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Excavation of an Early Bronze Age Round Barrow at Emmets Post, Shaugh Prior, Dartmoor

By Olaf Bayer, Andrew Simmonds and Ken Welsh

With contributions by Sheila Boardman, Elaine Dunbar, Alan Hogg, Peter Marshall, Jo McKenzie, Henrietta Quinnell, Paula Reimer, Mairead Rutherford, and Ruth Shaffrey

SUMMARY

Oxford Archaeology carried out an excavation of an early Bronze Age barrow at Emmets Post, Dartmoor in advance of its destruction by quarrying. The investigation elucidated the sequence of construction of the monument, which comprised a primary turf mound and a central cairn that were subsequently buried beneath a larger secondary turf mound with a stone kerb. No human remains were found, although this is not unusual on Dartmoor, where unburnt bone does not survive due to acidity of the soil, and in any case any remains may have been removed by an unrecorded antiquarian investigation that had left a substantial depression in the middle of the barrow. A comprehensive radiocarbon dating programme yielded a wide range of dates, some of which clearly derived from older material that had been incidentally incorporated within the turves of which the mound was constructed. Some of this older charcoal may have derived from deliberate burning of the turf sward to improve grazing, or result from a wildfire, several centuries before the turves were cut to construct the mound. A date of 1750-1560 cal BC obtained for a sample from the central area of the barrow may represent the true date of construction, since it corresponds with dates from barrows in nearby cemeteries at Headon Down and Shaugh Moor. The surrounding landscape had been largely destroyed by modern quarrying but a combination of present-day Lidar data and contour data from historic maps were used to reconstruct the pre-quarry topography and place the monument in its contemporary landscape.

INTRODUCTION

During September and early October 2014, Oxford Archaeology undertook the complete excavation of the round barrow at Emmets Post, in the parish of Shaugh Prior on the south-west edge of Dartmoor (NGR SX 5678 6320, Fig. 1). The mound had hitherto survived in a precarious situation, perched on a thin strip of land between two china clay quarries, but this piece of land was to be destroyed as the quarries were merged as part of an agreement under which Sibelco Europe Ltd, the operator of the quarry, relinquished its extraction and tipping rights in adjacent archaeologically sensitive areas. This entailed the complete destruction of the barrow, which was a Scheduled Monument (List Entry 1020566, legacy ID SM 34876), and so Historic England required that it should be excavated in its entirety in advance of quarrying works in order to mitigate its loss by the creation of a complete record.

Community participation was a significant aim of the project. Up to six volunteers worked with the excavation team at any one time, and an open day was held towards the end of the excavation that attracted approximately 150 members of the public.

The finds and paper archive generated by the excavation will be deposited with Plymouth City Museum and Art Gallery under accession code AR.2011.932.

INSERT FIGURE 1

SITE SETTING

The monument comprised a turf mound with a deep oval depression in the centre that was thought to result from an unrecorded antiquarian excavation (Fig. 2). It took its name from a boundary stone demarcating the boundary between Lee Moor and Shaugh Moor, which was set into the southern edge of the mound. The strip of land on which the barrow stood lay at *c* 290m aOD on a small fragment of open moorland that survived between Lee Moor and Shaugh Lake quarries (Fig. 1). It occupied the crest of a gentle north-east-facing slope overlooking the valley of the Blackabrook, a tributary of the River Plym. Although partially obscured by china clay working, the site had extensive views across the south-western and southern edge of Dartmoor to the north, Plymouth Sound to the south-west, and the South Hams to the south and south-east. Local geology comprises granite of the Dartmoor Intrusion (BGS 2015).

INSERT FIGURE 2

ARCHAEOLOGICAL BACKGROUND

The barrow at Emmets Post first appears in cartographic sources on the Shaugh Prior tithe map of 1841, and has been acknowledged in archaeological literature since the late 19th century (Worth 1953, 456). The mound received statutory protection as a Scheduled Monument in 1960 (English Heritage 2002). The site is included in Grinsell's (1978, 165) survey of Dartmoor barrows and is described as a 1m high, 10m diameter cairn surmounted by a boundary stone. Extensive mining and quarrying activity in the area has meant that its classification as a prehistoric monument has been regarded as uncertain.

Archaeological recording was undertaken on the site by Exeter Archaeology following accidental damage to the north-west edge of the mound by the construction of a quarry haul road (Bayer 2000). The exposed section across the edge of the mound was cleaned and recorded. It was estimated that approximately 1m of the base of the mound had been removed by the road. Other than the edge of the mound, no archaeological features or finds were recorded. In 2009 Exeter Archaeology carried out an archaeological evaluation to the south and east of Emmets Post barrow in an area bounded by Shaugh Lake and Lee Moor quarries and the former Cadover Bridge to Cornwood road. Archaeological features were limited to 19th or 20th century prospection pits (Steinmetzer 2009, 6).

An archaeological evaluation of the site was carried out in 2011 by AC Archaeology (Hughes 2011) in order to provide information for Historic England (then English Heritage) to inform a decision on the granting of Scheduled Monument Consent for its complete excavation (Fig. 3). The principal aim of the excavation was to determine whether the earthwork at Emmets Post represented a prehistoric barrow or was the result of more recent mining activity. A single trench measuring 8 x 1m was hand-excavated from the centre point of the monument to beyond its southern edge. The investigation confirmed that Emmets Post was a prehistoric barrow and identified a series of three sandy-silt soil layers thought to be the remains of the original construction. Loosely positioned kerbstones were identified around the inner and outer breaks of slope and on top of the lowest exposed soil deposits. The inner arrangement of kerbstones appeared to be coursed and the presence of a large stone on top of the upper mound deposit as well as the location of potential stone tumble within lower deposits was thought to suggest that the stone kerbing was originally more extensive and perhaps had a cap. A linear feature identified during excavation was not thought to be evidence for a ring ditch surrounding the barrow, and was most likely to represent another phase of archaeological activity. No datable artefacts and little palaeo-environmental material from a single bulk sample were recovered from the evaluation. Photographs taken immediately prior to the evaluation and during the late 1990s (Greeves 1999, 30) show substantial areas of disturbance to the southern edge of the barrow mound.

THE EXCAVATION

Prior to excavation the barrow comprised a grassed mound measuring *c* 10m in diameter with a maximum height of 1m. It was irregular in form with steep sides and a large central depression *c* 3m in diameter and 0.5m deep. In addition to the eponymous Emmets Post, a single large granite fragment was visible on the northern edge of the mound. The position of the AC Archaeology evaluation trench was visible as a slight depression in the turf on the southern edge of the monument.

Before excavation was started, a topographic survey of the barrow mound and its immediate surrounding area was undertaken. The survey data were then used to create a digital elevation model of the site (Fig. 3).

The excavation trench measured 12 x 10.5m NW-SE, and was centred on the earthwork mound. All deposits were hand excavated to the surface of the weathered granite substrate (506). The mound was excavated in opposing quadrants, the south and north quadrants being excavated initially, followed by the west and east. The configuration of the quadrants was determined by the location of the AC Archaeology evaluation trench, the north-eastern edge of which formed the north-eastern edge of the south quadrant.

INSERT FIGURE 3

The barrow mound (Figs 4-8)

The barrow mound comprised three principal construction phases, comprising a primary turf mound, a stone cairn and a secondary turf mound (Fig. 4). No pre-barrow features were encountered cutting the natural deposit (506) beneath the mound.

INSERT FIGURE 4

The initial phase of barrow building consisted of a low flat-topped turf platform (500/507) that was overlain by a central cairn (502) (Figs 5-7). The lower deposit (507), which extended throughout most of the trench, was interpreted during excavation as a buried soil, but micromorphological evidence has since demonstrated that it was in fact part of the mound. The layer was 0.15m thick and was overlain by a more substantial deposit of mound material (500) that measured *c* 10m in diameter and 0.3m thick, the two being separated by a thin lens of peaty material that was identified in the micromorphology column but not during excavation (McKenzie, below). This material comprised a relatively compact, dark grey/black, organic rich, silty clay with very occasional lenses of fine granite gravel. It is suggested that these gravel lenses are the weathered surface of the underlying bedrock adhering to the base of turves as they were stripped. As such it is suggested that the platform (500) was constructed from relatively thick, peat-rich turves. The sub-oval cairn (502) that was 0.4m thick and encompassed a slightly amorphous area 3.7 x 3m in extent. It was composed almost exclusively of quartz tourmaline fragments with much smaller quantities of granite and quartz. The cairn clearly overlay the primary platform but some of the larger blocks had settled into surface of layer 500.

INSERT FIGURE 5
INSERT FIGURE 6
INSERT FIGURE 7

Both the primary platform (500) and cairn (502) were overlain by a more substantial secondary turf mound (504), which measured *c* 7m in diameter and was up to 0.55m thick (Figs 6 and 8). The fabric of the secondary mound was different in composition to the primary platform (500). It was slightly lighter in colour than the lower layer, more friable in texture and included more frequent granite gravel lenses. On this basis it is suggested that this element of the mound was constructed from thinner, slightly less peat-rich turves than primary platform 500, possibly derived from a different source location. The limit of the secondary mound was defined by a fragmentary kerb of large granite blocks up to 0.45m across (501). The kerb was rather intermittent, with many of its constituent blocks having been removed. A hollow (116) on the south-western edge of the mound is likely to represent the disturbed socket of a removed kerbstone.

A large sub-circular depression (511, Figs 4, 6 and 8), over 2m in diameter and 0.4m deep, in the top of the barrow mound is considered to be evidence of an undocumented post-medieval antiquarian excavation, and most of the prehistoric pottery recovered from the mound came from its fill (510). The area of disturbance included a deposit containing a number of small quartz fragments and fragmentary sherds of prehistoric pottery (503), which occurred only within the eastern quadrant of the excavation and did not appear in the two principal sections across the mound. Also within the backfill of the excavation was a substantial slab of quartz tourmaline (508), cracked into three pieces but with overall dimensions of *c.* 4.5 x 3.3 x 0.5m, which may have originally been a capstone over the cairn. A stone spread (509) on top of the mound is likely to represent upcast material from cairn 502 that was generated by this event.

A group of modern disturbances were identified to the south of the mound (Fig. 8). Shallow pit 313 and ditch 319 both produced finds of 20th century date (brick, bottle glass, horseshoe). Shallow pits 321 and 332 and ditch 315 yielded no dating evidence but their proximity and morphological similarity to pit 313 and ditch 319 suggest that they were also likely to be 20th century in date. A linear feature (102) that extended along the north-western edge of excavation was identified as the reinstated limit of the damage caused by the quarry haul road in 1999/2000 (Bayer 2000).

INSERT FIGURE 8

Emmets Post

The post from which the barrow gained its name comprised a carved granite pillar that was set into the south part of the mound (Fig. 9). The post had a total height of 1.7m, of which 1.2m was exposed above the surface of the mound, and measured 0.4 x 0.2m in section. The letters SM (for Shaugh Moor) and LM (for Lee Moor) were carved into the north-west and south-east faces of the post respectively. Prior to excavation of the barrow mound the top of the narrow cut for the pillar (303) and its packing (302) was exposed in plan. The post was then carefully hoisted from its socket using a mechanical excavator.

INSERT FIGURE 9

THE FINDS

POTTERY

By Henrietta Quinnell (with petrographic comment by Roger Taylor)

The assemblage consists of 60 sherds weighing 186 grams (Table 1). The mean sherd weight is 3g as the material is very fragmentary with many of the sherds only crumbs. A few sherds are only moderately abraded but most are highly abraded, probably due to bioturbation and disturbance in the cairn. The sherds appear to come from only two vessels, with a few rather finer sherds possibly from a third vessel from context 509.

The vessels

The fabric is gabbroic, made from clay from the Lizard in Cornwall. The fabric of both vessels is essentially the same with gabbroic clay from the same source. The high degree of weathering of the included rock fragments, similar to that of the feldspar, suggests that they are an original component of the clay.

P1 (Fig. 10) Body sherd, reduced 5YR 3/2 dark reddish brown, thickness 8.6–9.6mm with common moderate inclusions.

Petrology

Feldspar – soft white altered angular grains, 0.05–2.5mm; *amphibole* – greenish grey to light grey cleaved and fibrous grains, 0.1–2.2mm; rock fragments – *feldspar*/*amphibole*, weathered soft fine-grained sub-angular fragments with feldspar laths indicating basalt or dolerite, 1–3.0mm; *magnetite* – sparse black glossy sub-angular grains, 0.2– 0.6mm; quartz – rare rounded transparent to translucent grains, 0.3mm; *matrix* – smooth clay with fine-grained feldspar less than 0.05mm. *Comment*. A gabbroic fabric with fine-grained weathered basaltic/doleritic rock fragments probably local to the clay source.

Vessel form and decoration

The sherd has a slight curve and could come from the girth of a biconical vessel. A single surviving dimple is surrounded by impressed cord, with three parallel twists. The impressed cord appears to overlap in places and it is probable that the design of dimples surrounded by impressed cord formed a band around or just above the vessel girth.

P2 (not illus.) Body and base sherds, variably fired but generally a little reduced 5YR 4/6 yellowish red, thickness 8.4–8.8mm, common coarse inclusions.

Petrology

Feldspar – soft white altered angular grains, 0.05–4.5mm, some cleaved grains with twinning indicating plagioclase, 0.2–1.2mm; *amphibole – rock fragments* – feldspar/ amphibole weathered soft fine-grained sub-angular fragments, 1–4.0mm, fine aggregate of amphibole laths sub-rounded, 4.5m; *magnetite* – a scatter of black glossy sub-angular grains, 0.2–0.9mm; quartz – sparse transparent to translucent colourless angular to sub-angular grains, 0.1–0.6mm; matrix – smooth clay with fine-grained feldspar less than 0.05mm. Comment. A coarse gabbroic fabric with fine-grained weathered basaltic/doleritic rock fragments probably local to the clay source.

Vessel form

Insufficient survive for any reconstruction of vessel form. One sherd may have an incised line.

INSERT TABLE 1: Quantification of pottery by context and weight.
INSERT FIGURE 10 POTTERY.

Style and comparanda

The use of gabbroic clays was widespread in Cornwall in the barrows and related sites of the early Bronze Age, although usually large non-gabbroic inclusions are mixed with gabbroic clays (Parker Pearson 1990). Some gabbroic pottery is known from Devon, but the deposition of pottery in barrows and related sites was less common than in Cornwall (Quinnell 1988, fig 2). Two other gabbroic vessels from such contexts are known, both Trevisker in affinities, from a barrow at Upton Pyne near Exeter (Pollard and Russell 1969, 63, fig 6A), and from an unmounded cemetery site at Elburton east of Plymouth (Watts and Quinnell 2001, P1) *c* 10km south of Emmets Post. Sherds from several Trevisker vessels await publication from one of the cairns at Hemerdon on South West Dartmoor (Hughes 2016).

It is suggested that the decorated sherd P1 most probably belongs to the Trevisker tradition of Cornwall and South West Britain (Quinnell 2012 summarises recent work). No close parallel for the decoration is known and, while Trevisker ceramics do not usually include curved lines, exceptions are known such as the vessel from a settlement site at Smallacombe Rocks on Dartmoor, which is of gabbroic clay (Parker Pearson 1990, 29, no 79; Radford 1952, fig 13, no 1). Paired dimples are known, normally set on the girth as at the eponymous settlement site of Trevisker (ApSimon and Greenfield 1972, fig 16, No 30, fig 18, Nos 45, 48). Recent work is demonstrating that there was much more variety in the Trevisker tradition than was previously thought (Quinnell

2012). No closer comparanda from the Bronze Age, or indeed from any other period, can be found for the potentially complex design of P1.

Context and chronology

The sherds of P1 come from undisturbed cairn 502, which formed part of the primary mound structure. Their fragmentary nature is unlikely to be entirely due to subsequent disturbance: it is quite common in Devon and in Cornwall for vessels in cairns, barrows and related monuments, to be deposited as token sherds, notably in pits at two of the cairns in the nearby Shaugh Moor group (Wainwright *et al*. 1979, 28; Jones 2005, 138). The sherds of P2 come from disturbed material and no comment can be made regarding their state when initially incorporated in the monument. The radiocarbon dating programme indicates that the turf component of the primary mound (context 500) incorporated material dating to 2290–2145 cal BC, a date likely to provide a *terminus post quem* for the formation of the deposit, but one that does not allow any further chronological comment. A firm date for the start of Trevisker ceramics before *c.* 2000 BC is not yet definitely established, but a growing body of evidence from radiocarbon dating at a number of sites suggests that it is likely (see Discussion below and Fig. 16).

WORKED FLINT

By Olaf Bayer

Two small pieces of worked flint and two pieces of burnt flint were recovered during processing of bulk soil samples from the secondary barrow mound (504). Both pieces of worked flint are undiagnostic microdebitage with maximum dimensions of 18.3mm and 7.1mm respectively. Both are struck from a translucent mid-grey flint. Neither piece retains any cortical surfaces. The two pieces of burnt flint have maximum dimensions of 19.5mm and 6.9mm respectively and appear to be refitting fragments of the same small light grey pebble.

No naturally occurring flint exists on or close to the current site, implying that this material has been transported over a considerable distance. The closest source of pebble flint is likely to be the south Devon coast at least 10km to the south. The closest known sources of nodular flint are the remnant clay-with-flints capping on Haldon Hill, 25km to the north-east, or even further afield on the Black Down Hills in east Devon (Bayer 2011, 226; Newberry 2002). It is unclear whether this material was derived from activity associated with the construction of the barrow mound or was incorporated accidentally as part of the turf used in the barrow mound.

WORKED STONE

By Ruth Shaffrey (with geological identifications by Roger Taylor)

Ten pieces of stone were retained during excavation. Three large adjoining pieces of hornfels slate formed a distinctive slab (508). No obvious flaking was found to the main surfaces, but the edges had clearly been struck to form the clean lines apparent in some areas. Two further pieces of the same lithology were found in the cairn deposit. These had also been shaped and in one, the veins in the stone that enabled the slab to split naturally were readily apparent.

A single flake of impregnated tourmalinised granite 'schorl rock' from the cairn is the most distinctive find (Fig. 11). It has two ventral faces, showing that it was struck from a face that had already been struck. It does not show any signs of further working. The piece is of particular interest because struck flakes of stones other than flint are rarely reported in this part of the country and the author knows of no other local parallels. It is not of identical lithology to the large slab and was thus not a product of the slab's shaping. Schorl rock occurs at the margin of the granite, and thus around the edges of Dartmoor. The tourmalinised slate would be just outside the granite margin.

INSERT FIGURE 11

THE ENVIRONMENTAL EVIDENCE

SOIL MICROMORPHOLOGY
By Jo McKenzie

Two soil thin sections were prepared from sub-sampled monoliths through the sequence of deposits forming the secondary and primary mounds, the putative buried soil, and weathered granite subsoil/weathered bedrock below (102 and 103, Fig. 6). The analysis focused on investigating the origins and character of the mound material, the presence or absence of a buried soil, and anthropogenic evidence for activities associated with the mound.

Thin-sections were prepared following Murphy (1986) with adaptations by Julie Boreham at Earthslides. Sub-sample blocks taken from monoliths obtained in the field were air-dried at 20ºC then impregnated under vacuum with a polyester resin mix (1800ml resin/200ml acetone/1.6ml MEKP). After six weeks, samples were hard-cured at 40ºC, cooled, and thin sectioned. These were challenging samples, with the combination of weathered granite and peat necessitating several attempts at slide preparation. The final slides required a slightly thicker than normal thin section (>30µm) in order to retain the softer peat deposit structures.

Slides were analysed using a Brunel SP1500XP petrological microscope, following the procedures of Bullock *et al.* (1985) and Stoops (2003). Additional mineralogical investigation references MacKenzie and Guilford (1980), Adams *et al.* (1984), and MacKenzie and Adams (1994). A range of magnifications (x10–x400) and light sources (plane polarised, crossed polars and oblique incident) were used to tabulate detailed descriptions, providing semi-quantitative data on deposit mineralogy, grain size and morphology, structure and characteristics of the fine matrix, inclusions, and pedofeatures. Assessment was hampered by slide thickness, with many observations based on thinner slide areas only. All frequency estimates should therefore be treated with caution.

Results

Weathered bedrock 506

The gravelly 'weathered bedrock' is seen clearly in the lowest 1cm of Slide 102 (Fig. 12, image 1). The coarse mineral fraction typifies the local geology, with weathered, sub-rounded to sub-angular fragments of granitic rock seen throughout the deposit. Quartz dominates, within granite fragments, large single grains, and small angular chips, representing the most weathering-resistant component of an original granitic detritus. Large polycrystalline quartz sometimes shows the 'sutured' (jigsaw-like) boundaries between individual crystals typical of quartz from a metamorphic source, perhaps indicative of the location of the Emmets Post site adjacent to areas of hornfelsed slate (BGS 2015). A silt/fine sand fine fraction shows some organic content, possibly at least partly translocated through movement down-profile.

Trace amounts of a range of organic inclusions include wood and plant residue fragments. Fragments of probable wood charcoal and carbonised peat – potential indicators for anthropogenic activity – are preferentially distributed towards the top of the deposit. These could be windblown. However, the defining feature of the sample from 506 is the significant number of void infills (Fig. 12, image 1) and grain coatings present, including compound 'link cappings', where extensive coating bridges adjacent grains. The composition of both voids and infills is obscured by slide thickness, but all appear dense, isotropic and are probably silt and organic. This indicates fairly energetic disturbance further up the profile, and the concomitant movement of fine material.

INSERT FIGURE 12

'Buried soil' 507

The clear boundary seen at image 2 (Fig. 12) pinpoints the base of 507, the suggested 'buried soil' sealing 506. 35–40mm above this, a more complex point of change matches the recorded position of the 507-500 boundary. Between these points, visible sections of a deposit significantly obscured by slide thickness are recorded as 507.

The coarse mineral fraction is compositionally similar to 506, though smaller and generally finer. The fine fraction shows a far higher organic content than 506, making for a denser, darker matrix particularly marked at the lower boundary (Fig. 12, image 2). Deposit 507 becomes less dense up-profile, with increased void space. Organic fragments visible in thinner slide areas reveal a peaty matrix, with frequent degraded plant material including lignified tissue (thick walled 'woody' cells). Rare carbonised fragments are present, some with a cellular charcoal structure, and slightly more with a 'stringy' appearance characteristic of carbonised peaty or turfy material. Larger carbonised and other organic fragments are concentrated towards the deposit base (Fig. 12, image 2). Slight distortion at points along the boundary suggests compaction, and the 'pressing' of 507 into the harder, stonier 506 below.

With deposit structure and pedofeatures largely obscured, the most distinct feature of 507 is the frequency of rounded, sub-angular and angular vesicles (Fig. 13, image 3). Although a recognised feature of near-surface horizons, where frequent vesicles may denote air bubbles within the matrix (Stoops 2003, 64), the angularity of many of the vesicles of deposit 507 suggests that some may represent gaps in the matrix where grains have dislodged due to disturbance. This is also seen in the lower deposit of 500 and, less frequently, in 504. Void patterning is key in recognising the boundary between 507 and the peat lens above, with the elongate voids or vughs and channels of 507 rarely displaying the narrow, tapering structure typical of peat (see below).

INSERT FIGURE 13

Peat lens at the 507/500 boundary

This is a more complex point of change than seen in the field. At c. 35–40mm above the lower boundary of deposit 507 is a c. 20mm-thick band of structurally distinct material: a dense organic lens with a small and strongly bimodal coarse mineral fraction (silt/coarse sand composed of mainly quartz/granite), defined by a network of fine and coarse planar voids. This contrasts with the sandier, voided deposits of 507 and 500 above. This is a lens of almost purely organic peat containing fine sand size organic fragments and a small input of possible carbonised material – the dense matrix makes this difficult to confirm. The distinctive planar voids commonly taper to a point, a characteristic indicator for shrinkage and a common feature of peat deposits (Fig. 13, image 4).

Primary mound material 500 in Slide 102

A clear boundary marks the change to primary mound material (500). A larger coarse mineral fraction dominated by fine/very fine sand accompanies a less compacted matrix, with planar voids replaced by frequent rounded to sub-angular vesicles and larger amorphous voids (Fig. 14, image 5). The boundary may inform on construction: both this and the peat lens below it are notably stone-free. The mineral fraction shows markedly increased feldspar, and fewer granites. The groundmass is dominated by well-degraded organic material with frequent lignified tissue, parenchyma (largely un-degraded, thin-walled cellular material), cell residue and, as elsewhere, rare carbonised fragments. It is notable that the void structure is similar to deposit 507, again suggesting a potential loss of mineral grains from the matrix. Traces of organic void coatings may indicate disturbance further up-profile, but these are weakly expressed.

INSERT FIGURE 14

Primary mound material 500 in Slide 103

This upper primary mound sample differs markedly to that at Slide 102. Here, a higher proportion of medium/coarse sand, dominated by angular and sub-angular quartz and granite, is seen within a darker, denser groundmass (Fig. 14, image 6). There is a notably higher silt content (and possibly clay, though this is largely obscured) than seen in Slide 102. Here, within a still dominantly organic groundmass, areas of silt and sand create a patchy appearance, with organic fragments indicative of peat only seen within thinner slide areas. The deposit may have seen disturbance, with several large cracks parallel to the edges of larger rock fragments indicating a slightly disaggregated structure.

Occasional coatings are seen on larger grains, but slide thickness prohibits characterisation; they are probably organic, but could be silt. Both also indicate disturbance up-profile, and displacement of fine materials larger than clay. There are traces of biological activity.

Almost all of the boundary point with secondary mound material 504 above is taken up by a large sub-angular fragment of polycrystalline quartz with some suturing, possibly granitic. This pebble creates a band c 10mm thick where practically no deposit matrix is present. Smaller adjacent rock fragments show coarse coatings indicative of disturbance around this point, and two charcoal fragments are present adjacent to this pebbly lens. The larger rock fragments are recorded in 504.

Secondary mound material 504

The matrix appears similar to deposit 500, as seen in Slide 103, with frequent angular to rounded coarse sand, mainly quartz/granite, in a peaty, organic-with-silt matrix. Frequent angular quartz 'chips' echo the shape of voids in lower deposits, again suggesting potential displacement of rock fragments/mineral grains. Slide thickness largely prevents assessment of structure and inclusions, but thinner areas show a peaty matrix, with possibly less degradation of organics, and larger lignified fragments than seen elsewhere. Traces of carbonised material are present. Some soil biological reworking is seen, and a single limpid clay infill, indicative of water movement.

Discussion

The mound deposit sequence: origin, materials and construction techniques

Mineralogical analysis of the mound deposits shows a broadly similar coarse mineral composition which reflects the bedrock below: dominated by quartz and granite, with a smaller input of feldspar and dark minerals. Mound materials are therefore likely to be local. However, small differences indicate that deposits may have been sourced from slightly different areas. This is most noticeable in lower primary mound sample 500, the only deposit showing more feldspar than quartz, within a matrix which also differs in structure from the other mound deposits. Deposit texture may also indicate varied source locations, with 507 showing more rounded, smaller sand grains than either 500 or 504. Meanwhile, the lower sample from 500 is far finer textured than both, as is the peat lens. There may be other indicators for material source. Lignified (woody) tissue is present in all of the deposits, especially 504. This might indicate some sourcing of materials from within areas featuring hazel-type scrub.

Mound construction appears to start with the deposition of an organic, peaty silt with a strong fine to medium sand component (507), which may have been slightly compressed into the surface of the weathered bedrock. This is sealed by a thin lens of almost pure peat, and then by what is interpreted as the lower portion of primary mound material (500). It is possible that the peat lens may represent a thin consolidation or stabilisation layer of sticky peat sealing the siltier 507. However, there is little evidence for compression or exposure of the top of this lens, with no increase in coarse mineral and an intact network of fairly open shrinkage cracks visible in the peat. These intersect with larger voids running vertically through 500 above (Fig. 13, image 4), suggesting instead that this portion of 500 and the peat lens below it may represent one event, for example deposition of a peaty or heathy turf, with 500 representing the sandier turf base. If so, differences in mineral makeup between this and 507 below suggest that the turf may have come from a different location both to 507 and the upper portion of 500. Frequent small, angular vesicles through the lower portion of 500, also noted in 507 and discussed above, may represent sand grains lost from the soil matrix profile during the disturbance caused by cutting and redeposition.

There is more similarity between secondary mound material 504 and upper primary mound material 500 than there is between the two samples through deposit 500 alone. Slide 103, through the upper part of 500 and 504 above it, shows a coarser sand matrix, defined by larger, more angular grains and rock fragments, than Slide 102 below. This may indicate that the mound represents a more complex continuum of construction than noted during excavation. These upper deposits may also represent redeposited peaty turf additions. Although coarser and less compacted, both 500 and 504 show a fibrous, organic matrix, and angular vesicles within 504 may indicate grains lost during redeposition, as described previously. With assessment of organic materials hampered by slide thickness, it can only be said that all deposits show a range of features typical of peat: amorphous organics, cell residue, fungal sclerotia, and lignified tissue. Both deposits can be described as peaty turf material with a higher sand content.

The boundary between primary and secondary mound deposits is very clearly marked by the presence of rounded pebbles much larger than other coarse components, a complete separation of deposit matrix between contexts, and the presence of thin silt coatings on the uppermost sand grains below the boundary. The first two features are consistent with exposure, and accumulation of allochthonous material, before continuation of mound construction. However, a hiatus between the deposition of 500 and its sealing by 504 may also be likely to show an increase in organic fragments and/or windblown charcoal at the boundary, the infilling of the frequent channels at the surface of 500 with fine material, and the smoothing of the upper surface of 500 through weathering. None of this is seen, and grain coatings likely represent fine material moving down-profile from 504 as a result of disturbance (perhaps trampling) during deposition of the secondary mound. Evidence for hiatus between primary and secondary constructions is therefore inconclusive. In addition, no clear sign for any truncation within the profile (and thus perhaps an episode of removal and replacement of material during the construction process) is noted.

Buried soil or stripping of turf?

Several indicators suggest that that initial mound construction involved preparation through removal of surface material as turves and/or topsoil. The boundary between weathered bedrock 506 and deposit 507 above it, although slightly undulating, is sharp, and with markedly horizontal points of interface, indicating truncation of 506. Signs of compaction of the base of 507 into the weathered bedrock below may also indicate clearance and levelling.

Frequent thick and extensive silt and organic coatings on sand grains, and similar infills within voids, are a key feature of 506. These are indicators for fairly energetic disturbance immediately above, for instance through clearing and subsequent deposition and perhaps compression of new material. Meanwhile, indicators for clay translocation indicative of lower energy processes, such as illuviation, are absent. A carbonised fragment in 506 (Fig. 12, image 1) may provide another (minimal) indicator of the potential stripping of material down to bedrock prior to mound construction, allowing anthropogenic material into the disturbed weathered bedrock.

Deposit 507 also shows several features which suggest that it represents material transferred from another location, rather than in-situ soil formation. Its boundary with 506 marks a sharp change in texture, with a smaller and finer (although mineralogically similar) coarse mineral component and a sharp increase in organics, including small carbonised materials and larger, discrete fragments of fibrous peat adjacent to the boundary. This suggests human influence during formation of this part of the stratigraphy, and the redeposition of material from a more organic location onto the weathered subsoil. A further indication of this may be seen in void structure throughout the deposit, discussed above, also seen in the lower part of primary mound deposit 500.

Anthropogenic inclusions: microscopic evidence for human activity relating to the mound

Anthropogenic influence is seen throughout, with a minor input of carbonised fragments showing burnt peat and (slightly more frequent) charcoal morphologies into each deposit. The small size and relative rarity of these fragments suggest that they are likely to be windblown, as does the absence of indicators for more direct heating and combustion activity (for example *in-situ* burning of the turves either prior to or during construction), such as heating of the soil matrix, larger accumulations of carbonised material, or ash. Burnt bone, though potentially survivable in these deposits, is absent.

POLLEN
By Mairead Rutherford

Introduction

Twelve sub-samples taken from monoliths 102 and 103 were submitted for palynological analysis, comprising three sub-samples from the layer beneath the monument (506), three from the lower part of the primary mound (507), five from the upper part of the primary mound (500) and one from the secondary turf mound (504). The objective of the analysis was to confirm whether the turves used for the construction of the round barrow were all taken from a similar location and to determine whether detailed sub-sampling through 507 showed any indication of repeated pollen profiles, which could be interpreted as representing individual turves. The buried soil may provide information regarding the local and regional vegetation at or possibly before the time of construction of the barrow.

In order to address the aim of the analysis, which involved looking for repeated profiles, it was necessary to present relative quantities, in the form of percentages, of the components of the pollen data in stratigraphic unit order. The resulting profiles, however, do not necessarily reflect a continuously accumulating sequence of deposits, rather than, as was likely to be the case here, episodes of discrete deposition and, potentially, removal of parts of the mound and subsequent reconstruction.

Methodology

Volumetric samples (1ml) were taken from 12 sub-samples and prepared using a standard chemical procedure (method B of Berglund and Ralska-Jasiewiczowa, 1986). Pollen identification and nomenclature follows Moore *et al.* (1991), with reference to a small type collection held by OA North. Plant nomenclature follows Stace (2010). Pollen counts of a minimum of 500 grains (including trees, shrubs and herbs) have been achieved for all of the sub-samples analysed. Pollen was counted from equally spaced traverses across whole slides at a magnification of x400 (x1000 for critical examinations). Pollen data have been presented as a percentage diagram using the computer programs TILIA and TGView (Fig. 12; Grimm 1991–2012). The percentage values are based on a total land pollen (TLP) sum that includes trees, shrubs and herbs. Fern spores, microcharcoal particles and deteriorated grains are expressed as percentages of TLP plus the respective sum to which they belong. Rare pollen types (single occurrences of taxa) are marked on the diagram using a plus symbol.

Results (Fig. 15)

INSERT FIGURE 15

The assemblages are dominated by pollen of shrub and heath taxa, especially hazel-type (*Corylus avellana*-type) and heather (*Calluna*). Tree pollen present includes common alder (*Alnus*) and relatively common oak (*Quercus*), with occurrences of birch (*Betula*), pine (*Pinus*), elm (*Ulmus*), and lime (*Tilia*). Herb pollen is largely dominated by grasses (Poaceae), but other taxa also occur consistently, including dandelion-type (*Taraxacum*-type), ribwort plantain (*Plantago lanceolata*), cinquefoils (*Potentilla*-type) and daisy-type (Asteraceae). Spores of bracken (*Pteridium*) and polypody ferns (*Polypodium vulgare*) are present in all the sub-samples.

Three sub-samples analysed from context 114 (part of 506), taken from the top of the weathered bedrock but not from the bedrock itself, show a slight increase upwards of heather pollen, a mid 'high' hazel-type pollen curve, coincident with falling grass values, and slight decreases in pollen of alder and oak, but negligible fluctuations in pollen of birch, pine, willow, elm and lime. The herb assemblage includes single occurrences only of cereal-type pollen and pollen of Apiaceae (a large group including plants such as burnet-saxifrages, angelica and wild parsley), distinguishing this deposit from subsequent deposits. There is a slight indication of increase in values for bracken spores, and counts for microcharcoal, which may have originated from local or regional burning events, increase upwards through the context.

The pollen assemblage suggests a mosaic of palaeoenvironments, dominated by hazel-type scrub woodland with possibly regionally developed alder woodlands in damper areas, and mixed woodland stands of oak, birch, elm and lime on better soils. There is evidence also for heather moorland, and some open grassland areas supporting a herb population. The herb flora, comprising pollen of plants such as docks/sorrels (*Rumex*), ribwort plantain, pollen of Apiaceae, devil's bit scabious (*Succisa pratensis*) and a single cereal-type pollen (if not attributed to pollen from a wild grass (Andersen *et al.* 1979)) may suggest some use of the landscape for pastoral and possibly arable use. Increased values for microcharcoal may suggest burning of woodland trees, possibly oak, alder and, in particular, hazel-type, as the pollen curves for these taxa decrease through the deposit. Bracken thrives in woods, heaths and moors and is often dominant over large areas, usually on acid dry soils (Stace 2010). Bracken is known to invade cleared areas adjacent to woodlands and is also a positive pyrophyte (perennial plants growing in regularly burned areas (Innes 1999, Innes *et al.* 2013)).

Three sub-samples analysed from context 109 (part of 507) show slight fluctuations in heather pollen, inversely corresponding to fluctuations in the grass pollen curve, largely consistent values for hazel-type pollen, a slight increase in oak pollen but largely consistent curves for other tree pollen and herbs, and a small but clear peak in pollen of cinquefoils (*Potentilla*-type). Counts for bracken show a slight increase upwards through the context, while counts for microcharcoal increase upwards through the context.

The pollen assemblage from 507 suggests similar palaeoenvironments to those from the underlying 506. A relative peak in microcharcoal, in the uppermost sub-sample within the context, may be interpreted to suggest possible burning of heather rather than hazel-type or oak. Opportunistic growth of bracken ferns, possibly in response to fires and openings in the landscape, is inferred from the curve for bracken spores (Fig. 15). Plants within the cinquefoils (*Potentilla*), if attributable to species of tormentil, for example, are known to occur on grassland and as a component of dwarf-shrubland on heaths, mostly on acid soils (Stace 2010). Several other species of cinquefoils also occur in grasslands and/or on heaths (Stace 2010).

Pollen data from layer 500 may be interpreted to show consistent values for hazel-type pollen, and an initial increase in heather pollen, coincident with a drop in values for grass pollen in the lowest sub-sample at the base of the primary mound, followed by a gradual decline in pollen of heather and corresponding increase in the curve for grass pollen. There are slight fluctuations in pollen of alder, oak and possible decrease in elm pollen, and a slight indication of increase in values for bracken spores. Values for micro-charcoal are consistent except for the uppermost sub-sample where values for microcharcoal increase.

A largely similar picture to that described from 506 and 507 emerges from the pollen profiles from 500. There are some subtle differences which may be observed, for example, a rise in microcharcoal values towards the top of the primary mound may be correlated with a slight drop in pollen values for alder and oak. Similarly, a reduction in the heather curve at the top of the primary mound deposit appears to correspond with an increase in grasses, suggesting possible burning of heather to promote grassland pasture. A similar trend to that seen in 507 and 506 regarding the curve for bracken is also visible in 500.

A single sub-sample from context 104 (part of 504) shows very similar pollen curves to those described from the primary mound. There is a slight increase in hazel-type with coincident fall in values for grass pollen, and a slight drop in pollen of oak, birch and heather. The number of bracken spores is lower, relative to the underlying deposit.

There is little palynological distinction between the pollen components from 500 and 504. It would appear that hazel-type scrubby woodland and heather moorland were the main palaeoenvironments, with open grassland areas supporting herbs such as thistles (*Cirsium*-type), sedges (Cyperaceae) and dandelion-type (*Taraxacum*-type). Pollen of alder shows a slight increase, supporting the view that alder woodland probably expanded in the valleys or areas of damper ground. Mixed woodland comprising oak, birch, lime and elm was also present, perhaps regionally.

Discussion

The palynological work indicates that there is no significant change in the pollen profile between the layer underneath the monument and the primary or secondary mounds. These data therefore support the theory that the turves used in mound construction were probably all derived from similar palaeoenvironments and may even have been derived from the same location during the same time period. The pollen assemblages from the buried soil and the mound are so similar to each other that they must surely have come from similar palaeoenvironments, and so the pollen evidence supports the results from the micromorphology analysis.

Generally, the tree and shrub pollen contributes between approximately 80–90% of total pollen counted and herbs account for between 10–20%. Of the tree and shrub pollen, the dominant components are the shrub pollen of heather and hazel-type, accounting for approximately 70% of the tree/shrub pollen count, the remaining 30% comprising pollen of alder, oak, birch, pine, lime, elm, willow, ivy (*Hedera*) and ash (*Fraxinus*). It is for this reason that the dominant palaeoenvironment is interpreted to be one of rough heather moorland on dominantly acid soils, with scrubby hazel-type vegetation. The evidence for woodland pollen suggests development of alder woodlands with mixed forests of dominantly oak, birch, elm and lime, probably regionally located. The herb pollen assemblage comprises mainly grasses, with additional taxa including pollen of cinquefoils, dandelions, ribwort plantain, devil's bit scabious, thistles, sedges and docks/sorrels. Such environments could have been utilised as pasture for grazing animals.

Palynological work from eastern Dartmoor (Stonetor Brook, Shovel Down) has shown that heathland was first established there around 3630–3370 cal BC (OxA-14390; early-middle Neolithic, Fyfe *et al*. (2008)). During the early Bronze Age, hazel scrub became re-established in the area but later in the Bronze Age, *c* 1480 cal BC, the pollen data indicate a substantial shift to species-rich grassland (Fyfe *et al*. 2008). These events reflect local activity rather than being indicative of the wider landscape. However, if this chronology is correlated with the palynological sequences found at Emmets Post, bearing in mind that the turves may represent discrete units rather than a continuously deposited sequence, then the turves that were used to construct the round barrow may have derived from the period prior to a major vegetational shift to grassland and possibly during the period of re-establishment of hazel-type during the early Bronze Age.

WOOD CHARCOAL AND CHARRED PLANT REMAINS
By Sheila Boardman

Introduction

Eleven soil samples (0.5–70 litres in vol.) were collected and assessed for wood charcoal and charred plant remains. Sampled contexts included the buried soil, the primary and secondary mounds, and the central deposit. The samples with charred plant remains came from the secondary mound and central deposit. The aims of the analysis were to confirm the range of plant remains and taxa present, and to examine how this material relates to the barrow and local area.

The bulk samples were processed using a modified Siraf tank, with mesh sizes of 250µm and 500µm used for the collection of the flots and residues respectively. Once dried, the different fractions were dried sieved at 2mm and sorted for wood charcoal and other charred remains, including seeds, cereal chaff, nutshell and root/tuber fragments. There were very few charred plant remains. Where not readily identifiable, these were compared to modern plant reference material and published keys (eg Cappers *et al.* 2006; Anderberg 1994). The flots had large quantities of modern plant rootlets, indicating recent disturbance of the barrow deposits.

Wood charcoal was extracted from the 2mm flot fractions. Individual fragments were fractured by hand and sorted into groups based on features observed in the transverse sections, at magnifications of x10-40. The fragments were then fractured along their radial and tangential planes and examined at magnifications of up to x400 using a Brunel SP400 metallurgical microscope with brightfield/darkfield illumination. Identifications were made using keys in Hather (2000), Gale and Cutler (2000) and Schweingruber (1990), and by comparison with modern slide reference material. Between 20 and 74 charcoal fragments were identified per sample. Plant nomenclature follows Stace (2010).

Results

Wood charcoal (Table 2)

INSERT TABLE 2

A narrow range of charcoal taxa was identified in the samples. Most common was oak (*Quercus*), present in eight of 11 samples. This was generally represented by heartwood and a little sapwood. The second most common groups were legume (Fabaceae) and legume/ buckthorn (Fabaceae/*Rhamnus cathartica*) roundwood. The remains here were almost entirely from narrow, papery roundwood. The legume shrubs most likely to be represented here are gorse (*Ulex*), widely distributed on sandy or peaty soils, and broom (*Cytisus scoparius*), a strongly calcifuge shrub of heathland, rough grassland, sandy banks and open woodland (Stace 2010). The charcoal identified as legume/buckthorn (Fabaceae/*Rhamnus cathartica*) had triseriate rays, a feature shared by both groups. Buckthorn has predominantly biseriate rays. Legume wood also has larger vessels in the early wood, but it was not always possible to see this feature on the narrow, radially split fragments, especially where some vitrification had occurred. No definite buckthorn charcoal was identified, so it seems probable that most or all of the legume/buckthorn charcoal is from legume species.

Other tree taxa included beech (*Fagus sylvatica*), represented by two fragments in one secondary mound sample (200, layer 504), and alder (*Alnus glutinosa*) or alder/hazel (*Alnus*/*Corylus*) charcoal, represented by four fragments from samples 400 and 402, both from the central cairn (503). Unfortunately, one alder/hazel fragment from sample 400 had a late date of 1260-1010 cal BC (UBA-31117), so this appears to be intrusive in this deposit. Other shrub taxa included heather (*Calluna vulgaris*) and heather/crowberry family (Ericaceae/Empetraceae), both present as narrow roundwood in three samples (400, 401 and 402), again from layer 503, associated with the central deposit. It is likely that most of this material is from heather and ericaceaous species. None of the wood charcoal from Emmets Post was well preserved, so some final identifications have remained partial.

Charred plant remains (Table 3)

INSERT TABLE 3

Identifiable remains were present in very low numbers in three samples. The majority of the remains came from layer 507 (sample 300), from the central deposit, but even these were very sparse given the 70 litres of soil processed. There was also an issue relating to the taphonomy of the plant material from this sample that was dated. Identifiable remains included a few legume seeds (including *Melilotis*/*Medicago*/*Trifolium*, cf. *Ulex* sp., Fabaceae), a possible pignut (cf. *Conopodium majus*) tuber and some remains of onion couch grass ([cf.] *Arrhenatherum elatius* var. *bulbosum*). The last, represented by swollen culm internodes and fragments, occurs fairly widely (if sparsely) on prehistoric archaeological sites. One internode fragment here was dated to 1750–1560 cal BC (UBA-31116) (see below). The other remains in sample 300 were a monocot culm node, monocot culm lengths and bases, indeterminate seeds, and an indeterminate pod fragment, and leaf bud and tuber fragments. Sample 300 also produced some residual legume/buckthorn (Fabaceae/*Rhamnus cathartica*) charcoal, which considerably pre-dates the construction of primary mound. The other identified plant remains were a basal cereal rachis fragment of probable wheat (cf. *Triticum* sp.), and a hazelnut (*Corylus avellana*) shell fragment.

Discussion

As the majority of the charred plant remains came from the central area of the cairn, which the radiocarbon dating programme shows had both intrusive and residual plant material, it seems unwise to discuss these remains in great detail. With the exception of the possible wheat rachis fragment, none of the remains are particularly unusual for a site of this age and type. Furthermore, it has been suggested elsewhere (see Discussion, below) that the date of 1750–1560 cal BC (UBA-31116) from the probable onion couch grass internode in layer 507 (sample 300) might provide a closer date the construction of the barrow. This sample which produced most of the smaller charred plant remains from the site.

Many wood charcoal samples were shown by the dating programme to be intrusive and therefore not contemporary with the construction of the barrow, but the assemblage overall was reasonably consistent, and it seems probable that small shrubs, such as gorse and broom grew in the locality. Oak seems to have been the main tree species used as fuel, and this was possibly brought to site from further afield. The oak and legume wood may have been supplemented with a little beech and alder/hazel, although the latter are perhaps more likely to be from later use of the area. The heather and heather/crowberry family charcoal all came from the central barrow deposit, which had the very inconsistent radiocarbon determinations, so it is not possible to say when these plants became more prevalent locally, or they became more commonly used for fuel.

RADIOCARBON DATING

By Peter Marshall, Elaine Dunbar, Alan Hogg and Paula Reimer

The main objectives of the dating programme were to:

- date the central deposit (sub-circular cairn);
- date the burning of the turf sward prior to the construction of the mound;
- date the construction of the primary mound;
- date the construction of the secondary mound.

Radiocarbon dating and chronological modelling

The radiocarbon dating programme was conceived within the framework of Bayesian chronological modelling (Buck *et al.* 1996). This allows the combination of calibrated radiocarbon dates, or other scientific dates, with archaeological prior information using a formal statistical methodology. At Emmets Post a number of stratigraphic relationships between the different phases of construction of the mound were available to constrain the radiocarbon dates.

Material suitable for radiocarbon dating was scarce. Unburnt bone did not survive and short-lived charcoal and charred plants remains were scarce. Pottery sherds were scanned for the presence of charred residues which might represent carbonised organic material, although the only visible residue was too small to warrant sampling. All the samples had the potential to be residual in the context from which they were recovered. Some samples have a plausible functional relationship with their parent contexts (such as charcoal in the burnt sward of turf used to construct the secondary mound), but in other cases the taphonomy of the dated material is much more uncertain (such as charcoal from the buried soil).

Radiocarbon methods

A total of 16 radiocarbon measurements are now available from Emmet's Post. All are conventional radiocarbon ages (Stuiver and Polach, 1977). The Scottish Universities Environmental Research Centre (SUERC) processed samples of charcoal and carbonised plant material, which were dated by Accelerator Mass Spectrometry (AMS), using the methods described in Dunbar *et al.* (2016). The ^{14}CHRONO Centre, The Queen's University, Belfast, processed five samples using methods described by Reimer *et al.* (2015). The charcoal and carbonised plant material were pre-treated using an acid-base-acid protocol, graphitised using zinc reduction (Slota *et al.* 1987) and dated by AMS. Three bulk peat samples were submitted to The Waikato Radiocarbon Dating Laboratory. The samples were acid-washed using 10% concentration HCL, rinsed and then washed in hot 1% NaOH. Humic acids were obtained from the base soluble fraction which was acidified, rinsed, and dried, while a further step involving an acid wash in 10% HCL, prior to the sample being rinsed and dried was employed prior to the base soluble fraction being selected for dating. The radiocarbon ages for each sample (humic and humin fractions) were then determined by liquid scintillation counting of benzene (Hogg *et al.* 1987).

Quality assurance

All three laboratories maintain continuous programmes of internal quality control in addition to participation in international inter-comparisons (Scott *et al.* 2007; 2010). These tests indicate no laboratory offset and demonstrate the validity of the precision quoted.

Radiocarbon results

The results (Table 4) are conventional radiocarbon ages (Stuiver and Polach 1977), and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986).

Radiocarbon calibration

The calibrations of these results, which relate the radiocarbon measurements direct to the calendrical timescale, are given in Table 4 and in Figure 16. All have been calculated using the datasets published by Reimer *et al.* (2013) and the computer program OxCal v4.2 (Bronk Ramsey 1995; 1998; 2001; 2009). The calibrated date ranges cited are quoted in the form recommended by Mook (1986), with the end points rounded outward to 10 years or five years if the error is <25 years. The ranges in Table 4 have been calculated according to the maximum intercept method (Stuiver and Reimer 1986); the probability distributions shown in Figure 16 are derived from the probability method (Stuiver and Reimer 1993).

The samples

Five samples were dated from the ?buried soil (group context 507) sealed by the base of the primary mound (group context 507; Table 4). Replicate measurements on the peat sample (<109> (104), 0.77–0.78m) are not statistically consistent (T'=16.0, T'(5%)=3.8, ν=1; Ward and Wilson 1978), but a weighted mean has been taken as providing the best estimate for the age of the sample (3874±21 BP), which given both the humic and humin fraction should be dating the formation of the deposit. The charcoal and carbonised plant material is clearly of different ages (Fig. 16) and group context 507 clearly contains residual (SUERC–65196) and intrusive (UBA-31116) material.

Three samples were dated from the primary mound (group context 500; Table 4). Replicate measurements on the peat sample (<108> (108), 0.73–0.74m) are not statistically consistent (T'=8.5, T'(5%)=3.8, ν=1), but a weighted mean has been taken as providing the best estimate for the age of the sample (3796±16 BP), which given both the humic and humin fraction should be dating the formation of the deposit. Radiocarbon determinations of fragments of charcoal (UBA-31114 and SUERC–65195) from context (212) at the base of the eastern quadrant of the primary mound are statistically consistent ($T'=1.0$, $T'(5\%)=3.8$, $\nu=1$) and could be of the same age.

The two samples (UBA-31117 and SUERC-65198; Table 4) from the western quadrant of the central area of cairn 502 in the middle of the barrow mound are very different in age and both would appear to represent intrusive material.

Four samples were dated from the base of the secondary mound (group context 504; Table 4). Replicate measurements on the peat sample (<114> (104), 0.44–0.45m) are very different in ages although mirroring the trend in the other samples the humin fraction would appear to contain a residual component. The charcoal samples (UBA-31113 and SUERC-65194) are Iron Age in date and would therefore appear to not be related to the burnt swarth of turf used to construct the secondary mound, but represent intrusive material from later burning activity.

Interpretation

The scientific dating programme has highlighted the fact that the deposits contain both residual and intrusive material and therefore deriving a robust chronology for the construction of the primary and secondary mounds is not achievable.

INSERT TABLE 4: SUMMARY OF RADIOCARBON RESULTS
INSERT FIGURE 16

DISCUSSION

By Olaf Bayer and Andrew Simmonds

In 1890, the barrow committee of the Devonshire Association noted Emmets Post simply as ‘a fair–sized tumulus, which at least looks ancient’ (Worth 1890, 50). Excavation of the monument has significantly improved on this assessment, demonstrating it to be an early Bronze Age monument – albeit one that had been significantly disturbed by antiquarian intervention and lacking any evidence for a burial – while elucidating its structure and its relationship with the surrounding landscape.

It is estimated that there are around 700 barrows and cairns on Dartmoor (Newman 2011, 42). Although they are constructed from a limited number of basic elements, these are combined to form a wide range of arrangements, whose diversity is resistant to classification and presumably reflects differing ritual practices and the unique histories of the individual sites. It is no surprise, therefore, that excavation of Emmets Post has revealed the monument to be the result of a complex sequence of development rather than a single episode of mound building, and that its form and appearance changed over time. Four main structural elements were identified, comprising primary and secondary turf mounds, a central stone cairn and an outer kerb, which represent at least two and possibly three phases of construction. A possible buried soil (507) was tentatively identified beneath the monument during excavation, but micromorphological and pollen analysis support the interpretation that this layer was in fact part of the primary turf mound. It would appear, therefore, that the turf was stripped from the area of the monument prior to construction and the mound was then constructed on the surface of the exposed weathered bedrock. The removal of the turf was clearly an important act in preparation for the construction of the mound, and may well have had a ritual significance. The stripped turf may have been used in the construction of the mound but would not have provided sufficient material to constitute the entire structure, which would have required the stripping of a much larger area (or areas). There is some evidence from the micromorphology that turves came from a range of locales, some being almost pure peat while others come from a drier environment, but the similarity of the mineral inclusions indicates that none came from very far afield.

The initial form of the monument comprised a low, flat turf platform with the stone cairn constructed at its centre. A significant aspect of the cairn is the proportion of materials used in its construction. The cairn is made up of between 70–80% quartz tourmaline blocks with much smaller quantities of granite blocks present. Quartz tourmaline exists as an infrequent vein material running at an angle through the underlying china clay deposits. Whilst it is occasionally present as surface stone it is much less common than granite. The proportion of quartz tourmaline used therefore suggests that it was deliberated selected, potentially indicating a particular significance or association attached to this material by the cairn's builders. The large depression in the surface of the barrow mound combined with the radiocarbon determinations from the cairn indicate that it had been disturbed by an antiquarian trench, although the extent of this disturbance was not realised during excavation.

This initial phase of the monument is similar to the category of monument that Turner (1990, 46–8) describes as 'platform circles' and Burgess (1980, 305 and fig. 7.5) as 'kerb cairns', although Emmets Post lacked the stone kerb that characterises this form, since the kerb was clearly constructed on top of the primary mound when the secondary turf mound was added. Turner (1990, 47) states that in some instances the kerb consists of no more than a few token stones, as in the cairn at Beardown and similar monuments without kerbs have been recorded on Bodmin Moor (Johnson and Rose 1994, fig. 25 nos 1 and 2). The lack of weathering of the surface of the primary mound indicates that it was not exposed for a significant period of time before it was subsumed beneath the secondary mound, significantly altering the appearance of the monument. If the surviving profile of the mound is an indication of its original form, and not the result of later damage, it is likely that this phase of the structure was quite steep-sided. The kerb comprised intermittent, spaced stones and is unlikely to have had any role in revetting the mound, suggesting that it was more important for its appearance rather than for any practical function. It is likely that the kerb has been heavily robbed in the historic period and that it may have been more complete in its original form.

Such a sequence of construction and subsequent alteration of the monument is not unusual, and Burgess (1980, 310) has argued that 'a large proportion, perhaps a majority, of barrows and cairns underwent successive modifications to accommodate new burials or fresh ceremonial demands'. At Emmets Post, the construction of the secondary mound would have completely changed the appearance of the monument, completely obscuring the cairn and rendering it inaccessible. This may have represented a final act of closure of the monument, or it may have continued to be used in a different way. It is possible that the alteration and sealing of the mound was intended from the outset, but it is equally possible that it represents unplanned, *ad hoc* changes in response to changed circumstances that could not be foreseen when the monument was initially constructed.

The results of the radiocarbon dating programme were disappointing. Although a total of 16 samples were submitted, the determinations did not form a coherent sequence, which precluded the intention of constructing a Bayesian model to establish a chronology for the development of the monument. The range of dates, which varied from the early 3rd millennium to the early 2nd millennium cal BC and in many instances significantly pre-dated the currency of monuments of this type, clearly derived from construction of the mound using turves that included some significantly older material. Some of this older charcoal could have derived from deliberate burning of the turf sward to improve grazing, or result from a wildfire, sometime before the turves were cut to construct the mound (cf Karg 2008), with the dates on Rhamnus/Fabaceae charcoal and monocot stems leaves (UBA-31114, UBA-31115, SUERC-651975, SUERC-651977) of between 2140-1880 BC perhaps indicating the date of this event. The latest dates are broadly consistent with the construction dates of similar monuments, which typically fall within the early Bronze Age, defined as *c* 2000–1500 cal BC, although with a few radiocarbon ranges that start in the late 3rd millennium (Quinnell 1988, fig. 1). In the vicinity of Emmets Post, the two conjoined cairns at Headon Down are estimated to have been constructed in 1750–1625 cal BC (95% probability; build barrows; Fig. 17), probably 1730–1670 cal BC (68% probability), and those from Shaugh Moor in the first half of the third millennium cal BC (Fig. 18). The date of 1750-1560 cal BC for the *Arrhenatherum* 'tuber' from the central area of the barrow corresponds particularly closely with these dates and may represent the true date of the construction of the mound.

INSERT FIGURE 17
INSERT FIGURE 18

The Trevisker ware sherd recovered from Emmets Post suggests a similar date, since this type is typically attributed to the early Bronze Age; a chronological model for the currency of Trevisker ware (Fig. 19) provides an estimate for its initial use of 2345–1980 cal BC (95% probability), probably 2200–2040 cal BC (68% probability).

INSERT FIGURE 19

No human remains were recovered during the excavation and it is not known whether any were removed during the antiquarian investigation, of which there is no record. This absence may be attributed to the acidic soils of the moor, in which unburnt bone does not survive. Calcined bone is more resistant to acidic conditions and many cremation burials have been excavated on the moor, but no burnt bone was recovered at Emmets Post. It is possible that the mound never contained a burial, since an absence of human remains is a common feature of barrows on Dartmoor and in south-west England more generally (Dyer and Quinnell 2013, 76; Jones 2005, 128; Jones 2011, 67). A survey of barrows in Cornwall concluded that burials may have been only an occasional inclusion, and may often have comprised only a token offering rather than an entire body (Jones 2005, 115). Furthermore, the insertion of human remains was frequently the last act on the site, associated with the closure of the monument rather than its primary function. It is therefore uncertain whether a burial was present at Emmets Post, since it would appear that Bronze Age communities were constructing monuments that superficially look like funerary structures but which had no burials inserted. There was similarly little evidence for other deposits of artefacts, unless the pottery sherds were placed as such. Unfortunately, the pottery derives from disturbed contexts, sherd P1 coming from the stone cairn and sherd P2 from material that had been redeposited by the antiquarian trench, and so there is insufficient contextual information to be certain whether they were placed in the mound deliberately, or to determine whether they represent the surviving parts of formerly complete vessels that have otherwise been lost due to the later disturbance. Given the absence of evidence for any other Bronze Age activity at the site, however, it seems most unlikely that the sherds could have found their way into the monument by accident. Pottery is generally scarce in Dartmoor barrows and Trevisker ware is particularly rare, until recently being thought to be completely absent (Jones 2005, 128). In addition to the sherds at Emmets Post, sherds from several Trevisker vessels have also now been recovered from one of the recently excavated cairns at Crownhill Down. It is likely that in addition to the Trevisker ware sherds, the concentration of quartz fragments in the central and eastern area of the cairn also represent deliberately placed 'artefacts' that have been disturbed by the antiquarian excavation'. The inclusion of quartz within central or structured deposits in barrows has been recognized elsewhere in the south-west for example at Davidstow, North Cornwall (Christie 1988).

During the late 20th and early 21st centuries several projects on the south western fringe of Dartmoor, all within 4km of Emmets Post barrow and all conducted in advance of mineral extraction, have seen the only scientific excavations of early Bronze Age funerary monuments on Dartmoor (Wainright *et al.* 1979; Dyer and Quinnell 2013 and Hughes 2016). Results from these investigations have shown these monuments to be diverse in size, morphology and character. The composite structure of the Emmets Post barrow consisting mostly of turf with a small central cairn does not have any close parallels. However, elements of its construction are echoed in neighboring sites. Whilst there are turf elements to several of the excavated cairns at Hemerdon and Shaugh Moor (Wainwright *et al*. 1979; Hughes 2016), the only other substantial turf-built monuments are the pair of conjoined barrows at Headon Down (Dyer and Quinnell 2013, 56–65). In comparison to the Emmets Post barrow both of these mounds are much lower, broader, single phase monuments. The central cairn at Emmets Post is similar in size to the smaller cairns (cairns 70, 71 and 126) recorded at Shaugh Moor (Wainwright *et al*. 1979). Several of the cairns at Shaugh Moor and Hemerdon have phases that include kerbing (Wainwright *et al*. 1979; Hughes 2016). However, none of these examples are close parallels with the intermittent kerb enclosing the final mound at Emmets Post. The monument is also lacking the central charcoal-filled pit that is a common feature of barrows on Dartmoor. Five of the six cairns investigated at nearby Shaugh Moor covered such a pit (Wainwright *et al*. 1979, 29–31), as did the conjoined and the possible earthen barrows at Headon Down (Dyer and Quinnell 2013, 58–71), and several of the recently excavated cairns at Hemerdon (Hughes 2016), so the absence of one at Emmets Post serves to emphasise the variety of practices even at neighbouring sites. Although charcoal was recovered from the mound structure, this did not occur in sufficient concentrations to indicate that it derived from a disturbed charcoal-filled pit.

The pollen evidence from the turves that comprise the mound indicates that it was built in an environment of rough heather moorland with hazel scrub vegetation. This is consistent with evidence from elsewhere on the moor at Shovel Down that heathland, having expanded at the expense of hazel woodland during the mid-4th millennium BC, persisted until *c* 1480 cal BC, when it was replaced by grazed grassland (Fyfe *et al*. 2008, 2257–9). Trees are likely to have been few in the vicinity and the small quantity of wood charcoal that was recovered from the mound, most of which was oak, probably represents fuelwood that was brought to the site from elsewhere by the mound builders. In this relatively treeless environment, sightlines would have been virtually uninterrupted and the monument would have been a prominent feature of the landscape, particularly after it was enlarged by the addition of the secondary mound. The surrounding landscape has been drastically altered by the effects of quarrying but it has been possible to construct a model of the pre-quarry topography using a combination of present-day Lidar data (Ferraccioli *et al*. 2014) and contour information from 1954 National Grid 1:10560 Ordnance Survey mapping (Fig. 20). This has established that Emmets Post would have sat on an east to west running ridge separating the catchments of the Blackabrook to the north and the Tory Brook to the south. The barrow mound is most prominent when approached upslope across this ridge from the valley of the Blackabrook to the northeast. The mound may have still been recognised as an ancestral monument during the middle Bronze Age, when the landscape of ceremonial and funerary monuments that characterised the earlier period gave way to a landscape of domestic settlements and agriculture. The barrow would have been overlooked by the field systems and enclosed settlements on the rising ground of Trowlesworthy Warren, Lee Moor and Shell Top to the east and north east. It is likely that the monument would have been completely hidden from the reeve system, enclosures and cairns on Shaugh Moor, only 1km to the west, by the rising ground of Saddelsborough Tor. This period of agricultural and settlement expansion lasted for about four centuries, before declining at the end of the 2nd millennium, when the higher ground was abandoned and the moorland landscape of today became established (Fyfe *et al*. 2008, 2259–60).

INSERT FIGURE 20

The history of the monument between antiquity and the modern period is uncertain, although it is likely to have remained a significant landmark to local communities. The date of the antiquarian investigation that disturbed the centre of the mound is not known, since the intervention was not recorded. The radiocarbon date of cal AD 1430–1610 (SUERC-65198) that was obtained for a piece of Fabaceae from the cairn may provide a date for this disturbance, since excavation of cairns on Dartmoor is known to have started as early as AD 1324 (Newman 2011, 42). However, most antiquarian investigations were undertaken between the mid-18th and early 19th centuries and it is possible that the dated sample comprised material that was inadvertently introduced during an excavation of this date. By the mid-19th century the barrow was used to demarcate land holding in the unenclosed landscape of the moor. It formed part of the boundary between the estates of Lord Morley and Sir Ralph Lopes (Brewer 2002, 232–33). This may well reflect a longer tradition of using the mound as a boundary marker. The letters 'SM' for Shaugh Moor (owned by Lopes) and 'LM' for Lee Moor (owned by Morley) are carved into the north and south faces of the pillar respectively. The pillar belongs to a series of similarly inscribed boundary markers running north from Emmets Post along the former Cadover Bridge to Cornwood Road, and continuing east to the Blackabrook (Brewer 2002, 232). A series of boundary markers to the south west of Emmets Post have now been removed by Lee Moor quarry but were recorded in AD 1841 on Shaugh Prior Tithe Map. Several of the remaining pillars are inscribed with the date AD 1835 (Brewer 2002, 232; Greeves 1999, 9–12). China clay quarrying on Dartmoor began on Lee Moor in 1830 (Harris 1992, 87), and the boundary stones would have marked the northern limits of the initial china clay leases or 'setts'.

Greeves (1999) has suggested that the barrow can be identified with a site that was described in a 1753 source as being known variously as Shutaborough, Shuttershill, Rowtrundle or Roundtrendle. These names were presumably superseded after the post was inserted, although how the post, and hence the barrow on which it stood, came to be associated with 'Emmet', the name of a family that lived in nearby Shaugh Prior in the late 18th century (Hemery 1986, 211), is not recorded. Expansion of clay extraction during the second half of the 20th century left the barrow and post isolated on a thin strip of land between the Shaugh Moor and Lee Moor quarries. The final destruction of the monument, in the form of an archaeological excavation that particularly sought to involve and inform the local community, was undertaken with a care, deliberation and respect that mirrored the reverence that no doubt accompanied its construction. The fieldwork not only allowed

Silbelco to extend its quarry but provided a rare opportunity to investigate the structure and setting of a barrow that had become isolated from its historic landscape.

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Emmet's Post Figure and Table Lists

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Table list

Emmets Post Tables

Table 1: Quantification of pottery.

Context	**Details**	**No. sherds / weight (g)**
107	Part of 502 *in situ* cairn material	6/4 **P1**
210	Part of 502 *in situ* cairn material	1/15 **P1**
412	Part of 502 *in situ* cairn material	2/1 **P1**
409	Part of 503 disturbed cairn material	1/1 **P2**?
411	Reassigned to 409 part of 503 disturbed cairn material	4/4 **P2**?
207	Part of 509 fill of disturbance to mound	13/35 **P2**
329	Part of 509 fill of disturbance to mound	30/126 **P2**
415		1/3
Totals		60/186

Table 2: Wood charcoal.

Sample		203	202	200	201	115	300	400	401	402	403	404
Deposit		507	500	504	503	510	507	503	503	503	503	503
Description		Primary mound	Primary mound	Secondary mound	Central deposit	Central deposit	Primary mound	Central deposit	Central deposit	Central deposit	Central deposit	Central deposit
Floated vol. (litres)		40	40	40	20	5	70	13	5	18	40	0.5
Fabaceae/Rhamnaceae												
Fabaceae	legume	9r	20r	19r	4r	5r	1r	7r	1r	2r	3r	1r
Fabaceae/*Rhamnus cathartica* L.	legume/buckthorn	18r	17r	8r	2r	6r	3r	3r	11r	18r	15r	23r
Fagaceae												
Fagus sylvatica L.	beech	-	-	2	-	-	-	-	-	-	-	-
Quercus sp.	oak	24hs	19sh	28hs	54hs	42hs	67hs	-	-	10hs	16h	-
cf. *Quercus* sp.	cf. oak		-	-	-	1	-	-	-	-	-	-
Betulaceae												
Alnus glutinosa L.	alder	-	-	-	-	-	-	-	-	1	-	-
Alnus/Corylus spp.	alder/hazel	-	-	-	-	-	-	1	-	2	-	-
Ericaceae/Empetraceae												
Calluna vulgaris (L.) Hull	heather/ling	-	-	-	-	-	-	4r	3r	3r	-	-
Ericaceae/Empetraceae	heather/crowberry family	-	-	-	-	-	-	3r	1r	2r	-	-
Indet monocot culm lengths/bases		-	*	-	-	*	**	*	*	*	*	-
Indet. charcoal fragments		11r	6r	6r	1	9r	3r	7r	2r	10r	6r	-
Total fragments		62	62	63	62	63	74	25	20	48	40	24

KEY: Counts include: h - heartwood; s - sapwood; r - roundwood; b- bark. Frequency scores: * - present; ** - greater than 10.

Table 3: Charred plant remains.

Sample		200	300	402
Deposit		504	507	503
Description		Secondary mound	Primary mound	Central cairn
Floated vol. (litres)		40	70	18
cf. *Triticum* sp.	cf. wheat (basal rachis internode)	1	-	-
Melilotus/Medicago/Trifolium spp.	melilot/medick/clover	-	1	-
cf. *Ulex* sp.	cf. gorse	-	1	-
Fabaceae indet.	indet. legume	-	1	-
Corylus avellana L.	hazelnut (shell)	-		1F
cf. *Conopodium majus*	cf. pignut (tuber)	-	1F	-
Arrhenatherum elatius (L.) P. Beauv. Ex J & C Presl. Var. *bulbosum* (Willd.) St-Amans	onion couch grass (swollen culm internode)	-	1	-
cf. *Arrhenatherum elatius* var. *bulbosum*	cf. onion couch grass (swollen culm internode)	-	1 + F	-
Monocot	culm node	-	1	-
Monocot	indet. culm lengths/bases	-	**	*
Indeterminate	seed/fruit	2	1 + Fs	1
Indeterminate	pod fragment	-	1F	-
Indeterminate	leaf bud	-	1	-
Indeterminate	tuber/root storage organ	-	2F	-
Cenococcum geophyllum	fungal sclerotia	5	5	1

F - fragment(s). Frequency scores: * - present; ** - greater than 10.

Table 4: Summary of radiocarbon results.

Laboratory no.	Sample no.	Sample and context description	$\delta^{13}C$ (‰) - IRMS	Radiocarbon Age (BP)	Calibrated date
Group Context 507 (primary turf platform, lower)					
Wk-43128	<109> (109) 0.77–0.78m	Bulk peat (alkali-soluble fraction) from <109> (109) 0.77–0.78m, the top of the ?buried soil	−28.1±0.1	3770±33	
Wk-43127		Bulk peat (alkali- and acid-insoluble fraction) from <109> (109) 0.77–0.78m, the top of the ?buried soil	−28.2±0.1	3941±27	
	Weighted mean (104): 0.77–0.78m	T'=16.0, T'(5%)=3.8, ν=1		3874±27	2465–2285 cal BC
UBA-31115	<203> (211) sample A	Charcoal, cf. Rhamnus/Fabaceae roundwood (single fragment) from context 211, a ?buried soil (group context 507) sealed by the base of the primary mound (group context 500)	−26.2±0.22	3658±34	2140–1930 cal BC
SUERC-65196	<203> (211) sample B	Charcoal, Rhamnus/Fabaceae roundwood (single fragment) from context 211, a ?buried soil (group context 507) sealed by the base of the primary mound (group context 500)	25.1±0.2	4194±30	2900–2670 cal BC
UBA-31116	<300> (328) sample A	Carbonised plant material, cf. *Arrhenatherum eliatus* swollen basal culm internode (single fragment) from context 328, the buried soil (group context 507) underlying the southern quadrant	−24.7±0.22	3369±35	1750–1560 cal BC
SUERC-65197	<300> (328) sample B	Carbonised plant material, monocot type culm and culm base fragments (x4) from context 328, the buried soil (group context 507) underlying the southern quadrant	−26.0±0.2	3658±28	2140–1940 cal BC
Group Context 500 (primary turf platform, upper)					
Wk-43126	<108> (108) 0.73–0.74m	Bulk peat (alkali-soluble fraction) from <108> (108) 0.73–0.74m, the base of the primary mound	−28.4±0.1	3759±20	
Wk-43125		Bulk peat (alkali- and acid-insoluble fraction) from <108> (108) 0.73–0.74m, the base of the primary mound	−28.4±0.1	3852±25	
	Weighted mean (108): 0.73–0.74m	T'=8.5, T'(5%)=3.8, ν=1		3796±16	2290–2145 cal BC
UBA-31114	<202> (212) sample A	Charcoal, Fabaceae (single fragment) from context 212 at the base of the eastern quadrant of the primary mound (group context 500)	−27.2±0.22	3623±40	2140–1880 cal BC
SUERC-65195	<202> (212) sample B	Charcoal, Fabaceae (single fragment) from context 212 at the base of the eastern quadrant of the primary mound (group context 500)	−24.6±0.2	3606±28	2040–1880 cal BC
Group Context 504 (secondary turf mound)					
Wk-43124	<114> (104) 0.44–0.45m	Bulk peat (alkali-soluble fraction) from <114> (104) 0.44–0.45m, the base of the secondary mound	−28.0±0.1	3818±27	2400–2140 cal BC
Wk-43123		Bulk peat (alkali- and acid-insoluble fraction), from <114> (104) 0.44–0.45m, the base of the secondary mound	−28.7±0.1	4211±34	2900–2680 cal BC
UBA-31113	<200> (201) sample A	Charcoal, Fabaceae roundwood (single fragment) from context 201 at the base of the eastern quadrant of the secondary mound (group context 504)	−27.7±0.22	2372±35	540–390 cal BC

Laboratory no.	Sample no.	Sample and context description	$\delta^{13}C$ (‰) - IRMS	Radiocarbon Age (BP)	Calibrated date
SUERC-65194	<200> (201) sample B	Charcoal, Fabaceae roundwood (single fragment) from context (201) at the base of the eastern quadrant of the secondary mound (group context 504).	−27.2±0.2	2214±28	390–190 cal BC
Group Context 502 (cairn)					
UBA-31117	<400> (406) sample A	Charcoal, *Alnus/Corylus* (cf. *Alnus glutinosa*) [single fragment] from an area of potentially undisturbed deposits in the western quadrant of the central area of cairn (group context 502), in the middle of the barrow mound	−27.5±0.22	2937±34	1260–1010 cal BC
SUERC-65198	<400> (406) sample B	Charcoal, Fabaceae roundwood (single fragment) from an area of potentially undisturbed deposits in the western quadrant of the central area of cairn (group context 502), in the middle of the barrow mound	−24.7±0.2	424±30	cal AD 1430–1610

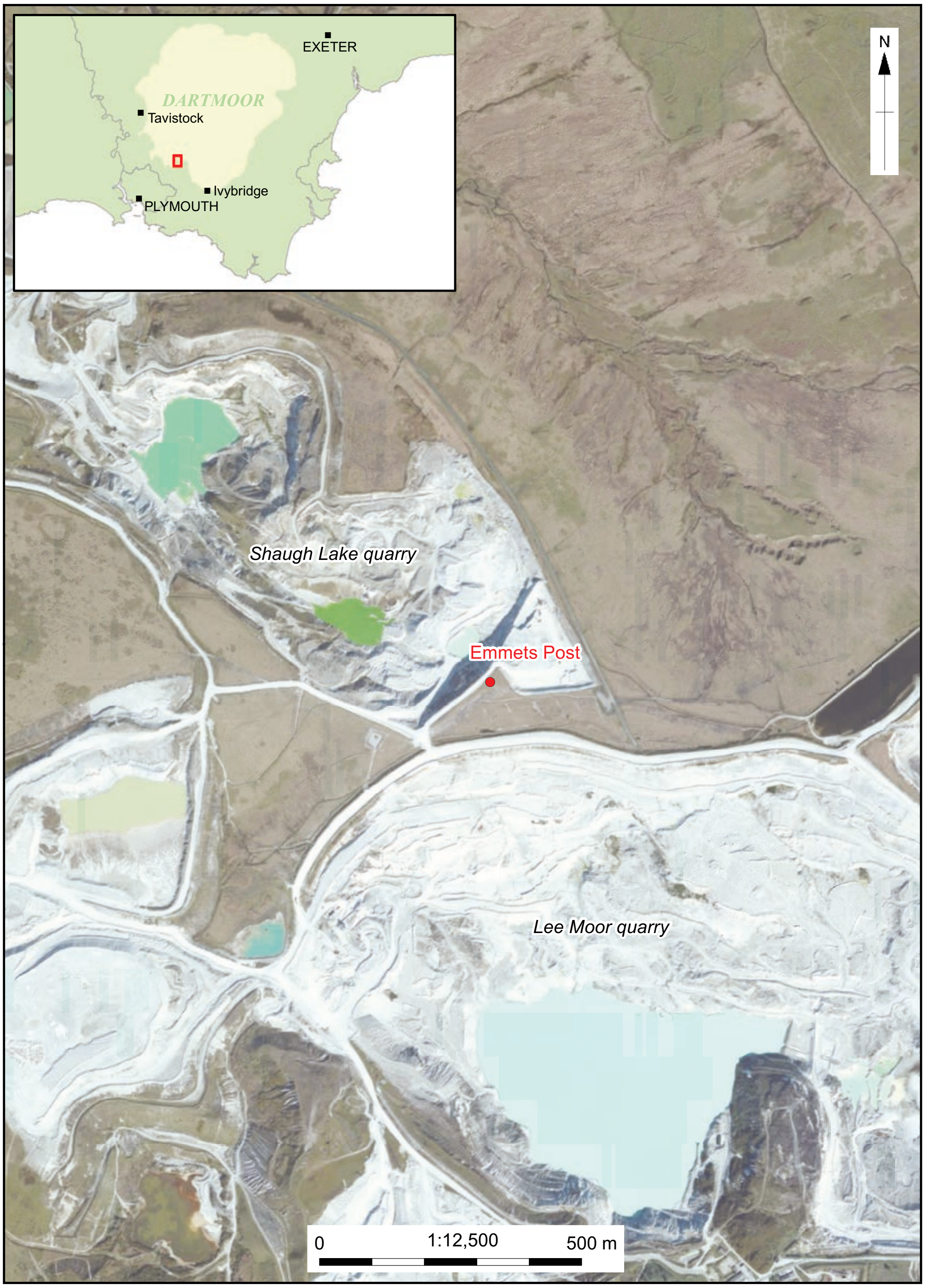


Figure 1: Site location map

Figure 2: The mound and post before excavation, with Lee Moor quarry in the background

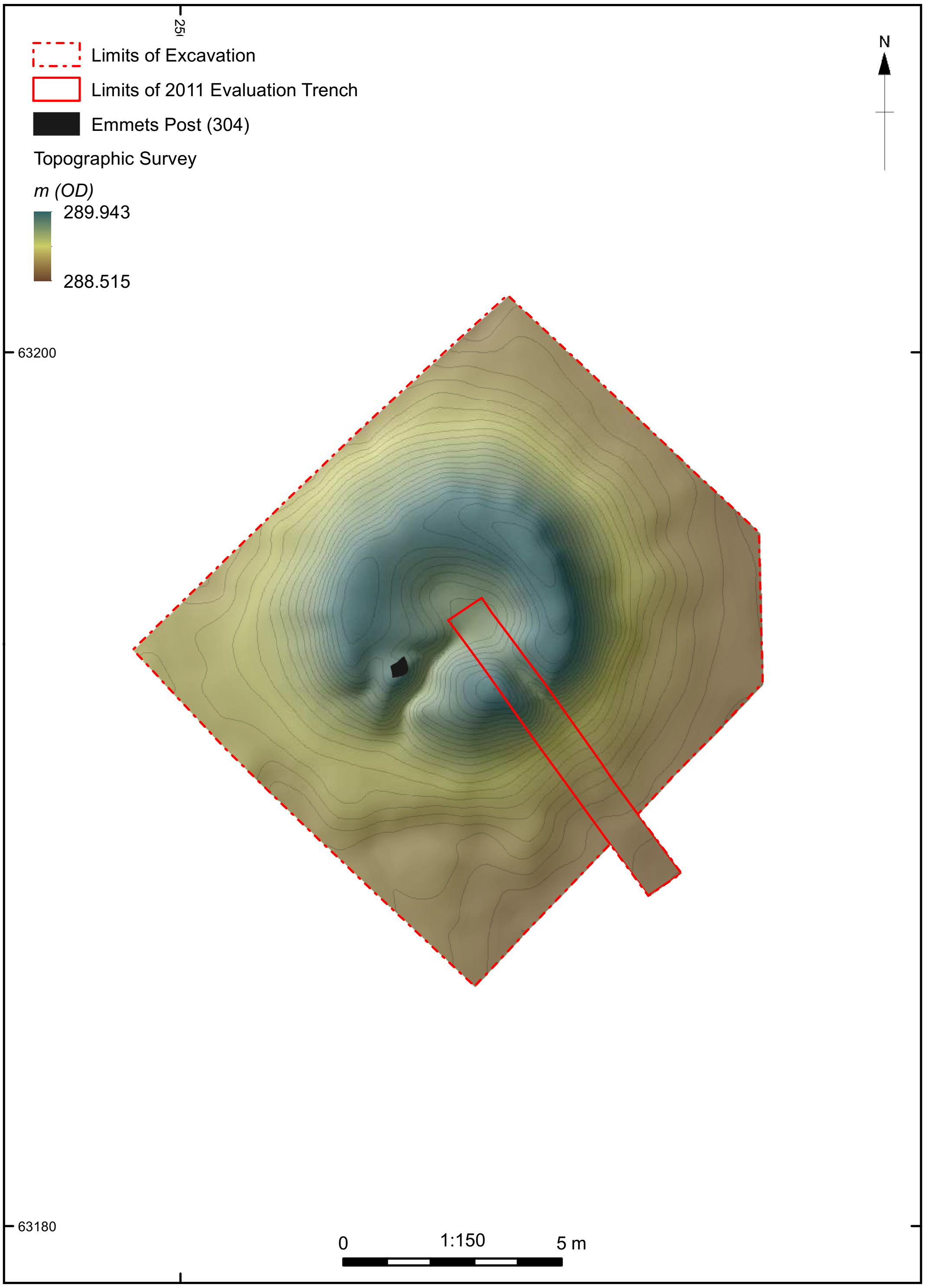


Figure 3: Topographic survey of the barrow mound

Figure 4: Section through the mound exposed by excavation of the northern quadrant (scales 2m)

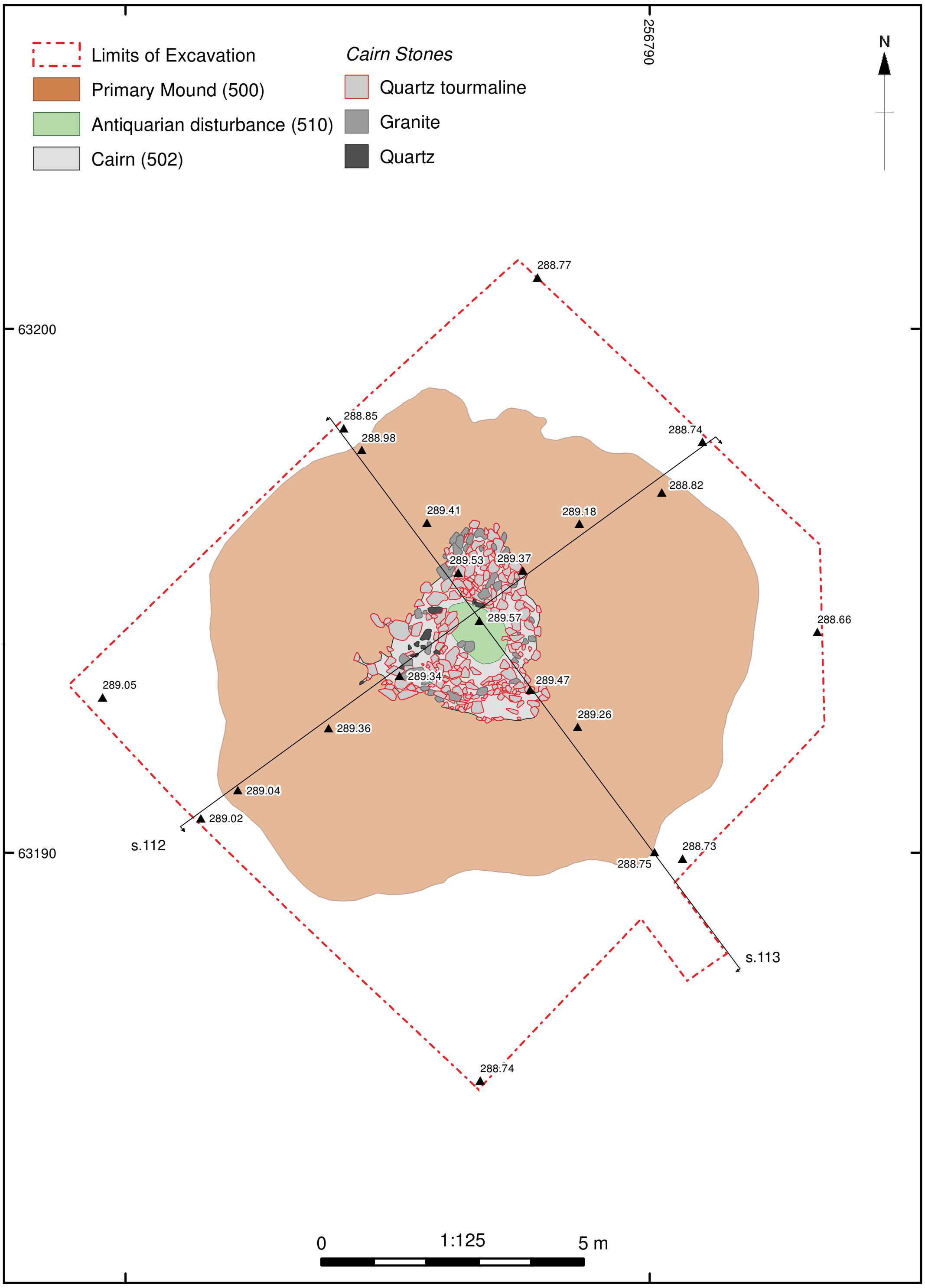


Figure 5: Plan of the primary mound (500) and stone cairn (502)

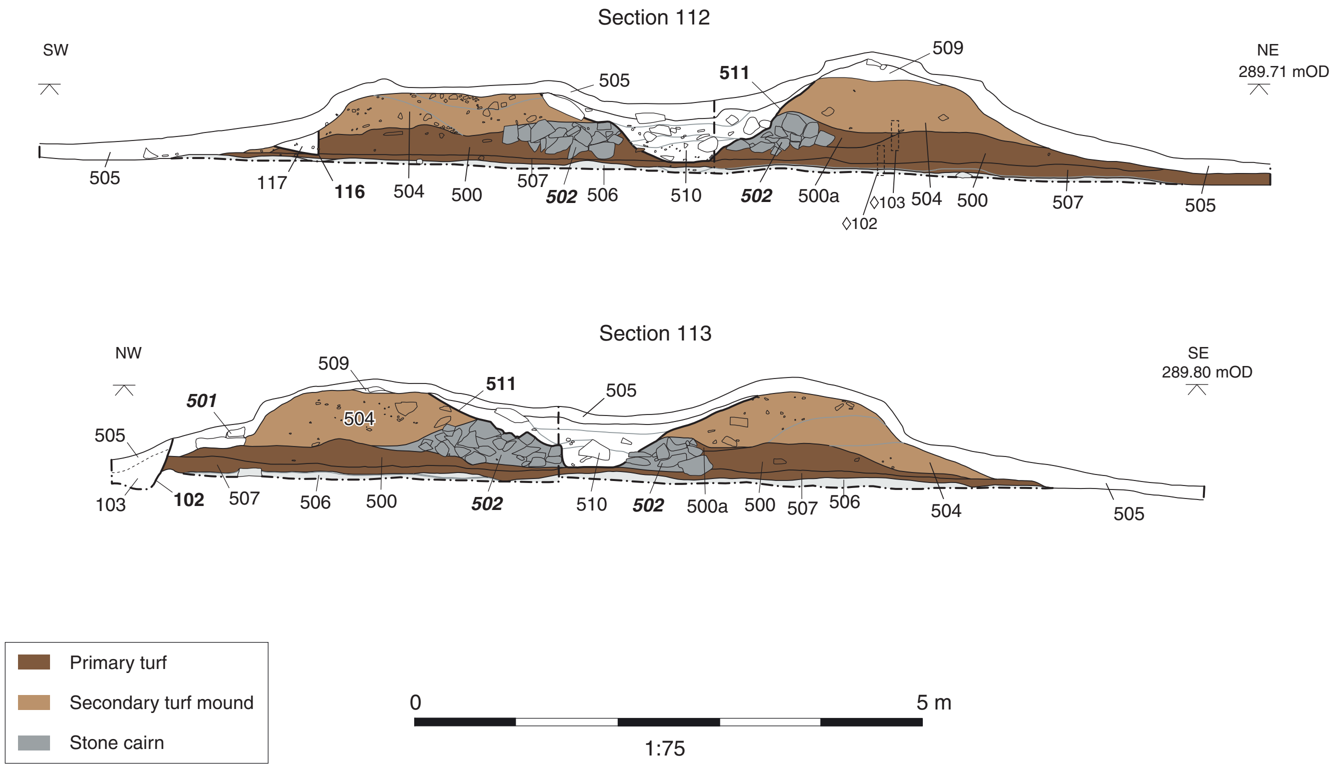


Figure 6: Sections through the barrow mound

Figure 7: The western and eastern quadrants of the primary mound 500 and cairn 502 exposed in plan, after excavation of the northern and southern quadrants

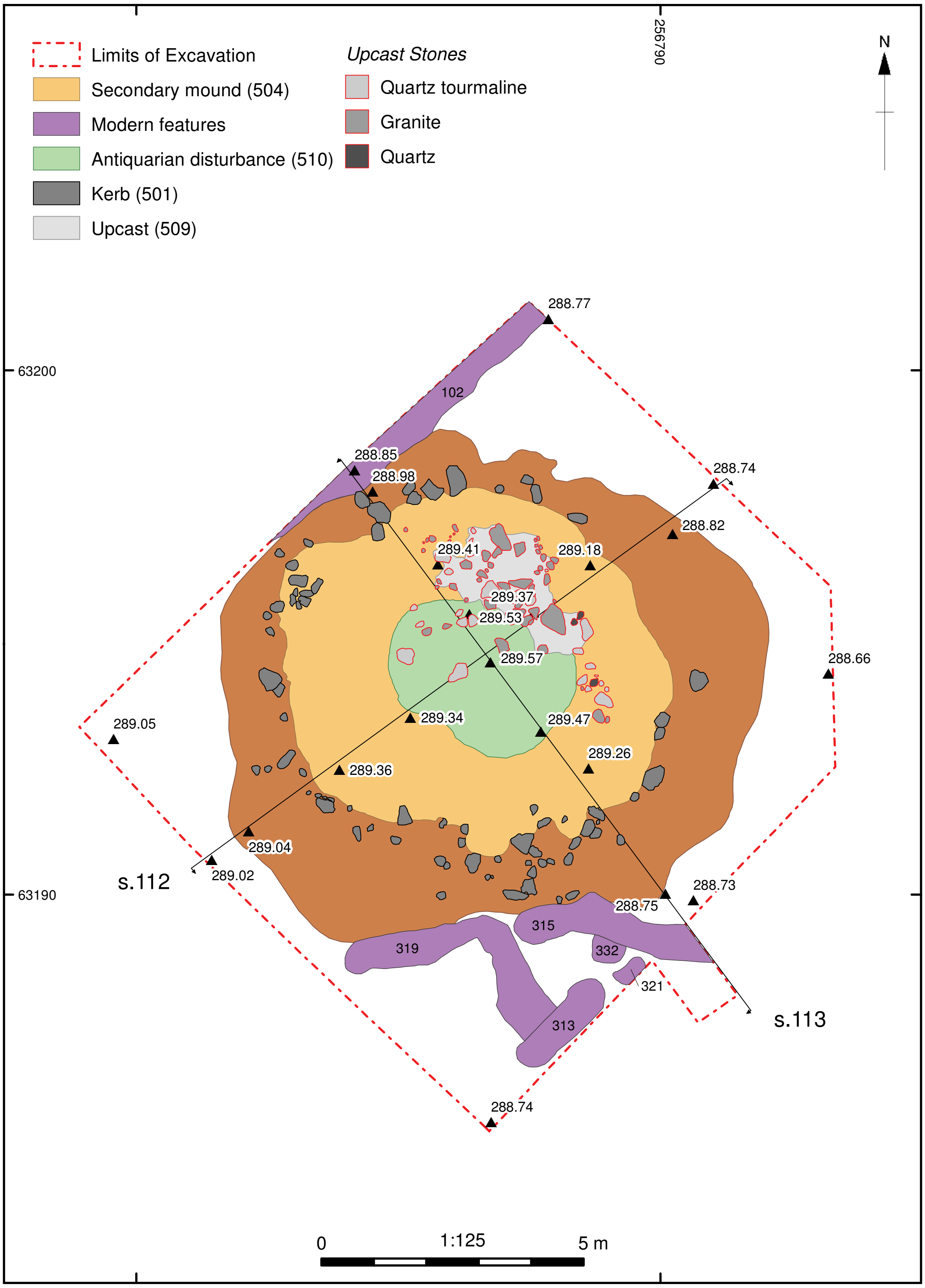


Figure 8: Plan of the secondary mound (504), kerb (501) and modern disturbances

Figure 9: Emmets Post prior to its removal,
viewed from the south (scales 1m and 0.25m)

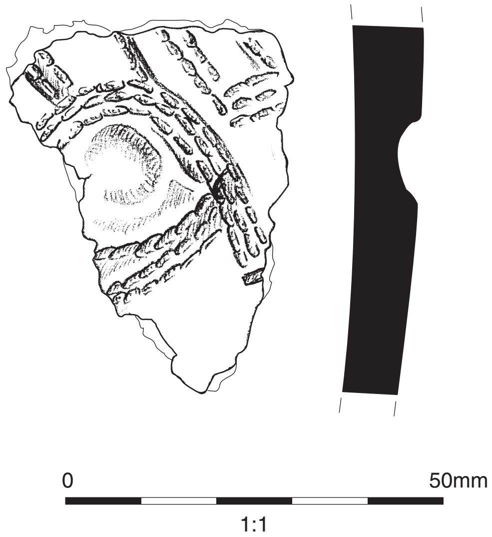


Figure 10: Pottery

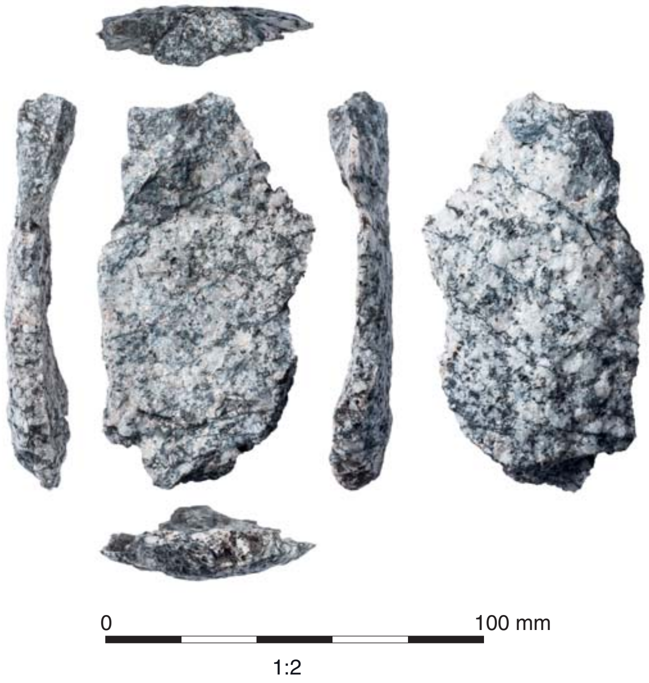


Figure 11: Granite flake from cairn 502

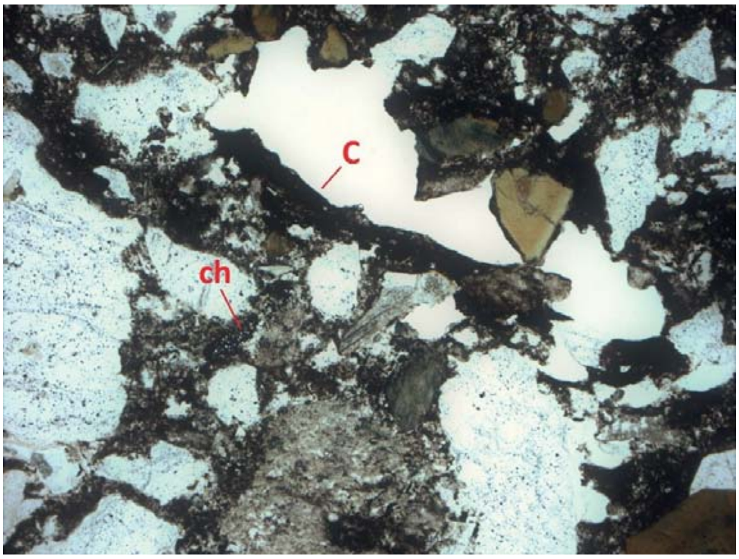


Image 1: Weathered bedrock 506. A fragment of probable wood charcoal is seen within the matrix (ch), immediately below a thick, probably organic-with-silt coating seen layered along the edge of a channel to the right (C) – indicative of disturbance above, and the down-profile movement of fine material. Plane polarised light. Image width: 2 mm

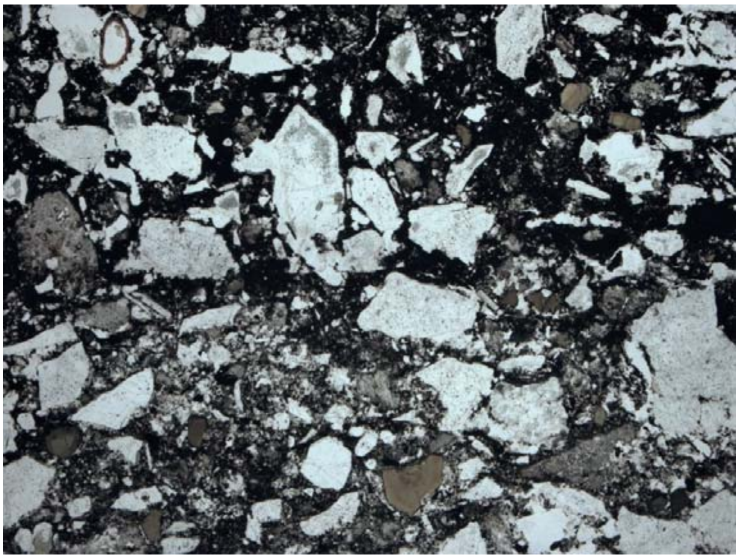


Image 2: View of the 506 - 507 boundary. A clear, horizontal boundary between deposits through the midpoint of the image is defined by the more organic groundmass of 507 (upper half), which contrasts with the silty mineral matrix of 506 below. The 'stringy' structure of the less well humified peat seen at the boundary is clearly visible, with organic material seen curving between the larger grains at the centre. A circular fragment of plant cell residue is seen to the top left. Plane polarised light. Image width: 2 mm

Figure 12: Photomicrographs of micromorphology thin-sections, images 1-2

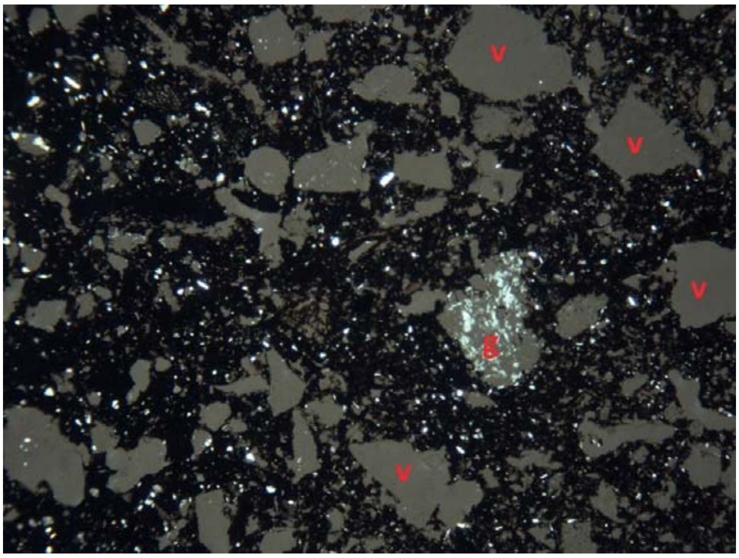


Image 3: Small voids and vesicles in 507. The shape and arrangement of the grey spaces denoting these (v) is very similar to that of the mineral grains seen in the groundmass of both 506 and 507 in Images 1 and 2. Note particularly, the angular shape, reminiscent of a mineral grain, of many of the vesicles. In crossed polars, the birefringence of the sand grain at (g) differentiates grain from vesicle. Note organic and carbonised material to upper left of image. Crossed polarised light. Image width: c. 2000 microns

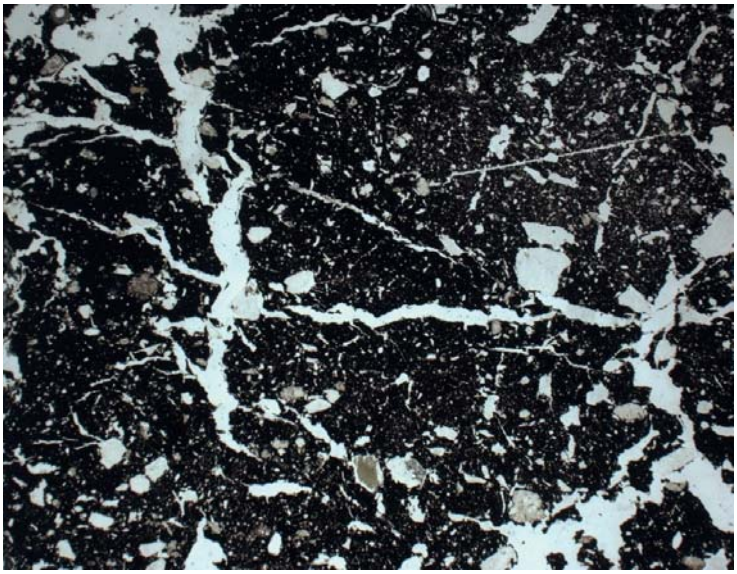


Image 4: The peat lens. This dark, dense matrix shows a lower coarse mineral content than other deposits, and is defined by a network of tapering planar voids indicative of shrinkage. Towards the top, the boundary with lower mound deposit 500 is seen, and the continuation of the cracked structure into voids and channels present

Figure 13: Photomicrographs of micromorphology thin-sections, images 3-4

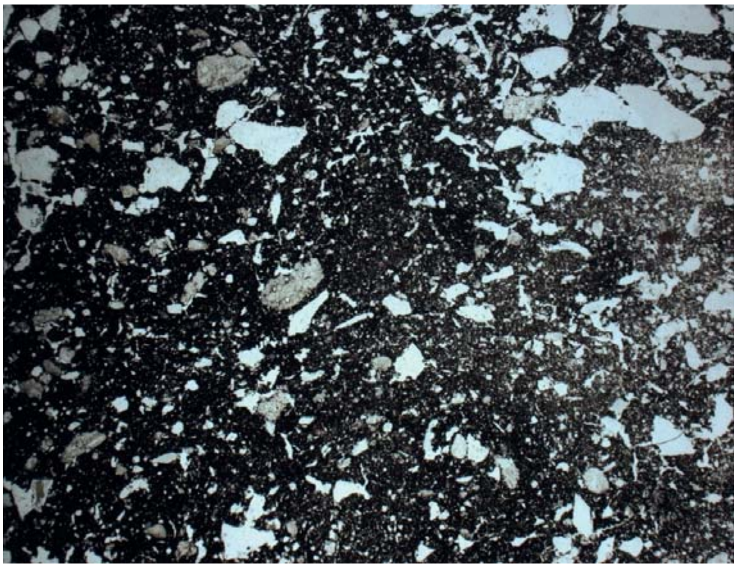


Image 5: 500 in Slide 102. A less compacted matrix with a higher fine sand content: sandier than the peat lens, but far finer than 500 as seen in Slide 103. Plane polarised light. Image width: c. 2000 microns

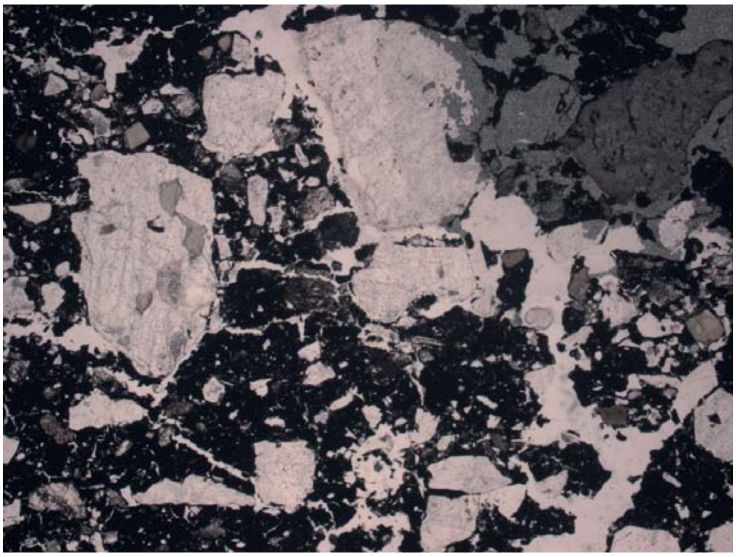
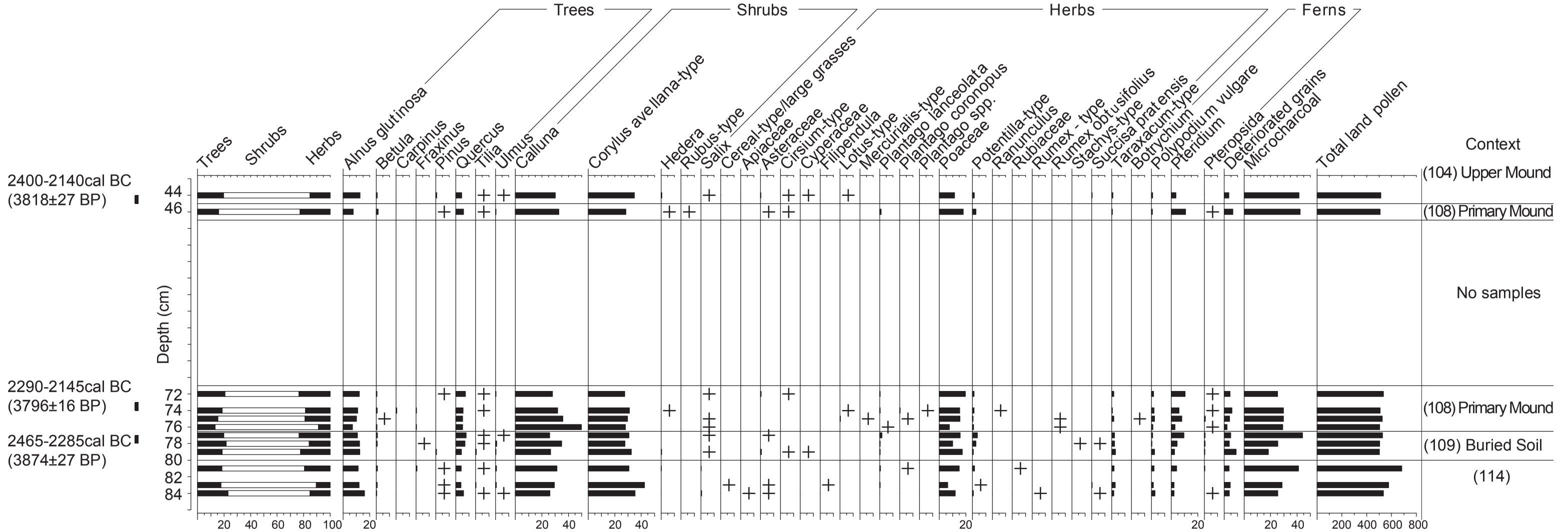


Image 6: 500 in Slide 103. Larger, more angular mineral fragments than seen in the lower sample through 500 are set within dense patches of peaty groundmass containing extant organic fragments. Plane polarised light. Image width: c. 2000 microns

Figure 14: Photomicrographs of micromorphology thin-sections, images 5-6



For details of radiocarbon AMS dating, see Marshall *et al* (this report)

Figure 15: Pollen analysisdiagram

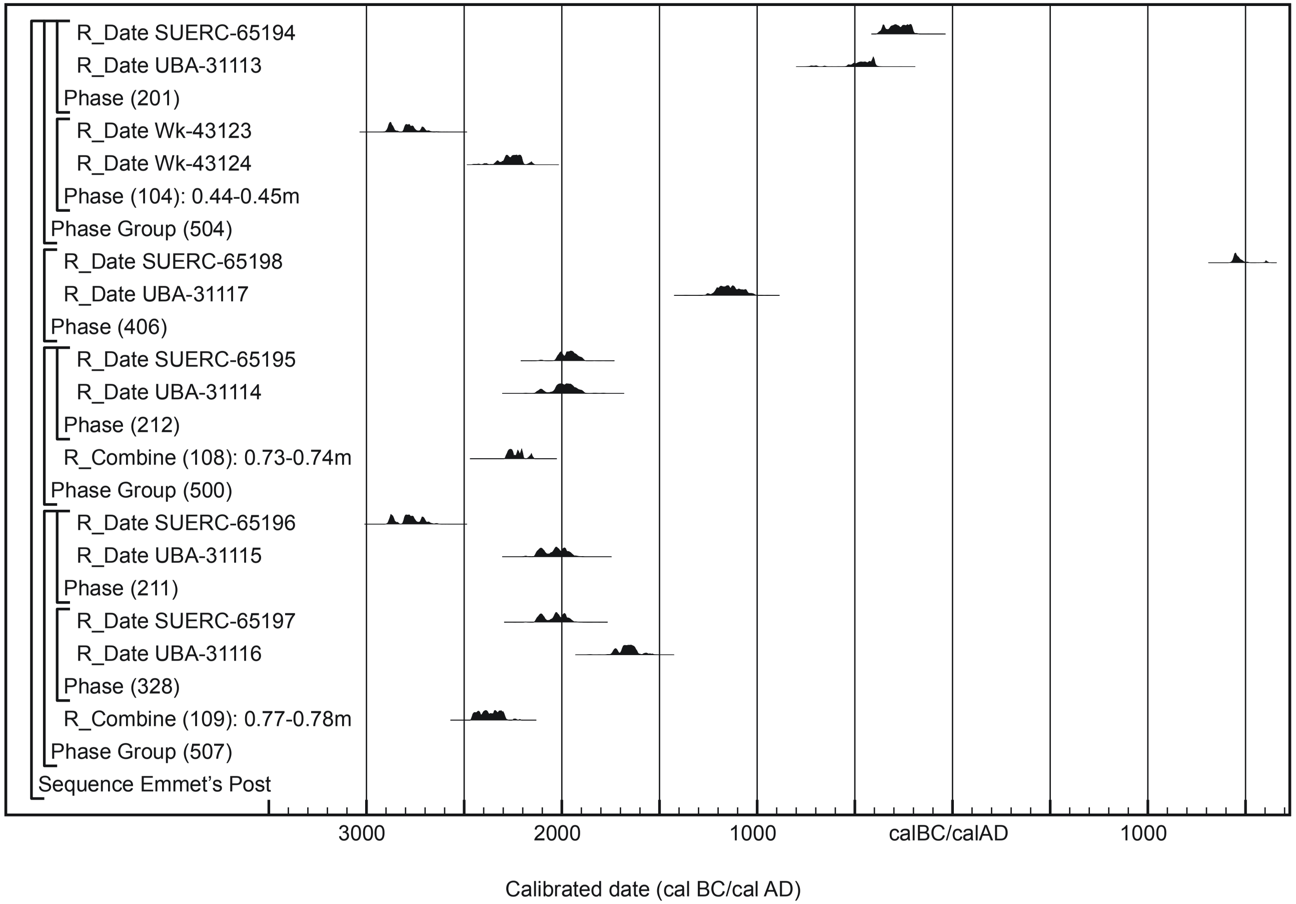


Figure 16: Probability distribution of the radiocarbon dates from Emmets Post.
The distributions are the result of simple radiocarbon calibration (Stuiver and Reimer 1993)

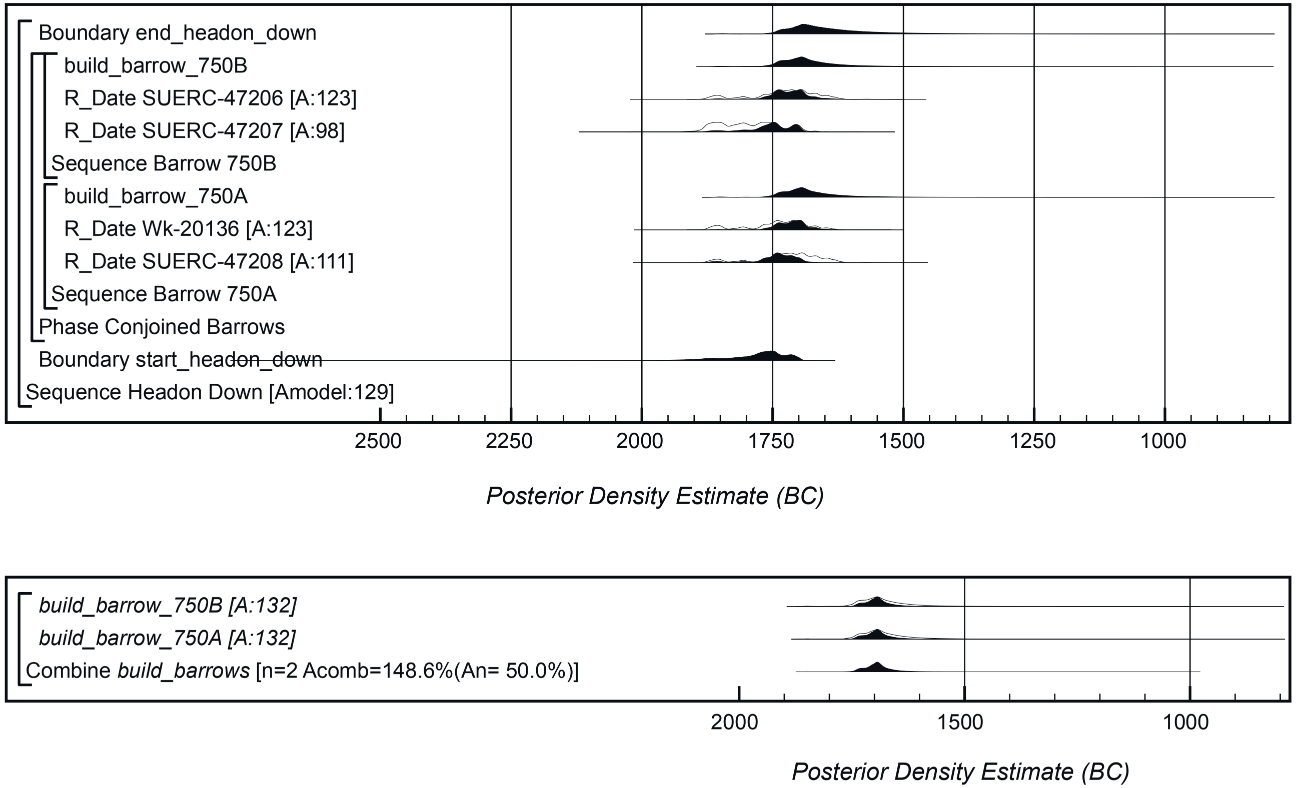


Figure 17: Chronological model for Headon Down conjoined barrows

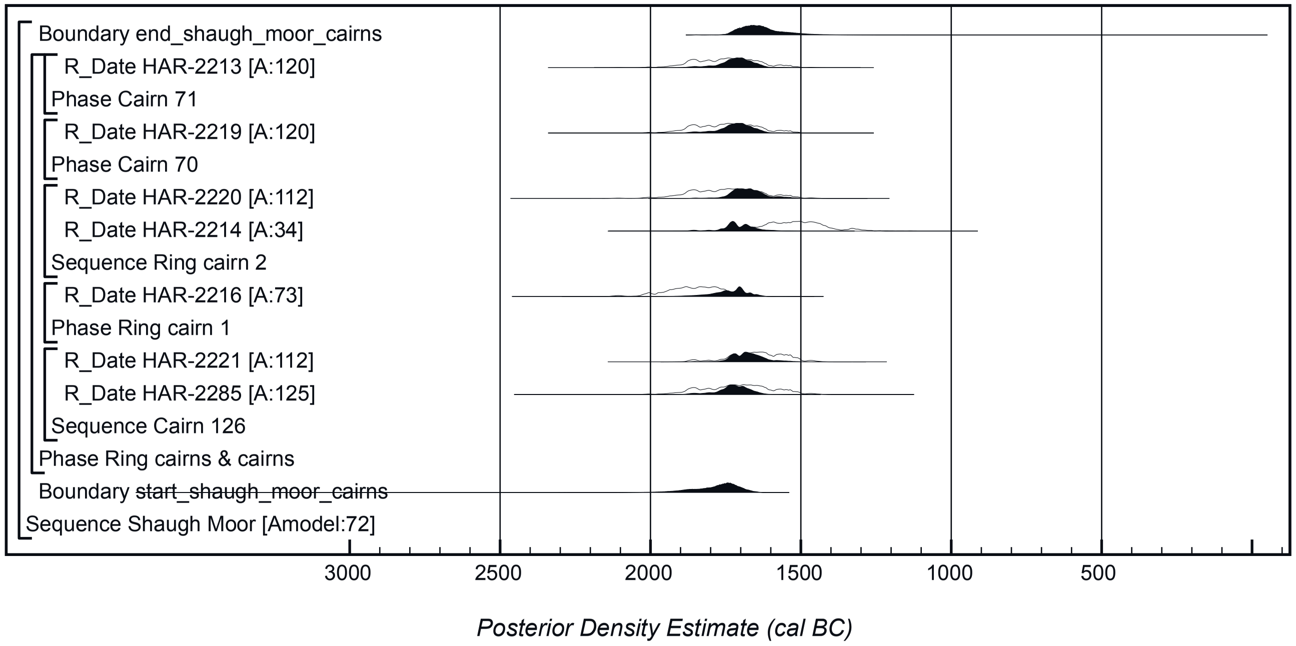


Figure 18: Chronological model for Shaugh Moor ring cairns and cairns

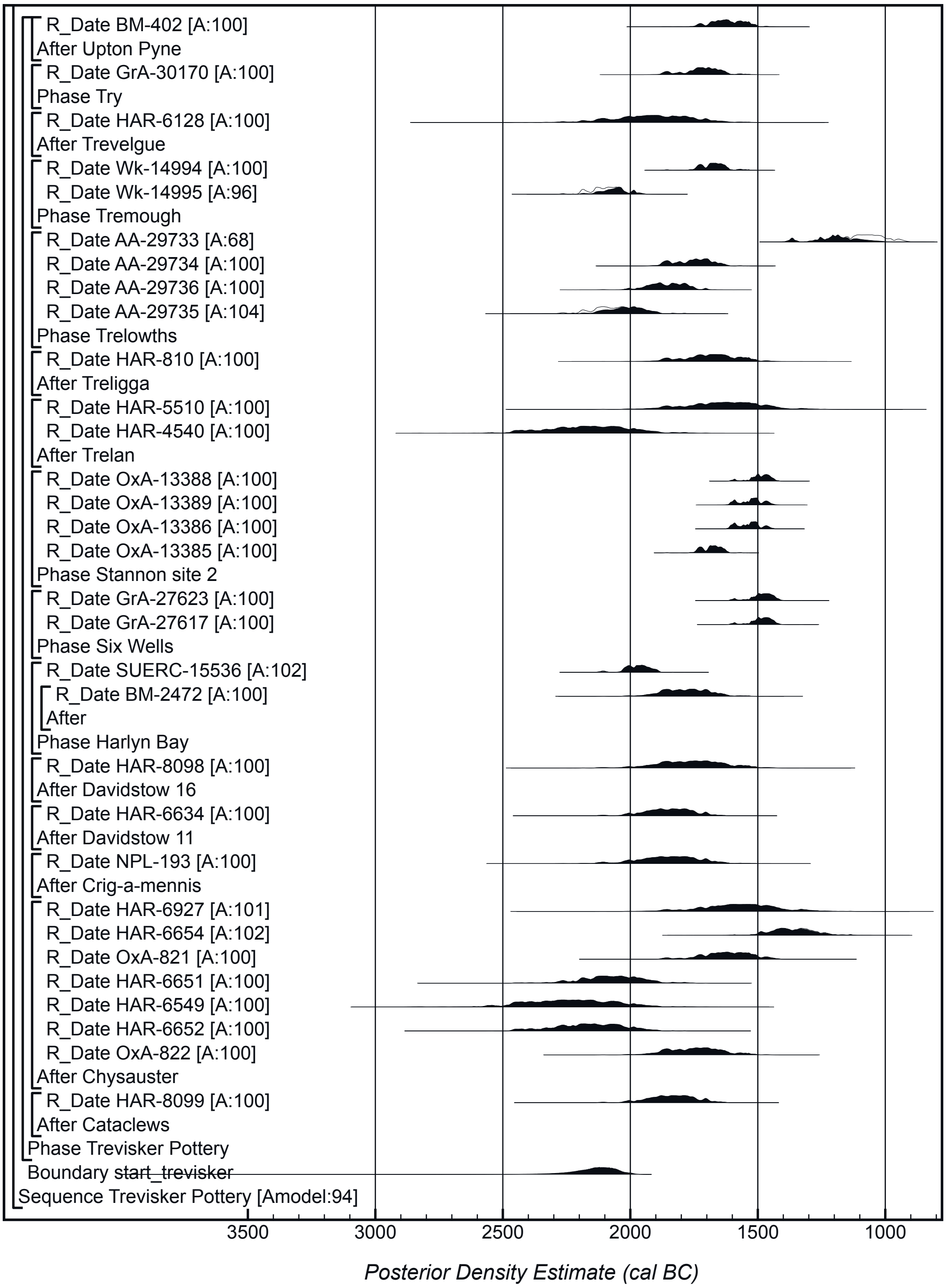


Figure 19: Chronological model for the currency of Trevisker pottery

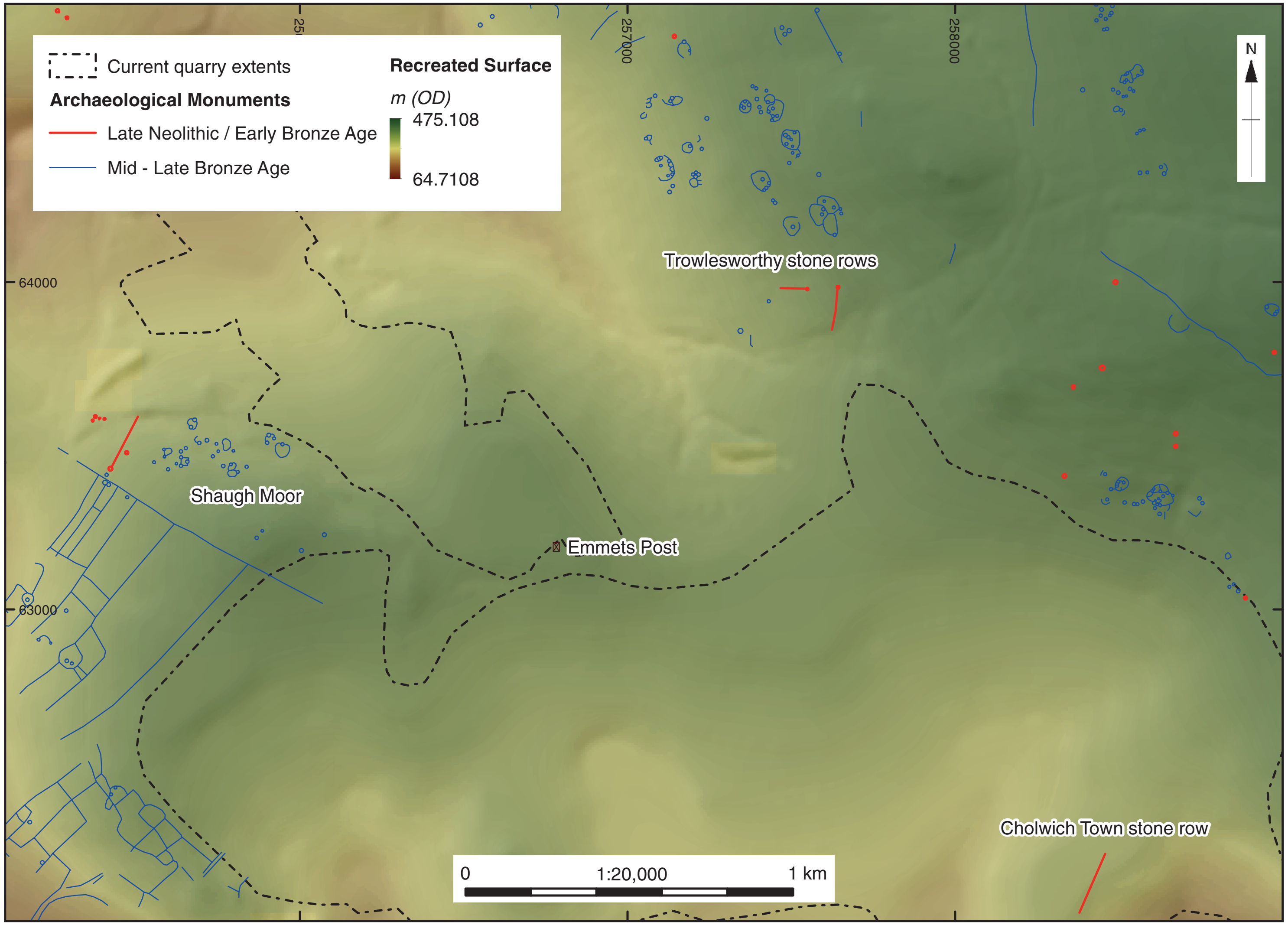


Figure 20: Emmet's Post in the pre-quarry landscape (archaeological features after Butler 1994)

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