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Survey and excavation at an Iron Age settlement on Deeside

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<MH> Old Kinord, Aberdeenshire: Survey and excavation at an Iron Age settlement on
Deeside

Tanja Romankiewicz¹, Richard Bradley² and Amanda Clarke²

With contributions from Jamie Quartermaine, Irvine Ross, Veronica Ross, Derek Hamilton
and Rick Schulting

<A>Abstract

The paper reports on research at two well-preserved Iron Age settlement sites in north-east Scotland, occupied between the 2nd century BC and 2nd century AD. At Old Kinord, trenches first excavated in 1903 were reopened, shedding new light on the chronology and structural history of a pair of stone roundhouses and two souterrains. The project extended to new surveys of this site and its neighbour at New Kinord. It investigated the character of the unusually large stone structures found there and the ways in which they were built and used. This report also considers the character of the original excavation, which was conducted by the future Lord Abercromby, a significant figure in the history of Scottish archaeology.

<A> Introduction

Richard Bradley, Amanda Clarke and Tanja Romankiewicz

Old Kinord is one of a pair of strikingly similar settlements on the raised ground between Loch Davan and Loch Kinord, near Dinnet in Aberdeenshire (Illus 1). The sites are less than 1km apart and share a number of unusual characteristics (NGR: NJ 444 002, Canmore ID 17072; NGR: NJ 4493 0017, Canmore ID 17065). Both include exceptionally large and massively built roundhouses, some of them arranged in pairs (Illus 2 and 3). There are the earthworks of two souterrains at Old Kinord, and another at New Kinord. Several of the house walls incorporate large blocks of stone, which could be obtained in the immediate

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surroundings; the floors of the most monumental structures seem to have been recessed into the subsoil; and a few were also paved. Other circular structures may have been enclosures. Field boundaries, trackways and clearance cairns extend into the modern woodland between and beyond both sites, but their relationship to the houses is uncertain and can only be established by excavation.

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<illus 3 near here>

In 1903, Sir Alexander Ogston, the author of *The Prehistoric Antiquities of the Howe of Cromar*, invited Robert Munro to excavate at Old Kinord. The work was originally scheduled to take place in spring that year, but Munro was not available and the future Lord Abercromby offered to take his place. Eventually the excavation began in August and lasted for a month. During that time, the project extended to other settlements in the surrounding area. Abercromby published the results of all the work together in 1904.

He did not make a plan of the settlement, although his sketches do provide an accurate record of the stonework he revealed. Eight years later, Ogston remedied the deficiency, producing detailed surveys of both Old and New Kinord which were published posthumously in 1931 (Ogston 1931: ch 2 and 3). Since then, there have been important developments. Much of the area was open moorland at the time of Abercromby's excavation but has since been colonised by woodland, although the trees that grew over the structures at Old Kinord have been removed. New Kinord remained in open grassland. In 1978, Kevin Edwards analysed pollen samples from one of the house floors at Old Kinord but they could not be related to an absolute chronology (1978a: ch 3). He also excavated a nearby clearance cairn with a radiocarbon date of AD 1350–1610 (Edwards 1978b: 26–7). In 1983, he published a phosphate survey of the settlement. Together with Graham Whittington, he produced an

influential account of the environmental sequence in Loch Davan (Whittington & Edwards 1993: 18).

<A> The research design

Richard Bradley, Tanja Romankiewicz and Amanda Clarke

The new project had several aims. The most obvious was to produce up-to-date surveys of two exceptionally well-preserved settlements. A novel development was the use of digital photogrammetry. Both Old and New Kinord are within a National Nature Reserve and are visited by many people. It was important to prepare a new record of both sites to inform their future management. The full survey information has been deposited with Historic Environment Scotland.

Other objectives were influenced by current research. Both settlements share unusual features. Stone-walled roundhouses and structures of the proportions of those at Kinord seem out of place in a lowland environment. Most roundhouses in these areas survive as rings of post holes and are usually reconstructed with an insubstantial outer wall of wattle-and-daub or sometimes turf (eg Cook & Dunbar 2008: 324–5). Once such a wall had collapsed, it would be difficult to distinguish it from the surrounding topsoil, especially when ploughed (Romankiewicz 2019). The architecture at Kinord is very different. Some of the large structures preserve an inner and outer stone face of substantial boulders, and even the examples with less sizeable material could have supported a substantial upper wall, if not of stone then possibly of turf.

Most of the roundhouses at Kinord are around 15m in internal diameter, but this is not completely exceptional in the north and north-east of Scotland. At Culduthel (Inverness, Highland) or Birnie (Elgin, Moray) the internal diameters of Iron Age buildings reached 20m (Murray 2007; Hunter 2000–10; compare Cressey & Anderson 2011), but timber roundhouses in Aberdeenshire were generally smaller. While a few Iron Age houses at

Kintore were 13m in diameter, the average figure is about 9.5m (Cook & Dunbar 2008: tables 35 and 43). At these sites, the footprints of the buildings usually respected one another; at sites, such as Romancamp Gate in Moray, house plans overlap substantially, and appear to replace each other (Barclay 1993). At Old Kinord, however, the positions of the largest buildings only slightly overlapped. It was important to investigate and date such monumental structures.

At the same time, these settlements are located in a region with an exceptional history. The Howe of Cromar contains a notable concentration of stone circles, three of which have been investigated in recent years (Bradley & Nimura 2016: ch 9). The area was also a focus of later activity, with an important series of early medieval carved stones – one cross-slab is still displayed close to the Old Kinord site (NGR: NO 44000 99787, Canmore ID 33981) and there are two early medieval crannogs in Loch Kinord (Stratigos & Noble 2017). The area was equally important during the Roman Iron Age. A perfume flask dating from the mid-1st century AD was found in the loch (Ingemark 2014: 112, 121–2), and excavation at Waulkmill, 8km away, showed that a Bronze Age stone setting had been reused as the site of an unusual cemetery during the 3rd century AD (Bradley & Nimura 2016: ch 3). There, a nearby settlement at Melgum Lodge shared a few structural features with those at Kinord, but too little remained for any prospect of dating them (Welfare 2011: 527–8; NGR: NJ 4714 0524, Canmore ID 16972). There are similar structures, including a souterrain, at West Knockenzie, less than 2km east of Kinord (Ogston 1931: ch 6; NGR: NJ 467 001, Canmore ID 17057), and a tantalising site at Meikle Kinord, south of Loch Kinord, now lost, that had also been associated with a souterrain and a paved, stone-walled house. This was ‘touched’ by a structure interpreted as an unpaved cattle enclosure (Michie 1910: 96–8, 177–8; NGR: NO 444 988, Canmore ID 33980). Another objective of the new project was therefore to find out whether the exceptional deposits at Waulkmill were contemporary with settlements like those

at Kinord. Might they provide evidence of a local elite who profited from their contacts with the Roman world?

Old Kinord was well suited to such an investigation. Unlike its neighbour, it had been excavated before and a record of the results was available, although the finds had been lost. It would be possible to collect samples for dating and environmental analysis by reopening trenches excavated over a hundred years ago.

Three targets were selected for excavation (Illus 4). One aim was to establish whether occupation at Old Kinord was contemporary with the cemetery at Waulkmill. The simplest way of obtaining dating evidence was to focus on the souterrains that had already been examined by Abercromby. The new work capitalised on the observation that features of this kind were generally filled with refuse when they went out of use. Radiocarbon dates for samples in the lower and upper levels of both souterrains ought to provide some indication of the lifespan of the settlement. The third element was a narrow trench that Abercromby had dug across the intersection of two roundhouses. Surface indications showed that the slighter building was the later of the pair. In this case, his excavation was reopened to record the structural histories of these buildings in greater detail. Again, it would be possible to collect samples for radiocarbon dating. It was equally important to employ geoarchaeological analyses to show whether any original floor layers survived and whether there was evidence of a substantial turf construction. It was essential to characterise the architecture of these large structures in order to understand their role for the communities at Kinord.

<illus 4 near here>

Old Kinord is a Scheduled Ancient Monument and these approaches were designed in discussion with Historic Environment Scotland to ensure that the maximum information could be extracted with the minimum of disturbance. The only unknown was the character of the original excavation, and, in the event, this presented problems. The limits of

Abercromby's work were not precisely documented and it soon became clear that they were not recorded sufficiently accurately in his published drawings. His field methods are hard to establish from the 1904 report, and his site photographs are even less informative. Enough was known to allow the formulation of a research design, but too little to prevent some frustration in the field. More difficulties resulted from the disturbance caused by trees and bracken. This impeded the recovery of dateable material from securely stratified deposits. Pieces of charcoal from the same contexts and of similar wood species had to be analysed in order to establish a convincing sequence. The few finds were also chronologically undiagnostic, such as the coarse stone tool used as a hammer and pounder (SF56) and a rotary quern fragment (SF12); both were dated to the late Iron Age by their contextual association. The struck lithic assemblage was demonstrably redeposited. Only the glass bead (SF7) confirmed a late Iron Age date independent of its context. Although of Guido's Group 7 (iv) (Guido 1978: 70), which is considered a long-lived and widespread type, chemical glass analysis suggests a 1st century BC to 1st century AD date. Iron slag, in form of an intact smithing hearth base with an adhering fragment of a clay tuyère (SF11), could date from the Iron Age onwards; it was found unstratified in the Trench 3 topsoil (specialists archive reports deposited with field archive). Another limitation must be mentioned here. When the work was planned it was agreed that, unlike Abercromby, the team would not dismantle any intact structures encountered in the excavation.

<A> Surveys of Old and New Kinord

Tanja Romankiewicz with Jamie Quartermaine, Irvine Ross, Veronica Ross

The new surveys at Old and New Kinord were based on photogrammetry, supplemented by surface survey of the upstanding remains. They show that Ogston's records of both sites were very accurate. Even a hundred years later, the large stones shown in his plans can be identified in the field. Overall, the condition of the structures had deteriorated little in the

intervening years. The new survey provides additional details of walls and small areas of more recently collapsed rubble. At Old Kinord, it identified another circular structure on the western edge of the settlement. This was marked by single large stones, outlining a circle about 12m in diameter. At New Kinord, more detail could be added to individual structures, confirming that Circle A on that site overlapped with Circle D, but their relationship was not clear from ground observations. Similarly, the overlap between Circles A and E, implied by Ogston's plan, is also more complicated and could only be clarified by removing the turf cover.

<A> The overlapping roundhouses at Old Kinord

Tanja Romankiewicz

The new survey confirmed Abercromby's and Ogston's observations that the positions of some of the roundhouses at Kinord overlapped without completely removing the earlier walls, which remained visible. This was puzzling. The settlement at Old Kinord is located on more or less level ground, so the positions of successive structures could easily have respected one another. It would have avoided the additional effort of building on top of a partly demolished ruin. At New Kinord, the flat ground is even more extensive, and this raises the same problem.

The field remains at Old Kinord include two large structures that overlap by about 6m. The lower roundhouse (Circle A) is circular, with an obvious entrance to the east. The upper roundhouse (Circle D) is much less substantial and slightly oval. Its wall can only be identified by the positions of individual boulders, but Abercromby suggested that it also had an eastern entrance. Although the area is disturbed, his interpretation is supported by the photogrammetric survey. It also showed that in order to erect a house on the site of an earlier building it was necessary to buttress the new construction. The older roundhouse wall was more massive than its successor and faced both internally and externally by large upright

slabs of whinstone. They were quite distinct from the material used in the later structure, which included a variety of locally available granites and sandstones of smaller size. The new investigations demonstrated that the later house was also built using inner and outer facings, with rather small stones for the core. A structure in Ireland, with a very similar (although narrower) wall construction and a date range of 70 BC to 340 AD, has been interpreted as a ceremonial enclosure, because excavation could not confirm the low stone structure as the footing for a turf wall (O'Brien 2009: 221, 253). In order to obtain more information on the relationship and construction methods of these houses at Kinord, Abercromby's narrow trench was reopened where Circles A and D overlapped. Samples were collected for environmental analysis, including soil micromorphology and analysis of dung spores, phytoliths and other non-pollen palynomorphs. This account draws on the work of R Y Banerjea, whose reports form part of the project archive.

The 2016 work shed some light on Abercromby's methods. His trench was about 10m long and 1m wide and extended from the recessed interior of the lower roundhouse (Circle A) southwards into the interior of the upper house (Circle D) (Illus 4). In the southern half of the trench, he had removed stone and earth and reinstated the ground with the same material. Further to the north, within the interior of Circle A, his workmen had packed small stones in the backfill to stabilise the Iron Age structure. In 2016 this could not be dismantled without risking collapse. Abercromby also excavated the entire interior of Circle D down to the paved surface and lifted some slabs at its northern edge. Similarly, he cleared the interior of Circle A down to the natural gravel. The interior of this roundhouse often holds water today. Abercromby seems to have created the problem by digging through the prehistoric floor, down to a level immediately above an impermeable layer of glacial origin. The new excavation suggested that in fact the Iron Age floor of Circle A had been almost 30cm above the now exposed gravel. A profile across the interior of Circle A indicated that the present

interior surface is relatively level and on average 66cm below the current ground outside Circle A to the east. Augering outside Circle A indicated a deposit of 8–31cm of topsoil and hillwash above a more yellow subsoil and a stony induration layer of glacial origin (compare Edwards 1983: Table 1). Abercromby cut through the base of Circle A to a depth of *c* 30cm, which suggests that originally the hollowing of the floor was minimal, and no more than 10–20cm deep. Given the depth of his intervention, he not only removed original floor layers, he may well have removed postholes or other sunken features within Circle A.

The structural sequence of the roundhouses

Re-excavation of the 1903 trench revealed a structural sequence featuring two, or possibly three, successive buildings. The lowest deposit in the southern part of the trench was a pavement of medium to small stones, set in a coarse sandy soil containing a few fragments of dung; otherwise it was comparatively sterile, presumably representing a natural sediment with some anthropogenic intrusions from the pavement set into it (Trench 2 Illus 5; Illus 8). A small fragment of Scots pine (*pinus*) from this material was dated to *190–40 cal BC* (context C2032 – date #1 on Illus 8 at 95.4%, SUERC-72762). A comparable date, also from Scots pine, came from a charcoal-rich lens at the bottom of the deposits beneath the latest roundhouse. It dates from *209–53 cal BC* (C2039 – date #2 at 85.9%, SUERC-72761) and may be contemporary with the use of the early pavement. Little more can be said about this structure, which at first sight had been taken for an external pavement associated with Circle A. However, in contrast to the layer that overlay it, the soil into which the early paving stones were set did not provide any evidence of standing water – such as fresh water algae (*zygnema*) or diatoms – it must have been protected from rain. It seems this area was roofed and enclosed by a wall. In that case, the pavement was the floor of a third building on the site, predating the two structures that are visible today (Illus 5).

<illus 5 near here>

The next feature was the wall of the lower roundhouse (Circle A). It was about 2m wide and composed of large whinstone boulders that defined its inner and outer faces (Trench 2 Illus 6; Illus 8). These stones were set in the natural subsoil, but others had been removed and reused when Circle D was built. Their positions were indicated by shallow depressions. In between the wall faces of Circle A, and restricted to this area, was a dark, mottled deposit. Environmental analysis showed that it contained fragments of charcoal, plant tissue and ash. Although this could have been fuel residue, its confined position suggests that this deposit was composed of burnt turf, presumably from an upper turf wall; the larger wood charcoal might be from roof timbers (oak) and roof matting (hazel). Two dates from this context place its construction in the 1st centuries BC or AD (C2040 – date #3, *quercus* 38 cal BC–89 cal AD at 90.1% probability, SUERC-72760; date #4 *corylus avellana* 118 cal BC–19 cal AD at 87.3% probability, SUERC-79439). The inner wall face of Circle A was on the edge of a slope and its outer face had been set in a large but shallow pit which extended beyond the 2016 excavation. At the bottom of this pit, small stones survived which were similar in material and character to those in the early pavement discussed above; they were also at the same depth (Illus 8). This may imply that this earliest building or pavement continued underneath the outer wall face of Circle A.

<illus 6 near here>

The early pavement was sealed by C2031, which provided important evidence of standing water. This was then sealed by the stone floor of the latest roundhouse (Circle D). C2031 could not be connected with this phase, or with the oldest house. Perhaps it represents an accumulation of material against the outer wall of Circle A, most likely contemporary with the use of that building.

Another feature may be relevant here. Stones from the inner wall face of Circle A had been pushed over and reused as a buttress to support the outer wall face of the upper Circle D (Illus

8). Beneath this buttress were two superimposed layers of sediments (C2041 and C2042), which resembled in situ land surfaces. Their position in the upper fill of the Circle A platform suggests that these deposits were imported turf (Illus 8). The lower context C2042 had seemingly been brought in as a single turf, most likely as floor covering, because micromorphology demonstrated that its surface had been subject to extensive trampling. Although this showed that the upper part of C2042 was more compacted (marked dark grey in Illus 8), it was otherwise of the same composition as the lower part. This material was seemingly laid down to counteract erosion within Circle A. The uppermost layer of turf in this section (C2041) contained large amounts of phytoliths and diatoms. In comparison, C2042 below must have been protected from rain and could have been the internal floor of Circle A. After C2041 had been laid down, the area was left open and saw less wear than the upper part of C2042. It seems likely that C2041 represents the surface associated with the building works. Neither deposit contained any evidence of dung, implying that the structure was not used to stall animals during these stages of use.

The final structural phase is represented by fairly rounded medium to large boulders that formed the outer wall of Circle D (Trench 2 Illus 7). They were supported by the buttress, which recycled slabs from the wall of Circle A; others were reused as the internal pavement of Circle D (Illus 8). This makes it clear that the upper parts of the wall of Circle A were demolished. The charring of its core was represented by the burnt turf (C2040), suggesting that its roof might have been on fire. The thinness of the burnt layer suggests that the site was cleared before the later roundhouse was constructed.

<illus 7 near here>

<illus 8 near here>

The outer face of the new building (Circle D) was relatively insubstantial and had a core of boulders and smaller stones. Its inner face could not be identified within the trench,

but the wall must have been between 1.3m and 1.5m thick. The spill of small stones from the core suggests that the inner face was robbed, and indicates its approximate position (Illus 8). Discrete orange patches of soil could be recognised amongst and on top of the stone spill; individual patches tilted inwards and downwards (C2007, Illus 8). In Trench 3, where the wall of Circle D cut across an abandoned souterrain, this structure was less disturbed. Micromorphology of samples in this area indicates that the orange material was turf. Six pieces of milky quartz were found here, one of them a possible worked flake (H Anderson-Whymark, archive report); they may have been redeposited with the turf. The pattern of collapse suggests that an upper turf wall of smallish divots (*c* 15–20cm) tumbled inwards when the inner face of its stone foundation was removed.

This collapse of the Circle D turf wall onto its interior sealed several lenses of mixed composition, including flecks of charcoal and stones from the wall core; one of them the part of a rotary quern (SF12; Illus 9); another being the hammer and pounder mentioned above (SF56; G Cruickshanks archive report). The latter may even have been used as a building tool before being discarded in the wall core. At the bottom of this sequence for Circle D was a 10cm thick layer that sealed the demolished wall of Circle A and dated from 2 *cal BC*–125 *cal AD* (C2036 – date #5, *corylus avellana* SUERC-79438). This date falls within a similar range of dates for the collapse of the turf wall on top of these fills (C2007 – date #6, *corylus avellana* 45 *cal BC*–87 *cal AD*, SUERC-69175; date #7 *corylus avellana* 3–170 *cal AD*, SUERC-69176). Dung fragments from small herbivores (sheep/goat) and coprophilous spores within the C2036 matrix either suggest that this part inside the later roundhouse was last used to pen animals or its interior was backfilled on abandonment with a substantial layer of animal dung from elsewhere. The character of the deposits above C2036 indicate a series of more discrete dumps, some with a greater proportion of silt, others containing charcoal.

Perhaps they included household waste generated nearby over a longer period. This suggests that another house may have been in use on the site after Circle D was abandoned.

<illus 9 near here>

<A> The principal souterrain

Richard Bradley and Amanda Clarke

Abercromby's account of the more extensively excavated souterrain is difficult to follow in detail, but before its excavation began, this feature was recognisable as a linear depression extending from the interior of Circle D.

His plan of the souterrain structure is incomplete but distinguishes between the excavated parts, where the stones of the floor are shown schematically, and those areas he left intact (Illus 4). The eastern end of this structure is not represented in detail because he lost his notebook during the excavation. Instead, it is marked by a dotted outline which roughly agrees with what can be recognised on the surface today. Although he sieved the fills, Abercromby found only one diagnostic artefact: 'part of the upper stone of a quern, which [would have] had a diameter of 16 inches [40cm]' (1904: 119). It must have been part of a rotary quern, but the fragment is now lost and cannot be compared with the find from Trench 2. Other items included an unidentified iron object, charcoal and a few fragments of bone.

Ogston's account of this structure adds some important details, although his survey of Old Kinord was undertaken eight years after the excavation. It incorporated information from the 1904 trench plans, but one disadvantage is that the surface topography had been altered because not all the trenches were refilled. A few low mounds or banks might have been Abercromby's spoil heaps. With that qualification, Ogston observes that the souterrain was 'a comma-shaped depression ... bordered by a 2 foot [60cm] bank of earth and stone' (1931: 9). Like Abercromby, he described this feature as an 'earth house'.

Its entrance survives where a trench dug in 1903 was left open, and is marked by a pair of upright slabs, at least one of which was reset at the time. At the point where the wall of the later roundhouse (Circle D) cut across the souterrain, its earthwork changes direction by 20 degrees and leads towards a roughly oval space about 2.3m wide. Its configuration is hard to reconstruct because no accurate plan of it was published. Although the banks around the edges of the souterrain could be upcast from Abercromby's excavation, they are like those flanking a similar structure at Old Kinord where little digging took place (Structure F, Illus 2). They also resemble the banks around the souterrain at New Kinord which has never been investigated.

Abercromby's report provides important information on the character of his fieldwork. The contents of the souterrain were excavated to the level of the original floor and where more than one level of 'paving' is reported, it seems as if at least the upper one was removed. It did not happen across the whole of the excavated area but in places this procedure revealed the base of the cutting into which the structure was built. He reports small deposits of charcoal and animal bone beneath the earliest floor, but without giving further detail. He states the base of the souterrain sloped downwards from the entrance, where the paved surface was placed directly on the natural subsoil. The far end of the structure was dug into the same material to a depth of 1.2m.

 The structural sequence of the principal souterrain

The new project focused on the best recorded section of the souterrain, extending for 8m from its entrance, which was still visible because part of Abercromby's excavation was never refilled. The eastern end of this structure was not considered because no reliable plan of it was available; in any case, details in the 1904 report suggest that its floor had been removed.

The 2016 excavation was located according to three considerations. It could investigate the relationship between the souterrain and the wall of the later roundhouse

(Circle D) which cut across it. It could re-examine the junction between the paving in the entrance of the souterrain and the stone floor of that building: a feature highlighted in the original drawings which show that only the central area of Circle D had a stone floor, an important observation for tying the roundhouse sequence in Trench 2 to the souterrain (Illus 4). Lastly, Abercromby's site plan suggested that short sections of the souterrain remained unexcavated. All these expectations were met, but the deposits that did survive had been disturbed by trees and bracken since the original excavation. In particular, the entrance of the souterrain was obscured by a tree stump that could not be moved without destabilising the surviving structure.

It was clear that the souterrain had been dug into the natural subsoil and that its depth did increase with distance from the entrance at its western end, but it was only possible to investigate the original cutting in two places: between the upright stones in the entrance, where the paving slabs lay directly on the glacial till, and towards the eastern limit of the 2016 excavation where the slabs lining the sides of this feature had been displaced, revealing the edge of a steep-sided cutting, the bottom of which was inaccessible beneath the stones of the floor (Illus 10).

<illus 10 near here>

The orthostats framing the entrance of the souterrain rose to a height of 60cm – corresponding with the height of the flanking earthwork (Illus 11). After the first 1.3m, the bottom of the cutting sloped down for 30cm until it reached the blocking at the crossing point of the Circle D wall, which was left intact in 2016 ('later wall' Illus 11). Beyond this feature, part of a floor of massive stones survived at a depth of 95cm below the level of the entrance; the remains of a ramp should underlie the Circle D wall area but this could not be investigated. The thickness of the 'pavement' is not known or whether there was more than one level of flooring. Abercromby's account raises this possibility.

<illus 11 near here>

Towards the base of this feature, the sides of the souterrain were framed by pieces of local stone, with maximum dimensions of up to 1.1m. They included considerable blocks, as well as slabs which could be as much as 40cm thick. They were exactly like the pieces used to floor the main part of the structure, and these elements could have been built together.

Beyond the area of the entrance, the south wall of the souterrain had given way, but the opposite side remained intact. Here it was integral with the wall of the adjacent roundhouse (Circle A), but the character of this stonework was quite different from the roundhouse wall and the souterrain lining (Illus 12). The lower courses made use of blocks up to 50cm in maximum dimensions, but the upper material was much smaller. It seems likely that this part of the wall was a secondary feature: a possibility that could not be explored without dismantling the fabric. It may date from the original construction of Circle A or from a phase of later remodelling suggested by the plan of this structure. The house wall may have been thickened in an attempt to monumentalise the entrance of Circle A (Illus 6, Phase 2). When that happened, it integrated the souterrain's northern wall with that structure. A small blue glass bead recovered from this secondary wall (SF7; Illus 9 inset) has been analysed for its glass composition. The addition of Manganese oxide and the type and quality of blue colorants compare well with beads of 1st century BC to 1st century AD date with a Mediterranean source (M Davis, archive report). The likely date of the bead is slightly earlier than most Romano-British glass, and contemporary with the use of Circles A and D as well as the principal souterrain.

<illus 12 near here>

A possible connection between Circle A and the souterrain was a void 20cm high, apparently communicating between the two structures (Illus 12). It was located in between two enormous slabs and spanned by a lintel 75cm long and 35cm thick. The roof itself had

slipped and may originally have been higher, but probing showed that these stones had framed an empty area that extended into the thickness of the roundhouse wall. As this structure was unstable, it was unsafe to examine it further and it is not clear whether it reached the interior of Circle A, where the area was obscured by rubble. For that reason, it was not necessarily an entrance passage rather than a cell or recess, accessed only from the souterrain.

Only short sections of the souterrain floor remained intact, making it difficult to establish whether the different areas of paving that remain today were of the same dates as one another. The most obvious contrast was between the large slabs identified in the deepest part of this structure and the lighter paving at its entrance, but the relationship between these features was obscured by the wall of the later house, which was left intact. Even so, it seems clear that the ramp leading down to the main part of the structure was surfaced by smaller stones than the remainder of the souterrain. The transition probably happened where the alignment of this structure changed. Abercromby suggested that the light paving found in its entrance was the same as the floor of the later dwelling (Circle D). That was not necessarily true as the slabs found immediately outside the souterrain were larger than those in its entrance. It is not clear if this was the result of his excavation, for it is known that he removed some of the stonework and there may have been more than one layer of slabs. In any case, the crucial relationship, if it ever existed, was destroyed by a tree that had grown in the filling of his trench. If this ramp is secondary and the souterrain was originally accessed from a lower-level entrance, it may have been connected with the earliest paved and roofed structure, below Circle A and D (Illus 5).

The 2016 excavation extended no further than the present floor level, but three short sections of the filling of the souterrain were preserved by Abercromby. The most important was the wall of the later house, but two blocks of sediment also remained intact.

Unfortunately, both were disturbed by modern vegetation and these deposits were not suitable for environmental sampling or radiocarbon dating. They consisted of compact sandy silts with stone rubble towards their base. It is likely that they formed through natural erosion and gradual collapse of both the souterrain wall and the turf wall of Circle D above. There was nothing to suggest that this structure was demolished or deliberately refilled and no material could be associated with its original roof.

Abercromby was careful to preserve the relationship between the souterrain and the later roundhouse, Circle D, and this was investigated in 2016. It became clear that before that building was erected, access to the main section of the souterrain had been closed by a deposit of rubble 1.2m wide, which separated the entrance area from the remaining part of this structure (C2050; Illus 7, Illus 10). The construction of the house followed on top of this foundation of boulders which filled the cutting for the souterrain. Soil micromorphology suggested that the house had a superstructure of turf. There was an important distinction between the closure of the inner part of the souterrain and the entrance area which was retained inside the new building. This is reflected by the only charcoal samples from secure contexts.

A sample of *salix/populus* charcoal was taken from the base of the souterrain where it was sealed by the blocking. At 95.4% probability, it dates from 94 BC–AD 69 (C3013 – date #8, SUERC-69172) and provides a *terminus ante quem* for the use of that part of the structure. Two further samples were associated with the paving on the surface of the natural till in the entrance. One was composed of *betula* charcoal and at 95.4% probability provided a date of 51 BC–AD 81 (C3015 – date #9, SUERC-69173). The other (date #10, SUERC-69174) was of the same material and dated from 45 BC–87 AD (93.4%). The dates obtained from the opening of the souterrain may relate to its main period of use or to the time when the entrance area was incorporated into a later roundhouse, Circle D. They overlap with the

single date for the closure of the main part of the souterrain, which might be slightly older, suggesting that the principal structural change on this part of the site happened between the 1st century BC and the 1st century AD. It also implies that the individual structural phases of the souterrain could have been relatively short-lived.

<A> A second souterrain

Richard Bradley and Amanda Clarke

Abercromby's account of the other souterrain is brief:

<EXT>On the north side of [the] enclosure [Circle A] there is a curved hollow in the ground, about 30 feet [9.1m] long ... which looked as if it might contain another underground house. As it was the last day and a short one ... there was only time to sink a trial trench across the hollow. At a depth of 7 feet 6 inches [2.3m], we came upon a fine piece of smooth well-laid pavement ... Only a few pieces of charcoal and particles of bone were brought to light, but it was evident that we had hit upon [an] underground house. As there was no time to make a complete exploration of the site, the hole was filled in again and returfed. But its position is known for any future explorer (Abercromby 1904: 120–1).

His last sentence was over optimistic, for Abercromby did not provide a plan of this structure, merely shading an area against the wall of the adjacent building, which he labelled 'traces of an underground house'. In his drawing, the trench is rhomboidal rather than square, and again the stones described as a 'pavement' are depicted schematically.

As Abercromby observed, the position of this souterrain is defined by a marked depression approximately 9m long and 2m wide, internally, bounded by a conspicuous bank. It is approximately U-shaped and must have been entered from the north as the earthwork continues unbroken around its southern limit. It was located between two structures and

followed the same axis as the wall of the structure to its east (Circle K). To the west was the substantial circular building (Circle A) associated with the principal souterrain at Old Kinord.

Abercromby's record was so vague that an area measuring 6m by 3.5m was stripped in order to find the position of his excavation as it was not apparent on the surface. Even then, it was difficult to establish the limits of his trench as its upper level had been dug through loose silts and refilled with the same material. The new work was limited to locating and reopening the 1903 excavation and did not impinge on the intact structures outside it. In the event, it was hardly surprising that the original work was uninformative. It had been conducted very rapidly. When the position of Abercromby's trench was established, its plan resembled the outline shown in his plan, but it was wider at the top (Illus 13). At the base it was 1.2m square, which is less than his own measurement. It had been dug to a depth not less than 2.6m and extended for 1.65m below the actual floor of the souterrain. His workmen had cut through this feature without observing it. The 'pavement' described in his account was a deposit of glacial debris.

<illus 13 near here>

The base of the souterrain was visible in section in the side of the 1903 excavation. The structure had been at least 3m wide although its eastern limit was outside the area investigated. Its floor was between 0.9m and 1.15m below the present ground surface within the feature and was more or less level (Illus 13). The banks on either side contributed another 1.2m of height, meaning that the original roof must have been over 2m above the floor. Only one stone slab remained in position on the original bottom of the souterrain, but a steep-sided trench marked the western edge of the cut for this structure. It is the right size to have held a large upright slab and may indicate the position of a stone lining the original feature ('slot' Illus 13). It could have been removed when the souterrain was abandoned and this area was sealed by the outer wall of the adjacent roundhouse (Circle A).

The deposits within the souterrain were not explored in any detail but the face of Abercromby's trench showed that they consisted of boulders and larger blocks of rubble with maximum dimensions between 30 and 40cm. It is possible that this structure was deliberately refilled when it went out of use. If the lining of the original feature had been robbed, it must have happened before Circle A was constructed immediately to its west. It is possible that Abercromby's 'earth house' was closed when that structure was erected and that some of the building stone was recycled. The construction of Circle A may have also rendered the infilling a structural necessity. No artefacts were associated with the use of the souterrain and no samples were suitable for radiocarbon dating.

<A> Comparisons between the souterrains

Richard Bradley and Amanda Clarke

Both excavated souterrains have an unusual characteristic which they share with a similar structure at New Kinord. In these cases, the term souterrain is really a misnomer as it suggests that the structures were entirely subterranean. That is true at sites where a roof survives, but in both the preserved settlements at Kinord the hollows defining these features were bounded by banks of soil or rubble, possibly indicating the positions of low walls. The banks were outside the areas excavated in 2016 and it is uncertain how these structures were covered. It is clear that the upper half of both the excavated features would have been visible above ground. In one case, the floor was dug into the subsoil to about a metre but the earthworks on either side were 1.2m high. The same observation might apply to the other excavated example, but here the surface topography could have been affected by the 1903 excavation. Similar surface remains can be recognised at New Kinord, a site which has never been investigated. Otherwise, these structures compare with evidence from other souterrains in Scotland, their spaces becoming wider and deeper with distance from the entrance (eg

Watkins 1980; Armit 1999). Like the extensively excavated example, all the souterrains at Kinord may have been approached down a narrow ramp.

<A> The relationship between roundhouses and souterrains

Tanja Romankiewicz and Richard Bradley, with a contribution by Derek Hamilton and Rick Schulting

The earthworks of both souterrains were immediately outside the wall of Circle A. One was directly adjacent to its north-eastern limit. The other was seemingly bonded into the south-eastern wall and associated with the roundhouse during a secondary phase. Given its curvature and the position of its entrance, the souterrain examined on the final day of Abercromby's excavation seems to have been associated with Circle K. The 2016 investigations suggest that it was dismantled and refilled when Circle A was constructed. The wall of the new roundhouse overlay the western edge of the abandoned souterrain.

It is more difficult to say when its counterpart to the south was built. The plan of this souterrain would be very unusual if built contemporary with Circle A, for the entrance is well outside that building. Typically, the curvature of a souterrain would follow that of the associated roundhouse. Here the souterrain curves away from Circle A. Perhaps it was first established during an even earlier phase when the first level of paving in Trench 1 formed part of another house. The souterrain may have opened into that structure and could even have followed its outer wall; the exact position and outline of that early structure are unclear (Illus 5). This would certainly help to explain the unusual shape and position of the souterrain in relation to Circles A and D. In that case, the souterrain was reused when Circle A was built immediately to its north. At that stage, what may have been a low side entrance could have been inserted to connect them. Alternatively, this side-entrance feature could result from secondary modification, when the original entrance to the roundhouse, Circle A, was monumentalised by elongating and enlarging the wall area around it (Illus 6). When Circle A

was replaced by Circle D, the main section of the souterrain was closed but its entrance was preserved inside the new building, where it may have been treated as a niche or recess (Illus 7).

 The dating of Old Kinord

One reason for mounting this project was to test whether the massive roundhouses at Old Kinord were used during the same period as the cemetery at Waulkmill. The dates suggest the settlement was established well before the graves at the stone circle and that occupation at Old Kinord was ending, or had already ended, by the 3rd century AD – the likely age of the burials. This chimes with the dated horizon of deliberate souterrain abandonment identified for Angus and Perthshire ‘in the latter part of the second century [AD] ... or conceivably in the earlier part of the third century’ (Armit 1999: 588).

The new excavation found little securely datable material, thus only a broad chronological sequence could be established. On current evidence, it seems likely that Circle A was abandoned when Circle D was constructed. It is impossible to ascertain how long the interior was exposed to the elements before the buttress for Circle D was built, and whether the group using Circle A may have relocated to another roundhouse until work on Circle D was complete. The likelihood of such interpretation has been tested by radiocarbon dating and Bayesian modelling.

The Bayesian modelling shows that there is good agreement between the dates and the relationships of contexts from the roundhouses and the principal souterrain. The model (Illus 14) estimates that activity at Old Kinord began in *200–55 cal BC (95% probability, boundary start: Old Kinord)*, and probably in *135–65 cal BC (68% probability)*. This assumes that C2032, the earliest paving and its surrounding matrix, is from a structure that predates Circle A and is not an early component of the latter building. Current interpretation associates this early roundhouse with the construction and first use of the principal souterrain. The transition

between this early phase and Circle A would have occurred in *150–45 cal BC* (95%; *start: Phase 2*), and probably in *100–50 cal BC* (68%). The transition between the activities in Circle A and D, linked to the blocking of part of the souterrain, likely occurred in *30 cal BC–cal AD 45* (95% *start: Phase 3*), and probably in *10 cal BC–cal AD 30* (68%). The overall activity ended in *cal AD 25–145* (95%; *boundary end: Old Kinord*), and probably in *cal AD 45–105* (68%). These latter dates were obtained from the infill of Circle D and the latest dates from the principal souterrain. It suggests that Circle D and the partly blocked souterrain fell out of use at around the same time.

<illus 14 near here>

At 68% probability, the evidence interpreted as the first roofed structure was constructed between *135–65 cal BC* and fell out of use between *100–50 cal BC*, a maximum period of *c 85 years*, if not less. At the same probability, Circle A was built between *100–50 cal BC* and abandoned between *10 cal BC–cal AD 30*. This would indicate a maximum occupation of *c 130 years*, but a hiatus had likely followed the abandonment of the earliest structure and, given their overlap, before Circle A was constructed. The occupation period of the latter is also likely to have been shorter, as micromorphology suggests an unroofed phase before the construction of Circle D. However, considering the depth of erosion within Circle A and the possible remodelling of its entrance, this structure could still have been inhabited for a considerable amount of time. Circle D was probably not built before *10 cal BC–cal AD 30* (68%). With an overall end date estimated at *cal AD 45–105* (68%), it was abandoned after a maximum of *115 years* (68%), but most likely less than that. The principal souterrain would have been the longest used structure on the site, lasting from about the 2nd/1st century BC to the 1st/2nd century AD, as part of several phases of reuse.

Another source of information is the environmental sequence in Loch Davan (Whittington & Edwards 1993). It was associated with a series of radiocarbon dates on bulk

samples of sediment. Their work is important as the Old Kinord settlement is so close to the water's edge. Although their dates have large standard deviations, those relating to the Old Kinord settlement are in stratigraphic order and suggest that the area was already occupied by the early pre-Roman Iron Age, when there was limited tree cover and heather and pastoral pollen were well represented. This may relate to the buildings that pre-date Circles A and D, namely the northern souterrain and associated Circle K. A second sample from the loch dated between the 2nd century BC and the 2nd century AD and reflected similar conditions in the vicinity of the shore. It should be contemporary with the roundhouses investigated in 2016. These dates preceded a significant change in local conditions. A third pollen sample, of 1st–3rd century AD date, shows strong woodland representation and less evidence of pasture. Although these dates were obtained some time ago, they agree with the new evidence from Old Kinord that occupation was ending, or had already ended, in the 1st or 2nd centuries AD. On one hand, this suggests that Circle D was probably one of the last structures to be occupied, although its interior is infilled by household refuse, which may have built up nearby. On the other, the good correspondence between the environmental evidence and the new dating evidence implies that the settlement at Old Kinord had already been abandoned by the time that the Waulkmill stone circle was reused for burials, within the 3rd century AD (Bradley & Nimura 2016, ch 3).

<A> Architecture and settlement layout of Old and New Kinord

Tanja Romankiewicz

The survival of upstanding, but low stone-based roundhouse walls is more typical for Bronze Age and Late Iron Age upland settings (eg Carter 1993: 230). The substantial stone walls of the settlements at Old and New Kinord show that such architecture is not only an Iron Age phenomenon of the Atlantic north and west, or the Later Iron Age of southern Scotland. Their massive character echoes that of the so-called Lowland brochs, but those structures were built

in a very different way: they employed well-coursed masonry throughout or stone cores tightly packed between masonry faces (Romankiewicz 2011: 27). They did not use orthostats like the buildings at Kinord. All Kinord structures survive as substantial circles, close to the maximum space that could be covered by a conical timber roof (Romankiewicz 2011: 1). Since Abercromby emptied the interiors of the excavated buildings, and in some cases dug well into the subsoil, it is difficult to establish whether they originally had internal post settings typically interpreted as structural roof supports. These may have not been recognised by Abercromby and if they had been extant, would now be lost.

The new work documented the use of turf for the upper walls of at least two roundhouses and it seems possible that both settlements were built entirely of turves supported on the orthostatic stone foundations. This is not surprising in an area that has a vernacular record of ‘fail’ houses, ie of turf (Pennant 1769). The structural capacity of turf walls has not been systematically tested to modern engineering requirements, but despite differences in wall thickness and construction at Old and New Kinord, compared to the post-medieval evidence, we can assume that a metre-thick turf wall could support a tall building (Romankiewicz 2019). Upstanding examples are represented by the early blackhouses in the Western Isles and similar rural buildings in Iceland and Norway, although the latter have internal timber-frames (Walker 2006: 18–22).

It is impossible to say which structures at Kinord were simple enclosures and which were covered, but for the recently excavated ones, micromorphology has supported the architectural interpretation of roofed buildings. A few of the unexcavated structures have concentric stone ‘circles’ inside them and these innermost circuits were most likely roofed. The space extending to the outer wall at those examples could have been left open or spanned by a lean-to shelter. The use of concentric spaces and peripheral passages, with or without roofs, is known from later prehistoric structures with earth and/or stone walls, for example, in

Perthshire (Thorneycroft 1933; Strachan 2013) and Islay (Barber & Brown 1985). A similar concentric use may be indicated by the extent of the internal pavement surviving in Circle D, which Abercromby's plan shows to have been absent in an arc up to 2.3m wide following the inner face of its wall. The same distinction between a central area and a peripheral zone occurs at other Iron Age roundhouses in Scotland, especially those associated with souterrains (eg Watkins 1980). At Old Kinord, however, the outer section of the souterrain crossed this peripheral area of Circle D and extended to its central paved area (Illus 7). This may indicate that, like structures with inner concentric circles, the peripheral area of Circle D remained unroofed at this stage.

It is equally difficult to account for one of the most distinctive characteristics of the structures at Old Kinord. It required some effort to level parts of the wall of Circle A in order to erect another house on top of it. The new building could have been placed a few metres to the south to avoid the overlap. It was risky to build a new house on uncompacted rubble, so it seems the earlier wall was flattened and modified to buttress the later structure. In this way, the outer stone facing of Circle D would have blended with the buttress and the remains of Circle A below to create an impressive façade. Structurally it may have helped that the later roundhouse wall was less substantial than its predecessor. However, it would hardly have contributed to structural stability for Circle D to cut across the southern souterrain, nor in the previous phase, to build the outer wall of Circle A across the dismantled northern souterrain. These curious overlaps are not unique as a similar arrangement can be recognised at New Kinord where it applies to two pairs of roundhouses on a north/south axis, Circles A and D, and B and E respectively (Illus 3) – and possibly between Circles A and E in Ogston's scheme (1931: fig 25). Their relationship with the souterrain cannot be established from surface evidence. In all these cases, the overlap was structurally unnecessary, and there must have been other reasons than the reuse of structures and raw materials.

Overlapping structures are known from many later prehistoric settlements, such as Longbridge Deverill Cow Down or Winklebury, to highlight examples from Wessex (Harding 2009: 58, 61, 65–6), but also from sites in north-east Scotland, such as Romancamp Gate, Moray (Barclay 1993: 266). However, with timber-built roundhouses it is difficult to demonstrate that parts of the previous wall were still extant. Most examples show more or less complete superimposition or the reoccupation of an earlier site (eg Walesland Rath, Pembrokeshire (Harding 2009: 257)). At Kinord, the overlap is tangential only. With timber structures it is likely that only the footprint remained, but traces of stone-walled roundhouses are visible at Kinord even today. They clearly remained as an architectural reference in the past.

Excavation at Old Kinord suggests an explanation for this phenomenon. All the evidence – the overlapping buildings and the incorporation of older souterrains into later roundhouses – suggests that it was important to include the remains of an older structure into the fabric of a later dwelling, and in a way that carefully preserved it. At the Norse farmsteads at Bornais in the Western Isles, comparable evidence has been described by N Sharples as ‘tethered architecture’ (Sharples forthcoming). A similar pattern may be evidenced at Kinord, at a time when larger settlements were starting to appear in the Iron Age. The explicit relationships between successive structures could express a new concern with connections to the past, linked to a specific place, and perhaps a change from a more dynamic lifestyle (Romankiewicz forthcoming). It is important to note that although an overlap is deliberately created with an earlier dwelling, its walls are nonetheless reduced in height. Where we can demonstrate this at Old Kinord, the repeatedly reused structure is the souterrain, not the roundhouse.

A wider study of later prehistoric domestic architecture in Scotland and beyond has demonstrated its dynamic character, especially for the periods up to the Late pre-Roman Iron

Age (Romankiewicz forthcoming.). Houses were more flexible than commonly supposed, and closely connected with cycles of manuring and nutrient production (Romankiewicz 2019). While investigations at Old Kinord remain too limited to document the management of resources, the principal souterrain had the longest history of the features in the excavated area and was reused time and again. While the houses were built, demolished and shifted across the site, the souterrain remained in place and other structures were built around it. In the end, its entrance was preserved in the fabric of the latest house of the investigated sequence. I Armit suggests that souterrains in Angus and Perthshire were used for storing crops and associated with the fertility and survival of a community (1999: 582–3, 593; compare Watkins 1980: 198). If so, these structures must have been important in the life of the settlement. In southern Britain and the near-Continent, storage pits and granaries provided a focus for domestic rituals and acted as points of reference (Bradley 2005: 168–77). Did similar concerns extend to the architecture of north-eastern souterrains? Even with such massively built houses, the souterrains at Kinord acquired an architectural importance. As upstanding architectures highly visible above ground they displayed their central role for the settlement. Their longevity of use and reuse and the referencing by new houses emphasised their importance for the settlement. The frequency with which these types of settlements occur in the Howe of Cromar suggests that this was not a particular practice at Kinord, but a regionally important phenomenon.

<A> A final reflection

Richard Bradley

This small project was a research excavation on a Scheduled Ancient Monument. For that reason it had to be conducted on a limited scale and attempted to build on the results of earlier fieldwork there. To minimise damage to the site, the new excavation was limited to reopening trenches excavated in 1903 and recording the deposits they encountered. Exactly

the same procedure had been followed in recent fieldwork at Croftmoraig stone circle (Bradley & Nimura 2016: ch 4 and 10), and it is an approach that is currently favoured by heritage managers in Scotland and England. If the work at Croftmoraig exemplifies the benefits of this approach, fieldwork at Old Kinord shows its limitations. Abercromby's trenches were not precisely located, his written account was difficult to understand and his methods never explained. He cut straight through the floor of one building, creating a recessed structure which had been difficult to interpret. Similarly, he dug a metre and a half through the bottom of a souterrain which was never observed. At Croftmoraig, the original trenches had been more extensive and allowed a radical re-evaluation, but in this case it was more difficult because so little was known about the original project. In planning future excavations along these lines, more attention must be paid to the character of the original fieldwork. At Croftmoraig it was impeccable, but the 1903 excavation at Old Kinord had limitations that inevitably extend to the project undertaken a century later. The result is that this paper sheds as much light on the history of excavation as it does on a remarkable settlement.

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