Excavation and Survey at the Stone Settings of Lanacombe I and III

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16th – 21st April & 3rd – 8th September 2007
Acknowledgements
As with all excavation and survey work, the fieldwork described here was very much a team effort and the authors would like to extend their heartfelt thanks to Heather Adams (University of Plymouth), Jessica Turner (Exmoor National Park) and Rob Wilson-North (Exmoor National Park) for the hard work they put in to making the fieldwork successful.
Thanks are also extended to Ralph Fyfe and Richard McDonnell for valuable advice, comments and feedback on the contents of this report and to the National Parks Rangers who assisted with the restoration of the settings and provided invaluable assistance in navigating the team vehicle safely across the moor.

A note on geo-referencing
It has been standard practice within this report not to include crude NGR (national Grid References (NGRs) on plans and survey plots. All of the spatial data presented has been recorded using survey grade differential GPS and has been integrated into the project GIS. Copies of any/all of the fully geo-referenced datafiles relating to the project are freely available on request.
Introduction
Damage to the prehistoric stone settings of Lanacombe I (Somerset HER PRN 33112) and Lanacombe III (PRN 33114) has resulted in each case in the toppling of one of the component standing stones. That the damage is recent is clear from a condition survey carried out by the National Park in 2001. Here the Lanacombe I setting was recorded as relatively stable with the only immediate threat being from livestock, although it was noted that previous damage had occurred in the form of stone E being 'split and loose'. In the case of Lanacombe III, the toppled stone (described in the HER as an ‘upright post stone’) was upright in 2001 with the condition of the site overall described as ‘stable’ (Blackmore 2002).

Research Context
The earliest archaeological monuments to be identified on Exmoor are settings of local sandstone and slate, taking the form of circles, rows, solitary/paired stones, and geometric and semi-geometric arrangements ((Riley & Wilson-North 2001: 23-31). The latter, of which over 50 examples are known, appear unique to Exmoor. They take a variety of forms, from rectangular settings and quincunxes, to apparently random arrangements of stones. Many are concentrated around the headwaters of valleys, in areas of moorland which lie beyond the limits of medieval and later cultivation (ibid.: 24). Two features of these settings are worthy of note: their diminutive size, with individual stones rarely exceeding 0.5m, leading to their being termed ‘minilithic’; and the lack of basic archaeological knowledge beyond suggested morphology and general distribution. Despite being noted as early as the 17th century, only one has witnessed any modern excavation, the setting at Westernmill Farm, Exford (see below). Until the recent work carried out by the authors at the sites of East Pinford and Tom’s Hill (Gillings et al. 2005), there has not even been any sustained programme of geophysical survey at any of the recorded stone settings. Their assumed late Neolithic/early Bronze Age date is based on loose analogy (i.e. that they are comparable to features such as stone circles and rows), and their physical proximity to round barrows and cairns (Grinsell 1970: 38-51; Riley & Wilson-North 2001: 31). Poorly dated and without immediate analogy, it is not surprising that their ‘function’ remains unknown.

Planned restoration of the fallen stones provided a unique opportunity to excavate the stoneholes and their immediate surroundings in advance of the conservation work. This was carried out as part of a broader programme of fieldwork and interdisciplinary research being undertaken by the authors in conjunction with Dr. Ralph Fyfe (University of Plymouth) and Rob Wilson-North (Exmoor National Park), with the aim of investigating the stone settings and their relationship to the landscape, field boundaries, house platforms and cairns that surround them (see Gillings et al. 2005).

Excavations carried out to date
As implied above, excavation of the Exmoor settings is virtually non-existent. The largest campaign of excavation took place at the Porlock Stone Circle where Harold St. George Gray dug a systematic series of discrete trenches around the perimeter of this monument in order to determine the presence (or otherwise) of fallen (or recumbent) stones thought to be lying buried beneath the surface (Gray 1928). Although published, the report is schematic and detail is frustratingly lacking. Despite this the exercise did reveal the existence of suggested packing stones in association.
with a relatively modest standing stone (e.g. No. 3) and large slabs which appeared to have been set deliberately around another (No. 6). In each case the standing stone was small - projecting less than 5cm above the surface of the soil and only extending between 12 and 22cm into the subsoil. The only other excavation carried out at Porlock Circle was a trench of unknown dimensions (described by Gray as a ‘little excavation’) in the geometric centre of the circle where ‘about a dozen slabs of stone, averaging about 1.5 ft. in length were revealed, but no ‘relics’ were found nor any charcoal.’ (Gray 1928: 75).

The only excavation of a stone setting (as opposed to Circle) was carried out at Westermill farm by Burrow and McDonnell in September 1981. The aims of the exercise were to: shed light upon the date/function of the setting; recover (if possible) environmental evidence; and re-erect fallen stones. In practice an area of 48m² was excavated that incorporated two standing stones, one fallen stone and a possible stone hole. The results are discussed in an interim report and are brief enough to repeat in full here.

“The turf, organic soil and subsequent clay layer were excavated over the whole cutting and the clays and stone scatters of the periglacial land surface were exposed. The surface from which the standing stones were erected was identified and the hole for the fallen stone located. No other structures or archaeological features were present and no artifactual evidence was recovered. Although no buried soils were recorded soil samples, for pollen analysis, were taken... The fallen stone was re-erected vertically in the feature located in the south west corner of the excavation. The shape of the bottom of this feature matched the unweathered end of the stone to such an extent that it was confidently felt that its re-erection was virtually on its original location.” (Burrow and McDonnell 1982 - Somerset HER #33602)

The soils samples taken during the excavation subsequently proved to contain no pollen (pers. comm. Richard McDonnell).

**Aims of the current programme of survey and excavation**

As discussed above, the damage to Lanacombe I and III presented an opportunity to carry out the first detailed excavation on a stone setting since the 1981 work and the first in an upland context.

Although little in the way of surviving detail has been published regarding earlier excavations they have raised a number of interesting questions. The first concerns the morphology of the stone settings and the suggestion raised by Gray of the deliberate use of packing stones and possible presence of distinct structural elements around the base of (even the most diminutive) standing stones. When coupled with the frequent record of ‘triggers’ (i.e. secondary subsidiary/supporting stones) in relation to the minilithic settings (e.g. Chanter and Worth 1931, 389) this raises the possibility of their being a degree of structural complexity (if not a distinctive architecture) to the individual standing stones. In addition, the work of Burrow and McDonnell has strongly suggested that stone holes were carefully tailored to the stones they were destined to receive and that as a result successful re-erection of fallen stones is possible.
In light of the above, the following list of aims were identified for the Lanacombe I and III excavations:

- Examine the morphology of the stoneholes and shed light upon the technology of stone erection (e.g. generic or carefully shaped sockets, use of packing stones and materials, evidence of re-setting or subsequent modification/alteration).

- Recover evidence of dating through associated artefacts and/or dateable deposits.

- Examine evidence of activity in close association with the setting (artefact deposition, presence of surfaces, cut-features).

- Recovery of materials for environmental sampling from any sealed contexts.

- Assess degree of damage inflicted by recent toppling of stones.

- Explore critically the potential for accurate re-erection of individual stones (and therefore plausible reconstruction of setting form).

**Lanacombe I**
The Lanacombe I setting is located on open moorland in the upper reaches of Badgworthy Water, an area rich in cairns and stone settings (Riley & Wilson-North 2000: 31).

![Figure 1 – the Lanacombe I setting](image)
It is one of a group of settings that are located on the sloping south-east edge of Lanacombe Hill, overlooking a tributary stream and beyond it the flank of Trout Hill (Figure 1). After being first recorded in 1905 by St. George Gray, the location of Lanacombe I was lost until 1989 when rediscovered during a survey by the RCHME (Quinnell & Dunn 1992).

The miniliths are all small sub-angular slabs of local stone, standing to a maximum height of 0.65m. In plan the stones form a rather irregular linear arrangement that runs on a north-west/south-east alignment for a distance of 43m directly across the contour (Figures 2 and 3).

![Figure 2 – plan of the stone setting (after Quinnell & Dunn)](image)

A full description and survey of the site have been published elsewhere (ibid; 44) and it is not our intention to repeat this information here (see Appendices A and B). The surviving stones of the setting number 13, three of which were lying fallen at the start of the current survey. Of the latter, two had already fallen by the time the 1989 survey was carried out (Stones F and M) whilst the recent toppling of Stone H (and desire on the part of English Heritage & the National Parks Service to re-erect the stone) provided the context for the excavation reported here. Some of the stones have suffered from basal erosion caused presumably by the rubbing of sheep and cattle. In the most extreme cases (e.g. Stones A, D and I) this has served to remove almost all trace of the original stonehole, leaving these stones standing in isolated tufts of grass (See Appendix A).
Vegetation on Lanacombe is dominated by *molinia caerulea* (purple moor grass) which is characteristic of the Central Grass Moors (Sinclair 1970). The area occupied by the setting is marked by a notable vegetation change, the otherwise long grass giving way to an area of much finer, closely grazed grass (including *Festuca, Agrostis* and *Deschampsia* families) with isolated tufts of *juncus effusus* (soft rush) and outcropping natural stone and sparse clitter (Figure 4 & Appendix B) (species information and detail kindly supplied by Richard McDonnell).

*Figure 3 – Detailed survey of Lanacombe I site topography*

*Figure 4 – looking to the north-west along the axis of the stone setting. In the foreground is stone I with the area of excavation to the right (Stone H). The vegetation change marking the area of the setting is clearly visible*
Pre-excitation Survey
Following the methodology established at East Pinford and Tom’s Hill (Gillings et al. 2005), the first stage was to carry out soil resistance (Figure 5) and fluxgate gradiometer survey of the area of the setting (Figure 6).

![Figure 5](image1.png)

**Figure 5 – Soil resistance survey of the area of the settings. The darker greys denote higher resistance readings. The locations of the mamiliths are marked in red, the excavation trench in green.**

![Figure 6](image2.png)

**Figure 6 – Fluxgate Gradiometer survey of settings. Darker greys denote lower magnetic anomalies.**

The results of the resistance survey show clearly that the setting is located upon a distinctive high resistance band that corresponds to a rise in the level of the underlying bedrock. This accounts for the visible clutter and surface outcropping and also serves to explain the stark vegetation change that marks the area of the setting reflecting as it does the shallower depth of covering soil. Precisely the same phenomenon was noted at East Pinford, where the irregular linear setting was
similarly located on a narrow band of outcropping bedrock. The adjacent cairn is clearly visible as an isolated block of high-resistance readings in the otherwise lower resistance area to the north-east of the setting.

Although noisy (as a result of a random sprinkling of very high readings corresponding to isolated fragments of iron) the principal feature of note in the magnetometer survey is the curving linear band running along the north-east edge of the survey area. This once again seems to mark the point at which the level of the bedrock begins to drop (and depth of overlying soil increases).

**The excavation of Stone H**

The excavation of Lanacombe I stone H (16th – 21st April 2007) represented the first modern excavation of a moorland setting. As a result little was known of the underlying soils and geology prior to the excavation. The aim of the excavation strategy was to excavate 50% of the stonehole. This was in part to ensure survival of undisturbed packing material and in part to ensure the accurate (and successful) reerection of the stone following excavation. In practice, and as the excavation proceeded, it became clear that we had in fact sampled closer to 30% of the feature (see below).

The stone itself was lying adjacent to its stonehole on the edge of a large clump of Juncus. The ‘extraction’ appears to have been relatively clean insofar as there was no visible damage to the edges of the stonehole as might be expected if the stone were pushed repeatedly from side-to-side (Figure 7).

![Figure 7 – Stone H lying adjacent to its stonehole](image)

In plan the lower two thirds of the stone are rectangular in shape, the upper third sloping on one side to form a triangle (Figure 8). In profile the base of the stone (approximately the lower third) forms a smooth, regular wedge. Above this the sides rise almost vertically to the tip. The letters ‘TD’ are inscribed into the east-facing side of the stone close to the top, a feature shared with stone L (Quinnell & Dunn 1992:44). Presumably post-17th century in date, the role played by these inscriptions
is unclear. They may have acted as waymarkers or guide stones (in much the same way as similarly inscribed stones on the North York Moors (Hayes 1988)) or served the equally prosaic function of marking land ownership. It is clear that only selected stones were marked and that the placement of the carvings was consistent (high up and facing to the east/north-east). This is undoubtedly an interesting area of future research and will be addressed more fully as the project develops.

Following guidance from the National Parks, excavation was restricted to an area of 2 x 2m centred upon the exposed stonehole (Figure 2). All excavation was by hand and a full list of the contexts excavated is given in Appendix C.

The complicating factor was that the underlying bedrock was markedly uneven, the setting located on the edge of a distinct rise in level. To the north-east the rock was in places outcropping at the surface [009], with a very thin layer of turf lying above it [001]. Interspersed between the stones was a compacted deposit of mid yellowish-brown clay-silt [013]. A thin layer of small weathered fragments of rock [002] sat directly below the turf and above the bedrock.

To the south-east of the setting the underlying geology was notably deeper, and a peaty layer of soil had developed beneath the turf [010] supporting thicker vegetation cover in the form of dense clumps of Juncus in this area. A large piece of angular quartz (0.08 x 0.06 x 0.03m) was recovered from [010] to the immediate south-east of the stonehole that displayed clear signs of working (presumably the removal of flakes) on the flatter sides.

Whether the outcropping rock was fully exposed at the time the stone was erected is unclear but given it stands just proud of the turf at present it is likely that this area had a markedly different texture to its surroundings (in much the same way as it does today with the Juncus marking the point at which a thicker soil could develop). What is crystal clear is that this particular setting was located at a marked point of transition in the local landscape, the stone positioned where the surface outcrop begins to disappear; an artificial stone set at the point at which natural stone begins to dive down beneath the surface.

Figure 8 – Stone H
Where the rock lay deeper beneath the turf a more complex series of deposits was encountered. Directly beneath the turf to the immediate south-west of the stone was a spread of stones that included a line of four notably larger flat stones aligned on the setting [004]. These stones were conspicuous in terms of size and the linearity of their placement, the latter not corresponding to the east-west bedding/weathering planes evident in the exposed bedrock (Figure 9).

Figure 9 – the excavation trench following the removal of turf [001]

Put simply, their placement seems to be deliberate, explicitly referencing the standing position of the stone. There was no evidence of any further structure or coursing to these large stones, beneath them (and the surrounding spread of smaller stones) were patches of gravelly, root fractured rock (in places the roots were clearly interpenetrating the rock) [008] which appeared to sit directly above the natural rock [009]. It is interesting to speculate as to their similarity to the ‘slabs’ noted (but unfortunately not recorded) by St. George Gray.

Rather than dug in any traditional sense, the stonehole [014] appears to have been fashioned by the expedient removal of weathered outcropping rock from a northeast/south-west aligned oval 0.37 x 0.28m in extent and reaching a depth of 0.18m below the current surface (dimensions projected from excavated portion) (Figures 10 and 11). At the base of the resultant hole was a thin layer (0.06m) of relatively clean brown soil [016] upon which a group of flat stones was placed [015]. These served to provide a level base to the otherwise irregular stonehole. The stone was placed hard against the northern edge of outcropping rock, and the resultant void to the south was filled with more of the brown soil [012]. Although assigned different context numbers (on the grounds of representing two distinctive activities – lining the base of the stonehole prior to stone erection and then packing the stone once erected) no distinction could be made between these deposits during excavation and they have been denoted on the section by the single number [012] (Figure 10)). A sample of this
soil was retained for environmental analysis (see below). The suggestion is of a rapid, rather than punctuated, process with a single deposit of soil used to prepare and then pack the stonehole. The presence of vertical and sloping stones in this fill set directly against the southernmost face of the stone (and clearly visible in the exposed face left by the removal of the stone in the unexcavated portion of the stonehole) is strongly suggestive of the deliberate use of small packing stones as part of this in-filling process (Figure 10).

*Figure 10 – section through the stonehole*

*Figure 11 – plan of excavated stonehole*
The layer of brown soil [012] filled the stone hole to a depth of typically 0.06m. At the westernmost end of the stone, pressed into the top of the soil at this point was the only artefact to be recovered from the primary fill of the stonehole. This was a large (0.07 x 0.07 x 0.05m), irregularly shaped lump of quartz displaying evidence of deliberate working (removal of flake or chunk) on one edge (Figure 12).

Figure 12 – plan of stonehole immediately following removal of [011] showing the position of the quartz (Q)

Set above the primary fill was a layer of gravely weathered rock [011] that had a distinctive pea-grit texture. This covered the stonehole itself, extending for between 0.10 - 0.15m beyond to fill a shallow depression within which the stonehole was located. This was most marked to the south of the stone (Figure 11).

Figure 13 – the excavated section through the stonehole
As to whether a distinctive layer of stone was laid on top of [011] is unclear, due to the extent of root damage and weathering at the shallow depths involved. To the direct south of the stone, the settling of the primary and secondary fills had left a slight hollow that was filled by the covering peaty soil – there was certainly no evidence here of any further deliberate covering or piling of stones to form a cairn (Figure 13).

To the southwest, the gritty upper fill [011] was overlain by the general spread of weathered stone [004] but it is difficult to argue that this represented a conscious dump or ‘fill’. An interesting question concerns the very distinctive line of four large stones observed within [004]. Although no direct stratigraphic relationship between them and [011] could be observed, the stone nearest the setting (the final stone in the line) sloped markedly downwards, its lower edge lying at the same level as the upper surface of [011]. The strong suggestion is of some architectural unity with the stone setting, and attention is once again drawn to the ‘slabs’ encountered by St. George Gray.

Re-erecting the Stone
The decision to leave 50% of the stonehole unexcavated, coupled with photographic and documentary record of the stone when standing, made the job of re-erecting straightforward. The void created by the removal of [012] and [015] was packed with soil and small stones and the stone was re-inserted into the surviving void of the unexcavated portion of the stonehole (Figure 14). The fit was extremely tight and further stability was ensured by the careful packing of the excavated portion of the stonehole with soil and small stone fragments. Larger stones were used to create a shallow cairn against the upright stone. The whole was covered in organic matting (see cover of this report) and then re-turfed, care being taken to re-instate the clumps of Juncus grass observed prior to excavation.

![Figure 14 – the stone re-erected](image)

Environmental analyses of stonehole packing [012]
Although the removal of the stone meant that the soil packing the lower portion of the stonehole was no longer strictly a sealed context, the excavated fraction of [012] was
retained for environmental analysis (2.2 litres) in the hope that were palaeobotanical material present, it could be distinguished from any modern contaminants.

**Soil Analysis (Anthony Gouldwell)**
A total of 1.2 litres of deposit weighing 1.48 Kg were examined and described following accepted British conventions. The material was loose and so no observations relating to the structure of the material *in situ* were possible. The sample was moist.

Colour is dark brown (7.5YR 3/2 Munsell notation) with no observable mottling. The constituents appear to be essentially mineral, though the crumb structure and fine root penetration indicate organic modification as part of soil-processes. The texture is essentially a silt loam, with an admixture of small, angular non-calcareous stones accounting for 33% by weight of the sample. The consistence is non-sticky and moderately plastic. Crumb-development ranges from mainly medium-sized but also a nearly as much by volume of fine and very fine granular to polygonal peds. Fine roots are on the borderline of common to many, and medium roots are few. The matrix is free of carbonate. A fuller report is included as Appendix C to this report.

**Archaeobotanical Assessment (Dr. Ruth Young)**
One litre of the soil was wet sieved in order to identify and recover any plant remains and other carbonised material suitable for C14 dating. The soil was sieved using a 1mm mesh and all resultant residues were hand sorted. Unfortunately the soil sample analysed was wholly clean of palaeobotanical or charred material.

**Pollen Analysis (Dr. Ralph Fyfe)**
A sub-sample of the soil was sent to Dr. Ralph Fyfe for pollen analysis. The results of this assessment are pending.

**Lanacombe III**
Located 578m to the north-east of Lanacombe I (Figure 15), this small setting was first noted by St. George Gray in 1905 and subsequently recorded by Quinnell and Dunn as comprising a group of four stones and an associated cairn (Figure 17). Survey and excavation were carried out between the 3rd and 8th of September 2007.

The setting is much smaller in extent than Lanacombe I, with the component stones extending for a distance of 20m perpendicular to the contour. A further 7m to the southeast is a small cairn. Although only five stones were recorded by Quinnell and Dunn (labelled A – E on figures 16 & 17) a further fallen stone was visible in the core area of the setting at the time of survey (labelled X). This appears to have been partly covered by turf and only recently exposed. As well as the core stones of the setting a further three stones were recorded in 1993 to the immediate west (note in Somerset HER). Of these, only two could be located amongst the thick covering of rushes (labelled Y and Z). Of the core group of stones recorded by Quinnell and Dunn C, D and E were standing at the time of their survey (1991), though at this time C was noted as leaning at an angle of 30° to the south-south-west.
In plan the five stones making up the setting form an elongated diamond oriented north-west/south-east and running perpendicular to the contour (Figures 17 & Appendix F). With the exception of the recently toppled stone (C), the miniliths take
the form of small flat slabs of which A, B and X are currently lying recumbent. Although the HER notes inscriptions and graffiti on the surface of stone A this was not visible at the time of survey and is presumably on the downward facing side of this recumbent stone. Of the surviving upright stones, D stands to a height of 0.35m with E reaching a modest 0.2m. The toppled stone (C) is unusual in that it has a rectangular section (a shape referred to in the HER as ‘post type’ presumably on the basis of its resemblance to a gatepost).

![Diagram of stone setting]

Figure 17 – the stone setting showing the location of the excavation trench and the newly recorded stone X (after Quinnell & Dunn)

As with Lanacombe I, the area occupied by the setting was marked by a clear vegetation change, the characteristic tufted grass and rushes giving way to patches of closely cropped grass with isolated tufts of Juncus.

![Image of stone setting]

Figure 18 – looking to the south-east along the axis of the stone setting. The red flags marking the locations of stones X and E are visible to the left of the image.
Unlike the former site there was no evidence of either natural outcropping or surface clutter and the areas of closely cropped grass were more piecemeal, interspersed with substantial blocks of Juncus (Figure 18).

**Pre-excavation Survey**

Before excavation took place a soil resistance survey was carried out across the area of stone settings A - Y (Figure 19). Although a complementary fluxgate gradiometer survey was planned, technical difficulties meant that it could not be carried out in the time-frame of the project. This will form a key objective of subsequent fieldwork at the site.

![Figure 19](image-url)

*Figure 19 – A shows the results of the resistivity survey of the study area, with darker greys denoting higher resistance readings. B incorporates the location of the setting and cairn.*

Once again there appears to be a strong relationship between background resistance trends and the location of the settings. Although more diffuse than at Lanacombe I, there is a band of higher resistance trending north-west/south-east, with the main group of settings concentrated along its north-east edge. Of particular interest are stones Y and Z which are situated upon a much more coherent band of high resistance directly above a semi-circular high resistance feature. The latter was wholly unexpected and its magnitude and regular shape argue against a geological origin. The external diameter of 10m is also suggestive, paralleling known hut circles from the area (e.g. Almsworthy). On the surface, the location of the anomaly is marked solely by a vegetation change with the semi-circular area marked by an area of short cropped grass fringed with rushes. There are no surface traces of either an earthwork or extant
stones (either cairned or as a surface spread). A future gradiometer survey may well shed further light on the nature of this anomaly. The status of stones Y and Z remains unclear. Whether part of the core Lanacombe III setting or components of a separate setting, their location on a distinctive band of shallower bedrock in close proximity to a possible structure are suggestive and a more detailed survey of this area of the site is warranted.

**The excavation of Stone C**

Following the methodology established for setting H of Lanacombe I, a 2m trench was centred upon the basal end of the fallen stone (Figure 20).

![Figure 20 – stonehole following the removal of [102]. The larger stones bordering the feature are clearly visible along with the main C-D section line.](image)

The stone was lying at a slight angle, supported on a bed of crushed reeds and turf, with its base still partly buried in the turf. The first stage was to carefully clear the turf and rushes surrounding the stone to enable an assessment to be made of the damage caused by the toppling. The stone and its supportive turf mat were then recorded and lifted from the trench. To ensure the clearest record of any damage caused by the toppling of the stone a running section line established following the long axis of the fallen stone (Section C-D – see Figures 20, 22 & 24).

Upon removing the turf a contrast with the Lanacombe I trench was immediately apparent, with no evidence of any outcropping (or shallowing buried) bedrock. Instead, a grey-brown silt with abundant small (0.005 – 0.07m) sub-angular stones [101] lay directly beneath the turf. Cut through this deposit was the stonehole, broadly circular
in plan at the surface. A distinctive void was preserved at the south-west limit of the stonehole, matching the square section of the stone and marking its standing position. Although there was no evidence of the linear arrangement of slabs seen at Lanacombe I, the cut of the stonehole was bordered to the east by an arrangement of larger stones which did not appear to have been the result of disturbance caused by the toppling.

Beyond the area of the void, the extent of the stonehole was marked by a deposit of very soft light-grey silt [102] which had clearly been pushed up and out (like a bow wave) as the stone had been forced over. Inclusions were limited to small sub-angular stones (0.5 – 7cm) similar in size and appearance to those present in [101] and lying at all angles. Two larger, flat stones were present set vertically into [102] at the very back of the stonehole and have every appearance of displaced packing stones (Figure 24).

![Figure 21 – Stone C of the Lanacombe III setting (Drawn by Heather Adams).](image)

A further contrast with Lanacombe I became apparent when an assessment was made as to the integrity of the surviving stonehole, when it quickly became clear that the pushing over of Stone C had caused considerable disturbance to the surviving archaeology. As discussed earlier, the stone was post-like in form, straight and approximately square in section. However, the ends were less regular, particularly the basal end which terminated in a noticeable spike (Figure 21).
The stonehole had been carefully dug through [101] and into the distinctive clay silt beneath, the latter predominantly orange in colour though punctuated by narrow (1 – 2cm) bands of white and black silt.

In profile the cut slopes gently from the surface before stepping down sharply to define an north-east/south-west aligned oval slot. At the south-west end the sides of the slot were near vertical, sloping upwards to the north-east. At its deepest point the base of the stonehole lay some 0.3m below the surface of the present day turf. The stone appears to have been erected hard against the vertical south-west face, with stability ensured by pushing the sharp basal spur down into the underlying clay-silt. Packing stones had then been wedged against the exposed back face of the stone (See Figure 24 [1]) and the remaining stonehole back-filled with a dark orange-brown silt with abundant small sub-angular stones [104]. This was clearly a mixture of the material dug out in the creation of the hole. Whether the [104] deposit subsequently settled, or this particular phase of the back-filling was deliberately partial, the shallowly sloping upper ‘rim’ of the stonehole was levelled with the loose grey silt [102] noted earlier, into which a number of flat packing stones had been vertically set. What the excavation clearly demonstrated is that the application of sufficient lateral force to topple the stone had effectively resulted in the projecting spur of the stone (that had been embedded in the basal clay-silts) ripping up through the opposite face.

*Figure 22 – plan of excavated stonehole.*
of the stonehole, causing severe disturbance to the stonehole profile. The very base of the stonehole was filled with a deposit of very loosely packed grey-brown silt and angular stones (max. dimension 0.08m) interspersed with notable voids. It was evident from the looseness and random orientation of these stones that they were not deliberately placed, either as packing or some form of lining, and this most likely represents [104] material that tumbled into the void left by the displaced stone as the base pivoted outwards.

As well as this disturbance to the very base of the stonehole, the scoring action of the stone as it was levered over resulted in the creation of a layer of disturbed clay-silt [108] at the north-east end of the stonehole behind (and in places churned up with) the primary [104] fill. In order to clarify this complex sequence (and given the small size of the stonehole slot) a further quadrant of the stonehole was excavated in order to clarify this sequence (Figure 23).

![Figure 23 – the excavated stonehole.](image)

At this point a note on the sections is in order. As excavation proceeded it became clear that the fallen stone was lying partly across its stonehole. As a result the running section line (C-D) was offset from the central axis of the stonehole slot. The excavation of the third quadrant was used as an opportunity to establish a second section line (E-F) that better profiled the full extent of the stonehole (See Figure 22). In depicting the sections both the original C-D section (Figure 24 [1]) and revised E-F section (Figure 24 [2]) have been presented, along with a schematic composite (Figure 24 [3]) and A-B profile (Figure 24 [4]).

The only other deposit of note was a thin, intermittent layer of firm brown silt (max. thickness 1cm) that lay on the cut of the stonehole beneath [104]. Although heavily disturbed by the scouring that took place during the toppling event, this deposit is interesting as it suggests material weathering in to the open stonehole before it was
back-filled. This in turn raises the possibility of a time lag between initial excavation and subsequent filling.

**Figure 24 – sections through stonehole**

**Re-erecting stone C (Lanacombe III)**

To aid in the final re-erection of the stone, care was taken throughout the excavation to minimise damage to the void marking the south-west end of the stonehole. This enabled the stone to be slotted back into its last recorded position with some confidence (Figure 25).
As to whether the stone had always been leaning, or had been originally set upright, the damage caused to the base and profile of the stonehole by the toppling made it impossible to ascertain. Given the most detailed record we have of the stone prior to toppling records it as leaning, the decision was taken to restore the stone to this configuration. It was during the re-erection of the stone that an impromptu piece of experimental archaeology revealed the efficacy of the lower of the two packing stones. The blocky shape of this chunk of stone fitted very closely to the irregularities in the base of the stone and when slotted into place it served to wedge the minilith tightly into position. Likewise, the larger flat stones found in [102] and on the surface of [101] to the rear (north-east) of the stonehole were extremely effective in packing the upright stone into place. Once backfilled the trench was covered in organic matting and then re-turfed, a layer of hawthorn branches pegged above the turf to prevent animal damage.
Summary and Conclusions

Although small in scale, the excavations carried out at the Lanacombe settings have produced some extremely interesting results and provide a solid platform for further sustained research. In the following discussion the implications of the results will be reviewed in relation to the key aims listed at the start of the report.

Technologies and practices of stone erection.

In the case of Lanacombe I a roughly rectangular hole, approximately twice the size of the stone it was to subsequently receive, was created by the grubbing out of outcropping stone at the very edge of a clear zone of transition in the immediate landscape. This marked the point at which the level of the underlying geology began to fall and visibly outcropping projections of rock disappear. The base of the stonehole was levelled using a thin layer of soil and small flat stones before the minilith was placed in the hole and pushed hard up against the north-west edge, the latter defined by a vertical face in the outcropping rock. Once in place more small flat stones and packing soil were used to fix it firmly before the stonehole was levelled with a gravelly deposit of weathered rock. There was no evidence of any secondary supporting stones, or ‘triggers’, as have been noted elsewhere. Once erected there was little indication of any re-setting or modification until the recent toppling of the stone.

At Lanacombe III the process was much simpler. A small ramped posthole was dug and the pillar-like stone placed upright against the vertical face and then bedded into place (in a manner analogous to the erection of a wooden post). This was then packed into position using carefully selected stones and the upcast from the digging of the stonehole. An upper layer of loose grey silt with further packing stones served to level the stonehole. The suggestion is of a much more pragmatic and expedient process than that witnessed at Lanacombe I. For example, there is no evidence of any careful preparation of the stonehole prior to the introduction of the stone, nor does a deliberate packing-material appear to have been brought in to fill the resultant void; at Lanacombe III what was dug out of the hole was used to fill it.

However, similarities in practice are also in evidence. In each case the stones were set against a vertical face and packed using small flat stones. In each case back-filling also seems to have been a two-stage process, with a distinctive upper levelling deposit sealing the primary fill.

Dating evidence

With regard to questions of dating, the excavations have shed important light upon the tempo and character of the individual acts of stone erection through evidence for pauses and punctuations (e.g. the possible weathering deposit lining the Lanacombe III stonehole), the number of discrete stages involved in each erection, and the care that attended them. Despite this, absolute dating evidence remains elusive with both stoneholes sorely lacking in closely dateable artefacts and/or sealed deposits containing organic materials suitable for radiometric dating.

One very positive outcome of the excavations has been the recognition that sealed deposits of packing soil may very well exist at undisturbed stone settings; an excellent example is the soil deposit at the very base of the Lanacombe I stonehole (recorded as contexts [012] and [016]). If undisturbed by recent toppling events such deposits may
well prove amenable to Luminescence-based techniques are currently being developed to date sediments.

Associated activity
At both settings there were suggestions of associated structural activity. At Lanacombe I a linear setting of large flat stones had been placed adjacent to the stonehole, whilst at Lanacombe III a set of larger flat stones formed a perimeter to the stonehole cut. In each case the evidence is slight but suggestive, and points towards the existence of structures or deliberate stone settings (albeit reasonably ephemeral) between and around the standing stones. Looking more broadly, the relationship between the individual stones and adjacent small cairns still needs to be thoroughly explored and in the case of Lanacombe III the relationship between the outlying stone settings (Y and Z) and semi-circular high resistance anomaly demands further sustained investigation.

With the exception of the two large pieces of worked quartz from the Lanacombe I stonehole, artefacts were conspicuous by their absence from the stonehole fills and the immediate environs of the settings. Of particular interest is the lump of worked quartz recovered from context [012]. This had been deliberately pushed into the primary stonehole fill at the end of the long-axis of the standing stone and in direct physical context with it, presumably shortly after the stone was erected and basal packing soil pushed into place.

Environmental sampling
Although not strictly a sealed deposit, a sample was taken of the packing soil used to stabilise and fix the Lanacombe I minilith. No organic remains were recovered from this deposit. The Lanacombe III packing material was deemed too badly disturbed and churned by the toppling of the stone to warrant formal sampling.

Damage and restoration
In management terms, this was very much a tale of two stones. In the case of stone H of Lanacombe I, the recent toppling does not appear to have inflicted much in the way of damage upon the stonehole. Indeed, the stone gave the impression of having been vertically extracted from its stonehole (like a tooth) such was the integrity of the surviving void. The very close fit between the base of the stone and the unexcavated portion of the socket means that we can be extremely confident in the accuracy and verisimilitude of the re-erection. At Lanacombe III the toppling of stone C had caused major damage to the surviving archaeology, displacing packing stones, churning the original stonehole fills and scouring away much of the original profile. This in turn impacted upon the ease and precision with which the stone was set back into place.

Conclusions
The excavation of two standing stones has revealed two distinctive sets of practices for the erection and fixing-in-place of small standing stones. What is unclear is what these different practices represent. Functional responses to different ground conditions (for example the challenge posed by setting up a minilith in an area of outcropping bedrock)? Socially prescribed means of dealing with particular stone shapes, configurations or places in the landscape? Practices widely separated in time? None (or some combination) of the above? Nor do we know how typical (or otherwise) the practices recorded actually were. For example, how common a feature of the
Lanacombe I setting (let alone settings more generally) was the deliberate placement of chunks of worked quartz? Were all ‘post-type’ stones erected using a simple post-hole approach.

The answer will only come from more sustained investigation of the stone settings and their broader landscape context. That this should focus not solely on damaged or toppled stones is of critical importance. Given the potential that undamaged settings have with respect dating and further environmental sampling, sensitive excavation of key miniliths should be a research priority.

A further important consideration is sustained investigation of the areas between individual stones. This is not solely to investigate the tentative suggestions of allied structural settings encountered here, but also the relationship between stone settings and adjacent features such as cairns. Beyond this we need to explore more fully the areas between the settings themselves, testing the relationship between settings, underlying geology and, potentially, past vegetation suggested by the geophysical survey.

**Bibliography**


Appendix A

In no way intended as a formal survey of the Lanacombe I stones, the following photomontage is intended merely to convey a sense of the size and shape attributes of the component miniliths.
Appendix B

A photographic panorama of the site locale

SW

NE
Appendix C

A full list of the Lanacombe I contexts is given below. We definitely erred on the side of the ‘splitters’ when allocating context numbers but given this was a first foray into the moorland soils we can, perhaps, be forgiven.

<table>
<thead>
<tr>
<th>Context</th>
<th>description</th>
<th>suggested equivalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>turf</td>
<td>= 003, 007</td>
</tr>
<tr>
<td>002</td>
<td>weathered outcropping rock</td>
<td>-</td>
</tr>
<tr>
<td>003</td>
<td>remnant base of turf</td>
<td>-</td>
</tr>
<tr>
<td>004</td>
<td>stone spread</td>
<td>-</td>
</tr>
<tr>
<td>005</td>
<td>void left by removal of stone (not really context at all)</td>
<td>-</td>
</tr>
<tr>
<td>006</td>
<td>standing stone</td>
<td>-</td>
</tr>
<tr>
<td>007</td>
<td>turf deposit on base of void left by removal of stone</td>
<td>-</td>
</tr>
<tr>
<td>008</td>
<td>patches of weathered stone</td>
<td>-</td>
</tr>
<tr>
<td>009</td>
<td>stone outcropping</td>
<td>= 013</td>
</tr>
<tr>
<td>010</td>
<td>peaty soil</td>
<td>-</td>
</tr>
<tr>
<td>011</td>
<td>gravelly/pea-grit upper fill of stonehole</td>
<td>-</td>
</tr>
<tr>
<td>012</td>
<td>primary fill of stonehole (chocolate brown soil)</td>
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</tr>
<tr>
<td>013</td>
<td>yellow/orange compacted clay in around stones</td>
<td>=009</td>
</tr>
<tr>
<td>014</td>
<td>‘cut’ of stonehole</td>
<td>-</td>
</tr>
<tr>
<td>015</td>
<td>flat stones at base of socket</td>
<td>-</td>
</tr>
<tr>
<td>016</td>
<td>levelling layer of soil beneath basal stones</td>
<td>=012</td>
</tr>
</tbody>
</table>
Appendix D

Description of Deposit from Lanacombe I, Badgworthy Water, Exmoor
(site LAN 07, context [012], sample <1>)

A.J. Gouldwell

Introduction

The prehistoric site of Lanacombe I (OS grid reference: SS78114272), Badgworthy Water, Exmoor, consisting of a series of small standing stones was excavated in the summer of 2007 by Dr Mark Gillings of the School of Archaeology and Ancient History, University of Leicester. This site is the first of any upland stone settings to be subject to any excavation, and it was hoped that morphology of setting and techniques of erection would be illuminated, possibly providing evidence for dating. A sample of earth consisting of primary fill of a socket of one of the standing stones was submitted by Dr Gillings for examination and description.

Description of sampling unit

The sample of deposit weighed 1.48 Kg and occupied 1.2 litres. It was a loose rather than a massive sample, retaining no structure relating to physical in situ relationships such as sharpness of transition with neighbouring contexts, etc.. Description is limited to simple techniques. Should deeper investigation be wanted, help and equipment from outside the School can be sought.

Material and Methods

The sample is described as for a subsoil horizon following practice principally of the Soil Survey (Hodgson, 1974). Colour was determined of the loose material, the fine crumb structure not allowing breaking of peds to reveal fresh faces large enough to be useful without good magnification. For the same reason, any mottling there might have been would have had to be on a microscopic scale. Colour description and coding uses the conventions of Munsell Colour (1988). Description of texture used properties detectable in the hand, and follows Hodgson (1974) with reference also to Limbrey (1975: 263) and Trudgill (1989: 359), but not Spence (1990: fig. 13) who rejects the use of the term “loam”. Here “loam” is considered a useful term in textural analysis of mineral layers and horizons with wide or mixed particle size ranges.

Results and Discussion

Colour

The colour is dark brown, 7.5YR 3/2 in Munsell notation. Some drier parts of the crumbs approached 3.3. The hue is slightly redder than commonly encountered in British sites and the reddening may be an inheritance from the Devonian regolith, Hangman *** sandstone. The sample was moist at the time of inspection, and further wetting did not alter the colour appreciably, nor did smearing. Mottling was not observable.

Organic matter status

The matrix is essentially mineral. An incineration test could be performed to determine the organic content, but visual inspection suggests that much of the organic content would be in the form of recently penetrating fine roots.

Particle size classes - texture

Coarse grittiness from stony inclusions interfered with the textural examination. The textural properties were examined first on the native material, then stones were sifted out (dry) was before revisiting some of the less obvious characteristics.

Negative properties observed included:
Sand grains could not be detected by hand or eye; the surface of a sample would not take a polish when rubbed; pellets made from moistened and puddled material did not disintegrate under pressure.

Positive features included:
The sample left a trace of colour on the fingers, though this was only faint; pellets could be made to cohere when worked moist, and rolled into a ball; wet material could be moulded into shapes; wet and puddled material could be rolled into a thin thread, but deforming that thread into a horseshoe caused cracking; a silty (soapy or silky) feel was apparent, and fairly dominant; dry material rubbed off on the fingers as loose, dry, floury powder which could be gently blown away. The texture fits the category of silt loam.

Stones
Stones are angular and small (though greater than 4.75 mm. in size, up to 100 mm in residues from macrofossil extraction), about 0.525 l out of a sample of 1.2 l. (This volume of stones includes air trapped in the voids between stones sifted dry from the sample.) By weight the stones account for about 33 per cent of the total. The stone material did not fizz on contact with dilute hydrochloric acid indicating a non-calcareous nature.

The fabric is grey with barely a trace of hue, except under magnification when a mosaic of darker, lighter and pinker or browner shades may be determined. It is non-calcareous, not causing effervescence in contact with dilute hydrochloric acid. It is suspected that the stones represent the local solid geology of probably the Mid-Devonian Hangman series of sandstones and gritstones. The stone can be scratched by a knife, but not by fingernail or copper-alloy coin, indicating a hardness of between 3.5 and 6 on the Mohs scale.

Water-state (app. 1)
Water-state is (slightly) moist.

Structure
There is a crumb structure of predominantly medium-sized with fine and very fine granular to polygonal peds. Gentle dry sifting produced: 575 ml of crumbs between 2 and 4.75 mm diameter, 275 ml of crumbs 1 – 2 mm; and 140 ml of residue less than 1 mm. This exercise offers only a rough guide: the more the sample is sifted to release finer particles through the mesh, the more likely the crumb structure will be damaged. Massive peds were not available for observing voids, fissures and porosity.

Consistence
Characterising consistence is mostly appropriate for such loose material with such small crumbs. The medium coheres when moistened and worked into a ball or other simple shape; it is non-sticky; it is moderately plastic and can be worked wet into a sausage shape down to a length of 40 x 2 mm which will support its own weight (just). There was no cementation.

Roots, soil flora and other plant remains
Roots viewed on the surface of a sample poured into a beaker were fine or medium, the former being many numbering roughly 27 (25 would be “common”!), and the latter being few at 2 per 100 cm². This can be no more than a rough guide to the density of roots in the context in situ. Another sample of the same context is understood to have been analysed for inclusions, particularly organic ones, by wet-sifting and flotation as a separate exercise.

Carbonates
Contact between the matrix and dilute hydrochloric acid did not produce effervescence, so carbonates do not seem to be present.

Features of pedogenic origin
Breaking open some of the peds reveals oxidised ferric compounds producing a reddish or orange hue.

Further possible investigations
Some possible avenues could be investigated with outside help. The value of the extra information should be considered before such investigations be undertaken. Appropriate equipment would enable a
more precise measurement of hardness of the stones to aid in identifying the nature of the rock. Similarly more geological expertise could be requested in identifying the rock. Samples of known provenance of bedrock local to the site should be obtained for comparison with the stones.

mineral and rock identification. Chemical analyses have not been conducted on the matrix. Some tests may be simple when the materials, e.g. a pH meter, are provided. An ignition test could be performed, but the value must be considered in the light of penetration by recent roots.

Bibliography


Appendix E
Appendix F

In no way intended as a formal survey of the Lanacombe III stones, the following photomontage is intended merely to convey a sense of the size and shape attributes of the component miniliths.
Appendix G

A full list of the Lanacombe III contexts is given below.

<table>
<thead>
<tr>
<th>Context</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>turf</td>
</tr>
<tr>
<td>101</td>
<td>stone rich grey-brown silt directly beneath turf (natural)</td>
</tr>
<tr>
<td>102</td>
<td>very loose upper fill of stonehole</td>
</tr>
<tr>
<td>103</td>
<td>standing stone</td>
</tr>
<tr>
<td>104</td>
<td>primary stone rich fill of stonehole</td>
</tr>
<tr>
<td>105</td>
<td>intermittent layer of clean brown silt lining stonehole</td>
</tr>
<tr>
<td>106</td>
<td>cut of stonehole</td>
</tr>
<tr>
<td>107</td>
<td>loose stones lying in base of stonehole</td>
</tr>
<tr>
<td>108</td>
<td>orange clay-silt (natural)</td>
</tr>
</tbody>
</table>