Bronze Age architectural traditions: dates and landscapes

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INTRODUCTION

Scottish roundhouse studies have always been at the forefront of work on prehistoric settlement in Britain, from the pioneering excavations of Peggy Piggott in the 1940s, to Dick Feachem's typology of the 1960s, and the structural analysis of Peter Hill in the 198 0s. This paper will discuss the dated roundhouse assemblage in Bronze Age Scotland and Northumberland in an attempt to update our understanding of the development of circular architecture prior to 800 BC. Using the current assemblage of radiocarbon-dated roundhouses the paper discusses the development of architectural forms In both upland and lowland landscapes.[1] With reference to Feachem's (1965) typology, the paper considers the key features of northern roundhouse settlement in the Bronze Age: unenclosed platform settlements; ring-banks; the question of stake-rings; post-built structures; ring-grooves; double-ring ring-beam technology; and ring-ditches. The discussion takes the form of a chronological narrative, in which a 1400 BC date is proposed for the E-MBA transition and the nature of the LBA-EIA transition is discussed. The paper concludes with a modern, dated roundhouse typology. Site locations are given in illus 1, where references to the sites discussed below can also be found.

A first attempt at a national roundhouse typology was made by Gardner and Savory (1964). This saw Bronze Age development from small, *c* 6m hut-circles to post-built or stone-built structures (initially employing central posts, before developing as larger double-rings) to the *c* 14m concentric post-ring structures of the Iron Age. Gardner and Savory selected houses from across England, fitting them into what might now be seen as a fairly simplistic evolutionary model. The following year, Feachem (1965) published a more detailed typology of northern roundhouses (table 1), which saw development from ring-banks – his 'cavity walls' – on platforms, to Early Iron Age post-rings with a central post, and finally to Iron Age ring-groove double-rings, whose outer walls developed from wattle-and-daub to contiguous timbers in a wall-slot. Jobey and Tait (1966), however, re-

[1] In this paper, lowland landscapes are those below an altitude of 100 m above sea level.

asserted Steer's (1956) point that small post-rings (with a central post) were in fact Bronze Age not Early Iron Age, whilst agreeing that double-rings were a feature of the Iron Age, although developing from post-built to ring-groove structures. Forty years on – with an assemblage of *c*. 100 radiocarbon-dated houses (from *c* 45 sites) – we can now put these early typologies to the test (fig. 1).[2]

Type	Date	Structural Features	Size
Platform Houses	LBA/EIA	Cavity walls	12-15 m
Simple-Ring	EIA	Post-ring; central post; external eaves-trench	6 m
Ring-Groove	IA	Wattle and daub outer wall; supporting post-ring	max. 9 m
Ring-Ditch	IA	Akin to ring-groove but with internal ditch	max. 12 m
Advanced Design	IA	Wall-slot and/or concentric post-rings	12-15 m
Stone-Walled	RIA	Stone-built	max. 9 m

Table 1 Feachem's (1965) roundhouse typology

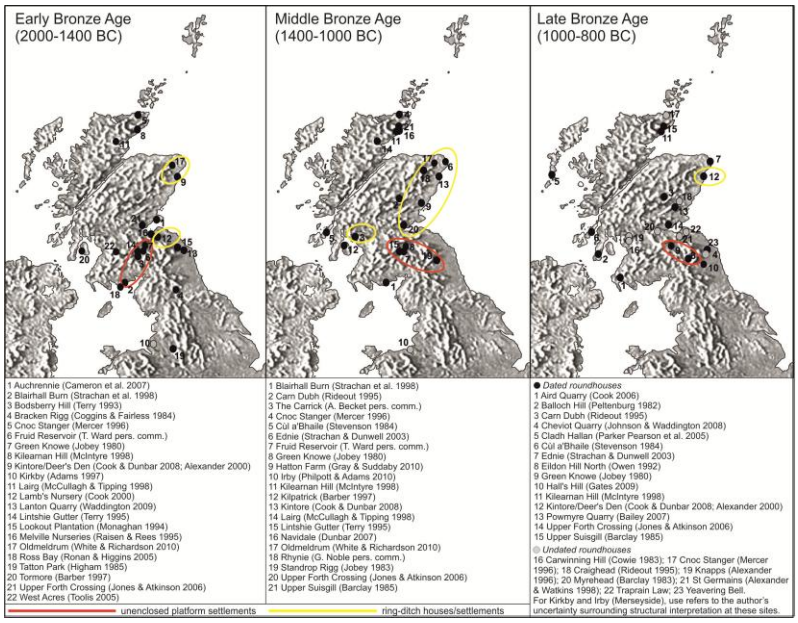

Fig. 1 Distribution of Bronze Age roundhouses in northern Britain.

[2] Calibration of radiocarbonC dates was performed using OxCal version 4.1 and the INTCAL04 curve (Bronk Ramsey 2009; Reimer et al. 2004). Dates chosen are typically those from structural features or from hearths – contexts most likely to represent house construction/use. Preference has been given to short-lived species. Where multiple dates exist from the same structure, these were combined using the RCombine function in Oxcal v4.1. For clarity, where the one sigma results presented multiple separate peaks the dominant range was selected for display. Where possible, the topping/tailing of overlap in dates was undertaken on the basis of the stratigraphic relationships involved. As a result, the dates in this article are interpretive; readers in search of original dates should return to the site reports. In the figures, the grey and black bars represent the two and one sigma ranges respectively. Dates given in the text typically refer to the one-sigma range.

UNENCLOSED PLATFORM SETTLEMENTS

Feachem (1961) saw platform settlements as intrusive, their rigorous and systematic method of construction brought by Continental Iron Age incomers. By 1965, he was beginning to consider them as Late Bronze Age, and by the 1980s they were confirmed as having strong Bronze Age origins (Harding 2009, 134). We now suspect platform construction to have –Earliest Bronze Age (later third millennium BC) origins in the uplands of south-west Scotland, with our earliest example at the site of Lintshie Gutter in Lanarkshire, where H8 – on its stratigraphically early platform – returned dates of 2580-2270 BC, with at least two other excavated platforms near-contemporary in date. A design response to slope topography, the employment of platforms is common in the Bronze Age simply because of the popularity of upland settlement in that period, attested up to *c* 400m. The technique involves quarrying a semi-circle upslope, leaving a scarp edge; the earth and stone is shovelled downslope,[3] creating a semi-circular 'apron' which levels up the slope and provides an oval or circular *platform* on which to build. Early work saw the oft-found post-ring on these platforms as representing the house wall; however, at *c* 2m from the scarp edge, Musson (1970) noted the drainage problems inherent in this design. We now see them as double-ring structures, with the post-rings as internal, and rafter weight absorbed at ground level to the platform rear, with a mass wall levelling up the front.

At Kilearnan Hill (Sutherland) the one-sigma span for H1 begins at *c* 1950 BC, slightly later at Lintshie Gutter H13: *c* 1880 BC.[4] These are currently our earliest upland Early Bronze Age structures, with roundhouse settlement generally becoming more prevalent after *c* 1800 BC (fig. 2). Activity continued at Lintshie Gutter after 1800 BC with occupation of H1 and also at nearby Bodsberry Hill H1; both sites are quite high at 285-300m above sea level. Meanwhile further south, in Dumfriesshire, whilst the earliest house (H1) at the relatively low-lying Blairhall Burn (119m) did not employ a platform in its construction, the slightly later H3 did. From their assemblages, these our earliest

[3] It is believed that any large stone material won at this stage might go on to be utilised in the house wall.
[4] Although there may be problems with the Kilearnan date (cf. McIntyre 1998)

Bronze Age settlements might be seen as being involved in upland pastoralism – the sites of Lintshie Gutter, Bodsberry Hill and Kilearnan Hill each lacking evidence for an arable component to their subsistence strategies. However, in the north, occupation of Kilearnan Hill H1, at 200m above sea level, may be contemporary with the slightly lower-lying, more mixed farming sites of Lairg and Cnoc Stanger. Early Bronze Age occupation of upland landscapes may represent just one element of inter-connected seasonally- or episodically-occupied settlements across the wider landscape, at which different subsistence tasks were undertaken (cf. Halliday 2007).

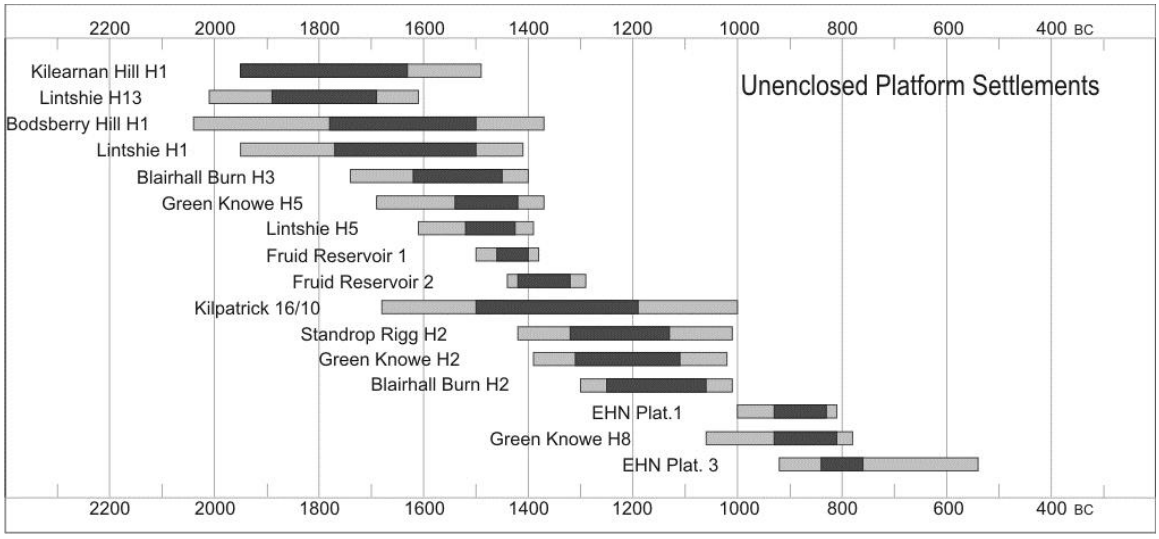

Fig. 2 Dated unenclosed platform settlements.

Platform settlements see continuity across the E-MBA transition. Whilst occupation seems to have ended by 1400 BC at the traditional site of Lintshie Gutter (H5), the technique was used at a number of new sites, including coastal Kilpatrick 16/1 on Arran. It also became fairly popular in the Borders, at Green Knowe H5 and H2 and nearby Fruid Reservoir, at 275-310m. After *c* 1600 BC, many platform settlements seem to have diversified, acquiring an arable component to their assemblages (eg Blairhall Burn H3, Green Knowe H5, Lintshie Gutter H5), although Green Knowe seems to have returned to pastoralism alone by the 13th century BC. By this time, the type is represented higher still with Standrop Rigg H2 (Northumberland) at 380m. Occupation of traditional sites continues, with Blairhall Burn H2, up to 1000 BC. As we currently understand it, platforms were not utilised again until after *c* 930 BC at Eildon Hill North and Green

Knowe H8. Whether this radiocarbon gap across the M-LBA transition is genuine remains to be seen. At present, Eildon Hill North platform 3 provides us with our final example of platform construction, before cessation of the practice in the early 8th century BC.

UPLAND RING-BANKS

Feachem's (1961) 'cavity wall' can now be seen as a key Bronze Age type: the *ring-bank*, a predominantly – but not exclusively – upland and coastal house type. Typically, varying combinations of earth/turf and stone would be fashioned into a circular bank; this 'mass wall', between 1.0-1.6m wide, worked to redistribute the load of the roof to the ground (Musson 1970). The excavated walls are, however, very low, typically just 0.4-0.6m high. This is by no means problematic, but would benefit greatly from experimental reconstruction, especially regarding the use of a turf component which has yet to be tested. *Ring-bank structures* have their origins in Early Bronze Age upland landscapes at around *c* 1800 BC (figs 3-4). At Lairg (Sutherland), the early houses comprise a variety of construction techniques: H3, the earliest, was of turf; H5 of earth but stone-faced; and H4 was of earth/turf with an outer stone face. A greater stone component is seen at Kilearnan Hill H1 (Sutherland), especially towards the entrance where it stands 0.8m high. Contemporary houses in higher Lanarkshire landscapes, at Lintshie Gutter H1 and Bodsberry Hill H1 – although believed by the excavator to represent plough-damaged/poorly preserved/robbed walls – may also have been largely organic. The small-stone spread towards the platform front at the former site, in particular, might suggest the remnant stone component of a decayed turf bank.

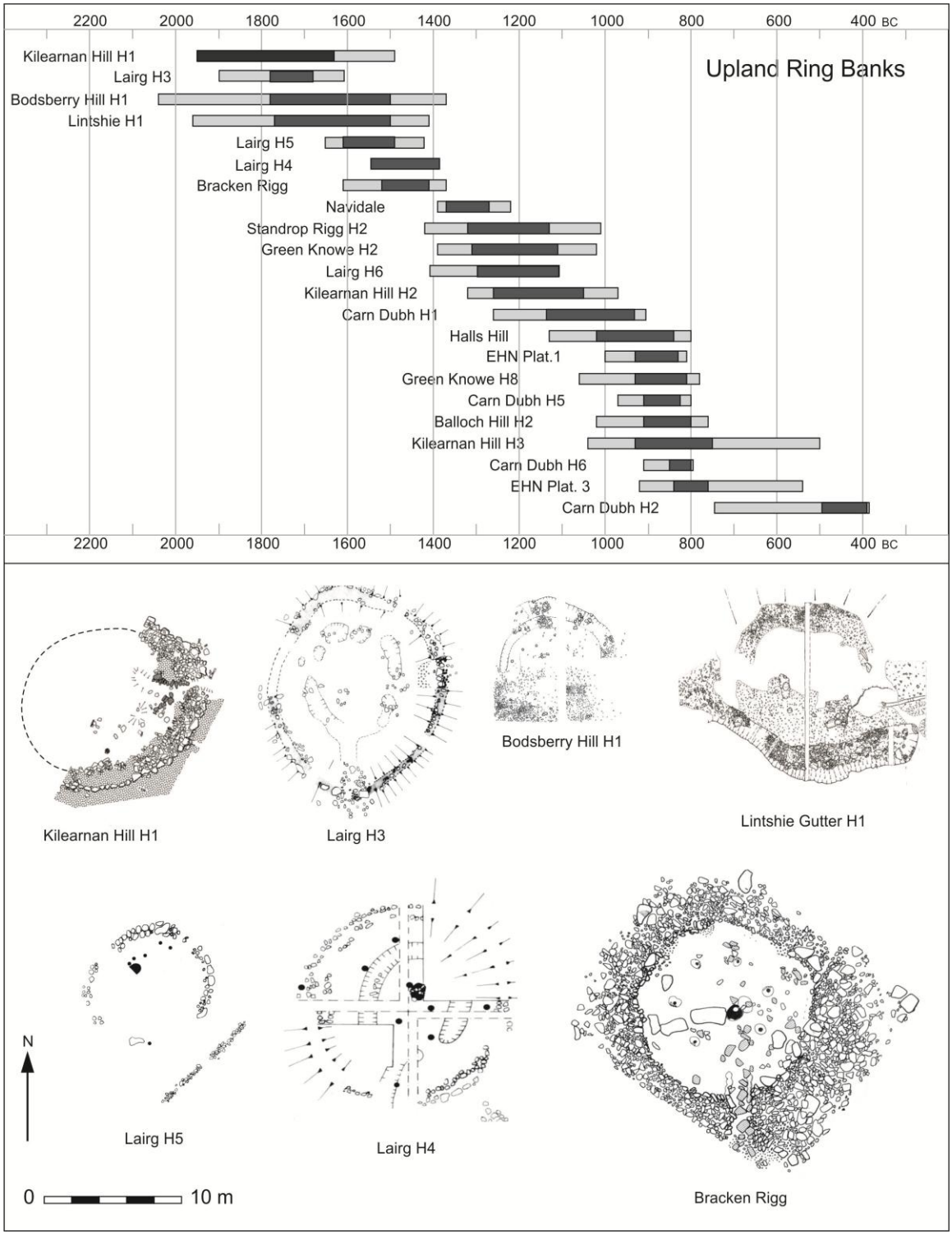

Fig. 3 Dates for upland ring-bank structures and early house plans (EHN = Eildon Hill North).

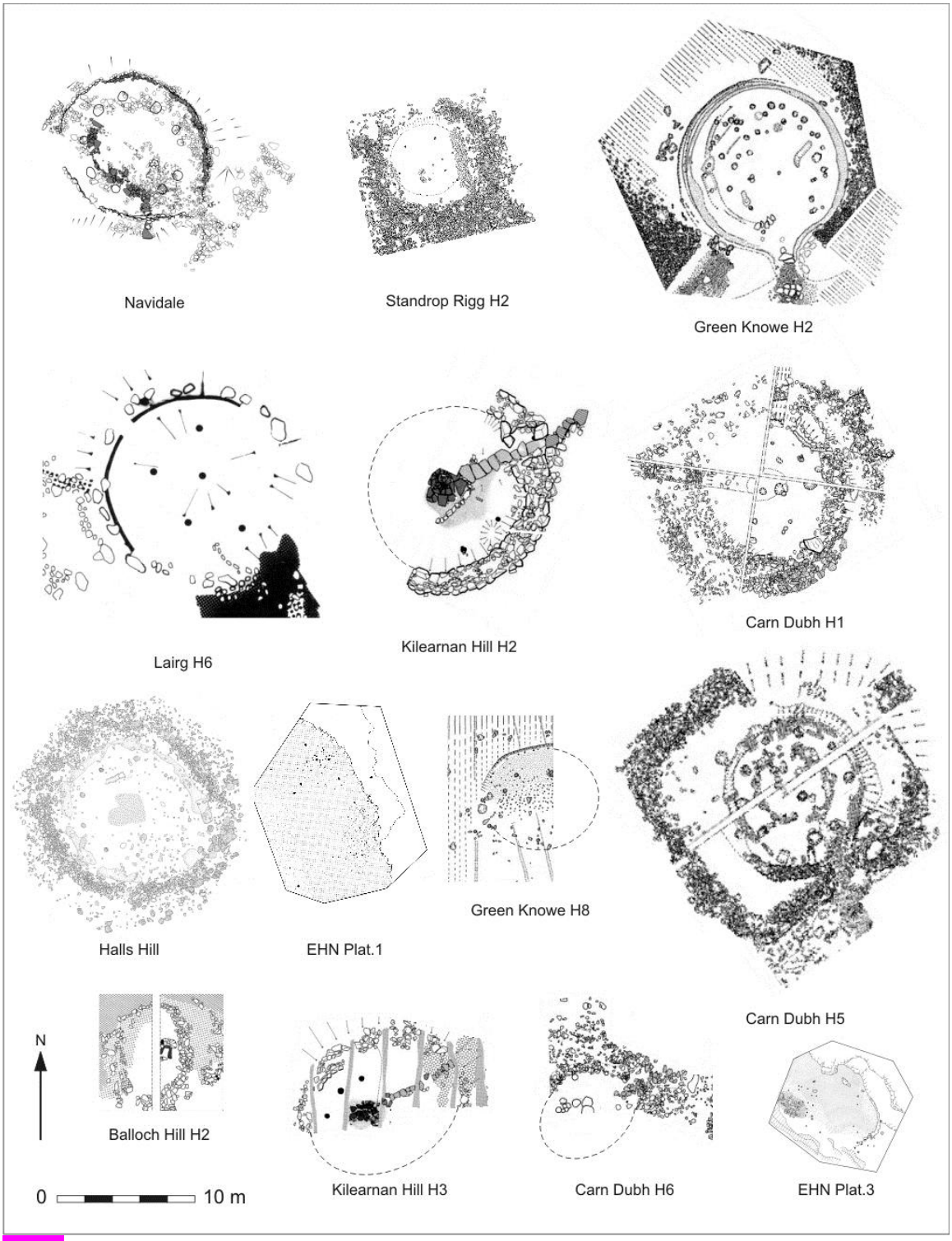

Fig. 4 Later upland ring-bank structures (EHN = Eildon Hill North).

Ring-banks continued to be built across 1500 BC in upland landscapes, such as in the far south at the very high Bracken Rigg (Durham) with its 2.5m wide stone bank and oddly polygonal interior face, perhaps suggesting a lining of timber panels. We again find somewhat of a radiocarbon gap across 1400 BC, although coastal Navidale (Sutherland) – at 140m above sea level, with an unusual coursed wall up to 1.1 m high – does span this period. From the 13th century BC, we have earth and stone examples at Lairg H6 and Kilearnan Hill H2 (Sutherland), with an argument for the construction of organic ring-banks on the platforms of Green Knowe 2 (Peeblesshire) and Standrop Rigg (Northumberland) at this time. It is supposed that the form of a ring-bank is typically related to the availability of resources in these far northern, high, or coastal landscape locations. The roundhouse is a particularly versatile architectural form, and we can reasonably claim that no two roundhouses – certainly of this period – were ever alike. Whilst the finished structure would have adhered to communal traditions regarding ideal design to some degree, it would also have been reliant on the resources available to the household in their chosen location.

At present, it seems that the use of upland ring-banks after 1400 BC was linked to an apparent return to traditional, ancestral unenclosed platform settlements (eg Green Knowe H2, Blairhall Burn H2, Kilearnan Hill H2). High-altitude Carn Dubh H1 (Perthshire), a rubble bank with occasional facing, is the only upland house that currently spans the 11th century BC. This is followed by turf/cob-walled Halls Hill in Northumberland, more akin to earlier lowland ring-groove structures with its marked polygonal shape. Nevertheless, ring-banks became particularly popular again during the 9th century BC, especially in the high uplands of Perthshire. At Carn Dubh, stone was largely the material of choice as at H5 and H6, as well as undated H3 and H7. At Craighead, a small, undated stone hut-circle may date to this period and perhaps also the site of Dalrulzion (Thorneycroft 1933; 1946).[5] Halliday (1985) saw the Dalrulzion-type design, excavated there and now at Carn Dubh, as related to ring-ditch structures; and the

[5] Thorneycroft's early excavations were considered 'Early Iron Age' by Maxwell (1968) but Dalrulzion F has clear parallels with Late Bronze Age Carn Dubh H1 and H5. These structures are also known as double-walled hut-circles (see Halliday 1999, fig. 2).

Carn Dubh excavations did reveal the intra-mural space as having a 'churned up' quality. Unlike Middle Bronze Age ring-ditch structures, however, each of these settlements is very high, at between 325-405m above sea level.

Further south, in the Borders, there are equally high Late Bronze Age structures at Eildon Hill North. The structural remains at this site are particularly ephemeral, which may be only in part due to the effects of erosion. Here, both H1 and H3 have no structural features bar rock-cut ledges to the platform rear which, at *c* 1.0-1.5m wide, may be all that remains of an organic wall, the latter with a short stretch of stake-groove on its inner face, presumably for wattle lining. Similarly Green Knowe H8 was interpreted by Jobey as a stake-walled double-ring, but it remains possible that the structure had an organic component. In slightly lower landscapes to the north and west, ring-banks were constructed of earth and stone, as at the particularly small oval structure of Balloch Hill H2 (Argyll) and the again rather oval double-ring at Kilearnan Hill H3 (Sutherland). In general, it would seem as if there had been some loss of architectural skill amongst the households building upland ring-bank structures in the 9th century BC. The latest example of an upland ring-bank is currently Carn Dubh H2 – the lone example of alate Early Iron Age (5th century BC) date from a ring-bank structure, a tradition which otherwise does not extend beyond *c* 750 BC, at Eildon Hill North.

LOWLAND RING-BANKS

By the end of the Early Bronze Age, ring-banks were also employed in lowland landscapes (fig. 5); the first example is currently coastal Cnoc Stanger H2 (Caithness) . In the 16th and 15th centuries BC, the type was found in lowland Aberdeenshire at Kintore H25, H26 and Deer's Den H3. Each of these houses has no structural features external to the ring-ditch[6] and it is supposed that this indicates the loss of an organic ring-bank, perhaps of turf, as with later structures at Kintore for which no clear deposit survived (despite excellent preservation at H26). The 15th century BC continued to see earth and stone ring-banks employed at coastal sites in the north and

[6] Posts within the area of ring-ditch at Deer's Den and Kintore H26 are not convincing as the external wall; equally unconvincing is the partial, 0.6m wide 'ring-groove' at H25.

west, such as on Arran at Tormore 10/1 – with lots of rebuilding – and at Kilpatrick 16/1. As found elsewhere in the settlement evidence, a significant radiocarbon gap across the 14th century BC is here spanned only by the very wide date range from the latter Arran site.

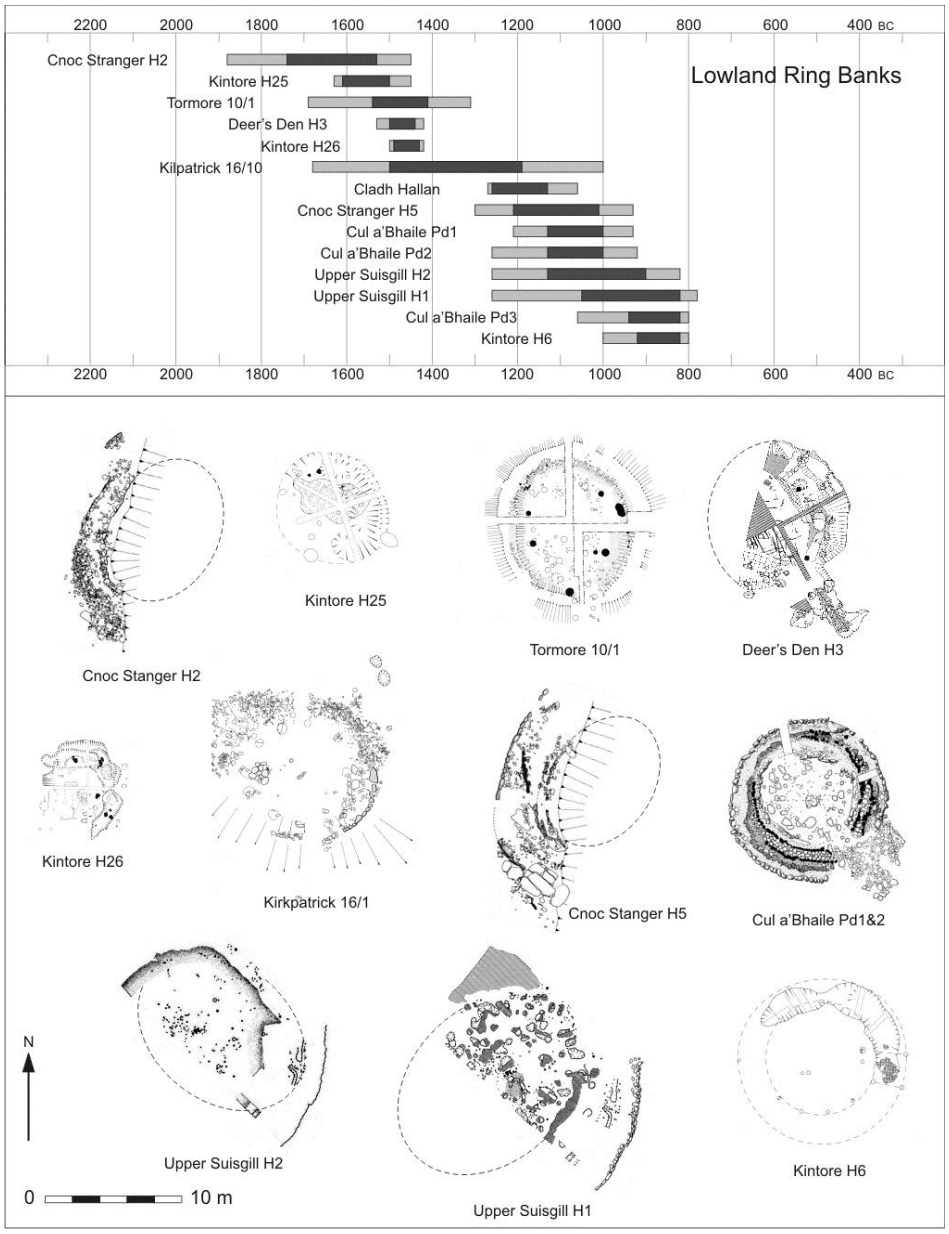

Fig. 5 Dates for lowland ring-bank structures, and house plans.

In the Middle Bronze, it is another island site, in the Outer Hebrides, that reveals the construction of the next lowland ring-bank during the 13th/12th centuries BC: Cladh Hallan on South Uist. As at Tormore, Cladh Hallan again displays this coastal trend for repeated rebuilding, with House 401 having no less than eight separate phases (Marshall et al. 1999; Parker Pearson et al. 2005, table 1). Approximately contemporary with occupation at Cladh Hallan was renewed activity at coastal Cnoc Stanger (Caithness), although unfortunately much of this site was lost to the sea prior to excavation. A new phase is also found at the well-built structure of Cùl a'Bhaile (Argyll) where a 1m wide stone base, up to 0.25m high was capped by a low bank of earth and possibly turves, up to at least 0.4m, and subsequently remodeled as an earthen bank, revetted externally with a stone kerb. The episodic or seasonal occupation of these island/coastal sites, perhaps as part of wider land use strategies in the Middle Bronze Age, is something that now deserves further consideration.

In Late Bronze Age lowland landscapes we see continuity of the double-ring *ring-bank* type in the north and west with two houses at Upper Suisgill (Sutherland), a relatively ephemeral H2, subsequently strengthened with internal posts and a stone-faced bank. There is re-facing activity too, slightly further north at the late Middle Bronze Age structure of Cnoc Stanger H6, with H4 perhaps also dating to this period. Slightly later in the west, the outer wall of the Cùl a'Bhaile structure (period 3) is re-faced with neat stonework for a second and final time, while ring-ditch structure Kintore H6 in the east suggests the existence of a now-lost turf wall. The degree of rebuilding at some of these Middle and Late Bronze Age coastal sites is particularly interesting, and may point to some form of episodic use (cf. Halliday 2007, 53-54). Might these be the dwellings of a relatively mobile group living along these northern coasts? Or are they short-term structures associated with the seasonal use of coastal landscapes by those typically occupying lands further inland? Certainly, the full character of these structures and their assemblages remains to be investigated with these questions in mind.

STAKE-RINGS

Next we turn to the thorny question of stake-rings, and their potential as walled structures. Stake grooves are first found at Early Bronze Age Lintshie Gutter H13, at the rear of the platform, suggesting an organic wall towards the front. However, they are a feature largely restricted to the upland landscapes of southern Scotland during the 15th and 13th-10th centuries BC (fig. 6). At Early Bronze Age Lintshie Gutter, H5 employs a technique similar to H13 but in this case a fairly substantial groove on the downhill side may have held split timbers. A narrow stake groove close to the platform cut at Green Knowe H5 was taken as representing a stake wall to the house.[7] By the Middle Bronze Age, a stake groove held wattle lining for the 0.3-0.8m wide, 0.5m high earth bank at Lairg H6. At Standrop Rigg H2 a continuous stone ring (clearance deposited against the house after abandonment) lay concentric with an inner stake-ring, but at some distance from it. Whilst Jobey (1980) settled on the stake-ring as the house wall, he did refer to Tormore and Cùl a'Bhaile where stake-rings instead represented an internal wattle lining to ring-banks. Unfortunately, with this he left the debate.

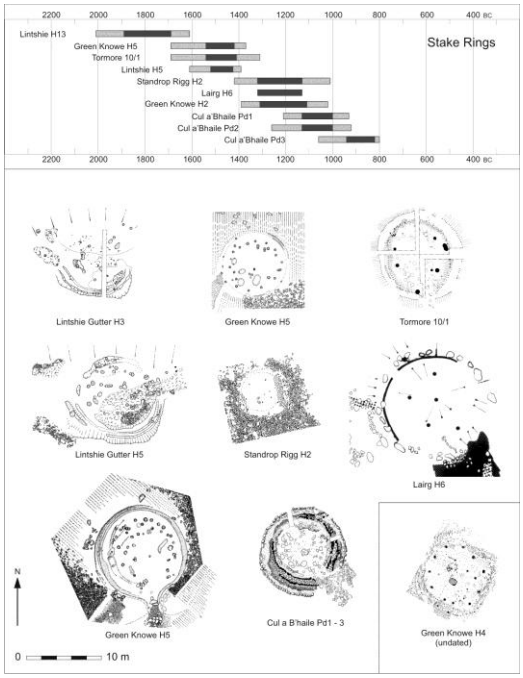

Fig. 6 Dates for stake-rings in ring-bank architectures, and house plans.

[7] As Jobey again set himself up in opposition to the work of Feachem.

At both Standrop H2 and H4, however, the stone clearance ring is separated from the stake-ring by *c* 1.2m (taking post-collapse tumble into account). If, as Jobey thought, the stake-ring represented the house wall, and the clearance were thrown up against that house wall, then why this gap? Instead, we might see the clearance ring preserving the outer line of a lost *c* 1.2m wide organic wall, for which the stake-ring provided a wattle lining. So, on abandonment, stones were thrown against the turf wall of the house which – when lacking the protection of a roof – decayed through water action into an homogenous deposit which began to disperse downslope. Jobey even describes a deposit of 'grey silty earth' across the platform to a depth of *c* 0.25m where it had accumulated against the clearance stones towards the platform front. A similar silty grey fibrous post-abandonment deposit – trapped in the fortuitously 'dished' platform – was excavated recently at the site of Kidlandlee Dean (Northumberland). Here, however, decayed turf layers were actually found preserved towards the front of the platform (Carne and Pope 2007).[8]

Currently, only H5 and H2 at Green Knowe might be convincingly seen as stake-walled structures, principally because the stakes are found so close to the platform cut. This interpretation is far from conclusive, however, as the rafters may have been taken on the uphill slope behind the scarp to the rear (as perhaps at Lintshie Gutter where the wattle lining was used against the scarp) and on the 'clearance banks' towards the front; at H2 this bank material certainly respects the house entrance. In the long-section for H2 and also for Late Bronze Age H8, a slightly level area between *c* 1.5-2.5m wide can be recognized above the platform cut and this may represent the stance for a short organic wall, a wall-plate, or simply the rafter ends. The same is found at Standrop Rigg, although not apparently at Green Knowe H5. Certainly Reid (1989) followed Feachem's

[8] It is apparent that only certain conditions see preservation of the deposits from decayed organic walls as, once exposed to the weather, water action works to remove them (hence the silty nature of the trapped deposits at Standrop and Kidlandlee Dean). Certainly the turf walls of ring-ditch houses did not see preservation, and little survives too of many Middle Iron Age houses in the clay lowlands of Eastern England.

(1961) original interpretation of the Green Knowe structures as ring-banks, rather than Jobey's stake-walls, and this interpretation is also accepted here.

Where stake-walled structures have been reconstructed they have survived for a maximum of 10-15 years (Pope forthcoming). The stake-walled *Moel y Gaer house* at St Fagan's Museum of Welsh Life began to fail after just 10 years, its slow collapse recorded as a 1cm/year 'springing out' at the entrance (D. Price pers. comm.). Whilst this does not preclude the use of the stake-ring as a short-term architectural device – one particularly common on Iron Age hillfort sites – it does not strengthen the case for their being anything more than this. As a result, rather than assuming stake-rings to be structural, we might also consider them as a non-structural element in house construction. This is affirmed by the fact that many ring-bank structures do have an internal wattle lining, as a way of revetting the scarp and bank as well as providing a good timber face for the house interior. For the Bronze Age north at least, there remains some difficulty in seeing stake-rings as structural in roundhouse design. Stake-rings were instead employed as a non-structural element in ring-bank construction across the Bronze Age.

POST-BUILT STRUCTURES

Feachem (1965) saw post-rings with a central post as an Early Iron Age house type. Following Gardner and Savory (1964), however, Jobey and Tait (1966) thought them a Bronze Age type. This was confused by a certainty at the time that the post-ring would always constitute the outer wall of the house. It was confused too by belief in the central post as a key structural element.[9] In a dataset of 1178 northern house plans, however, only 37 (3%) had a genuine central post; of these just seven were of secure Bronze Age or Early Iron Age date (Pope forthcoming). In contemporary African roundhouses, a central post is not usually load-bearing but is employed to stabilise the apex during

[9] So in vogue was the central post that even the smallest, most off-centre feature was interpreted as structural to fit the model. Some resorted to ideas of 'invisible' central posts on lost post-slabs or of their standing directly on the ground; although how such arrangements were then structural is far from clear (cf. Lowndes 1964; Close 1972).

construction (ibid.).[10] Reynolds (1993, 105; 1979, 35) believed that a central post might even accelerate collapse by introducing further stresses. Central posts are, however, more common in the ethnographic literature, particularly in tent structures – something that might explain the incorporation of this feature at Upper Forth Crossing in the late Early Bronze Age in H8, a small structure, well below average size at just 4 m in diameter. Interestingly, this very traditional household continued to incorporate the central post as a design element in their houses until their very last structure on the site in the 11th century BC.

We now know that post-built structures have Early Bronze Age origins (figs 7-8); our earliest date comes from the very skilled construction of H1 at Blairhall Burn (Dumfriesshire) and the almost contemporary Lairg H1 (Sutherland), with a later western example at West Acres (Renfrewshire). Again the type sees continuity across 1500 BC, but few dates span the 14th century BC; currently only Hatton Farm, Elliott in Angus (Gray and Suddaby 2010) and Oldmeldrum H2 in Aberdeenshire date to this period, followed eventually by our last western example (H2) at another old site: Blairhall Burn. Despite their western origins at *c* 120-130m above sea level, post-built structures went on to become exclusive to *lowland eastern* landscapes throughout the Later Bronze Age. During the Middle Bronze Age, size averaged *c* 7.5m, rising to *c* 9m after *c* 1200 BC, when the type also became increasingly circular. Post-built structures are found along the east coast at Auchrennie (Angus) and at Upper Forth Crossing (Clackmannanshire). Two examples exist at each site, fairly oval at the former, circular at the latter. The type continues along the east coast from the later 13th century BC, with H14 and H10 at Kintore (Aberdeenshire), followed by three houses (H6; H3; H4) at Upper Forth Crossing, followed in turn by two more houses at Kintore (H11; H4). It is these two traditional sites that see continuity across 1000 BC (the MBA-LBA transition).

[10] A central post was used during construction of the *1998 Castell Henllys House* and was cut off to below the ring-beam immediately after structure completion (Bennett 2001).

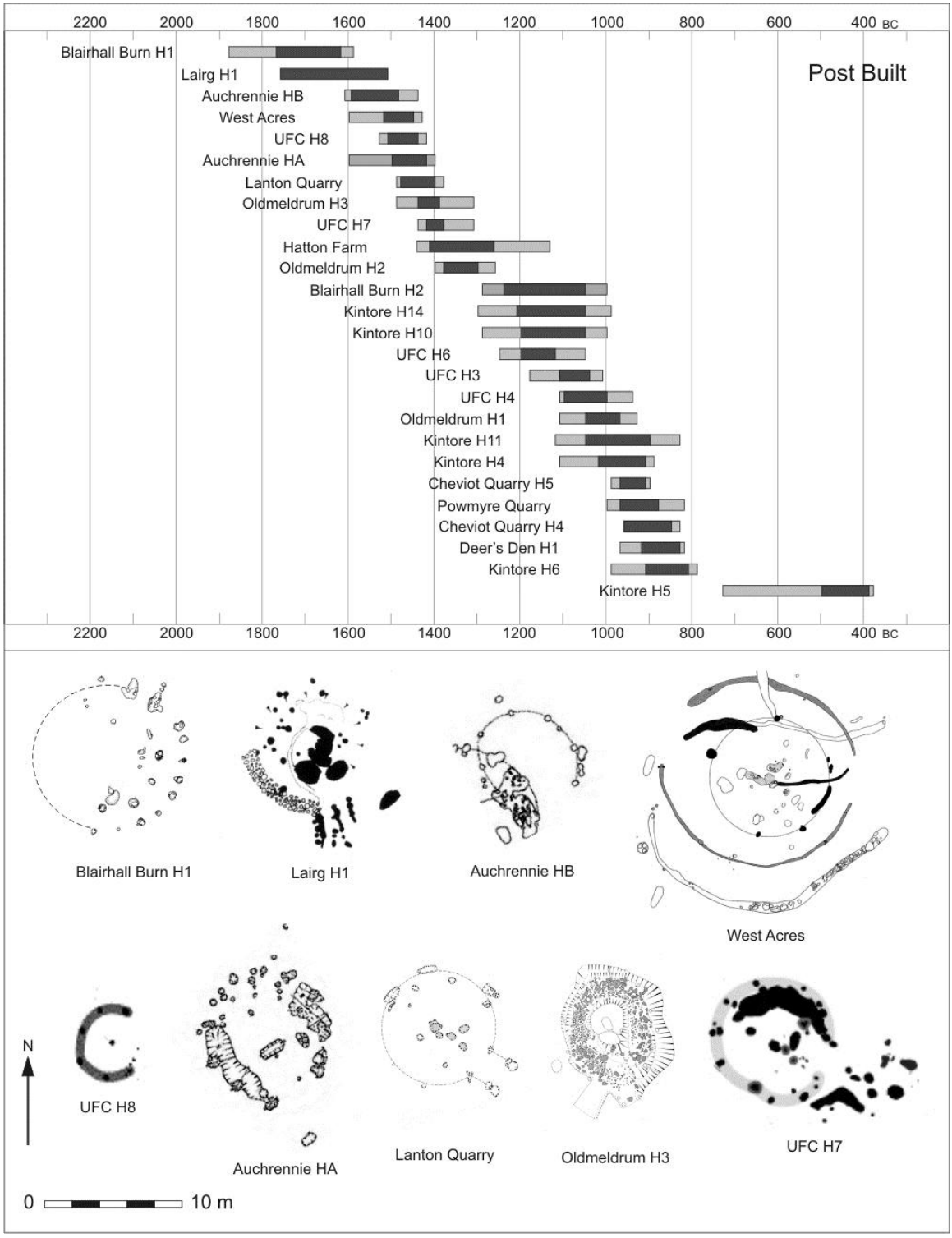

Fig. 7 Dates for post-built structures, and early house plans (UFC = Upper Forth Crossing).

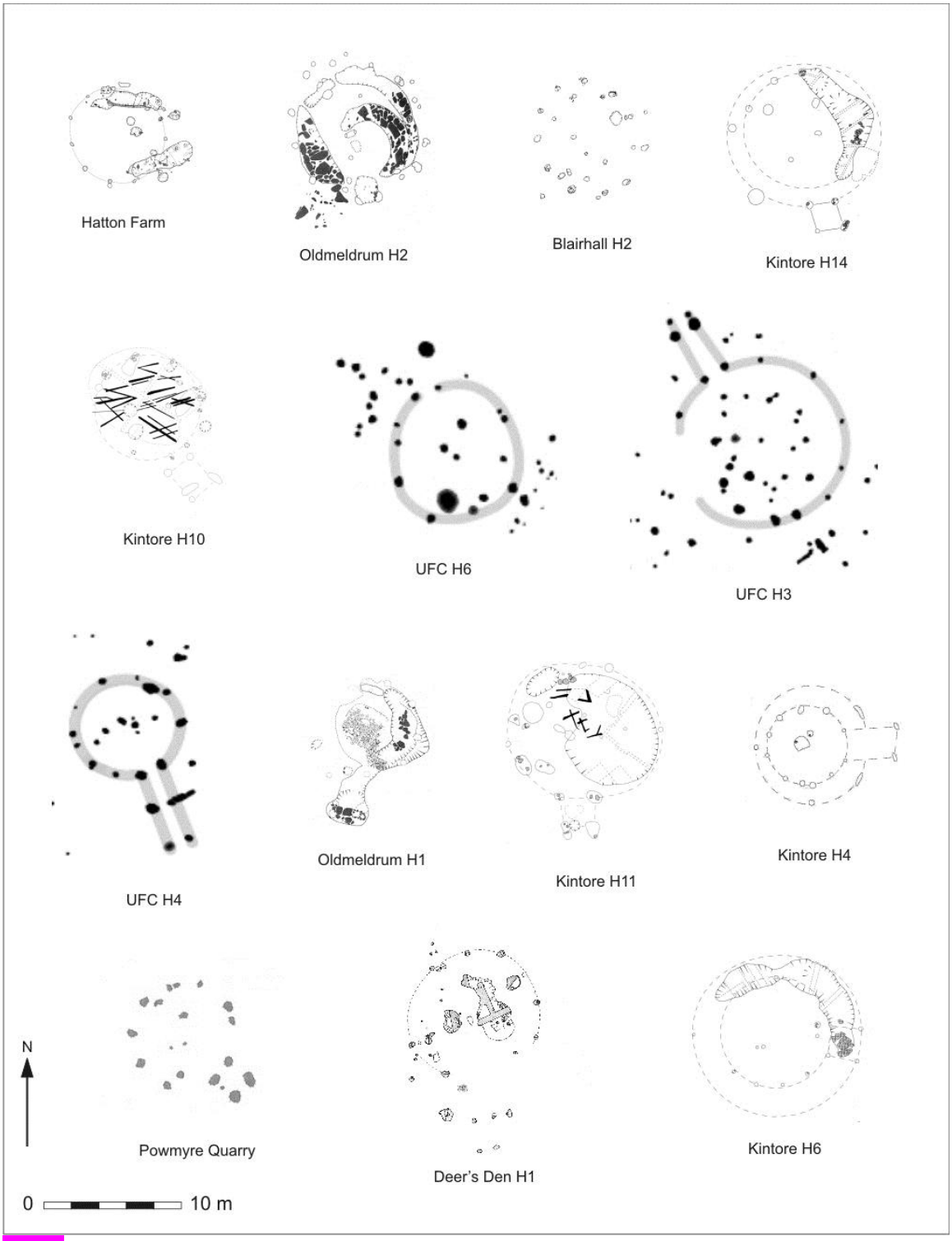

Fig. 8 Later post-built structures (UFC = Upper Forth Crossing).

The Late Bronze Age sees a continuing popularity of the post-built structure as increasingly circular, post-built simple-rings dot lowland landscapes along the east coast, such as at Kintore – where H4 and H6 see development of the type with the construction of double-rings – as well as nearby Deer's Den H1. Late Bronze Age post-built structures have also been found further south along the east coast at Powmyre Quarry (Angus), as well as at both Cheviot and Lanton Quarry sites (Northumberland). Whilst the type was largely restricted to the eastern lowlands, a small undated simple-ring may date to this period in the west at Carwinning Hill (Ayrshire), 200m above sea level, and others on the west may date to this period, such as the undated H1-H3 at lowland Myrehead (Stirlingshire) and the fairly awkward enclosed house at Knapps (Renfrewshire). Akin to ring-banks in upland landscapes, post-built structures were apparently lost after *c* 800 BC. That said, there is a lone example (H5) at Kintore – again, as at Carn Dubh H5, apparently dating to the 5th century BC – an odd return to this traditional type following the floruit of ring-ditch houses on the site during the Early Iron Age.

The question for this author regarding post-built structures has always been what filled the gaps between the widely-spaced posts. The assumption is often wattle and daub, but the spacing of uprights – averaging 1.7m – is generally too wide for wattling, which requires a distance of *c* 0.60m or less (Pope forthcoming). Perhaps prefabricated panels were fixed between the posts, giving a somewhat polygonal shape which is exactly that of our Bronze Age ring-grooves (see below). However, this is not the only problem with the type. A number have rather odd, projecting 'porches' at their entrances, averaging *c* 2m long at Kintore, but an astonishing 4.4m at Upper Forth Crossing H3 and an even greater 5.8m at the later H4. Clearly, at the latter site at least, these entrance features were not structural to the house. At ring-bank structures, the width of the mass wall creates an entrance passage with an average depth of *c* 1.6m and perhaps for Kintore – a site which we believe subsequently employs turf walling in its Early Iron Age ring-ditch structures – the question is whether some of these apparently 'post-built' structures employed an element of organic walling beyond the post-ring. Might some of these lowland post-rings then – like their 'stake-built' contemporaries in the uplands – represent a sub-group of the

ring-bank: a different method of construction at a different altitude, rather than a distinct house type?

RING-GROOVES

Feachem (1965) believed *ring-grooves* to be an Iron Age tradition. Jobey and Tait (1966) thought double-ring ring-groove structures a development of Early Iron Age double-ring post-built structures. We now know the ring-groove to be a phenomenon of southern Scotland with its origins in the Early Bronze Age (fig. 9). Our earliest hints at experimentation are arcs of discontinuous groove at lowland Upper Forth Crossing H5 during the 20th century BC. The technique perhaps develops from the early use of stake-grooves at upland sites like Lintshie Gutter (eg H13) and an early example is certainly found at nearby Blairhall Burn H3. However, our earliest Bronze Age ring-groove currently comes from lowland Upper Forth Crossing H5 and the type does become a feature of Early Bronze Age *lowland* landscapes in the south-east – a fact perhaps linked to wood supply – where they develop a distinctive polygonal shape, as at Lookout Plantation (Northumberland) and Melville Nurseries (Midlothian).[11] At the early site of Upper Forth Crossing H2, by the end of the Early Bronze Age, the type had developed into the very grand structure that is H1. The type has apparently now also been found further up the east coast at Middle Bronze Age Rhynie in Aberdeenshire (G. Noble pers. comm.).

[11] The unenclosed roundhouse at Melville Nurseries has very strong parallels with that from Lookout Plantation (i.e. its unbroken circumference and bizarre 'horns') but the Melville structure is apparently dated to the late Early Iron Age. It is likely, however, that this date – from the ring-groove's *upper* fill – is not representative of construction/use; as the saddle quern fragment from a posthole (a popular Bronze Age tradition) may also suggest.

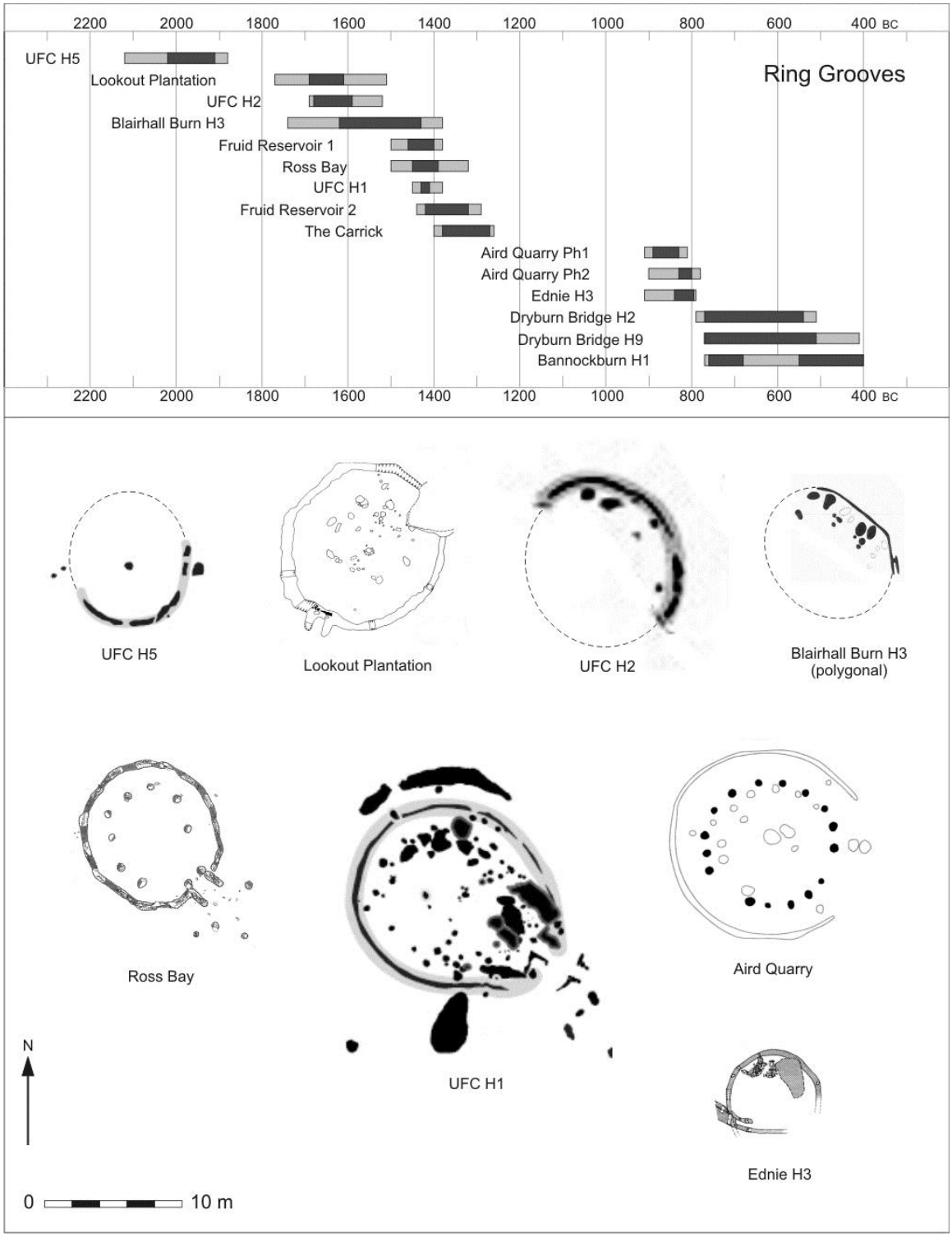

Fig. 9 Dated ring-groove structures and house plans (UFC = Upper Forth Crossing).

There is also, however, some construction of the type in contemporary upland landscapes in the west, as at Blairhall Burn H3 (Dumfriesshire) – cut into bedrock, as much as 0.4 m wide, packed, but without impressions – and the circular fencing surrounding the house at West Acres (Renfrewshire). Lintshie Gutter H5 too sees an increasingly substantial stake groove which may have held split timbers (see fig. 6). Two double-ring ring-grooves at the unenclosed platform settlement of Fruid Reservoir (Lanarkshire) provide 15th/14th century BC dates (T. Ward pers. comm.). However, the type seems more successful in the lowlands, even surviving the E-MBA transition in the west, with the somewhat clunky Ross Bay (Kirkcudbrightshire) – 0.5m wide with over-sized packing stones – and The Carrick in Argyll (A. Becket pers. comm.). There is then a gap in the record for the type of *c* 350 years, at the later end of which is Halls Hill (Northumberland): a polygonal organic-walled structure at 200 m above sea level. After this we again find examples of lowland polygonal ring-grooves in the 9th century BC, once more in the west at Aird Quarry (Wigtownshire), but also in Aberdeenshire at the rather small Ednie H3 , with the possibility of a further (undated) example at Myrehead H4 (Stirlingshire). Unlike all other house types, the polygonal ring-groove structure *does* seem to cross the LBA-EIA transition – along the east coast from Ednie in the north to Dryburn Bridge (E. Lothian) in the south – becoming increasingly circular at Bannockburn 2 H1 (Stirlingshire).

If using a wooden spade, digging a wall-slot is easier – particularly in hard geologies like Blairhall Burn – than digging separate postholes, as the initial ground-breaking episode need only occur once (Hansen 1959; Harding 1974, 41). Similarly, antler picks – like those from Dinorben (Gardner and Savory 1964, fig. 26; Savory 1971, fig. 14) – are better designed for excavating a continuous feature than a series of individual postholes. Our earliest examples at Lookout Plantation and Melville Nurseries tend towards the practice of 'over-building'. Averaging 0.50 and 0.75m wide and deep, their dimensions are 2-3 times greater than the average ring-groove (Pope forthcoming) and suggest an uncertainty in design.[12] Their polygonal shape may indicate, as Reid (1993) suggested, the foundation for a sill-beam. It may also suggest the use of prefabricated panels,

[12] A fact confirmed, perhaps, by their somewhat odd entrance features.

perhaps an explanation for Ross Bay's 'planking'. Post impressions were found at both Lookout Plantation and Melville Nurseries (just 0.10-0.17m wide at the former site); their spacing at the latter (0.10-0.40m) combined with burnt daub in the fill suggests wattling, although at Lookout Plantation the position of stakeholes along the *inner edge* of the ring-groove may suggest wattle-and-daub lining to a more substantial timber wall, remembering the exceptional width of the ring-grooves. The type certainly seems experimental: an early form from which the later, more successful Iron Age circular type – housing a wall of contiguous split timbers – developed.[13]

DOUBLE-RING RING-BEAM TECHNOLOGY

Feachem (1965) and Jobey and Tait (1966) saw the development from simple-ring to double-ring structures as an *Iron Age* development. The use of an internal post-ring creates greater stability in construction by enabling use of a main ring-beam in the roof as well as at the wall. This works to increase structure stability on construction and greater structure durability (Pope forthcoming). Crucially, it allows greater diameters to be reached, as well as providing a framework for use of the internal roof space above head height (Pope 2007). We see its very *early* invention, however, in Early Bronze Age south-west Scotland, at the unenclosed platform settlement of Lintshie Gutter in oval ring-bank H13 (*c* 19th/18th centuries BC). After this early example, other Early Bronze Age double-rings are found in slightly later, lower landscapes (120-130m) such as the very neat post-built example at Blairhall Burn H1 and the slightly less successful ring-bank at Lairg H1, both dating to after *c* 1800 BC. What is clear is that people in the Early Bronze Age were already beginning to experiment with architectural design in the hope of creating more household space and perhaps also longer structure lifespans.

In the lowlands, the first double-ring structure is found in the south at the large ring-groove structure of Lookout Plantation (17th century BC) – with its somewhat erratically positioned internal post-ring – and the apparently contemporary unenclosed structure at Melville Nurseries, with further early examples at the Tormore 10/1 ring-bank and

[13] A continuous timber wall (a cylinder) works to greatly enhance structure stability and thus durability.

perhaps also at closely contemporary Deer's Den H3, with a large example attempted at Upper Forth Crossing H1; after this they became relatively common. Double-rings became increasingly popular in upland landscapes during the 15th century BC – consistent with a more general settling of the uplands at that time – to the extent that simple-ring structures were not found again in the uplands until the 9th century BC, as at Eildon Hill North, Balloch Hill and perhaps Carwinning Hill. The type never quite caught on in the lowlands to the same degree as in the uplands and *simple-ring* post-built structures remained common throughout the Later Bronze Age in lowland landscapes, especially at the more traditional sites of Upper Forth Crossing and Kintore, as well as at the undated site of Myrehead (Stirlingshire).

RING-DITCH STRUCTURES

Following Feachem (1965), in the early 1980s scholars still believed that ring-ditch structures were an Iron Age house type, one relatively restricted to south-east Scotland (cf. Hill 1982; 1984). Thirty years later, more than fifty examples have now been excavated at around twenty sites. We now know ring-ditches to have Middle Bronze Age origins – certainly by the start of the 15th century BC (fig. 10), with Kintore H25 perhaps pushing this back into the 16th century BC – and were a key feature of the Iron Age, continuing even into the early first millennium AD (cf. Harding 2009, 78). After Jill Kendrick's (1982) work at Douglasmuir we have accepted them as having turf walls, an idea successfully tested at Hilary Murray's reconstructed *Kintore House*, built in 2003. It is important to emphasise that ring-ditches are not a house 'type' as such, but rather the signature of a formation process: a degree of wear believed to result from the stalling of animals inside the house and crucially from associated mucking-out activity.[14] We now know the Later Bronze Age and Early Iron Age examples to be a largely east coast tradition, although a handful of examples are now known in the west.

[14] Early Bronze Age wear-gullies at Lairg – leading in through the entrance and following the full circumference of the house – alongside wear on the flagstones of contemporary Kilearnan Hill H2, seem instead to represent human traffic (cf. Halliday 2007, 53). This degree of human wear implies a 'longevity' of occupation which is actually very rare – more generally roundhouses were abandoned *before* such wear could occur, after *c* 30-50 years – and such activity is notably confined to this early period (see Pope forthcoming).

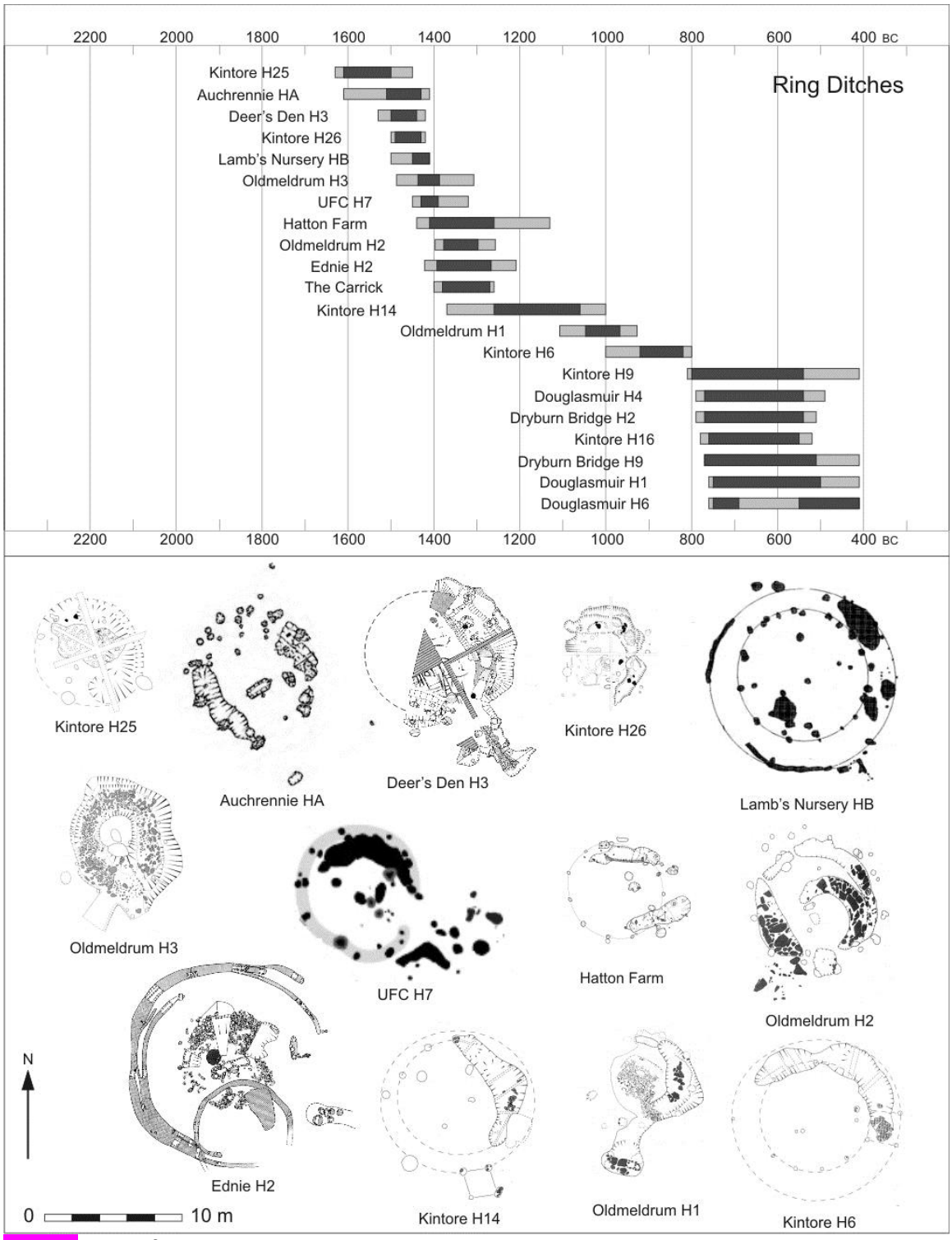

Fig. 10 Dates for ring-ditch structures and Bronze Age house plans (UFC = Upper Forth Crossing).

Early commentators believed the ditch to be external and used for drainage (Stevenson 1949). At High Knowes, however, the ring-ditch was revealed as internal and – following Feachem (1965) – was seen as revealing the action of stalled cattle in the periphery (Jobey and Tait 1966). This was accepted by Diana Reynolds, now Murray (1982), who suggested that as many as thirty cattle might be stalled in the Iron Age examples.[15] Reid (1989) recognised that scoops were an indication of radial divisions and Kintore H26 now provides evidence for both radial and annular partitioning. 'Litter layers' were identified at Iron Age High Knowes, and at Ironshill (Angus) a brown soil in the ring-ditch was interpreted as decayed manure (Jobey and Tait 1966; Pollock 1997). Pope (forthcoming) found average ring-ditch width to be 2.2m and 0.5m deep, with an average peripheral area of 57sq m: 16% above average, and revealing periphery use to be an important factor in roundhouse design. Only one in three ring-ditch structures were provided with a hearth (29% below average), perhaps suggesting that human occupation of these structures was limited, or that they were used seasonally (ibid.). Middle Bronze Age ring-ditches tend to be restricted to one half of the house, often to the right of the entrance, and may suggest the stalling of just a few milk animals.

In the ethnographic literature, larger double-ring roundhouses are twice as likely to provide space for livestock than smaller simple-ring structures: a clear correlation between house size and use as byre-dwellings (Popeforthcoming).[16],Animals, most commonly cattle/calves and goats, are usually only housed overnight and either partitioned off from the human inhabitants or tethered (ibid.). The Kipsigis of Kenya, however, allow their sheep to settle at will, with only some goats tethered around the wall, whilst they sleep in the attic (Peristiany 1939, 158; Orchardson and Matson 1961, 85). Sharing living space with livestock is therefore a common practice in traditional African roundhouse-using pastoralist communities. It is attested too in the longhouses of the later prehistoric Low Countries, as well as Anglo-Saxon Britain (Arnoldessen and Fokkens 2008; Gerritsen 2002; Headeager 1992; Hamerow 2004). Sheep and cattle were

[15] After this, the idea of prehistoric byre-dwellings began to gain ground elsewhere, particularly in the work of Francis Pryor (1984) at Fengate (Cambridgeshire) and Richard Kelly (1988) at Moel y Gerddi and Erw-wen (Gwynedd), where high phosphate levels in structure peripheries seemed to confirm the idea.
[16] Rather than the *size = status principle* prevalent in much twentieth-century archaeological literature.

successfully housed in Peter Reynolds' first *Moel y Gaer House* and six Dexter cows overwintered in Hilary Murray's *Kintore House*, where the vet reported very happy, healthy cows (Reynolds 1988, 18; H. Murray pers. comm.). Stalling animals within the house would also be invaluable in terms of increasing house temperature (Gebremedhin 1971, 120).

In Bronze Age Scotland, the ring-ditch house has very strong roots in Aberdeenshire at the sites of Kintore and Deer's Den, as well as Oldmeldrum, whose first house (H3) has strong parallels to Deer's Den H3.[17] From the 15th century BC we also see the type in Angus at Auchrennie HA; even further south at Lamb's Nursery HB (Midlothian) and at Upper Forth Crossing H7 (Clackmannanshire). An east coast floruit exists in the 15th century BC, continuing across the 14th century BC as other house types wane. The type is currently slightly later in the west, with a 14th/early 13th century BC example at The Carrick (Argyll).[18] Following this, there is currently somewhat of a dearth of ring-ditch structures, with only Hatton Farm (Angus) and Kintore H14 spanning the 13th-11th centuries BC in the east, with dates from Kintore H6 alone pushing what becomes a strong Early Iron Age tradition back into the Late Bronze Age. This may reveal a shift away from intensive lowland pastoralism, or at least the practice of over-wintering, across the 13th-9th centuries BC. This occurs alongside a return to more traditional ring-bank and post-built architectures over this period. We do see, however, a strong return to ring-ditch structures in the lowland landscapes of the east coast after *c* 800 BC at Kintore (H9 and H16), as well as at the new settlement locations of Douglasmuir (H4, H1, H6), Dryburn Bridge (H2 and H9), and also now recently excavated at Ravelrig (Str. A) (Kendrick 1982; Dunwell 2007; Rennie 2014).

A CHRONOLOGICAL NARRATIVE

We now find our earliest Bronze Age roundhouses in Britain in line with the beginning of the Chalcolithic period, at *c* 2500 BC. Preliminary research by the author suggests that

[17] An interesting fact when we consider the region's success in contemporary cattle-rearing strategies.
[18] Two further west-coast examples have been excavated recently – at Inverkip, Inverclyde (GUARD) and at Kilmartin Glen (Argyll Archaeology) – but both are as yet undated (A. Becket and C. Ellis pers. comm.).

these early architectures may have Late Neolithic predecessors; and, as such, may be indigenous.[19] From the excavated data, our Early Bronze Age houses are predominantly a feature of southern Scotland, but were also built along the east coast (see fig. 1). At present, our earliest second millennium BC houses are found along the east coast: Upper Forth Crossing H5 along the Forth lowlands in Clackmannanshire, and at higher altitudes further north, on the lower slopes of Kilearnan Hill in Sutherland, above the River Helmsdale. Another early house is found in the Southern Uplands: H13 at the western unenclosed platform settlement of Lintshie Gutter in Lanarkshire. With 19th/18th century BC dates the structure is a clear development from Earliest Bronze Age (later third millennium BC) building traditions in this landscape, above the River Clyde. Unlike its apparently timber-built predecessors, however, Lintshie H13 represents a shift towards the use of ring-bank architectures, a versatile building design which went on to become the most popular Bronze Age house type in the north. Regarding settlement and land use, there seems to be a preference for lowland landscapes in the east of the country, and for slightly higher landscapes in the west.

Roundhouse settlement became fully established in northern Britain after *c* 1800 BC, first in upland landscapes, and by *c* 1700 BC in the lowlands.[20] Early Bronze Age houses tended to be oval and were relatively large, with an average internal diameter of 9-10m (fig. 11). The suggestion here is relatively large households, which actually *decreased* in size during the Later Bronze Age, perhaps linked to the apparent decline of lowland pastoralism across this period. Three key house types saw continuity down to 1400 BC:

> *ring-banks* – typically oval, simple-ring turf structures at the unenclosed platform settlements of Lanarkshire (at 285-300m), built of stone in the Highlands (at 130-200m)

[19] See also recent early 3rd millennium BC dates from Greenbogs where structure diameter, post size, post spacing (suggestive of wattling), and orientation, might all seem to suggest these structures as dwellings (Noble et al. 2012).
[20] It is this 1800 BC date that has been previously given as the start of roundhouse settlement in Britain (Parker Pearson 1993, 103),

post-built simple-rings – employed first in slightly lower (120-130m) south-western landscapes after 1800 BC, the type sees later (15th century BC) dates in the east with development as double-rings

polygonal double-ring ring-grooves – in south-eastern lowland landscapes from the 17th century BC, which survived into the 14th century BC

Average house size varied considerably by region during the Early Bronze Age: *c* 8m in the uplands of Lanarkshire; 10m in the Highlands, just *c* 6.5m in the lowlands of the north-east; and as much as *c* 12m in the south-east. After *c* 1500 BC, houses became larger and more circular, much of which may reflect the 15th century BC floruit of the lowland ring-ditch house, as well as the advent of coastal double-ring ring-banks, such as Tormore and Kilpatrick on Arran and Deer's Den H3 in Aberdeenshire. The Early Bronze Age, in particular the period between 1800-1500 BC, seems to have been a period of real innovation in both architectural design and use of landscapes.

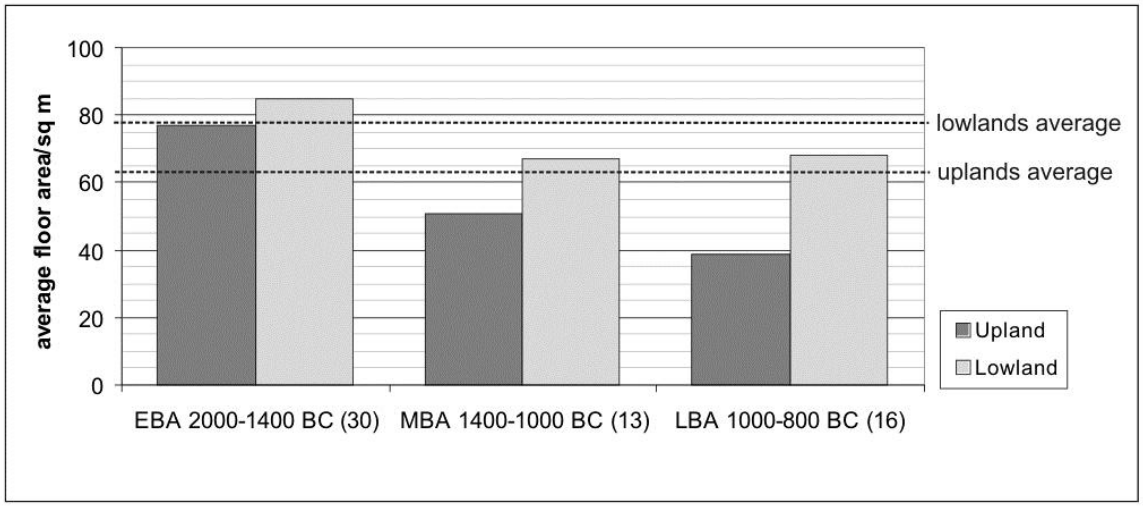

Fig. 11 Average floor area of dated roundhouses in the Bronze Age north (n = 72).

In British Bronze Age studies, a 1500 BC date is traditionally accepted for the E-MBA transition Yet the dated roundhouse assemblage in the north reveals real continuity for all architectures, in both upland and lowland landscapes, *across* this 1500 BC date (fig. 12). Few dates are, however, recorded from the 14th century BC, particularly in upland and lowland coastal landscapes, and a 1400 BC date seems a much better candidate for major

transition, at least from the northern settlement data.[21] This transition seems to signify somewhat of a decline in the settlement of landscape extremes, such as upland and coastal environments, during the 14th century BC. A 1400 BC transition is particularly visible in dates from traditional upland and lowland ring-banks, as well as post-built structures. However, the transition is crossed by the newer *lowland* ring-groove and ring-ditch structures. The large polygonal, timber-built ring-groove houses, with their more southern focus, seem to have survived the transition by becoming somewhat 'peripatetic', – towards the transition, the type is found at the *upland* site of Fruid Reservoir (Lanarkshire) and in the *west* at the very polygonal Ross Bay, with then just two examples – The Carrick (Argyll) and Fruid Reservoir H2 – dating to the 14th century BC.

These timber-built ring-groove houses are then apparently lost to us between the 13th-10th centuries BC and are not found again until the 9th century BC. Alongside the roving use of ring-grooves, the lowland ring-ditch house seems to have been even more successful at surviving the 1400 BC transition in the eastern coastal plain with a good suite of dates across this period. Similarly, however, the ring-ditch house – as well as the ring-groove structure – saw decline between the 13th-9th centuries BC, the site of Kintore alone providing evidence for continuity across the Later Bronze Age. Following social change at and beyond 1400 BC, a return to greater architectural variation (and associated land use) in both upland and lowland landscapes can be found by *c* 1250 BC; running alongside the decline of lowland ring-groove and ring-ditch houses. Despite this, however, there remains far *less* variety in the uplands than there had been prior to 1400 BC, so that Middle Bronze Age land use appears more prescribed than it had been during the Early Bronze Age, certainly with less experimentation in the settling of landscapes, particularly in the uplands. Interestingly, the Middle Bronze Age also sees a return to traditional, ancestral upland sites (eg Lairg, Kilearnan Hill, Blairhall Burn).

[21] Agreeing with that used by Parker Pearson (2009, 103).

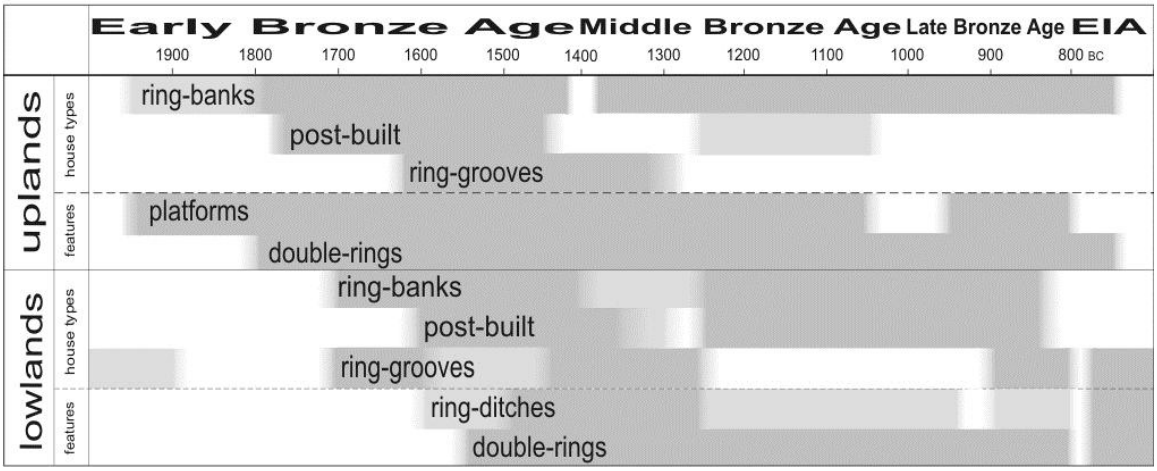

Fig. 12 A dated typology of northern Bronze Age roundhouses (n = 90).

During the Middle Bronze Age, following the loss of timber-built ring-grooves and the decline of ring-ditch houses, lowland sites returned to the more traditional ring-banks and post-built structures. North of the Forth, settlement continued in the lowlands of the east coast, clustering around already well-known landscapes such as Upper Forth Crossing and Kintore. Interestingly, after the E-MBA transition Kintore seems more engaged in the practice of overwintering livestock, which survives to us as ring-ditch houses. A settlement cluster is also found in Caithness, again close to the locus of Early Bronze Age settlement in the region. Post-built structures became a feature of Later Bronze Age lowland landscapes along the east coast and, by the 12th century BC, were increasingly circular and larger in size, suggesting larger households. Settlement on the western mainland was predominantly coastal and currently found to focus south of the Firth of Lorn. Dates from coastal ring-banks return in the 13th century BC with Cladh Hallan (South Uist) and Cnoc Stanger H5 (Caithness), followed by Cùl a'Bhaile period 2 (Argyll), and Upper Suisgill H2 (Sutherland); a key feature of these sites is their repeated rebuilding, which is taken to represent their episodic or seasonal occupation. In general, despite an overall drop in house size during the Middle Bronze Age – presumably linked to an apparent 13th century BC decline in lowland pastoralism – the now double-ring ring-banks remained somewhat larger in the north and east at *c* 11.5m, compared to *c* 8m in the west and *c* 7.5m further south in Northumberland and the Borders, where – particularly at unenclosed platform settlements – they continued to employ turf walling.

From the excavated evidence, Late Bronze Age settlement was even more coastal, with inland areas only really occupied around the Forth: in Perthshire, Lothian and the Borders. Although unenclosed platform settlements saw occupation across the second millennium BC, a radiocarbon gap is found in the 10th century BC.[22] Instead, our 10th century BC dates are from lowland ring-banks and post-built structures. Settlement continued in many second millennium BC lowland landscapes – as at Kintore and Upper Forth Crossing – with the re-facing of older coastal structures such as Upper Suisgill H1 and Cùl a'Bhaile period 3. By the 9th century BC, there was an apparent return to ancestral unenclosed platform settlements (eg Green Knowe H8, Kilearnan Hill). Platforms were again utilised as people began occupying ring-banks at very high altitudes (eg Carn Dubh and Eildon Hill North at 405m) in high visibility/highly visible locations, in common with attested or suspected Late Bronze Age occupation of the landmark, hilltop sites of Traprain Law and Yeavering Bell. Interestingly, structures became increasingly oval again, with a reduction in average diameter to *c* 8m (*c* 7m in the uplands; *c* 8.5m in the lowlands). Upland simple-rings were again found after an exclusive use of double-rings across the Middle Bronze Age. The implication is smaller households in the Late Bronze Age uplands – less use of this land – and some loss of architectural skill. The main house types remained as: *ring-banks* – which continued in all landscapes; *post-built structures* – again found only in the lowlands; and *polygonal ring-grooves* – a return to this type after an absence of 350 years, but with only two 9th century BC examples: Ednie H3 in the east and Aird Quarry in the west.

Towards the end of the Bronze Age we find a period of disruption in the settlement record, beginning after 850 BC.[23] First is an apparent decline in occupation of the western mainland: the last upland date is from Balloch Hill H2 at *c* 800 BC, and very slightly later

[22] It remains possible, however, that upland settlement instead moved into palisaded enclosures at this time, a site type often tantalisingly packed with roundhouses on aerial photographs and yet still demanding modern excavation (Halliday 1999; Young and Simmonds 1995).

[23] No less than six houses see their one-sigma ranges end between 830-820 BC, a further three between 810-800 BC. Whilst this may be an artefact of a plateau in the radiocarbon curve at this time (Ralston and Ashmore 2007, 231), the latter cannot also explain the regional loss of settlement, loss of upland settlement, loss of traditional house types and the subsequent reorganisation of settlement and subsistence strategies which are so indicative of a period of major social change. This is interesting in light of Needham's (2007) research on the metalwork which also points to significant social change at *c* 800 BC.

in the western lowlands at Aird Quarry phase 2 and Ednie H3. Meanwhile in the eastern lowlands, we have the loss of traditional post-built houses and ring-banks by 800 BC. This is followed by a short break in the lowlands one-sigma dates at the very start of the 8th century BC, whilst occupation continued in the uplands – after which an apparent 're-organisation' of lowland settlement took place in favour of turf-walled ring-ditch structures, a type which had by this time been absent for two centuries. These structures occupy the east coast after *c* 780 BC at Kintore, Douglasmuir and Dryburn Bridge. Meanwhile occupation declined in the eastern uplands by *c* 750 BC (Eildon Hill North H3 and Kilearnan Hill H3), after which no dated upland houses are currently known until perhaps the 5th century BC at Carn Dubh.[24] Settlement appears to have contracted to the east coast, as these arguably more sedentary ring-ditch households came to characterise the Early Iron Age; their assemblages reveal a mixed pastoralism across the 8th-6th centuries BC. This LBA-EIA 're-organisation of settlement' utilises traditional sites and familiar landscapes, as well as an indigenous ring-groove house type. It seems the lowlands were the place to be following 800 BC, even more so than at 1400 BC.

As such, the dated assemblage does reveal a major decline in upland settlement towards the end of the northern Bronze Age, albeit slightly later than the date given by Burgess (1985), and researchers now speak in terms of changing land use strategies rather than upland abandonment (Young and Simmonds 1995; 1999; Halliday 2007; Tipping et al. 2008; Tipping, this volume). As palaeoclimatological work continues apace, the dated northern settlement record does seem to reveal social responses to long-term climate change across the Later Bronze Age (cf. Brown 2008, 3). What seems clear is that those in the west saw greater impact, with a decline in settlement by the early 8th century BC. In the east, less than a generation later, a reorganisation of settlement took place with a focus on lowland mixed pastoralism in increasingly fixed locations. Following this we have an apparent gap in western mainland settlement of as much as three centuries – which may yet be resolved as genuine – following which Atlantic architectures began to

[24] Whilst the radiocarbon plateau may be an issue here, there does still appear to be a genuine lack of *upland* Early Iron Age settlement in the north (see also Haselgrove and Pope 2007).

flourish.[25] Important here is further work on the origins of these architectures, which are believed, at present, to start after *c* 500 BC (Armit 2003, 46). Currently, they seem to have island origins with Early Iron Age roundhouses as yet undocumented beyond Orkney (Henderson 2007, 310), although a 5th century BC date was given for the substantial 'hut-circle' of Kilphedir H3 in Sutherland (Fairhurst and Taylor 1971).

CONCLUSIONS

Following analysis of the dated assemblage, we can now identify three main Bronze Age house types in northern Britain: *ring-banks; post-built structures*; and *polygonal ring-grooves*. Of these, the *ring-bank* was the major house type of the Bronze Age north. With origins in the later third millennium BC, we first find the ring-bank at our unenclosed platform settlements, such as Lintshie Gutter. From here the ring-bank went on to become a very versatile architectural form with diversity in both use of materials and building practices: largely upland, but also found in coastal lowlands; popular in the far north; and built in a real variety of landscapes during the Later Bronze Age. The second key house type in the Bronze Age north was the *post-built* structure. Regarding post-rings, Jobey was correct in re-asserting Steer's (1956) belief that they were a Bronze Age type (contra Feachem 1965). Now known to have Early Bronze Age origins on the lower slopes (120-130m) of the north and west, post-built structures became a key feature of the eastern lowlands throughout the Later Bronze Age, increasing in size and circularity after 1200 BC. The question now is whether we might see post-built structures as a structural variant of the more usual ring-bank type.

Both Feachem and Jobey saw large double-ring structures as an Iron Age development. In fact, they have clear Early Bronze Age origins and became particularly common in the southern uplands, as simple-rings remained popular in the eastern lowlands, particularly at older sites. Similarly, Feachem and Jobey both saw the third house type – the *ring-groove* – as an Iron Age development. Whilst circular ring-grooves *are* an artefact of the Later Iron Age, the northern Bronze Age reveals a polygonal pre-cursor. The 17th century

[25] See evidence for activity during this period at the intriguing site of Gob Eirer on the island of Lewis in the Western Isles (Nesbitt et al 2011).

BC origins of the polygonal ring-groove house heralds a phase of real architectural innovation, which took place simultaneously in upland and lowland landscapes. Ring-grooves, however, became a key feature of the lowlands – contemporary with the formation of the first ring-ditches. Early Bronze Age experimental building – as at Lookout Plantation – gave way to strong south-east origins. Unlike more traditional types (ring-banks and post-built structures), lowland ring-groove structures survived social change at 1400 BC; however, by the 13th century BC they had become rare, replaced by the more traditional post-built structure as the main lowland type. At the same time we see repeated rebuilding at coastal sites in the north and west and a return to upland platform settlements. Nevertheless, the greatest episode of social change in the settlement record took place during the Late Bronze Age. At this time upland house size decreased further, with decline of settlement at *c* 850 BC in the west, and a significant move to lowland pastoralism in the east by 750 BC – the region which again, as at 1400 BC, seems to have adapted best to social change.

This analysis of the northern Bronze Age settlement record has revealed much earlier origins for roundhouse settlement in northern Britain – and indeed for Britain more generally – than was perhaps previously recognised. What has also become apparent is the very real resourcefulness of our earliest Bronze Age communities, with their ring-bank architectures and early invention of double-ring ring-beam technology – and with it the opportunity for greater household size. With the dated house assemblage, settlement studies now have the opportunity to further characterise land use and everyday life through time. We can also begin to distinguish regional architectural traditions; at present, there seem to be three very broad traditions, apparently at their height during the Middle Bronze Age: *north and west 'coastal' settlements*; *central Scottish ring-ditches*; and *Borders upland settlements*. With the benefit of a dated roundhouse assemblage – allowing us to increasingly focus in on *when* people lived in this particular landscape, with this architecture, using these objects – we can also begin to further elucidate key episodes of social change (eg 1400 BC and 800 BC) using the prehistoric settlement data, something for which the northern Bronze Age material seems particularly well-suited.

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