stone interspersed with areas of more shattered and fragmented burnt stone. These areas indicate where the burning was most intense, potentially representing the locations of structural timbers. Within the surface of the lower north-west section of the wall, the heat-affected core (021) contained what appeared to be longitudinal alignments of large, heat-affected and partially vitrified boulders crossing the trench (Illus 14). These were also believed to demarcate areas where the effects of heat within the core of the rampart wall were more intense and may represent elements of the timber lacing. Other observations in the primary wall core (015) on the south-east side of the wall included the presence of small fragments of burnt mammal bone and a possible pit represented by Deposit (034); the cut for the pit, however, was not identified in the loose core, and its significance is unknown. The deposit contained small fragments of oak charcoal and a minor amount of hazel/birch charcoal fragments.

The range of wood species recovered from all contexts on the site was varied, although oak appears as the favoured species associated with the rampart features. In general, this supports the likelihood that oak timbers formed structural elements of the primary wall and its later refurbishments, while the presence of birch, alder and hazel probably represents material utilised as fuel for fires, in the case of the primary wall for the event that caused its destruction and vitrification.

ILLUS 14 Looking south-east over the rampart core, showing stone alignment and partially vitrified fill (© AOC Archaeology Group)

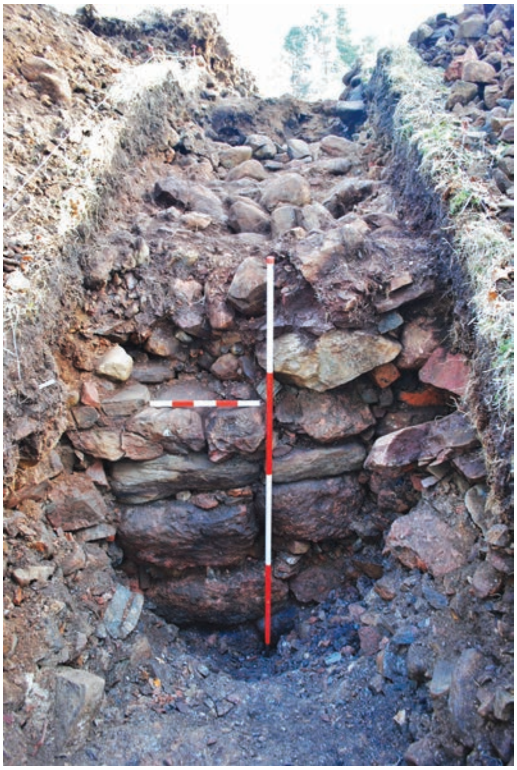
WALL FACES

Where the outer face of the primary wall was exposed in the evaluation trench it was still standing at least 1.8m high. The upper two courses of the wall face [010] were found to have been displaced outwards, most likely during the destruction event, and excavation down the vertical face of the wall involved the removal of collapsed facing stones and loose rubble, including some large fragments of vitrified material. Against the outer wall face, the upper collapse layer (006) contained more mixed material of sandy loam and stone, while a distinct separation was noted between it and the lower collapse layer (011) resting against the face, which contained mostly loose stones in a sandy matrix and contained many air-filled voids. The larger fallen facing stones from the wall were found lying at various angles in this matrix, with some larger slab-like stones lying vertically against the wall face. Interpreted as the initial layer of collapsed stonework from the primary wall, Context (011) also contained large chunks of vitrified material and heat-affected stone. In contrast, the material built up against the inner wall face contained little vitrified stone. This may indicate that the upper levels of the wall generally collapsed outwards during the destruction event, and that some of the material was cleared from the interior of the fort during its subsequent reuse. Within the collapse deposit (011), 30.1g of fragmented birch and alder charcoal were recovered. A single entity sample of alder charcoal from the base of the collapsed material provided a radiocarbon date of 409–235 cal BC (95% probability, SUERC-63281). This material most likely relates to the burning and collapse of the primary wall, providing a *terminus post quem* for the fire that destroyed it.

The outer wall face comprised courses of large boulders, the joints packed and pinned with smaller stone fragments (Illus 15). The facing stones were larger in the lower courses. There was no visible evidence in the upper courses for the sockets of horizontal timber lacing, but, towards the base of the excavation, two courses of large boulders were separated by pinning stones with voids between them. These voids may represent the locations where horizontal timbers incorporated into the wall core emerged through the face. Although some of the facing stones in the wall showed evidence for fire damage, including cracking, spalling and discolouration, none of them had been vitrified.

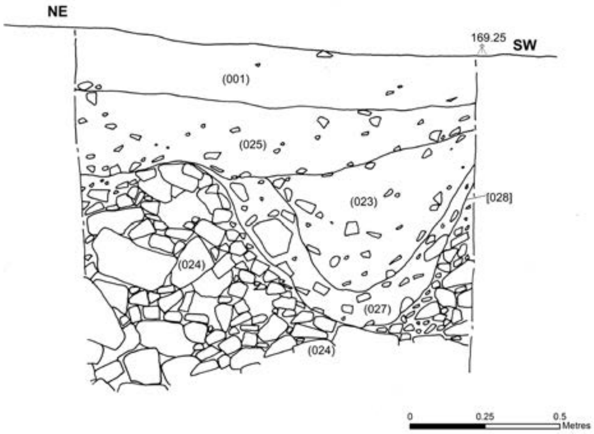
Excavation against the inner margin of the primary wall uncovered the face [013] standing at least 1.6m in height. While the construction was similar to the outer face, overall the stonework comprised smaller stones and displayed a slightly poorer quality of build (Illus 16). The facing stones showed some heat damage in the form of cracking and reddening, but no vitrification. In fact, very little vitrified material was found in the loose sand and stone (024) that had built up against the inner wall face and which included collapsed stones lying at all angles. Six small fragments of burnt and unburnt mammal bone were found in this matrix. A clear context change at the base of Context (024) revealed a dark soil layer (031) at the foot of the face. This contained further collapsed stone that displayed more evidence of vitrification and heating. It contained 25 small fragments of burnt mammal bone, including a pig molar and a small amount of birch and oak charcoal fragments. A single entity birch charcoal sample, taken from Layer (031), located against the inner wall and within the primary collapse layer, provided a radiocarbon date of 361–176 cal BC (95% probability, SUERC-63285).

During excavation of the inner wall face a U-shaped pit [028] was identified in the south-east section of the trench (Illus 17). This was interpreted as a fire-pit, sunk into the top of the rubble. The dark, charcoal-rich primary fill (027) contained 131.8g of oak charcoal, large fragments of which were interpreted as a



Illus 15 Outer wall face (© AOC Archaeology Group)

Illus 16 Inner wall face (© AOC Archaeology Group)



Illus 17 North-west-facing trench section (© AOC Archaeology Group)

possible vertical stake burnt in situ. The upper fill (023) comprised a yellow to bright orange peat ash deposit containing 19 small fragments of mammal bone, one of which was identified as sheep/goat; two fragments of burnt hazelnut shell and a minor amount of birch charcoal. A sample of burnt hazelnut shell taken from the upper fill (023) of the pit provided a radiocarbon date of cal AD 1028–1183 (95% probability, SUERC-63280), thus relating to the later occupation of the site during the medieval period.

INTERPRETATION

The scale of the wall forming the core of the inner rampart at Craig Phadrig is quite staggering, measuring 6.5m over the inner and outer faces. Estimations based on the surviving height of the faces and the quantity of collapsed stone adjacent indicates that the wall could have reached a height of 4–5m externally, and over 3m internally. There was no trace of a wooden palisade or breastwork built into the upper works of the primary wall, although the reduction to its present height by as much as 2m would most likely have destroyed any evidence of such a feature. Based on the two charcoal samples obtained from layers interpreted as the initial collapse of the primary wall during the fire/vitrification event, radiocarbon dating results provided evidence that it was destroyed during or after the 4th–3rd century BC.

Substantial amounts of the stone forming the primary wall core had cracked under the effects of heat and frequent fragments of vitrified, fused masses of stone were identified. Pockets of more intense vitrification within the wall core represented locations where the heat from the fire had the greatest effect, and some of these are likely to indicate places where structural timbers had burnt in situ. In so far as the core of the primary wall was examined, vitrified stone appeared most concentrated within its upper section, whereas the underlying wall core showed only the reddened and cracked effects of heat, with decreasing amounts of vitrified material.

Later modification to the upper parts of the heavily vitrified primary wall included the cutting of the ditch to hold a palisade, which may have been built with upright oak timbers which later burnt down, thus accounting for the high oak charcoal content found within the fill of the V-shaped foundation trench. It is possible that the palisade was burnt down during the early 5th to mid-6th century AD, if the radiocarbon date from the birch charcoal sample taken from the base of the foundation trench is taken at face value. This, however, can be no more than a *terminus post quem*, and it is possible that the charcoal could be residual in the feature.

The deposits relating to the remodelling of the upper core, including revetting stones [029] and the potential collapsed stones on the outside of the bank, have not been radiocarbon dated, although the hazelnut shell sample recovered from Context (018), located below the collapsed stones, provided a date range from the early 11th to the early 13th century AD. It is clear that the upper bank is the remains of a crudely built rampart, and it is worth recalling that Small also believed that he had recovered evidence that the primary rampart wall had been partly reconstructed (Small 1972). Other evidence supporting the reoccupation of the site at this date is provided by the post hole setting immediately adjacent to the inner kerb of the upper bank, material from which similarly returned an early 11th- to mid-12th-century radiocarbon result. Furthermore, the fire-pit that cut into the rubble layer nearby in the interior also returned an early 11th- to late 12th-century radiocarbon date.

DISCUSSION

Excavation through the surface of the rampart provided the opportunity to record its profile in detail, while also allowing limited investigation of the stratigraphic sequence. This reveals a more complex sequence than was previously recorded, supported by a series of new radiocarbon dates. This provides evidence that sometime after the burning and destruction of the massive primary rampart wall in the 4th to 3rd century BC, the circuit was refurbished with a palisade followed by a roughly constructed bank or rampart. While the date of the destruction of the primary rampart appears relatively secure, the precise dating of the later phases of construction proved more difficult to interpret. However, the corresponding radiocarbon dates indicate that there were clearly phases of activity in the early medieval and medieval periods.

The results broadly support those of the 1970s excavations, which described a wall built with local stone some 6m thick and comprising two stone-built revetments enclosing a rubble core, with larger stonework at the base of both faces and evidence for horizontal timber beams in the inner face (Small 1975: 81). Small and Cottam's description of the collapse of stone against the inner and outer faces also compares favourably to the 2015 results. On the inside of the rampart, they described material consisting of heat-affected stone and 'extremely few fragments of vitrified material', and observed that the effects of heat on the inner face was not as extensive as on the outer face. They also noted that 'animal bones and teeth' were found throughout the rampart core to the base of the wall (Small & Cottam 1972: 21–3). Along with the results in 2015, where small mammal bone fragments were recovered from in situ wall core and primary collapsed material, this raises potentially interesting questions about the incorporation of this material.

Similar observations had been made previously at Finavon, in Angus, where the walls were around 6m thick (Childe 1935). The wall heights here survived up to 3.6m internally and 4.8m externally, with vitrification confined to the upper parts of the walls and extending up to 1.7m into the core. As at Craig Phadrig, the stones composing the higher courses of the faces are smaller than the blocks forming the base and the collapse layers outside of the rampart comprised loose stone piled against the wall faces at all angles, with some slabs lying vertically as a result of a sudden collapse. There were also noticeable gaps in the wall face, but no clear evidence of timber beams in the walls (ibid). In contrast, the excavations at the end of the 19th century at Castle Law, Abernethy (Canmore ID 27917), Perthshire, uncovered clear sockets for horizontal timbers running from front to back and longitudinally (Christison & Anderson 1899; Cotton 1954; Feachem 1963). More recent excavations at Dun Deardail (Canmore ID 23727), near Fort William, revealed a timber-laced wall at least 5m thick and 2.8m high. Timbers charred in situ and voids within the vitrified stone provided evidence for the lacing, while evidence for medial faces within the core was interpreted as additional structural support. Again, the most intense vitrification was noted in the upper parts of the core (Humble 2015).

Small and Cottam obtained a radiocarbon date (N-1122) that calibrates to 800 cal BC–cal AD 0

(Scottish Radiocarbon Database), described as 'from a carbonised horizontal beam lying below the rubble of the rampart fall and close to the base of the inner face of the rampart' (Small & Cottam 1972: 23). Two further dates described respectively as 'from charcoal obtained from beneath the base of the inner face of the rampart' and 'from charcoal from beneath the rampart' (ibid) (N-1123 and GX-2441) calibrate respectively to 800 cal BC–cal AD 100 and 550 cal BC to cal AD 250 (Scottish Radiocarbon Database). While these dates are now of little more than historical interest, they roughly bracket the new dates of 361–176 cal BC (SUERC-63285) and 409–235 cal BC (SUERC-63281) from samples recovered from the base of the rubble collapsed against the inner and outer faces of the primary wall. The precise origin of the alder and birch samples dated is uncertain, potentially from parts of structural timber or wood gathered to fire the fort. Overall, they probably indicate that the primary wall of the inner enclosure at Craig Phadrig was destroyed during the 4th–3rd century BC, but give no clue as to how long before that date the wall was constructed. Unfortunately, none of the animal bone samples recovered during the 2015 excavation, which could have provided more security for the dates, were successful when submitted for radiocarbon dating.

Research into vitrified forts has led to the deployment of various scientific dating techniques, from radiocarbon dating charcoal from the destroyed rampart (Mackie 1969; Small & Cottam 1972; Wedderburn 1973), to dating the actual vitrification event by thermoluminescence (TL) (Sanderson et al 1988) and archaeomagnetism (AM) (Gentles 1993). None of these techniques is without its problems, and the results have not only ranged widely from before 2000 BC to AD 1000 (Sanderson et al 1988: 315; Ralston 2006: 150–1), they have proved inconsistent, the radiocarbon and TL dates from Finavon being at variance by at least 1,000 years (RCAHMS 2007: 102). As a result of such inconsistencies, further research into the application of TL to the dating of vitrification (Kresten et al 2003) indicates that the application of too little or too much heat to the sample in the destruction of a timber-laced rampart or wall leads to dates that are too old or too young respectively (see review in Ralston 2006: 151). In essence, the samples are not reliably zeroed by the burning of the rampart and the dates from this technique are unreliable.

In contrast, Gentles' AM dates from four oblong forts (Tap O' Noth, Finavon, Knockfarril and Craig Phadrig) appear generally consistent, indicating vitrification occurred in the closing centuries of the 1st millennium BC (Ralston 2006: 151; Cook 2010: 81). In the light of Cook's evaluation work at Dunnideer, Aberdeenshire, one might query whether this consistency is merely a reflection of the small sample size. Excavation of a lower layer (C1003), interpreted as primary material containing a mixture of collapsed rampart and fuel deriving from vitrification of the rampart, provided 2-sigma calibrated dates of 370–160 cal BC and 390–190 cal BC. However, the contexts and the dates are comparable to those from the primary wall at Craig Phadrig, and while the dates themselves relate to when the wood was felled, they have been interpreted as a reasonably close *terminus post quem* for the destruction of the ramparts and a broad date for the use of the fort (Cook 2010: 85–6). Six AM samples from Dunnideer, however, gave a much broader date range of 606–257 BC (Cook 2010: 86). Supposedly representing the destruction event itself, they imply considerably less precision for the application of this technique than the interpretation that has been placed on Gentle's results.

The later occupation of Craig Phadrig in the early medieval period is demonstrated by both radiocarbon dating and artefacts. A date of cal AD 200–800 (N-1119) (Scottish Radiocarbon Database) was obtained during the 1971 excavation for charcoal from the 'upper occupation layer' (Small & Cottam 1972: 45). Wood from the 'sterile horizon' (ibid: 39) below this layer provided a date (N-1118) that calibrated as 400 cal BC to cal AD 350 (Scottish Radiocarbon Database). The 2015 radiocarbon date of cal AD 416–556 (SUERC-62801) obtained from a sample within a secure context at the base of the palisade ditch provides a *terminus post quem* for the erection of the palisade and indicates that the circuit of the defences was refortified during this period.

CONCLUSION

The evaluation carried out at Craig Phadrig has provided firm evidence for destruction of the fort during the 4th–3rd century BC and reaffirms earlier interpretations based on the excavations by Cottam and Small. While this similarly falls within the 4th–2nd-century BC dates for Dunnideer, the extent of the primary period of use of the fort at Craig Phadrig is unknown.

A recent upsurge in research, development and survey work has provided increasing evidence for the reoccupation of forts in north-eastern Scotland during the early medieval period. Although the mid-1st-millennium AD TL date from Finavon should probably be dismissed as unreliable (*contra* Harding 2004: 88), recent work by Cook (2013) in Strath Don, Aberdeenshire, has shown the reoccupation of forts there during this period to be significant. Cook suggests that during the early medieval period, the regional variation of hillforts and smaller numbers of larger sites is connected with either discrete, contemporary political units or functional/chronological differences (Cook 2013: 344–5). Other research into 5th–6th-century Pictish power centres (Noble et al 2013) discusses the role of enclosures in Pictland, with specific emphasis on the importance of a small fortification at Rhynie, Aberdeenshire (Canmore ID 281408), as an elite site. Forts on inland hills and coastal promontories, including Burghead, Moray (Canmore ID 16146), and a number of small ringforts, are all dominant site types during this period (ibid). The current evidence of refortification at Craig Phadrig during the early medieval period places it firmly in this context and must relate to what was happening in the wider landscape.

Finally, the three 11th–13th-century radiocarbon dates from Craig Phadrig are compelling evidence of a later medieval occupation and what appears to be a refurbishment of the circuit of the fort. Apart from the walls of major castles, such as at Dunnideer, visible evidence of medieval or post-medieval occupation in forts is usually limited to an occasional rectangular footing, but the radiocarbon dates from Craig Phadrig provide tantalising evidence that there was a more significant enclosure here. Similar structural evidence has been recovered from Castle Craig, Perthshire (James 2011a, 2011b), though the significance of these potential power centres for local lordship and the assertion of power remains to be unravelled.

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