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MEMBERSHIP OF THE SOCIETY is open to all interested in the history and material culture of Cornwall and the Isles of Scilly, persons under 14 being admitted at the discretion of the General Committee. The AGM usually takes place in the Spring. Enquiries about membership should be sent to: Mrs J Beale (Membership Secretary), 16 Cross Street, Padstow, Cornwall PL28 8AT. Requests for any of the Society’s publications (including back numbers of Cornish Archaeology) should be sent to Adrian Rodda, 52 Mount Pleasant Road, Camborne TR14 7RJ.

CONTRIBUTIONS to Cornish Archaeology or the Newsletter should be sent to the appropriate Editors.

Front cover: A cropmark enclosure with an annexe on its west side (right in the photograph) in Ladock parish (SW 8630 5030), photographed in April 2007. The enclosure, almost certainly an Iron Age - Romano-British enclosed farmstead or ‘round’, is one of 30,000 archaeological features in Cornwall plotted from air photographs by the National Mapping Programme. See Andrew Young, The National Mapping Programme in Cornwall, this volume. (Photograph: Historic Environment Service, F76-011.)
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By land, sea and air: an Early Neolithic pit group at Portscatho, Cornwall, and consideration of coastal activity during the Neolithic

ANDY M JONES AND STEPHEN J REED

with contributions from HENRIETTA QUINNELL, ANNA LAWSON-JONES, ROGER TAYLOR, ROWENA GALE and JULIE JONES

During archaeological evaluation trenching at Portscatho, in the parish of Gerrans, a group of four pits was discovered and found to contain structured deposits of Neolithic date, which included pottery, flints, beach pebbles and charred plant macrofossils. Four radiocarbon determinations ranging over the period 3910–3370 cal BC were obtained from the pits. Analysis of the charred macrofossils revealed rare evidence for cereals dating to the Early Neolithic period in Cornwall. It is argued that the pits were the result of the ritualised deposition of artefacts and other materials at a liminal place in the landscape, near to the end of land and above the sea.

This report combines the results of evaluative work undertaken by Exeter Archaeology in the spring of 2003 and an archaeological watching brief undertaken by Cornwall County Council Historic Environment Service (HES) at Portscatho (SW 8765 3500), Gerrans, in advance of the construction of a sewage treatment works during the winter of 2004. During the evaluation four Early Neolithic pits were discovered and recorded. Following their discovery, the treatment works was relocated to the north of the identified Neolithic pits. The new site of the works was the subject of controlled topsoil removal over an area measuring approximately 0.33 ha. No further Neolithic features were uncovered (Dudley 2004).

The initial evaluation consisted of excavation of nine trenches positioned over anomalies identified by an earlier geophysical survey of the 0.90 ha of the field in which the proposed site lay (Dean 2003) (Fig 1). The trenches, which ranged between 20m and 50m in length, were machine-excavated down to the top of in situ natural geology or archaeological deposits and then cleaned by hand. The Neolithic pits were exposed in one of the trenches. Soil samples were taken from all of the pits for palaeoenvironmental analysis (Reed and Sage 2003).

The opportunity is taken here to provide a synthesis of the evidence which has been recovered from Neolithic pit sites and to consider wider issues related to concepts of ‘ritual’ and ‘place’ in Early Neolithic Cornwall.

Both stages of the fieldwork, the analysis and publication were commissioned and funded by South West Water Ltd.
Fig 1 Location map showing the study area (area of topsoil strip shaded). Reproduced from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Cornwall County Council Licence No 100019590, 2008
Location and setting

The site lies 200m from the coast within open farmland overlooking the sea at a height of approximately 35m OD, approximately 200m to the south of the village of Portscatho (Fig 1). The underlying geology is the clays and slates associated with the Devonian sandstone and slate (Geological Survey of Great Britain 1974, Sheet 352). The pits are located on the southern side of a shallow valley, in which Portscatho is situated, which runs east towards low cliffs and the sea. Inland, views to the west and especially the north are restricted by the rising ground, but to the north east the St Austell granite massif is just visible; to the east are the notable coastal landmarks of Nare Head and Dodman Point. Over a wide vista to the south east the site has views of uninterrupted, open seascape.

The site lies in an area characterised as Anciently Enclosed Land, made up of farming settlements documented before the seventeenth century AD and field patterns of medieval origin (Cornwall County Council 1996). Generally, within such well-used areas of lowland Cornwall, the prehistoric context is little known. In this instance, a Neolithic greenstone axe is recorded from somewhere in the area but its exact provenance is not known (Anon 1971). The field to the north and west of the Neolithic pits was recorded by the Gerrans tithe survey of c 1840 as Crooknellis (Fig 1), ‘crook’ almost certainly deriving from the Cornish place-name element cruc, ‘barrow’ (Padel 1985, 73). It was from this field that an urn was recovered during the removal of a hedge or barrow in the mid nineteenth century (Historic Environment Record PRN 22722; Hencken 1932, 121–3, fig 34). Sherds illustrated by Borlase (1872, 206) and Patchett (1944, 48) show a large, complex Bronze Age Trevisker Ware vessel. A stone-built cist is also reported to have been found in the same field (HER PRN 22724). No Neolithic artefacts or sites have previously been identified in the immediate vicinity of the pits.

The National Mapping Project (NMP) has also recently identified from air photographs a number of ploughed down crop-mark enclosures on the Roseland. Most are undated, although the majority are likely to be later prehistoric or Romano-British in origin. However, one of the NMP sites, approximately 2km to the north west of Portscatho and has the appearance of a cursus-type monument with a closed northern terminal and an open southern end, aligned on the headwaters of the Percuil River. The plotted extent measures roughly 90m long by 40m wide. If it is a cursus, it is likely to date to the Middle Neolithic, between c 3600 and 2900 cal BC (Barclay and Bayliss 1999, 25), and therefore a little later in date than the Portscatho pits. However, it may well have been constructed in an area which had already been cleared and occupied during the Early Neolithic.

Indications of Neolithic occupation are also suggested by a small number of stray lithic finds that have been made across the Roseland (Bousfield and Bousfield 1959; Gould 1994). Inland, flints have been found at Polingey, which lies approximately 1km to the west, Carwarthen, 3km to the north west, and near to Dingerein Castle, 2.5km to the north-east of Portscatho. On the coast, a handful of flakes and a core were found in a cliff exposure at Curgurrel, approximately 2.5km to the north east and at Dodman Point which is intervisible with Portscatho (Kirkham 2006). All of these finds are chance discoveries and must represent only a tiny fraction of Neolithic activity across the Roseland peninsula.

Results from the investigations

The Neolithic pits were confined to one of the evaluation trenches, trench 5 (Fig 2), and were covered by a deep overburden of topsoil and colluvium, up to 0.8m deep (Figs 3 and 8). The remainder of the evaluation trenches and the larger stripped area revealed only post-medieval field boundaries and tree throws (not illustrated). There were no indications that the pits were associated with structures, other contemporary features or occupation-related artefact spreads. All but one of the certain Neolithic finds came from the pits, the exception being a single sherd recovered from probable animal burrow, [17] fill (18). Three highly abraded sherds of possible Neolithic pottery were recovered during the topsoil stripping but no flint was found.

All four pits were filled by single deposits, indicating rapid backfilling. All contained sherds of Neolithic pottery and three contained flint. Some contained water-worn pebbles, slate, charcoal, charred hazelnut shells and cereal grains. One of the pits included two very large beach pebbles and a water-rounded quartz pebble. Although they contained relatively large quantities of charcoal, there was no evidence of in situ burning in any of the pits.
Table 1 Descriptions of the Neolithic pits

<table>
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<th>Neolithic pit descriptions</th>
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<tbody>
<tr>
<td><strong>Pit [502]</strong></td>
</tr>
<tr>
<td>Filled by (501)</td>
</tr>
<tr>
<td>The pit was only half exposed. It measured 0.7m wide in section, projected 0.3m into the trench and was up to 0.12m deep. The revealed sides were concave. It was filled by (501), a dark reddish-brown silt, which included some large charcoal and slate fragments. Five sherds of Neolithic pottery, one flint, several water-worn stones and a small number of wheat and barley grains and charred hazelnut shell were recovered.</td>
</tr>
</tbody>
</table>

| **Pit [504]**                  |
| Filled by (503)                |
| The pit was only partially uncovered. The exposed sides were steep and the base concave. It measured 0.46m wide in section, projected 0.3m into the trench and was up to 0.26m deep. It was filled by (503), a dark reddish-brown silt, which included charcoal and slate fragments. Five sherd of Neolithic pottery, a flint scraper and two pieces of debitage were recovered. Two very large beach pebbles were recorded from its base. A single grain of wheat was also recovered. |

| **Pit [506]**                  |
| Filled by (505)                |
| Pit [506] was fully exposed. It was circular, with a maximum diameter of 0.62m and maximum depth of 0.28m. The sides were steep and the base slightly concave. It contained fill (505), a reddish-brown silty clay containing pieces of slate, charcoal fragments, charred hazelnut shell, two sherds of Neolithic pottery and a water-worn quartzite cobble/rubber. |

| **Pit [512]**                  |
| Filled by (511)                |
| The pit was only partially uncovered. It was the largest of the group, 0.86m wide in section, projecting 0.42m into the trench and up to 0.42m deep. The exposed sides were steep and the base concave. It was filled by (511), a compact dark reddish-brown silt, which included charcoal and slate fragments and a small number of cereal grains. Eighty-three sherds of Neolithic pottery were recovered from a single horizon approximately 0.1m above the base of the pit. This included vessels P1 – P7. Ten flints were also recovered. |

Fig 2  Plan of Trench 5 and the excavated pits.
Neolithic pottery

Henrietta Quinnell

The assemblage consisted of 95 sherds in five fabrics, representing a minimum of 12 vessels, all with form or fabric typical of the Early Neolithic. All sherds are fresh except the single pieces in fabrics 4 and 5 which are abraded. A further four sherds were found in 2004, all fabric 1. These were from the fill of tree throw hollow (8), the backfilled spoil from evaluation trenches 1 or 4 (9), the fill of animal burrow (16) and a probable animal burrow [17]. The first three were abraded and need not be Neolithic; the fourth, from [17], was fresh and had surface finish comparable to those in (501)-(511).

Fabrics

Five fabrics were identified, based on study by Roger Taylor (see below). Fabric 1 was clearly identifiable as a fine, well-made gabbroic fabric from clay sourced on the Lizard (Peacock 1969; 1988). Fabrics 2–4 were of gabbroic clays mixed with other clay which contained glassy basalt, identified by thin-section study, and differing quantities of micaceous slate and quartz. They probably represent variations within a particular fabric, rather than three distinct fabrics, with the non-gabbroic clay sourced in the Meneage area. Fabric 5 was derived from local argillaceous rock.

Fabric 1 Fine well-made gabbroic. Common inclusions generally <1mm deriving from gabbro; R Taylor considers that the even size of inclusions indicates that the clay may have been processed. Generally oxidised throughout 5YR 5/6 yellowish red. Hard. Both surfaces burnished, with traces of black coating on exterior of some pieces. P1, and a minimum of two other vessels from (501) and (505). This comprises 13% of the assemblage by number of sherds and 18% by weight.

Fabric 2 Gabbroic with glassy basalt. Very common inclusions median size 2.5mm; these derive from gabbro with the addition of glassy basalt and some micaceous slate up to 5mm. Generally oxidised 5YR 4/4 reddish brown but with some reduced patches. Soft. Exterior surface smoothed, interior very rough. Several vessels have traces of exterior black coating. A minimum of five vessels, P2–6, all from (511). Fabrics 2–4 comprise 86% of the assemblage by number of sherds and 81% by weight.

Fabric 3 Gabbroic with glassy basalt and micaceous slate. Moderate inclusions which vary in size up to 12mm include glassy basalt and micaceous slate added to gabbroic components. Oxidised 5YR 5/6. Soft. Some burnish on exterior with black coating. A minimum of two vessels, P7 and one other, from (511); the scraps from (503) are too small for ascription to a vessel.

Fabric 4 Gabbroic with glassy basalt, micaceous slate and vein-quartz. Moderate inclusions up to 3mm; glassy basalt, micaceous slate and angular vein-quartz added to gabbroic components. Oxidised 5YR 5/4 reddish brown. Soft. Exterior surface burnished. One vessel represented by one sherd in (503).

Fabric 5 Weathered slate. Made from weathered argillaceous micaceous slate with no other material. Sparse inclusions of slate up to 7mm. 5YR 7/6 reddish yellow. Soft. Exterior surface smoothed. One vessel represented by one sherd in (503). This comprises 1% of the assemblage on sherds and weight.

Table 2 Neolithic pottery from the pits excavated in 2003; number of sherds/weight in grams

<table>
<thead>
<tr>
<th>Context</th>
<th>Fabric 1 Gabbroic</th>
<th>Fabric 2 Gabbroic/basalt</th>
<th>Fabric 3 Gabbroic/basalt</th>
<th>Fabric 4 Gabbroic/basalt</th>
<th>Fabric 5 Slate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>(501) [502]</td>
<td>5/44</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>5/44</td>
</tr>
<tr>
<td>(503) [504]</td>
<td>–</td>
<td>–</td>
<td>3/3</td>
<td>1/93</td>
<td>1/3</td>
<td>5/99</td>
</tr>
<tr>
<td>(505) [506]</td>
<td>2/50</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>2/50</td>
</tr>
<tr>
<td>(511) [512]</td>
<td>5/102</td>
<td>70/570</td>
<td>8/217</td>
<td>–</td>
<td>–</td>
<td>83/889</td>
</tr>
<tr>
<td>P1</td>
<td>P2–6</td>
<td>P7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12/196</td>
<td>70/570</td>
<td>11/220</td>
<td>1/93</td>
<td>1/3</td>
<td>95/1082</td>
</tr>
</tbody>
</table>
Comment on fabrics

The principal published Early Neolithic assemblages from Cornwall come from the enclosure sites at Carn Brea (Smith 1981) and Helman Tor (Smith 1997). The Carn Brea assemblage was entirely gabbroic, with 44% representing good comparanda for the fabric 1 fine, well-made vessels. At Helman Tor 24% of the assemblage was gabbroic, mostly fine, well-made vessels, with the remainder comparatively locally sourced. The pit group at Tregarrick Farm, Roche (Quinnell 2002–3) comprised good quality gabbroic vessels forming 38% of the assemblage by sherds and 28% by weight, with the remainder again fairly locally sourced. All of the small collection from pits at Poldowrian on the Lizard was gabbroic although the fabrics used varied a great deal from fine to coarse (Smith and Harris 1982, 47); the same fabric range was apparent in the surface collection at nearby Polcoverack (Smith 1987, 53). Portscatho is 18km from the source of gabbro clays, as the crow flies or by water, closer than the 25km over land from Carn Brea.

Fabrics 2–4 fall in the general grouping of ‘gabbroic admixture’, gabbroic fabrics with added rock temper of various kinds, all usually sourced in the immediate periphery of the gabbro outcrop. Gabbroic admixture fabrics have been generally assumed – although perhaps never specifically stated in print – to be characteristic of the Cornish Bronze Age. Certainly, the publications of the Neolithic
assemblages from Carn Brea and Helman Tor make no reference to them. Fabrics 2–4 differ from typical Bronze Age admixture in the larger proportion of material added to gabbroic clays; it appears that clay with a range of inclusions was being mixed with gabbroic clay rather than specific tempers being added to the latter. Bronze Age admixture fabrics also tend to have larger, more visible and more abundant inclusions than do Fabrics 2–4. The glassy basal inclusions indicate manufacture somewhere away from the gabbro outcrop, probably in the Meneage area some 6km to the north; there is no basalt in the Roseland area and the only other sources lie in the extreme west of Cornwall.

This is the first time that manufacture of Early Neolithic pottery some distance from the principal clay source has been indicated; however, given the proximity of the two source clays, it is possible that Meneage glassy basalt clay was taken down to the gabbro area rather than gabbroic clays being transported. However, some Bronze Age admixture fabrics, from Stannon on Bodmin Moor (Quinnell 2004–5) and from Tremough near Penryn (Quinnell 2007, 59), have been demonstrated to contain inclusions which indicate transport of gabbroic clays and potting somewhere in the vicinity of the sites on which the ceramics were used. In the Portscatho assemblage, fabrics 2–4, with their poor finish, appear to take the place of the medium and coarse gabbroic wares at Carn Brea (Smith 1981, 162) and of the local wares described above from other Cornish sites. Their presence at Portscatho demonstrates the complexity of production and distribution of gabbroic pottery during the Early Neolithic period.

Fabric 4 contains noticeable crushed vein-quartz. Vein-quartz fabrics are increasingly being recognised amongst Early Neolithic assemblages in the south west (Quinnell 1999). These include Fabric C at Helman Tor (Smith 1981, 31); published as quartzite, examination by the author shows inclusions to in fact be vein-quartz. At Carn Brea, coarse gabbroic fabrics are described as often containing angular pieces of quartz 10mm or more in size (Smith 1981, 162). Part of a vessel, similar to Portscatho P3 in shape, in a fabric derived from the Gramscatho Beds with added large vein-quartz inclusions, has recently been identified from a pit at Trenowah near St Austell (Quinnell forthcoming).

Fabric 5 shows use of local clays for potting. A local slate fabric of a type similar to Fabric 5 has been identified at Penhale, Fraddon (Quinnell in Nowakowski 1998).

Black coating is not uncommon on well-made gabbroic vessels. Its presence was especially noted at Carn Brea; investigation by the British Museum Research Laboratory indicated that there it was ‘associated with charred organic matter which has partially decomposed to carbon’ (M. S. Tite in Smith 1981, 170). It was also present at Helman Tor, on both gabbroic and local fabric vessels (Smith 1997, 34) and in the pit groups at Tregarrick Farm (Quinnell 2002/3) on most fine gabbroic vessels and one in a local fabric.

Vessel form

The seven vessels with distinctive characteristics are individually described below. These all come from the deposit towards the base of pit [512] in fill [511], a deposit only partly excavated.

P1 (Fig 4). Classic open carinated bowl with flared rim (Cleal 2004, figs 4–5), Fabric 1 with exterior black coating; extremely good burnishing on both surfaces. Rim pointed and slightly out-turned. Considerable wear on parts of the rim and angle of carination.

P2 (Fig 4). Simple open bowl with simple pointed rim and lug set slanting across body; Fabric 2 with traces of black coating on roughly smoothed exterior. Rectangular lug with slight depression on upper side which assists grip; a possible second lug is present in a fragmentary condition. The edge of the lug and parts of the rim were very worn before breakage.

P3 (Fig 4). Simple neutral bowl with pointed rim and horizontally-set lug, Fabric 2; roughly finished exterior. The lug has a very marked depression in its upper surface and forms a really grippable handle.

P4 (Fig 4). Rim of open bowl with flattened top, Fabric 2.


P6 (not illus). Small rim sherd, flat-topped and slightly expanded, Fabric 2.

Discussion

This small assemblage is made up of vessels which all fit well within the range found in the Early Neolithic of south-west England, a regional grouping described as South-Western or, more usually, Hembury; Cleal (1992) provides the background to this terminology. Simple rims and scarcity or absence of decoration are typical characteristics. Carinated bowls, generally of fine gabbroic fabric, represented 38% of the Carn Brea assemblage (Smith 1981, 166) and are also present in gabbroic and local fabrics at Helman Tor (Smith 1997, 32). Sherds of gabbroic carinated bowls were deposited in pits at Tregarrick Farm (Quinnell 2002/3) and at Penhale Round (Quinnell in Nowakowski 1998). Vessel P1 has a more widely flared rim than any of these Cornish examples and is the only example of a classic open carinated bowl so far found in Cornwall, where vessels tend to be of neutral form. However, in Devon fine, classic, open carinated bowls similar to P1 occur in gabbroic fabric at Hembury (Liddell 1932, pl XVIII, P254; Peacock 1969) and Hazard Hill (Houlder 1963, fig 6, no 1), and, in local fabric,

Fig 4  Early Neolithic pottery from pit [512]. Scale 1:3. Drawn by Jane Read. P1 Fabric 1 gabbroic – dots indicate area of black paint; P2-P4 Fabric 2 gabbroic with glassy basalt.
AN EARLY NEOLITHIC PIT GROUP AT PORTSCATHO

at Haldon (Willock 1936, pl LXVII, no 2). Carinated bowls have been the focus of a study by Herne (1988) and recently of a re-examination by Cleal (2004). Simple open bowls with paired lugs such as P2 and P3 are common at Carn Brea (Smith 1981) and in other assemblages in south-west Britain. There is no good regional parallel for the slanting lug of P2 although P128 and P130 from Carn Brea (Smith 1981, fig 73) are irregularly set. Cleal (1992, 301) has pointed out the association between provision of functional lugs, which assist handling, and simple rims which provide no grip, both features of the assemblage at Carn Brea. This relationship distinguishes assemblages from south-west England from those from Wessex such as Windmill Hill; there heavy rims which assist handling are much more frequent, although lugs may also occur.

The radiocarbon dates situate the assemblage across the middle of the fourth millennium BC. Wk-13256 from pit [502] calibrates to 3710–3380 BC, Wk-13257 from pit [504] to 3700–3380 BC, Wk-13258 from pit [506] to 3920–3640 BC and Wk-13259 from pit [512] to 3640–3370 BC. The dates thus indicate a span from 3900 to c 3370 BC, that from [512] with its substantial deposit of pottery falling towards the end of this range. They are comparable with the range from the pit group at Tregarrick Farm (below), although the latter provide a more definite indication of activity and ceramic deposition in the thirty eighth and thirty seventh centuries BC. They are within the range provided by other dates from sites in Cornwall (Table 7 below) and Devon (Gent and Quinnell 1999, 61). The South-Western or Hembury style of Early Neolithic pottery formed a stylistic continuum across the fourth millennium BC (Thomas 1999, 100). Cleal (2004, 181) now suggests dividing this into Early or Developing Neolithic, c 3850–3650 cal BC, High or Developed Neolithic, c 3650–3350 cal BC, and Middle Neolithic, c 3350–3000/2950 cal BC. Pit [506] would belong in the Early Neolithic and pit [512] in the Developed Neolithic, with the other two less certainly situated.

The sherds are fresh, apart from the abraded Fabric 4 and Fabric 5 sherd in [504], and therefore likely to have been deposited soon after breakage. There is therefore limited evidence for the curation of ceramic sherds, unlike that presented by the pit group at Tregarrick Farm (Quinnell 2002/3). However, P1, P2, P5 and P7 were very much used before breakage and may demonstrate the careful curation of vessels. All the material from infill (511) in pit [512] was incorporated in one layer of the fill. The pits are likely to have been deliberately infilled and the artefacts in them the objects of structured deposition. Cleal (in Woodward 1991, 81) has commented on the frequency of the deposition of carinated vessels in isolated pits. A particular feature of structured deposition in pits is the selection of high-quality artefacts, such as the carinated bowl in well-made gabbroic P1.

Overall, the assemblage from Portscatho is important because the assemblage from the partly excavated pit [512] is larger than that from any other pit deposit in south-west England and this pit can be dated to the Developed Neolithic within the long duration of the South-Western or Hembury ceramic style. Finally, the mix of gabbroic and glassy basalt clays demonstrates unsuspected complexity in the production of gabbroic fabrics.

Petrography

Roger Taylor

The assemblage was first examined under a x20 binocular microscope and four sherds from Fabrics 1 to 4 selected for thin-sectioning. A full report with all details of microscopic examination is filed with the archive.

Fabric 1 Thin-section 4

Feldspar. Moderately to heavily altered plagioclase, sub-angular to rounded, 2mm. Quartz. Angular grains, some composite quartzitic, 0.1–2mm. Amphibole. A 3mm composite fragment with pale green amphibole 0.2–1.5mm associated with altered feldspar. Small grains of pale green amphibole in the matrix, 0.1–2mm. Rock fragment. Partly altered and iron stained, sub-rounded dolerite fragment with feldspar showing relict igneous texture, 1.6mm. Opaque. Angular grains probably magnetite, 0.1–0.75mm. Limonite. A few small rounded brown translucent grains, 0.5–1mm. Mica. Slender laths of muscovite in the matrix less than 0.1mm.

Comment. The thin-section confirms the microscopic sherd description of a mainly fine-grained gabbroic fabric.
Fabric 2 Thin-section 2

**Rock fragments.** Brown devitrified glassy basalt with incipient feldspar in a radiating (variolitic) texture and some more fully crystallized grains; sub-rounded fragments, 0.2–4mm. **Rock fragments.** Moderately sericitised aggregates of plagioclase feldspar, 2.5 and 4mm. **Feldspar.** Brownish micaceous slate, one fragment micro-folded, elongated fragments, 0.2–1.15mm. **Feldspar.** Moderately sericitised aggregates of plagioclase feldspar, 2.5 and 4mm. **Rock fragments.** Foliated fragments of micaceous slate and siltstone, 0.2–1.25mm. **Amphibole.** Aggregates of weakly pleochroic pale green to colourless, 0.2–2.5mm; colourless and pale green pleochroic grains, 0.1–0.3mm. **Opaque grains.** Sparse sub-angular grains probably magnetite, 0.1–0.2mm. **Quartz.** Sparse angular grains 0.11–0.3mm.

**Comment** A gabbroic admixture fabric with devitrified glassy basalt, generally similar to that of thin-sections 1 and 3 and from the same area. Pyroxene, seen in microscopic examination, was not identified in the section.

Fabric 3 Thin-section 3

**Rock fragments.** Brown devitrified glassy basalt with incipient feldspar in a radiating (variolitic) texture and some more fully crystallized grains; sub-rounded fragments, 0.2–2.8mm. **Rock fragments.** Foliated fragments of micaceous slate and siltstone, 0.2–1.25mm. **Rock fragment.** A single fragment of heavily altered plagioclase feldspar and light green amphibole, 6mm. **Feldspar.** Heavily to moderately sericitised angular to sub-angular plagioclase grains, 0.1–0.25mm. **Limonite.** A scatter of brown to opaque rounded grains, 0.1–0.25mm. **Mica.** Slender muscovite laths up to 2mm.

**Comment** A gabbroic admixture fabric with devitrified glassy basalt, generally similar to that of thin-sections 1 and 2 and from the same area. Pyroxene, seen in microscopic examination, was not identified in the section.

Fabric 4 Thin-section 1

**Rock fragments.** Brown devitrified glassy basalt with some slender swallowtail feldspar laths and incipient feldspar in a radiating (variolitic) texture characteristic of this type of rock: sub-angular to sub-rounded fragments, 0.1–6mm. **Rock fragments.** Elongated fragments of micaceous slate and siltstone, 0.5–1.3mm. **Feldspar.** Composite sericitised fragments, 3mm and 4mm, and other altered feldspar fragments, 0.1–1mm. One less altered composite fragment of plagioclase, 1.5mm, and some smaller less altered grains, 0.2–0.75mm. **Quartz.** Angular grains, 0.1–2mm, with fine-grained quartz in matrix. **Amphibole.** Angular grains pleochroic pale green to neutral and some fine grained aggregates, 0.1–0.75mm. **Limonite.** A scatter of brown to opaque rounded grains, 0.1–0.2mm. **Mica.** Slender muscovite laths up to 2mm.

**Comment** The thin-section shows that the fabric is a gabbroic admixture with devitrified glassy basaltic fragments. Such fragments are unlikely to be derived from the dyke suite cutting the Lizard gabbro. A possible match is with the basaltic pillow lavas in the Meneage area to the north of the gabbro and which could also have been the source of the sedimentary slaty fragments. These brown devitrified glassy fragments were probably misidentified as limonite in the original examination of the sherd. Quartz is not particularly abundant in the thin-section compared to that seen in microscopic examination and the magnetite and pyroxene then seen not identified in thin-section.

Fabric 5 (sherd unsuitable for thin-section)

**Mica-muscovite.** Flakes abundant up to 0.1mm. **Rock fragments.** Micaceous slate, thin fragments up to 0.75mm across, one 7mm fragment. **Quartz.** Sparse angular grains up to 0.3mm.

**Comment** Clay formed from weathered, argilised micaceous slate with no added temper; appropriate to a source local to the site.

**General comment on thin-sections**

The group of admixture sherds (thin-sections 1–3) is unusual in its rock content. This is the first time I have seen glassy basalt inclusions in a gabbro admixture. The variety of admixture inclusions...
occurring continues to increase, although in most cases they still seem to derive from the vicinity of the Lizard Complex and to be of Bronze Age date. In this case the potting may have been carried out at some distance from the source of the gabbroic clay. The proportion of typical gabbroic components, particularly feldspar, in the Portscatho admixture fabrics is lower than in typical gabbroic fabrics of the Bronze Age.

Flint and stone

Anna Lawson-Jones

The four Early Neolithic pits produced 14 flints, 4 cobbles/pebbles and 1 quartzite rubber/cobble (see Table 3 below). Only pit [506] was fully excavated, as this was the only one to be fully exposed within the evaluation trench.

Raw material sources

The majority of corticated pieces are of pebble flint and are probably of local beach origin. Many, if not all, tertiary pieces are also likely to have come from pebble cores, primarily on the basis of flint colouration. The single nodular piece, from pit [512] has come from further afield. The nearest inland source for high-quality nodular flint is Devon, where recently published research (Newberry 2002) has highlighted a number of potential nodular flint sources in addition to the most frequently cited source at Beer Head on the south-east Devon coast (Tingle 1998). Other secondary sources for flint include the head and gravel deposits of western Devon (Wainwright and Smith 1980, 106). In Cornwall the use of nodular flint, whether acquired via trade and exchange or through specific journeys to the source, is seen as an earlier Neolithic trait (Healy 1985).

Note: The retained percentage of corticated surface has been classified as primary (50–100% corticated surface), secondary (2–50%) and tertiary (0–2%).

Pit [502]

Pit [502] produced an undiagnostic burnt flint of probable Neolithic date. The pit contained charcoal and charred hazelnut shells, although the cut itself did not contain evidence for in situ burning. This suggests that the 14mm long flint was accidentally included with the other partially burnt material in the pit as part of fill (501). This is the only burnt flint in the Portscatho assemblage, despite the presence of charcoal in the other pit fills.

Pit [504]

Pit [504] produced three pieces of worked flint, including the most meticulously worked and complete tool from this assemblage. Two pieces were small and distinctively pale in colour, probably indicating the same source or core. Neither of these showed any use-wear or other modification. Both are small, the longer being only 20mm long. These two small pieces may have been removed from the abandoned multi-platform flake core found in pit [512], on the basis of the near-identical chert colour, texture and cortex.

The third piece was a good, 35mm-long, tear-shaped end and partial side scraper with a broad 30mm convex working edge extending partially down one side. The retouch is neat, uniform and primarily shallow, composed of long, broad retouch scars overlaid by shorter, slightly steeper, very small nibbled retouch extending beyond the previously modified working edge on one side. Macroscopically visible probable use-wear was noted, but this appears slight and did not result in ventral damage. This is a diagnostic Early Neolithic form of scraper (Edmonds 1995, Butler 2005).

Two large beach pebbles (or cobbles) are recorded as having been placed at the base of the pit, but were not retained.

Pit [506]

The completely excavated pit [506] only produced a single 80mm long, 60mm wide, white, water-worn quartzite cobble. This pebble probably originated from a local beach, as it is comparable with Ordovician quartzite masses found in the Upper Devonian geology of the Lizard and Veryan areas (Taylor 2003). It is likely to have been selected for its hard, resilient, fine-grained properties, in addition to its size and shape. The pebble has a focussed patch of striations running in a single direction with associated gloss. The gloss and striations only exist together and cover an area 20mm by 17mm to the side of one end of the oval pebble, extending from the edge slightly up onto one flat surface. The pebble
<table>
<thead>
<tr>
<th>Context</th>
<th>Material</th>
<th>Tool form/type</th>
<th>Complete, Broken, Utilised, Retouched</th>
<th>Source: N= nodular P= pebble</th>
<th>Primary, Secondary, Tertiary</th>
<th>Burnt</th>
<th>Hard or Soft hammer</th>
<th>Colour and comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>(503)</td>
<td>Flint</td>
<td>Scraper</td>
<td>C/U/R</td>
<td>P</td>
<td>S</td>
<td>No</td>
<td>S</td>
<td>Dark grey with pale grey mottling. A fine end and partial side scraper on a rounded flake, with dorsal retouch.</td>
</tr>
<tr>
<td>(505)</td>
<td>Quartzite</td>
<td>Rubber</td>
<td>C/U</td>
<td>P</td>
<td>–</td>
<td>No</td>
<td>–</td>
<td>Off white quartzite cobble. Striations and associated gloss at one end.</td>
</tr>
<tr>
<td>(511)</td>
<td>Flint</td>
<td>Split pebble flake</td>
<td>C/U</td>
<td>P</td>
<td>P</td>
<td>No</td>
<td>H</td>
<td>Mottled grey-brown with pale blue re-patination discoloring. Core/striking platform preparation flake with some thin primary removal flake scarring.</td>
</tr>
<tr>
<td>(511)</td>
<td>Flint</td>
<td>Backed end of tool</td>
<td>B/U/R</td>
<td>N</td>
<td>S</td>
<td>No</td>
<td>S</td>
<td>Uniformly dark brown. Retouch running down from prepared narrow bulbar end. At opposing distal side some backing retouch. Distal end snapped off.</td>
</tr>
<tr>
<td>(511)</td>
<td>Flint</td>
<td>Thick flake</td>
<td>C</td>
<td>P</td>
<td>S</td>
<td>No</td>
<td>H</td>
<td>Mottled dark grey-brown with off-white and faulting throughout. Long convex edge not utilised?</td>
</tr>
<tr>
<td>(511)</td>
<td>Chert</td>
<td>Thick flake</td>
<td>C/U?</td>
<td>P</td>
<td>P</td>
<td>No</td>
<td>?</td>
<td>Slightly faulted, granular cream/off-white. Corticated edges both have possibly recent damage/tiny removals?</td>
</tr>
<tr>
<td>(511)</td>
<td>Chert</td>
<td>Core</td>
<td>–</td>
<td>P</td>
<td>S</td>
<td>No</td>
<td>?</td>
<td>Slightly faulted, granular cream/off-white. Abandoned?, tested multi-platform core. Fresh, with some small adhering flakelets.</td>
</tr>
</tbody>
</table>
has seen no other modification and fits naturally within the hand, allowing easy visualisation of how it was held and used. The depth of the striations implies that it was used as a polisher, almost certainly of stone: no other material in use at this period could have formed such strongly defined striated wear.

Pit [512]

Pit [512] produced the largest quantity of both flint (ten pieces) and Neolithic pottery (Quinnell above). The flint shows a distinctive range of colour, and contained the only core, the only nodular piece, the largest flakes, the freshest pieces and the only blades. The dark, distinctive, 29mm-long nodular piece represents the narrow, bulb bar end of an at least partially backed tool; backing retouch extends down from the remnant cortex for a short length prior to the snap-off point of the main body of the piece. The form of the tool prior to snapping is not certain, although a knife is likely. Similar pieces have been found elsewhere, for example at Carn Brea (Saville 1981). The piece macroscopically appears very fresh, with no sign of use-related abrasion; the break would therefore seem deliberate and not use-related. Another snapped piece from this fill was a knife, 25mm long and 18mm wide, made on a true blade, with parallel sides and regular dorsal blade scarring. It may also have been deliberately broken, although, unlike the nodular piece, macroscopic examination does suggest some use.

A complete denticulated piece, 35mm long and 3mm thick, appears to have seen little use, with only a single, small, probably use-related removal on the ventral surface. The two retouched sides vary, with the denticulated edge showing a combination of small, irregular unifacial removals on the dorsal surface and a bifacial patch of tiny nibbling at the distal end. The opposing, straight side shows tiny bifacial nibbling. Thinner still is a 38mm long, 2mm thick, mottled near-blue long flake, which is laurel leaf-like in shape but lacks the normal delicate invasive flaking associated with such pieces. Both of these pieces are thin and delicate and would almost certainly have been damaged had they been residual finds rather than sealed within a pit.

None of the flint from the pit group is substantial in size, but the four largest pieces in the Portscatho assemblage come from this pit. Two are of a distinctive cream, fine-grained chert, similar to the two small flakes found in pit [504]. The first was a thick unmodified, unused primary flake, 47mm by 27mm by 11mm thick, which despite having a potentially useful long corticated edge was unused (a tiny recent removal was probably associated with excavation). The second chert piece was a faulted multi-platform flake core, 40mm by 30mm by 15mm, with evident hinging and fracturing (hence its probable abandonment). A further large grey primary flake, 52mm by 32mm by 12mm, was also unused, despite having a sharp convex edge and an opposing corticated thick edge, which would not have required modification or backing. It is not quite long enough to fit comfortably in an adult hand. Finally, the split end of a pebble with traces of fine, thin decortication removals was found. It represents the initial stages in core production and preparation, its removal forming a broad platform from which to strike flakes or blades. This piece measures 31mm by 23mm by 9mm. The decortication scars produced a short, convex, steep very sharp edge which saw possible use as a knife/scaper. The piece fits well between the thumb and forefinger and illustrates the ingenuity with which flint was used.

Discussion

The assemblage shows the use of a flake and blade-based technology. Removals appear predominantly to have been soft-hammered, resulting in diffuse bulbs and indistinct conchoidal rippling, although some of the primary removals show removal by hard hammer (Butler 2005). A number of the bulbs have seen preparation/abrasion. Where discernable, the flaked pieces have come from either single or bipolar cores, with the single exception of the smallest chert piece from pit [504], which appears to have come from a multi-platform core. The only core in the assemblage was similarly multi-platformed and of chert.

None of the pieces appear heavily abraded. A number show use, but this appears to have been reasonably light or short term in nature, perhaps a single episode. Where breakages have been noted these may well have been intentional. Some pieces are very fresh in appearance with granular sharp edges and no damage. In the case of the core this still has adhering flakelets. Repatination has taken place on a couple of the pieces, namely the blue long flake and the utilised split pebble, both from pit [512].

Differences in the range and quantity of pieces present in each pit suggest intentional selection. The lack of complete excavation for three of the four pits precludes quantitative comment but some obvious
points can be made. Of the three part-excavated pits, only [502] produced a burnt fragment, although this may have been accidentally included. Pit [504] produced the most completely worked tool and two distinctively small, near-white flakes. Pit [512] produced almost three-quarters of the entire collection, including the largest pieces, freshest pieces and the only nodular item. This pit produced a mix of conspicuously unused larger pieces, and used and unused finished tools, two of which appear to have been deliberately snapped prior to inclusion within the fills. Together, the group from [512] represents the full range of flint use: knapping, utilisation and discard. The absence of flint from pit [506], despite its full excavation, contrasts with the other three partly excavated pits which all produced flint and implies deliberate selectivity.

This small assemblage of 14 pieces of worked flint offers some interesting comparisons with that from another recently excavated Early Neolithic pit group from Tregarrick Farm, Roche (Cole and Jones 2002–3). There, similarly dated pits included burnt flint as a deliberate component (Lawson-Jones 2002–3), but at Portscatho only one flint was burnt. The proportion of imported nodular flint at Portscatho was also much lower than at Tregarrick, where a little over a third of the assemblage was identified as being of nodular origin. However, both groups of pits contained a mix of snapped and complete pieces, fresh and utilised pieces, waste and finely worked pieces and a range of distinctive colours of raw material. Edmonds (1995) notes the special treatment of lithics during the Early Neolithic, including deposition of finished objects and knapping debris. The Portscatho pits follow this pattern, showing selective deposition of flintwork within discrete features located at significant places in the landscape.

Charred plant remains

Julie Jones

As well as charcoal fragments (Gale below), the pits produced a small assemblage of charred cereal remains and hazelnut shells (Table 4).

The small quantities of charred cereal remains confirm the presence of wheat and barley at the Portscatho site but provide no information on cultivation or crop processing activities. Their primary significance lies in their occurrence in features dated to the Early Neolithic.

The earliest date for charred cereal remains in Cornwall comes from archaeological work carried out on the route of the A30 near Fraddon. One grain of emmer (Triticum cf dicoccum) and three indeterminate wheat (Triticum sp) grains from pit [254] at Penhale Round gave a result of 5001±75 BP, 3960–3650 cal BC (Wk-9839). Similar Early Neolithic dates were also obtained from alder/hazel charcoal from a posthole (Vanessa Straker pers comm). These dates are slightly earlier than or overlap with the results from Portscatho.

Evidence for crop husbandry practices in Cornwall and Devon is fairly limited for the prehistoric period, despite some large-scale sampling and sieving programmes (Campbell and Straker 2003). Much of the data recovered for charred cereal remains comes from the Bronze Age and later periods but even then macrofossil density is often low. Much of the evidence from the Neolithic in the south-west comes from fruits and nuts, representing collection from wild resources (Moffett et al 1989).

Short-term occupation was investigated at Tregarrick Farm, near Roche, where 30 or more whole nuts were estimated from fragmented hazel from one pit, with hazel also the predominant charcoal from this and other features examined (Cole and Jones 2002–3). Here, it seems likely that the nuts represent discarded food debris. Radiocarbon dating of the hazel shells ranged from 3790–3370 cal BC, a similar date range to Portscatho.

At Metha, near St Newlyn East, a charcoal-rich pit contained hazelnut fragments and an apple (Malus) pip, with hazel and Pomoideae (a group also including apple) charcoal, which gave a radiocarbon determination of 4505±68 BP, 3400–2900 cal BC (Wk-12676).

Evidence of Neolithic activity in Devon from charred plant remains is also fairly limited. The causewayed enclosure at Raddon Hill, near Stockleigh Pomeroy (Gent and Quinnell 1999), produced remains of crab apple (Malus sylvestris) in the form of fragments of endocarp and pips, interpreted as possible accidental charring from drying apples over hearths. Hazel charcoal from the same context (611) in the fill of ditch IV was radiocarbon dated to 4525±50 BP, 3370–3030 cal BC (AA-2972).

Charred plant remains from the Neolithic oblong enclosure at Castle Hill, in east Devon, were sparse and poorly preserved (Clapham 1999), although there was evidence for emmer (Triticum dicoccum) from a single spikelet fork together with rootlets of...
AN EARLY NEOLITHIC PIT GROUP AT PORTSCATHO

Table 4  Charred plant remains from the pits

<table>
<thead>
<tr>
<th>Pit</th>
<th>Context</th>
<th>Charred remains</th>
<th>Lab no</th>
<th>Calibrated radiocarbon date</th>
</tr>
</thead>
<tbody>
<tr>
<td>[502]</td>
<td>(501)</td>
<td>2 <em>Triticum</em> sp (wheat) grain 1 cf <em>Hordeum</em> (barley) grain <em>Corylus avellana</em> (hazel) nut fragments</td>
<td>Wk-13256</td>
<td>4818±48 BP, 3710–3380 BC</td>
</tr>
<tr>
<td>[504]</td>
<td>(503)</td>
<td>1 <em>Triticum</em> sp (wheat) grain <em>Corylus avellana</em> (hazel) nut fragments</td>
<td>Wk-13257</td>
<td>4805±51 BP, 3700–3380 BC</td>
</tr>
<tr>
<td>[506]</td>
<td>(505)</td>
<td><em>Lathyrus/Vicia</em> (vetch) <em>Corylus avellana</em> (hazel) nut fragments</td>
<td>Wk-13258</td>
<td>4952±45 BP, 3920–3640 BC</td>
</tr>
<tr>
<td>[512]</td>
<td>(511)</td>
<td>6 <em>Triticum</em> sp (wheat) grain 2 cf <em>Triticum</em> sp (wheat) grain 1 cf <em>Hordeum</em> (barley) grain 1 <em>Galium aparine</em> (cleavers) seed 4 small indeterminate cereal grain fragments <em>Corylus avellana</em> (hazel) nut fragments</td>
<td>Wk-13259</td>
<td>4713±45 BP, 3640–3370 BC</td>
</tr>
</tbody>
</table>

onion couch grass (*Arrhenatherum elatius*) and fragmented indeterminate cereal grains. Further enclosure ditch fills included arable weed assemblages, plus sloe (*Prunus spinosa*), bramble (*Rubus* sect *Glandulosus*) and hazel, possibly representing food waste. *Prunus* charcoal associated with these assemblages gave a radiocarbon determination of 4630±50 BP, 3610–3140 cal BC (AA-30670) (Fitzpatrick *et al* 1999, 64).

Charcoal

*Rowena Gale*

The charcoal identification was initially undertaken for the purposes of identifying suitable material for radiocarbon dating. This report examines the results obtained and discusses the environmental implications.

**Methodology**

Bulk soil samples were processed by flotation and sieving. The samples were fairly small and contained rather comminuted material. The charcoal was prepared using standard methods (Gale and Cutler 2000). Anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood. When possible, the maturity of the wood was assessed (heartwood/sapwood).

**Results**

The taxa identified are presented in Table 5. Classification follows that of *Flora Europaea* (Tutin and Heywood 1964–80). Group names are given when anatomical differences between related genera are too slight to allow secure identification to genus level, for example, members of the Pomoideae (*Crataegus, Malus, Pyrus* and *Sorbus*). When a genus is represented by a single species in the British flora, it is named as the most likely origin of the wood, given the provenance and period, but it should be noted that it is rarely possible to name individual species from wood features and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974). The anatomical structure of the charcoal was consistent with the following taxa or groups of taxa:

Betulaceae. *Alnus glutinosa* (L.) Gaertner, European alder

Corylaceae. *Corylus avellana* L., hazel

Fagaceae. *Quercus* sp., oak

Oleaceae. *Fraxinus excelsior* L., ash

Rosaceae. Subfamilies:

Pomoideae, which includes *Crataegus* sp., hawthorn; *Malus* sp., apple; *Pyrus* sp., pear; *Sorbus* spp., rowan, service tree and whitebeam. These taxa are anatomically similar; one or more taxa may be represented in the charcoal.

Discussion

The origin of the charcoal in the Portscatho pits is unknown but may, perhaps, have related to a specific event connected to the deposition of the artefactual material. It would almost certainly have derived from hearth material, although there was no evidence to indicate that the wood had been burnt on site. The charcoal included a range of species, with oak and hazel common to each pit (Table 5). In view of the poor preservation, it is difficult to comment on temporal differences in species content between the pits; the two larger samples (from pits [505] and [512], probably the earliest and latest of the four pits) produced the most diverse range, which, in addition to oak and hazel, included, alder, ash, blackthorn and the hawthorn group (Table 5).

The pit group at this site is comparable with that investigated at Tregarrick Farm, Roche (Cole and Jones 2002–3). Charcoal examined from eight of the pits at that site indicated the predominant use of oak and hazel, although alder, birch (*Betula* sp.) and the hawthorn group were also named (Gale 2002–3).

Environmental evidence

The aspects of this site that perhaps made it attractive and significant to the Early Neolithic community, set high on the headland and fully exposed to the sea, would have been most unfavourable to tree growth. Salt-laden winds may have been detrimental for tree growth and led to a reduction in tree size, however, given that Portscatho is located on a sheltered section of the southern coast conditions could have allowed some tree coverage. It is probable that the firewood was gathered from sheltered areas further afield, which supported mixed woodland, probably dominated by oak (*Quercus* sp.) and hazel (*Corylus avellana*). This suggestion is endorsed by the presence of alder (*Alnus glutinosa*), a wetland species, which prefers habitats alongside streams or on spring-lines. The blackthorn- and hawthorn-type wood may have been obtained from marginal woodland or from more open areas. The presence of hazel nutshell in the deposits indicates that hazel grew in sufficiently sunlit areas for the trees to fruit.

Conclusion

This analysis of charcoal from a group of four Early Neolithic pits identified the use of firewood predominantly composed of oak and hazel but which also included alder, ash, the hawthorn group and blackthorn. The broad range of taxa present in the charcoal does not imply that any particular selection of species was practised but is more likely to reflect the distribution of species in the local environment.

Radiocarbon dating

The dating strategy

The samples for radiocarbon determinations were taken from sealed contexts within the four pits. All were derived from large pieces of charcoal from hazel, a short-lived species. They were submitted for accelerator mass spectrometry dating (AMS) at the University of Waikato in New Zealand. This method of dating can be carried out on very small amounts of material and gives a high precision date.

The probability distributions (Tables 6 and 7 and Figs 5 and 6) have been calculated using OxCal (v3.10). The 95% level of probability has been used throughout this report, in consequence of which determinations from older excavations given in Table 10 and in the text may differ from their published sources.

### Table 5  Charcoal from the pits

<table>
<thead>
<tr>
<th>Sample</th>
<th>Fill</th>
<th>Pit</th>
<th>Age BP years</th>
<th>Alnus</th>
<th>Corylus</th>
<th>Fraxinus</th>
<th>Pomoideae</th>
<th>Prunus</th>
<th>Quercus</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>(501)</td>
<td>[502]</td>
<td>4818±48</td>
<td>–</td>
<td>3</td>
<td>–</td>
<td>1</td>
<td>2h, 3s</td>
<td></td>
</tr>
<tr>
<td>302</td>
<td>(503)</td>
<td>[504]</td>
<td>4805±51</td>
<td>–</td>
<td>4</td>
<td>–</td>
<td>1</td>
<td>4h</td>
<td></td>
</tr>
<tr>
<td>303</td>
<td>(505)</td>
<td>[506]</td>
<td>4952±45</td>
<td>1</td>
<td>13</td>
<td>–</td>
<td>10</td>
<td>2</td>
<td>3h</td>
</tr>
<tr>
<td>304</td>
<td>(511)</td>
<td>[512]</td>
<td>4713±45</td>
<td>1</td>
<td>41</td>
<td>2</td>
<td>31</td>
<td>6</td>
<td>8h, 2s</td>
</tr>
</tbody>
</table>

Key: h = heartwood; r = roundwood (diameter <20mm); s = sapwood (diameter unknown). The number of fragments identified is indicated.
Discussion

The results from the radiocarbon dating go some way to resolving chronological questions regarding the length of the occupation on the site and overlap with the dates from a growing number of other lowland pit sites, including Tremough (Gossip and Jones 2007), Tregarrick Farm (Cole and Jones 2002–3) and Poldowrian (Smith and Harris 1982), as well as tor enclosures such as Carn Brea and Helman Tor (Mercer 1975; 1981; 1997). Early Neolithic dates from Cornwall are presented in Table 7 and Figure 6.

The pit group

With the exception of the date from pit [505], 4952±45 BP, 3910–3640 cal BC (Wk-13258), the determinations from the pits cluster together (Fig 5) and have overlapping date ranges. Two are virtually identical: pit [502], fill (501), 4818±48 BP, 3710–3380 cal BC (Wk-13256), and pit [504], fill (503), 4805±51 BP, 3700–3380 cal BC (Wk-13257). In both cases the highest probability for the determination falls in the two centuries between 3700 and 3500 cal BC.

A fourth determination, obtained from pit [512], fill (511), although overlapping with the previous two determinations, is possibly a little later: 4713±51 BP, 3640–3370 cal BC (Wk-13259). Taken together, the determinations suggest that activity associated with the pits spanned several centuries, starting after c 3900 with pit [505] and ending with pit [512] before c 3370 cal BC.

Unfortunately, the full extent of the pit group is unknown, which means that it is not possible to ascertain the intensity of activity on the site. However, as with the recently excavated pit sites at Tregarrick Farm (Cole and Jones 2002–3), the determinations indicate a tradition possibly observed over several centuries of depositing into pits a recurring artefactual assemblage of flint, pottery and charred plant macrofossils.

The wider significance

The fourth millennium dates from the site are also of interest because they can be compared with more than 20 determinations obtained from other Early Neolithic sites in Cornwall (Fig 6).
The nearest comparable dates in time and space are those from Tregarrick Farm, which lies approximately 28km northeast of Portscatho. These determinations were obtained from six of a group of ten pits, situated near to Roche Rock. The determinations suggest that associated activity fell between 3790 cal BC and 3370 cal BC (Cole and Jones 2002–3). Another pit group with dates comparable to Portscatho was recorded at another coastal site, at Poldowrian on the Lizard. Two Neolithic determinations were obtained, one of 5180±150 BP, 4350–3650 cal BC (HAR-4323) from pit [106], and another from pit [128] of 4870±130 BP, 4000–3350 cal BC (HAR-4052). The pits were located near to a rocky outcrop not far from the coast and were associated with a small group of features containing sherd of Early Neolithic pottery and flints (Smith and Harris 1982, 49). These dates appear to be a little earlier than Portscatho. However, these determinations should be treated with caution as they were made on bulked samples which produced large standard deviations and wide date ranges that are not helpful for the production of precise sequences (see Sheridan 2003). A third determination of 6450±110 BP, 5620–5210 cal BC (HAR-4568) on a bulked sample from an occupation
AN EARLY NEOlITHIC PIT GROUP AT PORTSCATHO

Fig 6  Radiocarbon date ranges from Early Neolithic sites in Cornwall.

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layer associated with a flint scatter, indicates that there was later Mesolithic activity on the site. Another, from pit [150], of 3880±60 BP, 2560–2140 cal BC (HAR-4033), suggests that it continued into the Bronze Age. Both of the latter dates are of limited value, however, for the reasons indicated.

Two fourth millennium radiocarbon determinations have been obtained from a site further inland but overlooking the Fal estuary at Tremezh, near Penryn (Gossip and Jones 2007). One, of 4850±55 BP, 3662–3542 cal BC (AA-44601), was obtained from a charcoal pit [21] on a part of the site where there was a scattering of charcoal-rich pits, a low-density beach flint scatter and an unstratified greenstone axe. A shallow ditch [76] in an area of the site with a high-density nodular flint scatter gave a determination of 4995±50 BP, 3907–3707 cal BC (AA-44604). Eight Later Neolithic pits containing Grooved Ware were also found at this site. Another early date is from near Mullion, on the Lizard. Here, residue from a sherd of pottery recovered from a flint scatter produced a determination of 4999±64 BP, 3950–3660 cal BC [not as published] (Wk-16807) (Cole et al., 2004–5). Although the pottery is unlikely to be of this date, the charred ‘residue’ may in fact have been derived from the surface associated with the flint scatter.

Unfortunately, no radiocarbon determinations are currently available from any of the Cornish chambered tombs. However, Early Neolithic dates have come from the two excavated tor enclosures, Carn Brea and Helman Tor (Mercer 1981; 1997). Nine results from these sites range from 4999±64 BP, 3950–3660 cal BC (BM-825) to 4561±47 BP, 3500–3090 cal BC (BM-823) from Carn Brea and 4880±120 BP, 3950–3350 cal BC (HAR-8818) to 4240±70 BP, 3020–2610 cal BC (HAR-8821) from Helman Tor (see Fig 6 and Table 7 above). Some caution is needed as the dates from Carn Brea were obtained from bulked samples, some of which included oak (Mercer 1981, 42, 62), which could make them appear to be several centuries earlier than they really are. The earliest date from Helman Tor has a very wide standard deviation. It is also possible that some of the determinations from these sites could be associated with pre-enclosure activity.

The implication is that the earliest Neolithic determinations in Cornwall are associated with sites marked only by a cluster of pits, such as those at Portscatho, and by flint scatters, rather than by large monuments. Caution is required, as only two tor enclosures in Cornwall have been excavated and further dating from these sites could overturn this sequence, but a similar picture seems to be emerging in Wessex, where none of the dated causewayed enclosures appear to emerge before the thirty seventh century cal BC (Cleal 2004, 169). Earlier dates obtained from Hembury in Devon may be the result of dating on mature oak (ibid).

Sites marked by pit groups continue to be used during and after the period of the tor enclosures. For example, at Trenowah, on the St Austell North-East Distributor Road, a Neolithic date of 4429±41 BP, 3330–2920 cal BC (Wk-11935) was obtained from pit [40], one of a group of charcoal-rich pits (Johns forthcoming); pit [370] at Metha, near St Newlyn East, also produced a Neolithic determination of 4505±68 BP, 3400–2900 cal BC (Wk-12676) (Jones and Taylor 2004). Later Neolithic and Early Bronze Age dates have been obtained from numerous other sites across the county, including examples at Tremough (Gossip and Jones 2007) and other sites along the Mitchell pipeline (Jones and Taylor 2004).

Interpretation

The Portscatho pit group provides further evidence for Early Neolithic activity in a non-monumentalised setting and contributes both to an understanding of the extent of pre-enclosure activity in lowland Cornwall and the ways in which landscapes were occupied. The site also provided some evidence for the cultivation of cereals. This is important because only one other Early Neolithic site in Cornwall has provided similar evidence (J Jones above). However, wet sieving was not undertaken at Carn Brea or Helman Tor, so it is possible that cereals were more prevalent than this limited evidence suggests. As with other pit sites, the Portscatho pits also contained hazelnut shells and a range of other artefacts and natural objects, including flint, pottery and unmodified stones.

Ritual or domestic?

Pits containing deposits diagnostic of or datable to the Neolithic probably form the most ubiquitous site-type of the period. They are found across southern Britain and along the Atlantic façade (Grimes 1960; Healy 1988; Thomas 1999; Mullin 2004; Peterson 2004; Darvill 2004) and can date from the onset to the end of the Neolithic (Richards 1990; Barrett et al. 1991a; Bradley et al. 1993; Ford and Taylor 2004). The evidence from those identified in Cornwall suggests
that they should be seen as a regional variation of wider practices which are characteristic of the British Neolithic (see Cole and Jones 2002–3, 134).

Less clear is what the activity in the pits actually represents. Are they to be viewed as essentially ‘domestic’, a functional element of occupation sites, or does the apparently careful selection of pit contents indicate ‘ritual’ practice? If they are simply equated with ‘ritual’, evidence of Early Neolithic occupation almost disappears from the county, while to equate them with ‘domestic’ settlement leaves the ‘special’ aspects of their setting and infilling unaddressed.

This conundrum is not unique to prehistoric sites of this type. As Richard Bradley has pointed out (2003; 2005, ch 1), archaeologists have on occasion been torn between assigning sites to one category or the other and on occasion have changed their minds in successive publications on the interpretation of what they had excavated. At the same time, some anthropologists have, given the widespread presence of ritual in everyday life in many non-industrial societies, questioned whether it can actually be discussed meaningfully in isolation from other aspects of activity (Humphrey and Laidlaw 1994, chapter 3).

However, the study of prehistory is primarily concerned with those aspects of life which have left a mark in the archaeological record, such as the burying of an object or the building of a structure; these acts were often carried out with a greater degree of formality than other activities which we know happened, such as hunting, but which have left almost no trace. Indeed, it has recently been suggested that much of what survives from prehistory does so not because of taphonomic process, but because of cultural intent (Bradley 2005, 208–9). One way of interpreting sites such as the Portscatho pits is to consider them as the product of ‘ritualised’ acts (Bell 1992; Humphrey and Laidlaw 1994; Bradley 2005), whereby certain routine actions such as the infilling of a pit are given an added emphasis because they are done in particular, culturally prescribed ways. Perceived in this way, actions are neither divorced from the everyday world of human agency, nor are they deemed to be meaningless or random. Sites such as the Neolithic pits at Portscatho can be placed on a continuum as the consequence of actions which range from the private to the public and from the everyday to the arcane.

With these ideas in mind, we will now turn to the pits and their contents. At Portscatho the four pits revealed by the evaluation clustered in a discrete group. Further pits may exist, but if so they do not extend to the north, west or east of the evaluated area; if they had, they would have appeared in either the area of topsoil stripping or the eastern half of trench 5. It is therefore reasonable to suggest that these pits were confined to a particular locale. Interestingly, as at Poldowrian, Tregarrick Farm and Tremough (Smith and Harris 1982; Cole and Jones 2002–3; Gossip and Jones 2007), despite the fact that they may have been dug sequentially none of the pits were intercutting or cut by later Neolithic features, which implies that the area of the pits continued to be respected. Respect or some other form of special treatment for the locale is also indicated by the near absence of occupation debris beyond the confines of the pits. Despite the large area that was investigated around them and the protection afforded to buried soils by the substantial depth of overburden, not one lithic find was recovered from outside the pits. Given the relative abundance of unstratified flints in many Cornish fields, this may in itself be significant, suggesting that this area was visited on an infrequent basis, was not habitually used for flint working or was intentionally kept clean.

The pits themselves were remarkably similar in form: wide-topped and comparatively shallow, and typical in shape of those found more widely in the Neolithic. All were under 0.9m in diameter and less than 0.5m deep, and all appear to have been infilled in a single episode (Fig 3). Given that they were sealed by a deep colluvial deposit, the pits are unlikely to have been truncated by later agricultural activity; their shallow depth suggests that they were unlikely to have functioned as storage pits. Comparable pits have been discussed by Thomas (1999, 64–74) who suggests that most were dug specifically for the purpose of incorporating deposits and that the digging, incorporation and infilling formed significant acts which marked the importance of particular sites to the communities who used them. Three of the Portscatho pits had very similar bowl-shaped profiles which arguably could be intended as symbolic receptacles, ‘vessels of earth’. This link between pits and pots has been made more explicit elsewhere. For example, during the later Neolithic period on the Isle of Man complete ceramic vessels were set within the ground (Darvill 2004). The pits at Portscatho and elsewhere may therefore have been seen as receptacles in the earth to hold the residues from ‘domestic activity’, where the token deposits representing symbolic elements of food, tools,
containers and fire, were offered to a place by those who stayed there. It is probable that organic materials were also deposited but these have not survived in the site’s acidic soil conditions. The surviving contents of the pits, however, show a high degree of uniformity. The deposits included pottery, flint, unworked pebbles, large beach cobbles, hazelnut shells, cereal grains and charcoal derived from hearths. Interestingly, the *in situ* burning within pits found at Tregarrick was absent from Portscatho. Most of these deposits are exactly the kinds of things which are likely to have resulted from domestic occupation and are typical of the range of materials which are recovered from prehistoric settlement sites. Yet the selection and inclusion of these deposits within a closed context may not have been entirely random, allowing the possibility that something more purposeful was at work. In fact, the assemblage within the pits represents an interesting juxtaposition of items. Many of them, including the pottery and cereal grains are closely associated with ‘being Neolithic’, and the charcoal may have been associated with the hearth, cooking and settlement. Others, for example the hazelnut shells, although quite possibly from a ‘modified’ environment, and the unmodified beach pebbles, could have been seen as being drawn from a non-domesticated sphere. Rather than being the product of purely casual discard, a suite of material, including items which were associated with a new ‘Neolithic’ way of perceiving the world were treated in a ritualised manner and deposited with a degree of formality into the open pit. However, to those undertaking these practices, such activities would probably have been part of everyday existence, subconscious routines which were only consciously performed in particular circumstances such as at larger-scale public gatherings.

Evidence for formal deposition is also indicated in the way that the ceramics were treated. Most of the pottery was unabraded and had probably been deposited shortly after breakage (Quinnell above). Unlike the assemblage from Tregarrick Farm (Cole and Jones 2002–3), the curation of valued old or broken vessels was limited to P1, P2, P5 and P7. This might suggest that many of the Portscatho vessels did not have long biographies of use and may have been used for a specific occasion before being deposited. Interestingly, the flint assemblage also differs from that recovered from Tregarrick. Although the flint from Portscatho does include some tools and deliberately broken and freshly worked material that is likely to have been intentionally incorporated into the pits, practically all of the items were from beach pebble flint which could have been collected quite locally from the shore (Lawson-Jones above). This could be taken to suggest a desire to incorporate flint into the pit fills, rather than engage in the destruction or sacrifice of a prized resource. Likewise, the deposition of the grains of cereal and hazelnut shells was small-scale (see J Jones and Gale above) and therefore did not represent a major offering of a valued food reserve. Given the variability of the pit contents, it is likely that many of the objects which ended up inside them were not carefully placed deposits, but may instead have been residues produced by settlement-related activity which were gathered up and dumped inside them. The intention may therefore have been to include elements of the ‘domestic’ world within the contents of the pit.

The stones were also of local origin, being derived from the beach or watery sources; two large beach pebbles were recovered from pit [504], while water-worn stones were found in pit [502] and a water-worn quartz cobbble with striations and polish on one end came from pit [506]. The inclusion of quartz pebbles within Neolithic and Early Bronze Age sites across Britain and Cornwall is well documented (Darvill 2002; Cole and Jones 2002–3) and large beach stones have also been found within Early Neolithic pits on Samson in the Isles of Scilly (Neal 1972). Outside Cornwall, unmodified blocks of stone, including sarsen and quartz, have been recovered from Neolithic and Bronze Age pit contexts (for example, Darvill 1996; Smith et al 1997; Whittle et al 2000) and across the Channel in Brittany beach stones have been found in Neolithic passage graves (Scarre 2002, 98). Such stones may well have been identified with particular properties or parts of the landscape (Bradley 2000, 85–96); it was perhaps significant that these stones associated with the sea were combined with pottery and foodstuffs derived from the land.

In summary, it has been argued that the range of deposits incorporated within the pits at Portscatho represented the ritualisation of certain aspects associated with domestic activity, but that there was intermixing of artefacts which were associated with non-domesticated parts of the landscape, namely the shore and the sea. This blending may have resulted from a local interpretation of more widely held Neolithic practices (for example, Garrow et al 2005) with essentially regional cosmologies and use of the coast. It is possible that pits were seen as being...
containers in the earth for offerings and that activity was carried out to create a link between people and place (Thomas 1999). It is also conceivable that the objects were combined together as part of a ‘daily’ routine practice of depositing ‘occupation waste’ to thank, placate or obtain favours from the spirits, gods or ancestors who resided there. The Portscatho pits evidently belong to a wider continuum of similar sites, ranging from individual pits to larger groups (see, for example, Cole and Jones 2002–3; Gossip and Jones 2007). However, the scale of the deposition does not indicate that this particular place was a focus for the large-scale or prolonged gatherings which probably took place elsewhere, for example at tor enclosures. Nonetheless, it is likely that the site did have importance for smaller groups.

Sitting on the edge of the world

The location of the pits near to the coastline raises questions about how the sea and the shoreline may have been perceived during the Neolithic period, how coastal sites such as Portscatho could have been used and how they fitted in within the surrounding land and seascapes.

The site at Portscatho lay within a wider Neolithic world which consisted of a network of divergent yet interrelated places and practices. They were located between an area which was probably settled to the west and north but was an open wild seascape to the south and east. This dichotomy would have been evident in individuals’ daily lives in many different ways, ranging from the types of foods which people could readily obtain, through to differences in sensory perception, with inland areas having different textures, smells and breadth of vision from the coastal areas. In particular, views would have differed; the coastal zone would have provided uninterrupted panoramas, whereas inland vistas were restricted by hills and woodland (Field 2004).

The land

Terrestrial Neolithic landscapes and the way that they were perceived and occupied have received significant attention from archaeologists (Tilley 1999; Bradley 2000; Cummings and Whittle 2004) and in Cornwall the rock-strewn moors have been the subject of particular consideration (Tilley 1995; 1996; Bradley 1998; Tilley and Bennett 2001). These writers have suggested that particular prominent landscape features were of importance to local cosmologies and became focal points for monuments and other forms of activity. Similar arguments have been put forward for a non-moorland site at Tregarrick Farm, Roche, where Neolithic activity was found adjacent to Roche Rock (Cole and Jones 2002–3). However, lowland Cornwall has not been considered and remains to be fully integrated within discussions of how the monumental sites of the
Neolithic related to their wider settings (for example, Mercer 1986).

Although large tracts of lowland Cornwall may have been wooded during the Early Neolithic, this is unlikely to have been trackless and uncharted ‘wildwood’. Much of the interior of the Roseland would have been structured by a network of well-trodden paths opening out into familiar clearings and spaces. These are likely to have formed the focus for a variety of activities, including pasture, cultivation, occupation and gatherings. Estimating the extent of this activity is problematic. The peninsula possesses good agricultural land, much of which is Anciently Enclosed Land which has been intensively cultivated over the past three or four millennia (Cornwall County Council 1996). Prehistoric sites tend to survive much less well within this landscape zone than in other parts of Cornwall (cf Jones and Taylor 2004, fig 32). Furthermore, there has been relatively little fieldwork or excavation in the area, with a consequent paucity of recorded archaeological information; certainly, by contrast with many other areas of Cornwall, little is known of the lithic scatters which testify to Neolithic presence (Gould 1994; Lawson-Jones 2001).

Another missing part of the picture is any kind of evidence concerning the presence and composition of contemporary animal assemblages. This is an important limitation because domesticated animals are likely to have formed a significant part of the Neolithic diet and may well have been closely tied in with concepts associated with ‘being Neolithic’ (for example, Ray and Thomas 2003). Animals would also have greatly affected the way people organised their movements through the landscapes and their presence would itself have significantly affected the environment by creating larger open spaces through grazing, as well as expanding paths and clearings.

Furthermore, although cereals – which must have been cultivated somewhere – were recovered from three of the pits, there was no evidence for crop processing (see J Jones above). In common with the south west in general (Campbell and Straker 2003), there is little recovered data for Early Neolithic cereal cultivation in Cornwall and wild resources such as nuts and fruits remain more common in Neolithic contexts. This could be taken to suggest that cultivation was relatively small-scale and that cereals represented only a part of a wide range of food resources, including domestic and wild animals, nuts and fruits (Fairbairn 2000; Robinson 2000).

However, much more sampling of Early Neolithic sites is needed to test this suggestion.

During the Early Neolithic (c. 3700–3500 cal BC) a number of enclosures were constructed on distinctive hills, perhaps especially those which possessed distinctive rocky outcrops (Mercer 1981; 1997). The nearest identified enclosures to Portscatho both lie at a distance of approximately 20km. The excavated site of Carn Brea (Mercer 1981) lies to the north west and St Stephen’s Beacon to the north east. The latter site has only recently been identified as a probable Neolithic enclosure (Oswald et al 2001, 159) and is situated on a conical or dome-shaped hill on the western edge of the St Austell granite massif, the south-western edge of which is visible from Portscatho (Fig 7). Both of these sites may have been associated with large-scale gatherings, perhaps seasonal assemblies of scattered communities who more usually occupied the lowlands. Interestingly, both enclosures are located not far from valleys linked to the headwaters of the Rivers Kennal and Fal, which had their mouths on the Fal estuary and could have provided a means of access inland from the coast.

The sea

Although Britain is an island with a long maritime history and a burgeoning seascape art-history tradition, it is only comparatively recently that the sea has received anything approaching the consideration that terrestrial landscapes have had from anthropologists or archaeologists (for example, Cosgrove and Daniels 1988; Hirsch and O’Hanlon 1997; Ashmore and Knapp 1999; Ucko and Layton 1999). In many ways this is remarkable because for many prehistoric communities the sea would have been important for contact with other communities, not least journeys to obtain prestige artefacts. In addition, its unpredictable and dangerous qualities mean that it is likely to have been associated with mythologies, cosmologies and ritualised activities associated with the deposition of artefacts (Needham 2000; Lindenlauf 2004).

The southern part of the Roseland affords many sheltered havens and sandy beaches (Bousfield and Bousfield 1952, 140) which would have provided suitable landing places and access to valleys leading to the hinterland, including those of the Fal and Percuil rivers. These could have facilitated communication with communities further inland. The earliest surviving sea craft in Britain date to the
Bronze Age (Van de Noort 2004) and little evidence survives in the south west for direct contacts with the Continent before the Early Bronze Age (for example, goldwork: Taylor 1980). Nonetheless, the first domesticates and cereals must have arrived in Britain on seagoing vessels which successfully crossed the Channel (Case 1969; Cunliffe 2001, 153–4). These could have entered Cornwall overland from the east, but domesticated cattle bones discovered on a site on the west coast of Ireland have been radiocarbon dated to the end of the Mesolithic period (Tresset 2003). Whatever these bones mean for the spread of the Neolithic, they do indicate that voyages between the Continent, southern Britain and Ireland occurred at an early date; given its geographical position, Cornwall could hardly have been unknown to early seafarers from the Continent. Furthermore, sea voyages from Cornwall are also indicated by a small number of Group I axes which have been found in Ireland (Cooney 2000, 206). Excavations on the Isles of Scilly (Neal 1972; Thomas 1985, 101–3) demonstrate that there was contact with Cornwall by sea-going vessels during the Early Neolithic. It is therefore likely that the Portscatho pits were located in an area where people were in contact with other seagoing communities from further along the coast or from across the sea.

The circulation of ideologies (Bradley 1997, ch 2), monuments and objects (Sheridan 2000; 2004) around the Atlantic façade would have involved dangerous voyages in small boats across vast expanses of an unpredictable water, whose moods may have been considered to have been governed by spiritual powers or deities (Cooney 2004). As well as being exercises in trading, these voyages may have become ritualised journeys enhancing or transforming the status of those who undertook them (Van de Noort 2004). The places where they landed could also have accrued significance and become focal places in the landscape.

Sea pictures

The Portscatho pits occupied a particular place in the landscape. However, the concept of what constitutes a ‘place’ is itself complex. ‘Places’ are cultural constructs which can be central to the identity of self, the community and for wider cultural identity (Nuttall 1993). They are made up of a mixture of real, imagined and mythological attributes and can vary in their significance across the very local – associated with personal experience – to wider significance deriving from association with groups or communities. Places are polysemic, that is to say they often have numerous meanings associated with them, and can be associated with status, gender, kin groups or the individual (Bowdenhorn 1993; Bender 1998). Places can be formed by a wide range of features, some of which may be cultural and others natural; they can include locations on paths, locales associated with real or mythical events or memories, or points which have been marked by a monument, such as a cairn or a standing stone (Tilley 1994; Cummings and Whittle 2004, 9–10).

Although local topography may have influenced the effect of sea level change, it seems likely that at around 4500 BC sea level was only around 5m below that of today (Camidge et al 2006). Sea-level rise and coastal erosion may mean that the Portscatho site is now a little closer to the sea than it was in the Early Neolithic, but there is unlikely to have been a major change to the landform of this part of the coastline. The -5m contour lies approximately 200m beyond the current shoreline and shelves quite quickly beyond that. Therefore, during the Neolithic period the site might have been situated on a raised area towards the edge of the land, overlooking the sea and possibly a belt of lower-lying marshy ground or a beach. The saltiness of the air, the relatively exposed location and the lack of evidence for crop processing could be taken to indicate that the cereals from the pits were not grown in their immediate vicinity and may have been cultivated in small-scale plots or gardens further inland.

Although perhaps less suited for cultivation, the coastal zone would have possessed a wealth of potential resources, including rough grazing for animals above the cliffs, seabirds and their eggs, fish, shellfish and seals and other sea mammals on the shore and in the water (Bradley 1978; 90–1; Pollard 1996; Field 2004, 157–8). Recent analysis of stable isotopes in human bones from Early Neolithic contexts indicates a rapid uptake of a meat-based diet among many communities and it is possible that seafood was being avoided or at least formed a much smaller part of the diet (Richards 2003; Schulting 2004; Schulting and Richards 2006). However, the situation is less clear in Cornwall, where bone preservation is poor and no comparable analysis has been undertaken; it is possible that there was some regional diversity in what was eaten (Thomas 2003). The distribution of flints and other artefacts in Cornwall certainly indicates that the coastal zone and shallow valleys leading towards the coast were used.
throughout the Mesolithic, Neolithic and Early Bronze Age periods (Johnson and David 1982; Smith and Harris 1982; Rose and Preston-Jones 1987; Smith 1987; Gould 1994).

In addition to being an area which offered a variety of harvestable resources, the littoral and the sea are likely to have had strong mythical associations, perhaps based on stories of lands, spirits and peoples that lay beyond the horizon, and possibly with myths linked to beliefs about the ancestral origins of the group themselves or with the dead (see Bradley 2000; 2002, 28; McNiven 2004). The Portscatho pits were therefore situated within a zone which may have been considered as liminal, associated with transformations and a boundary between worlds (see Bradley 2000; Rose 2000–1). As Pollard (1996, 203) has pointed out, the littoral is an environment which is subject to constant change; twice a day the sea advances and retreats and this is linked to the cycle of the moon. It is a place where land appears and disappears on the shore and where distant lands can sometimes be seen on the horizon. The connection between the heavens, the seas and the land could hardly have been lost on people who regularly exploited this environment and they may have been linked together as part of a cosmology which drew together people, places, the sky and the sea. An example of this type of cosmological scheme is provided by the Saami of northern Scandinavia who divided the cosmos into three parts, earth, sky and underworld, which corresponded to land, air and water. The places where the elements of this cosmos met often became the focal point for visits by shaman and for offerings (Mulc 1994; Bradley 2000). Although it is not suggested that this particular cosmological model existed in prehistoric Cornwall, the edge of the land may have been the focus for informal and formal ritualised activity intended to mediate spirits, control the sea and weather or ensure procurement of important species such as fish or sea mammals (Bradley 2000, 5–12; McNiven 2004, 337).

The significance of the sea and the coastal zone to prehistoric communities is demonstrated around the Atlantic façade area by the location of monuments on the coast or in sight of the sea (Scarre 2002; Ballard et al 2004; Cummings 2004; Phillips 2004). The earliest phases of monumentality in Brittany are strongly associated with the sea, specifically passage tombs sited on promontories at Gavrinis, Barnenez, Île Carn and Beg an Dorchen (Patton 1993). In Cornwall, numerous ceremonial monuments were constructed in or overlooking this zone throughout the Neolithic and Early Bronze Age periods, including chambered tombs, entrance graves, and especially barrows and cairns (Barnatt 1982; Christie 1985; Bonnington 1999; Jones 2005, 70). The longevity of some of these coastal sites is indicated
by the multi-phase nature of many barrow groups, as at Cataclews, where a long-lived barrow group overlay an earlier Beaker midden site (Jones 2005, 63–6). Memory of the past significance of the area of the Portscatho site may be reflected by the fact that in the Early Bronze Age it became the site of at least one barrow (Borlase 1872, 205), especially if the pits had been marked in some way, perhaps by a low cairn or some other permanent marker, or if the area had remained as a cleared space.

In short, the pits were located at a site close to where the known gave way to the mysterious. It was a place to be occupied and exploited for its resources, possibly one where ideas and objects were obtained from beyond the horizon. But it was also perhaps one which was considered liminal and dangerous.

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Cornish Beakers: new discoveries and perspectives

ANDY M JONES AND HENRIETTA QUINNELL

with contributions from ROWENA GALE, JULIE JONES and ROGER TAYLOR

During archaeological recording along the North Land’s End sewage pipeline between Lower Boscaswell and St. Just, west Penwith, a burnt mound and a stone-lined pit were discovered, associated with Beaker pottery. Four radiocarbon determinations ranging over the period 2200–1950 cal BC were obtained from the site. Analysis of the charcoal revealed rare evidence for woodland management in the Early Bronze Age in Cornwall. It is argued that the site was a ‘burnt mound’, which was associated with the cooking of communal meals.

The discovery coincided with the first radiocarbon dating of a Beaker-associated burial in Cornwall, at Try, Gulval, and the opportunity is taken here to present a review of Cornish Beaker sites in the light of this new information.

In 2006 Cornwall County Council Historic Environment Service (HES) was commissioned by South West Water to undertake a programme of archaeological recording along the route of a new sewage transfer scheme between Lower Boscaswell and St. Just (Lawson-Jones forthcoming). This led to the discovery of several prehistoric and Romano-British sites, and, most importantly, to the excavation of a Beaker-period burnt mound and stone-lined pit at Lower Boscaswell (SW 3759 3469), in St. Just parish. This discovery coincided with the first radiocarbon dating of a Beaker-associated burial in Cornwall, at Try, Gulval, and follows recent discussions of Beakers in the south west (Jones 2005, ch 2; Quinnell 2003).

This report presents the excavation of the burnt mound and the radiocarbon dating of the Try Beaker. The opportunity is then taken to provide a synthesis of the evidence from Cornish Beaker sites and to consider wider issues related to the Early Bronze Age in the county.

The radiocarbon dating probability distributions (Tables 4, 5, 6 and 7) have been calculated using OxCal (v3.10). Except where stated otherwise, the 95% level of probability has been used throughout this report.

The Boscaswell fieldwork, analysis and publication, was commissioned and funded by South West Water Ltd.

The Lower Boscaswell Beaker site

The Beaker site lies approximately 450m from the coast within open farmland at approximately 85m OD. It is located some 100m west of the village of Lower Boscaswell (Fig 1). The geology of the area is complex, as the site is located in a zone where the granite is surrounded by a rim of metamorphosed slates and basic rocks (greenstones). These rocks were mineralized following the intrusion of the granite and contain rich lodes of tin and copper and some lead and silver (British Geological Survey, sheet 358, 1976). Adam Sharpe (1992a, 38) has suggested that the lodes from Cape Cornwall to Boscaswell offer the most obvious potential
Fig 1  Location of the Lower Boscaswell Beaker mound.
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locations for early metalworking in Cornwall.

The site is located within a field on the eastern side of a valley which drains north-west towards the cliffs and the sea. Inland, views to the east are restricted by the rising ground, and those to the south have been drastically altered by the Geevor mining complex, the northern boundary of which lies a few metres to the south. To the west the site overlooks an Atlantic seascape.

The area has been characterised as Anciently Enclosed Land, made up of farming settlements documented before the seventeenth century AD and field patterns of medieval origin (Cornwall County Council 1996). Generally, within such intensively farmed areas of Cornwall, the details of the prehistoric context are little known, although there are frequently indications of high archaeological potential (Herring 1998, 61–3). In this instance, substantial lynchetted boundaries likely to be of prehistoric date survive in the wider area (Taylor 2004, 3) and prehistoric flint scatters and unstratified Bronze Age pottery have been recovered from the vicinity (D Weddle, pers comm; Lawson-Jones forthcoming). The Iron Age fogou of Boscaswell survives nearby (Clark et al 1957; Cooke 1993, 114–9) within a courtyard house settlement of Romano-British date. Further away, Iron Age cliff castles are found at Kenidjack and Cape Cornwall. These may have been associated with exchange and communal gatherings, and it is possible that the ramparts enclosed locales which had been in use since at least the Bronze Age (Sharpe 1992b). It is also possible that cairns and other prehistoric monument types known to occur frequently in coastal areas of Cornwall (Bonnington 1999; Jones 2005, 70) may once have existed in the area. Within the near vicinity of the Beaker site much of the landscape has been transformed by post-medieval copper and tin mining.

The excavation

Along the route of the pipeline the material overlying the natural subsoil was machine stripped under archaeological supervision over a 10m-wide corridor. The Beaker site, comprising a mound (102) and a pit [112], was located at the southern end of the field, close to the boundary with the Geevor mine complex (Figs 1 and 2). The machine-stripping revealed that a considerable depth of topsoil had accumulated within the field. A deposit of modern topsoil (100) 0.3m deep covered two buried soils, (101) and (107), with an overall thickness of between 0.5m and 0.9m. These layers were to a degree banded, suggesting episodic accumulations of material. The lower layer (107) in places incorporated considerable amounts of stone, possibly derived from an early ploughed-out boundary or from mound (102) (see below). At the southern end of the pipeline trench, the section was stony almost up to the modern ground surface, possibly representing material from a lynchetted stone wall just upslope from this location which was removed during the 1960s (Taylor 2004).

The underlying natural subsoil (106) was variable in character and appearance, reflecting the location of the site in the contact zone between granite and slate bedrock. In places it was brown, friable and gritty, elsewhere compact, clayey, and changeable in colour through creams and greys to oranges and yellows. The surface of the subsoil sloped gently down towards the north west and incorporated a number of small hollows of natural origin.

Aside from a little unstratified stonework (see below), no features or occupation-related artefact spreads contemporary with mound (102) and pit [112] were discovered in the pipeline corridor.

Mound (102)

Mound (102) was initially revealed during the machine stripping between 4m and 7m from the southern boundary of the field, appearing as a very dark layer of material overlying a buried soil (105) in the south-facing section (Fig 2). A broadly circular, flat-topped mound was revealed. It was composed of a layer (102) of intermingled soil and fire-cracked stone with considerable quantities of charcoal, both intact pieces and in fine particle form, mixed with and partly overlying reddened, sometimes crumbly, burnt small granite stones. Layer (102) was partially overlain by a capping of granite slabs (103) on its western side. The burnt mound lay directly on the old land surface (105), which here had a maximum thickness of 0.25m, which overlaid the natural subsoil (106). The only artefact in the old land surface (105) was rubbing stone S1. A layer of sandy material (104) covered the north-eastern end of the mound, extending beyond it and deepening to a maximum of 0.3m at its edge before tailing out 2m from its edge. Unfortunately the mound was partially removed before it could be fully drawn in section.

Mound (102) survived to a height of 0.35m and was approximately 7m to 8m in diameter (Figs 2 and
Fig 2  Plan of the Lower Boscaswell Beaker mound (102)
4). Most of the Beaker pottery, including all the large sherds (P1–3, 6), was found on its south-west side. Only a few sherds were recovered from the north east and none from the central, flat-topped part of the mound where the burnt material was thickest. A single stone tool (S2) and a flint core tool of apparent Bronze Age form (Anna Lawson-Jones, pers comm) were found in the mound. Two radiocarbon determinations were obtained: 3736±38 BP, 2230–2020 cal BC (89.7%) (Wk-19377), and 3733±39 BP, 2290–2020 cal BC (Wk-19380).

**Stone-lined pit [112]**

Pit [112] was located on the south-west side of the mound, in an area which had been obscured by spoil and a thin layer (107) likely to be mound material displaced during initial stripping (Figs 2 and 3).

The pit was first identified as a roughly oval arrangement of flat laid stones (115), which surrounded an area measuring 0.58m by 0.85m. Within the area defined by these stones, a stone-lined feature was uncovered constructed of thin, vertically-set slabs of granite (113) set around a horizontal basal slab (117). The stone-lined feature was filled by a 0.4m thick deposit comprised of a mixture of fine brown earth and relatively large pieces of granite (114).

Further cleaning of an area measuring 4.1m by 3.4m around the pit revealed that it had not been cut into the natural but was set within a larger, roughly circular cut [112] with sloping edges. The larger
Pit cut appeared to be 1.8m in diameter and was filled by fine dark brown soils (118). However, neither the depth of this deposit or of the original pit cut was established, as a decision was taken to leave the stone-lining in situ and leave the primary fills of the pit, beneath (117), the base slab, unexcavated (Fig 5).

The only artefact found within pit [112] was a quartz cobbler rubbing stone S3. Two radiocarbon determinations were obtained: 3696±36BP, 2220–1970 cal BC (Wk-19378), and 3685±41 BP, 2220–1950 cal BC (Wk-19379) from fill (114).

Adjacent features

To the south east of pit [112] was a 1m wide, 0.25m high mound of redeposited natural granitic clay and small stones (116), which may represent material excavated during the initial digging of the pit. To the south a linear gully [108] approximately 0.4m wide and 0.2m deep extending into the section was flanked by low banks of redeposited natural. It was filled with probable redeposited topsoil. Gully [108] formed a channel with flat slabs on one side to the south west of pit [112], and possibly extended, though in a much less clear form, a little way downslope beyond it as gully [111]. To the south were two
poorly-defined shallow linear channels or gullies [109] and [110] cut into the natural subsoil (106); these may have been quarries for an associated bank. No finds were recovered from these features so their relationship with the mound (102) and pit [112] is uncertain. One possibility is that gully [108] fed water into pit [112] but no obvious point of entry into the pit side was found and the pit would not in any case have required a continuous flow of water into it. Perhaps, if the gully is in fact contemporary, water was scooped into the pit from it as required. Given the lack of artefacts or stratified finds, it is possible that the features were associated with unrelated later phases of agricultural activity.

Several unstratified finds were recovered from the area of the mound. These included two flint pebbles and three waste pieces, a perforated whetstone (S4), two stone ‘balls’ (S5 and S6) and a single Trevisker sherd. Comparable unstratified stone ‘balls’ have been recovered from elsewhere in the Penwith area (D Weddle, pers comm.). The field contained a large number of artefacts dating to later periods.

**Discussion**

The Lower Boscaswell site is the first confirmed burnt mound found in Cornwall. This site type has a wide distribution around the British Isles, although they are predominantly found along the Atlantic façade, and in Wales and the English Midlands (Buckley ed) 1990; Cooney and Grogan 1994, 102–3, 124; Hedges 1977; Barber et al 2006; Hodder 1990; Beamish and Ripper 2000; and see concluding discussion below).

The Lower Boscaswell site is currently the only published example of this type of site with incontrovertible Beaker associations in Britain (papers in Buckley (ed) 1990; Hedges 1977; Kelly...
Fig 7  Beaker sites in west Penwith
This association is of particular interest, given the relatively low numbers of Beakers known from Cornwall by comparison with other parts of Britain. Burnt mounds are usually interpreted as the detritus from the heating of water with hot stones in a pit or trough, either for cooking within the pit or for providing hot water for bathing or steam conditions for sauna-type cleansing. As the stone-lined pit was small, the cooking hypothesis is favoured and this will be explored further.

Radiocarbon determinations associated with burnt mound sites span most of the Bronze Age, from c. 2000 to 1000 cal BC (Drisceoil 1988; Baillie 1990; Kelly 1992; Topping 1998). Some examples have been found which could predate the Early Bronze Age, others may belong to later periods (O’Brien 2005, 502; Bradley 1978, 83). Although many mounds are coeval with the period of Beaker use (c. 2500–1700 cal BC), until the discovery of the Lower Boscaswell mound, only one site in Britain, at Leckhampton in Gloucestershire, had produced Beaker sherds (Bradley 1978, 83); this site has subsequently been discovered to date from the Late Bronze Age (Darvill 1987, 113; Leah and Young 2001, 79). This means that in Britain only the mound at Lower Boscaswell is associated with Beaker pottery and even here it is possible that the pottery was only associated with the final closure stage of the site. In Ireland, a pit containing sherds of Beaker associated with a burnt mound has recently been found at Ballyclogh North, County Wicklow (Carlin 2007).

Burnt mound sites typically consist of three components: a large trough or pit, a mound, and a hearth or fire pit. As at Lower Boscaswell, the hearth is not always found. The trough is often lined with timber, wood or stone, although unlined pits are also known (papers in Buckley (ed) 1990; Hedges 1977; Kelly 1992; Stevens 1997; Ladle and Woodward 2003). Morphologically, the troughs range from well-defined rectangular features to circular or irregular-shaped pits. The sizes are similarly variable with some measuring more than 2m long and over 1m deep and others under 1m in diameter and 0.2m deep (Kelly 1992; Beamish and Ripper 2000; Barber et al 2006). With dimensions of 0.58m by 0.85m and 0.4m deep, the pit at Lower Boscaswell lies at the lower end of the range. Although the Lower Boscaswell pit does not currently hold water, it could have been lined with a perishable material such as leather, or may have a lining of clay sealed behind the unexcavated stone-lining, which would have helped to make it water-tight.

Mounds are made up of charcoal and fire-cracked stone and are often found in a kidney-shaped arrangement around the trough, although amorphous low mounds, more analogous to that at Lower Boscaswell, are also known (Stevens 1997). The stones became cracked by being heated in a fire before being immersed in water within the trough to bring it to the boil (Buckley 1990, 170–2). Excavation has indicated that some sites were used on several occasions and that use could extend over considerable periods of time (Kelly 1992; Topping 1998). The simple stratigraphy of the Lower Boscaswell mound did not provide evidence for the number of times that it was used and the tight group of radiocarbon determinations suggest that it may have been in use for a century or less. However, the quantity of charcoal within the mound, thevariation in the abrasion of the Beaker pottery sherds and the care taken over the construction of the stone-lined pit perhaps hint that it was well-used. The slight difference in date between the mound and the pit may also indicate that the site was used on several occasions. The formality of the sealing of the mound, the placing of larger Beaker sherds from at least three vessels on the south-west side of the mound and the infilling of the pit could also suggest that it had gained some importance as a special place in the local landscape.

Some burnt mounds are found in isolation but others occur in small groups. Structures are occasionally found in the vicinity of the troughs (Hedges 1977, 82; Topping 1998) but, as probably at Lower Boscaswell, most are not associated with structures (Drisceoil 1988). Most are located near to a source of water, away from contemporary settlement sites (Barber 1990; Lynch 2000, 90). However, in Orkney they appear to be closely associated with settlement (Hedges 1977) and in the Welsh Marches (Halsted 2005, 66) and parts of Ireland (Cooney and Grogan 1994, 124) they may have been spatially integrated within the overall pattern of ceremonial and settlement sites. No contemporary structures were identified in the vicinity of the Lower Boscaswell mound but only a limited area around it was investigated: a few unstratified artefacts may date to the period of its use (Quinnell below). However, it is possible that it was deliberately sited away from areas of permanent settlement.

Although it is generally agreed that burnt mounds were used for heating water, there has been some
debate as to their actual function. Barfield and Hodder (1987) have proposed that the sites were associated with bathing or sweating and others have suggested that they were used for industrial processes such as tanning (Jeffrey 1991) or brewing (Quinn and Moore 2007; see also McClatchie et al., 2007). The most frequently offered explanation is that they were associated with cooking and feasting (Drisceoil 1988; Topping 1998). In Ireland, early medieval literature associates them with the cooking sites of warrior-hunters (Waddell 1998, 174) and in the Welsh Marches it has been argued that they might have been linked with a pattern of seasonal grazing, used during the movement of stock at certain times of the year (Halsted 2005, 46). Many sites are located in areas with acidic soil conditions, however, and this has resulted in the poor preservation of organic material such as animal bone which might provide evidence on this point. However, given the differences in morphology, chronology and geographical distribution, and the varying relationship to settlements, it is unlikely that all burnt mound sites were used for the same purpose (Bradley 1978, 83).

That said, certain characteristics of the site enable some interpretation to be made. The pit at Lower Boscaswell was small by comparison with many other burnt mound sites, and this would probably have precluded its use as a bath or sauna and the pit may have been used for cooking. As the site could have been located away from the immediate area of settlement but was well-constructed, it may have been used on an intermittent or seasonal basis by more than one group or community. The absence of charred grain and the scarcity of hazelnuts (J. Jones below), which are present at a wider range of other Neolithic and Early Bronze Age sites in Cornwall (Cole and Jones 2002–3; Reynolds forthcoming) might support the cooking of meat instead.

In the light of recent arguments concerning the difficulty of separating ritual practice from domestic activity (see Bradley 2005) it is probably unwise to distinguish too much between ritual and practical day-to-day activities, such as the cooking of food, which may have had ritualised qualities to them. Nonetheless, activities at the Lower Boscaswell site may have had more overtly ritual or ceremonial connotations to them, for as Halsted (2005, 66) has argued, the cooking of meat does not require the heating of water by stones: cooking meat in this way may have been intended to create differences in food consumption at burnt mound sites in distinction to those used in contemporary residences. More formal ritualised practices would account for the concentration of sherds on the south-west part of the mound and the apparent non-durable nature of some of the ceramics. These ceramics may have been involved both with cooking and eating or drinking: the absence of most of the sherds from all vessels represented may again indicate aspects of ceremonial activity. The stone capping on the mound may imply formal abandonment, as may the filling of the top of the pit with stone, and may be connected with the absence of ceramics from the pit fill. The filling of the pit could be interpreted as formal closing of the site, with the unburnt granite stones selected to block the pit. The mound, if completely capped by stones and before truncation and compression from subsequent agriculture, would have been higher and could have formed a fairly prominent feature resembling a cairn in the local landscape. The inclusion of Beaker sherds within barrow-like mounds is paralleled at Poldowrian (Harris 1979) and possibly elsewhere in Cornwall (see below).

In common with most burnt mound sites, and due to the acidity of the soil, the environmental evidence is limited to charred wood with no animal bone being present. The charcoal from both mound (102) and pit [112] comprised broadly similar species, including hazel, oak and willow, with some gorse or broom in [112]. Some fragments of hazel had wide growth rings characteristic of coppice growth, suggesting the presence of managed woodland in the vicinity (Gale below). Charred plant remains were restricted to a single sloe stone and hazelnut shell, with a cleavers seed probably brought in with firewood.

**Pottery and stone work**

*Henrietta Quinnell, with petrographic comment by Roger Taylor*

**Beaker pottery**

The assemblage consisted of 146 sherds weighing 831 grammes, giving a mean sherd weight of 5.7g. Of these, 126 sherds weighing 775 grammes came from (102), the burnt mound, mostly from a concentration in the south-west quarter; the remainder, 20 sherds totalling 56g, were retrieved from the adjacent spoil dump and are assumed to have come from (102) during initial stripping. A minimum of between 19 and 22 vessels are represented, distinguished by differences in fabric
and in decorative detail. Of these 15 are illustrated (Figs 8–10), representing all those which display variation in form or decoration. All illustrated vessels come from (102). A single small Trevisker rim was retrieved from the spoil. No other Bronze Age material was found in field 4 although there was a possible Middle Iron Age South Western Decorated style gabbroic rim, a few early medieval grass-marked sherds in gabbroic fabrics and a range of medieval sherds.

A comprehensive listing of all Beakers in Cornwall is published in appendix 1 and contains full references to individual vessels.

Condition of sherds

Details of abrasion are not included. Many sherds had suffered badly from bioturbation and the effects of acid ground water so that parts of their edges and surfaces appeared highly abraded. A number of sherds had modern damage. As far as can be judged, all sherds not subject to bioturbation/acid ground water and recent breakages were fresh.

A number of sherds had been partly re-fired after breakage, presumably a consequence of the ‘burnt mound’ function of the site. Colour and oxidisation are judged where sherds had not been re-fired.

**Fabrics**

Comment is made on the basis of microscopic examination by Roger Taylor; a detailed report is filed with the archive. Thin-sections were not obtained because of damage to decoration.

**Fabric 1.** Abundant granite-derived inclusions with the general angularity of the grains indicating little movement has taken place. Soft and brittle. Principal inclusions: quartz, feldspar, muscovite, biotite, tourmaline and a few composite grains. Probably sourced from within the granite outcrop.

**Fabric 2.** Common granite-derived inclusions, principally quartz, feldspar, muscovite, biotite, tourmaline and a few composite grains. These are noticeably sparser than in Fabric 1, with a greater degree of rounding indicating stream transport of the constituents. The same stream source may not have been used for all vessels and the occasional presence of hornfels fragments, as in P13, suggests that the source may, at least on occasions, have been outside the margins of the granite. Hardness varies.

**Fabric 3.** Abundant granite-derived inclusions. These are quartz, muscovite, biotite, tourmaline, and red hematitic grain. Some are rounded or sub-rounded or, in the case of quartz, polished, and indicate a probable beach sand. Hard.

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Fabric 4. Sparse granitic inclusions but also some limonite grains and abundant clay pellets. Soft.

Fabric 5. Abundant mica (muscovite) inclusions, but also biotite, amphibole, quartz, feldspar, and tourmaline. Hard. Both examples have black carbonised plant fragments and impressions in the surface. This unusual mica-rich fabric appears to predominantly derive from an altered basic igneous rock with some granitic components. Possibly from a fault crush zone in such a rock. It is likely to come from the north coast of the Land’s End peninsula.

Fabric 6. A typical gabbroic fabric from the Lizard, hard, with moderate inclusions of feldspar, magnetite, amphibole and quartz; a few composite and limonitic grains.

Fabric 7. Gabbroic admixture fabric with moderate inclusions, hard; the gabbroic fabric includes angular gabbroic rock fragments which have probably been crushed.

Both in the number of vessels represented and the number of fabrics, the Lower Boscaswell site has produced the most extensive range found so far in Cornwall. The varied use of fabrics is in accord with that summarized for Cornwall in appendix 1 and by Parker Pearson (1990, 12), as is the minimal use of gabbroic clays (9% on sherd numbers, 6% on weight). In this Lower Boscaswell differs from Poldowrian, the only other published site with a number of broken vessels: here there were some 100 sherds from five vessels but all of gabbroic fabric, appropriate as this site is situated on gabbro bedrock (Harris 1979, 23). The 16 sherds from residual contexts at Gwithian all appear to be gabbroic, but with some additional inclusions of rock and of gog (Nowakowski 2004, appendix 2). In Devon a similar wide range of fabrics is recorded in Beakers (Quinnell 2003, table 1) and Cleal (1995, fig 16.2) has drawn attention to the greater variety of fabrics used in Beakers in Wessex than in other early prehistoric periods. The Cornish data, especially that from Lower Boscaswell, are thus in accord with that from across southern Britain, the only difference being the comparative scarcity of gog which is found frequently in Devon and in Wessex; gogged vessels, with other inclusions, are recorded from Davidstow site XXII and in two separate vessels from the Lousey barrow, St Juliot (Williams 1988). In contrast to Lower Boscaswell, the Devon site with the largest number of vessels recognized, Castle Hill, near Honiton, with 19 vessels, uses only two very similar gogged fabrics (Laidlaw and Mepham 1999, 45).

The largest vessel numbers and weight of sherds is represented by the granitic-derived stream sand Fabric 2, although this may come from a number of different sources, and is generally to be regarded as local to the site. The second largest group is Fabric 1, sourced from the granite itself and also local. Mica-rich Fabric 5 is likely to source along the north coast of west Penwith, within a few kilometres of the site. Gabbroic Fabric 6 comes from some 40 kilometres away in a direct line, from the Lizard, a distance more than doubled if transported by sea. Fabrics 3, 4 and 7, each represented by a single undiagnostic body sherd, cannot be absolutely confirmed as Beaker. It is just possible that these represent intrusions as a small (4g) medieval body sherd was found in (102). Fabrics 3 and 4 at present do not have comparanda from other periods. Fabric 7, gabbroic admixture, is similar to that used in Middle Bronze Age Trevisker assemblages. Confirmation of these three fabrics as of Beaker date must await further finds of pieces with diagnostic form on other sites.

Forms and decoration

The vessels are fragmentary and come from a context which would traditionally be regarded as producing ‘domestic’ Beakers. All classification schemes for Beakers are based on the more-or-less complete forms found with burials and it is generally recognized that there are likely to be variations between vessels selected or made for burial/ritual deposition and those for domestic use (for example, Gibson 1982). A modern assessment of Beaker forms and decoration in non-burial contexts is badly needed. Here the vessels are related both to Clarke’s (1970) typology and to recent work by Needham (2005), to provide some general context and comparanda. Needham’s work is the first to take fully into account the large number of radiocarbon dates now available from Britain and to relate these to separate lineages (broadly stylistic traditions).

The vessels represented by the largest sherds, P1 and P2 in Fabric 1, can be ascribed with confidence to the Southern (Clarke 1970) or Long-Necked (LN) tradition (Needham 2005, 196) and probably to an early rather than late period in that tradition. The bulging girth of P3 in contrast to P1 and P2 is probably also best accommodated in that tradition (for example, Clarke...
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1970, 373, no 774). Of Fabric 2 P7 is clearly Long-Necked and P6 probably so. The remaining Fabric 2 vessels are best grouped as Long-Necked, with the exception of finger-nail impressed P13 which probably groups with Needham’s (2005, fig 10) ‘S’ profile vessels (SP). Fabrics 3, 4 and 7 are unassignable. Fabric 5 P19 probably comes from a Long-Necked vessel but P20 perhaps belongs to the ‘S’ (SP) profile group. There is insufficient of Fabric 6 gabbroic P22 to suggest a form. The group as a whole therefore contains mainly Long-Necked vessels with a few of ‘S’ profile shape. Needham’s ‘S’ profile group does not equate neatly with any of Clarke’s classifications: shapes involved have profiles without a sharp break at the neck or at a carination on the girth and include many of Clarke’s Wessex/Middle Rhine (W/MR) group.

The radiocarbon determinations from Lower Boscaswell (see below) suggest dating for the site around 2100 cal BC. This is in the middle of Needham’s (2005) Period 2, ‘Beaker as instituted culture c 2250–1950 cal BC’. This dating appears appropriate for the ceramics, bearing in mind potential differences between domestic vessels and the funerary series on which Needham’s work is based.

Comb stamping is the most common form of decoration with most vessels displaying impressions made by a single stamp. P3 (Fabric 2), however, uses three different stamps and combines these with fingernail impressions. Fingertip/nail decoration is found together with comb-stamping on Fabric 2 P12 and Fabric 5 P20, P13–15 have only fingernail/tip decoration, in so far as they survive. The general linkage between Long-Necked vessels, comb stamping and fingernail/tip decoration is well established, for example at the Hockwold sites in East Anglia (Bamford 1982) but the combination of comb stamping and fingernail/tip on the same vessels is less common. The arrangement of decoration in broad zones is entirely typical of the Long-Necked tradition.

The general character of the Lower Boscaswell assemblage is broadly paralleled by Cornish vessels allocated by Clarke (1970) to his S2 (Southern 2) tradition: the sherds possibly from a sandhill midden at Praa Sands, Germoe (ibid, 378, no 814), the vessel from a cist at Trevedra, St Just (ibid, 379, no 105), and that from the cist at Tregiffian, St Buryan (ibid, 400, no 961; S3). Perhaps the closest Cornish parallels are the sherds of a late Southern tradition vessel scattered around the central deposit in the Lousey Barrow, St Juliot (Christie 1985, 55): these have a design made by the integration of comb-stamped and fingernail motifs. Similar sherds incorporating both fingernail and comb stamping were found in association with the late Southern tradition handled Beaker at Try, Gulval (Russell and Pool 1964, 19). Sherds of a S2 beaker with vertical lines of paired fingernail impressions were found in a pit at Killigrew, Trispen (Cole and Nowakowski forthcoming), and a complete vessel containing a cremation, from beneath the Carvinack barrow, Kenwyn parish, in broad association with Food Vessel sherds (Dudley 1964), had panels of finger tip decoration: the shape of this beaker probably indicates a position at the end of the Southern tradition. There are possible fingertip/nail sherds from a midden at Cataclews, Harlyn Bay (Clarke 1970, 477, no 96F: Patchett 1944, table 1 A2; now lost), St Merryn, and definite fingertip/nail decoration on vessels of indeterminate form from surface collections at Polcoverack, St Keverne (Smith 1987, fig 20).

Case (1995a) has considered the capacity of Beaker vessels (from burials) and suggested grouping into three categories: small (up to 500cc), medium (between 500cc and 2000cc), and large (over 2000cc). Very approximate calculations suggest that the Lower Boscaswell Beakers fall generally into the medium and large categories, with the possibility that the largest, P3 might have considerably exceeded the 2000 cc (approximately 4 pints) of the large group. This variation in size reminds us of the ways in which vessels of the same broad shapes may have fulfilled different functions such as drinking, food preparation and storage.

Vessels at Lower Boscaswell, especially those of Fabric 1, appear to be brittle and inappropriate for extended use. Since Boast (1995) pointed out that many Beakers in burials appeared to have been specially made and would not have been durable in domestic situations, there has been a corresponding tendency to regard ‘domestic’ beaker as tougher and more durable. Some of the Lower Boscaswell pieces, especially fingernail decorated P13 in Fabric 2, would have been suitable for extended usage. But P1–3 in particular are unlikely to have been so and may have been made specifically for use at the mound site. This is in accord with current sceptical discussions on the usefulness of distinctions based on domestic and ritual/ceremonial contexts (for example, Bradley 2005). There is no immediate explanation of why all sherds of broken Beakers were not left on the site to be recovered: even for the
best represented vessels such as **P1** perhaps only 10% of the vessel is present. The interpretation of the site as a burnt mound (see below) implies a locale visited on special occasions. Was much of the broken ceramic material retained and eventually deposited elsewhere?

**Vessels from context 102**

*Fabric 1 Granitic, from granite outcrop*

**P1** (Fig 8). Simple rim, nearly upright neck and sharply defined girth. 5YR 6/6 reddish yellow throughout. Outer surface badly affected by ground water. Untidy comb-stamped decoration of infilled lozenges arranged to give the effect of a reserved plain lattice around the neck; three horizontal lines around girth.

**P2** (Fig 8). Nearly upright neck and sharply defined girth. Only exterior surface smoothed. Surfaces 5YR 6/6 reddish yellow with 5YR 3/1 very dark grey reduced core. Untidy comb-stamped decoration similar to that on **P1** but with top of triangle below horizontal girth lines.

**P3** (Fig 8). Part of girth of large vessel. Soft exterior surface smoothed. 5YR 6/6 reddish yellow throughout. Comb-stamped design of triangles pendant from groups of horizontal lines: the ends of stamps deeply impressed and appear initially similar to finger-nail.

**P4** (Fig 8). Base angle sherd, very slight foot-ring, soft smoothed surfaces, 5YR 6/8 yellowish red with 5YR 3/1 very dark grey core. Diameter indicates it does not belong to other illustrated vessels. The slight foot-ring occurs on a range of Beaker shapes (Clarke 1970, 317–95).

**P5** Not illus. Sherds from girth of vessel with comb-stamped decoration similar to **P2** but with a thicker vessel wall. Soft exterior smoothed. 5YR 6/6 reddish yellow throughout.

*Fabric 2 Granitic derived, from stream sources*

**P6** (Fig 9). Single sherd from girth of vessel. Hard, both surfaces smoothed. Exterior surface 5YR 3/3

![Fig 8  Beaker pottery from Lower Boscaswell: vessels P1, P2, P3 and P4](image-url)
CORNISH BEAKERS: NEW DISCOVERIES AND PERSPECTIVES

Fig 9  Beaker pottery from Lower Boscaswell: vessels P6, P7, P10, P11, P12, P13, P14 and P16

oxidised dark reddish brown, interior reduced 5YR 3/1 very dark grey. Complex elongated lozenge pattern around girth, base of different (?) pattern around start of neck. Comb stamps of different lengths have been used, a short comb to make deep impressions superficially similar to finger-nail. Actual horizontal fingernail impressions in parts of design at the base of the neck.

P7 (Fig 9). Sherds from vertical neck. Hard. Exterior surface smoothed. 5YR 6/5 6/6 light reddish yellow with 5YR dark grey core. Comb-stamped infilled chevron design.

P8 Not illus. Body sherd. Hard, both surfaces smoothed. 5YR 5/8 yellowish red. Comb-stamped design with parts of two crossing lines.


P10 (Fig 9). Simple slightly incurving rim. Soft. 5YR 6/6 reddish yellow with part of core reduced 5YR 4/1 dark grey. Exterior badly eroded so that temper fragments protrude, traces of probable comb-stamped design.

P11 (Fig 9). Simple incurving plain rim. Soft, surfaces rough. 5YR 6/6 reddish yellow with part of core reduced 5YR 4/1 dark gray.

P12 (Fig 9). Simple slightly incurved rim sherd. Soft, surfaces roughly smoothed. Exterior 5YR 6/6 reddish yellow with part of core 5YR 3/1 very dark grey; the clearest example of re-firing with core restricted to one side of sherd. Paired fingertip design with part of comb-stamped line above.

P13 (Fig 9). Curved neck of thick vessel. Hard. Exterior surface smoothed and 5YR 6/6 reddish yellow. Interior and core reduced 5YR 3/1 very dark grey. Curved lines of fingernail decoration.

P14 (Fig 9) Q. Sherd possible from just below rim. Soft, surfaces smoothed, 5YR 6/8 reddish yellow. Two vertical rows of opposed fingernail impressions.

P15 Not illus. Body sherd. Soft, smoothed surfaces. 5YR 6/6 reddish yellow core very dark grey 5YR 3/1
but much re-fired. Part of fingernail pattern. Distinct from P13 and P14 on fabric and thickness.

P16 (Fig 9). Small simple base sherd. Soft, smoothed exterior. 5YR 5/8 yellowish red. Thinness and fabric suggest it does not belong to any other vessel.

Fabric 3 Granitic-derived beach sand
P17 Not illus. Small plain body sherd.

Fabric 4 Granitic derived with clay pellets
P18 Not illus. Plain body sherd.

Fabric 5 Mica-rich fabric derived from altered basic igneous rock
P19 (Fig 10). Incurving rim. Hard, both surfaces smoothed almost to burnish. 5YR 3/2 dark reddish brown, core more oxidised 5YR 4/4 reddish brown. Neat comb-stamped decoration of two horizontal lines above one of flattened zig-zags.

P20 (Fig 10). Two joining sherds, 16g, from above vessel girth. Hard exterior surface, smoothed. Surfaces 5YR 4/3 reddish brown, interior more oxidised 5YR 5/8 yellowish red. Small non-adjoining sherd, 3g, seems to extend design. Comb-stamped design, double line above flattened chevron, intervening space filled with deep impressed comb-stamps. Single fingertip stamp in space. A further small sherd, 2g, with stamping from same vessel.

Fabric 6 Gabbroic
P21 (Fig 10). Sherd from base of neck. Hard. Surfaces roughly smoothed. 5YR 5/4 reddish brown, core more oxidised 5YR 5/8 yellowish red. Comb-stamped design of lozenge above horizontal lines.

Fabric 7
P22 Not illus. Plain body sherd.

Stonework
Henrietta Quinnell, with petrographic comment by Roger Taylor
All pieces except S4 derive from beaches along the north coast of west Penwith.

Beaker site
S1 Not illus. Buried soil (105). Rubbing stone, one side used with slight traces of gloss, second surface possibly used; 66 x 60 x 30mm. A hornfelsic beach cobbble from a local beach.

S2 (Fig 11) Burnt mound (102). Pestle, with two adjacent abraded facets on one end, slight wear traces from use as rubbing stone on flatter surface; 100 x 80 x 50 mm. Triangular cross-section makes this easy to hold in the hand. Basic hornfels beach cobbble. Post-use surface deterioration could be caused by weathering or accelerated by burning.

S3 Not illus. Fill 114 of pit [112]. Rubbing stone with some possible use of flatter surface and a few marks,
probably from small-scale hammer use, around edge; 72 x 70 x 48mm. Vein-quartz beach cobble, originally from mineral lode.

**Unstratified**

All artefacts were unstratified and found in the general vicinity of the Beaker site.

**S4** (Fig 11). Broken perforated whetstone, >30x 17 x 7 mm: hourglass perforation 3mm across. Carefully worked from a medium grey, very fine-grained quartzose slightly micaceous sandstone with a faint internal structure aligned parallel to the length. It is moderately hard and only superficially weathered suggesting a coastal source. Possible occurrences of such rock are widespread in Cornwall but the nearest potential source is from the sandstones of the Gramscatho Beds which outcrop on the coast of St Ives Bay to the north of Hayle.

**S5** (Fig 12). Nearly spherical pebble, pecking over most of surface to enhance globular shape, 45mm, 89g. Flint pebble, patches of original marine abraded surface surviving.

**S6** (Fig 12). Nearly spherical pebble but with no surviving pecking, 52mm, 142g. Just possible minimal pecking removed by weathering. Coarse greenstone/metabasic beach pebble, surface formed by marine abrasion but whole surface roughened by weathering, as happens with many greenstone axes. Note: greenstone more easily pecked than flint.

Also found but not illustrated were two rubbing stones of local beach cobbles of fine-grained metabasic (volcanic) rock, a rubbing stone using local greenstone beach cobble, a double-ended hammer stone using a local aplite granite beach cobble, a small slate disc trimmed into shape of Devonian slate from east of the metamorphic aureole of the Land’s End granite – possible locally sourced if beach material, a 50 mm natural square of similar slate with one edge worn to distinct bevel and a small slate pencil.

**Comment**

S1–3 appear to be the only stone artefacts known from a secure, non-ritual or burial Beaker context in Cornwall or Devon, apart from a few beach pebbles and a possible greenstone tool from the mound at Poldowrian (Harris 1979, 19). In general, few stone artefacts appear to have been recovered from domestic Beaker contexts nationwide; for example only two from the coastal site of Northton on the Isle of Harris (Simpson et al 2006, 25) and none stratified from Brean Down in Somerset (SpSimon et al 1961, 120; Bell 1990, 158). The two rubbing stones S1 and S3 have wear appropriate for the working of leather or some other soft material. S2 is described as a pestle: the two adjacent abraded facets on the end of the easily hand-held tool appear to have no close parallels in any regional prehistoric context. The best comparanda for the adjacent abraded facets occur on the narrower bevelled pebble tools of the local Late Mesolithic (for example, Berridge and Roberts 1986, 20 and fig 6): there is still no consensus on the function of these but recent research has highlighted their suitability for working leather, especially seal skins (Jacobi 1980, 189 and fig 4.30; Fletcher 2005). A bevelled pebble, presumed residual, has recently been retrieved from the fill of a large pit with ritual connotations dating to the late third millennium cal BC (Reynolds forthcoming). Strong continuity in the
use of stone tools probably existed in west Cornwall throughout prehistory but is difficult to establish because of the rarity of secure contexts.

S4 is included because of its intrinsic interest. Its small, carefully formed, thick-sectioned, perforate shape suggests its inclusion among the whetstone pendants of the later Early Bronze Age (Needham’s (1996) period 4, 1700–1500 cal BC). Discussion of these artefacts by Gerloff (1975, 113, plates 48–9) emphasizes their small size, their distinctive cross-section and their use of distinctive rocks. S4 now forms part of a group of five similar whetstones from Cornwall, all from west Penwith. Two were found in the nineteenth century on Brane Common, Sancreed, each associated with an urned cremation and one possibly with a copper alloy knife (Borlase 1872, 212–3 with illustration): the one vessel of the pair which survives is a plain collared urn (Patchett 1944, D7, fig 8). The fourth comes from the ante-chamber at Zennor Quoit (Thomas and Wailes 1967, 19 and fig 6, no 3) in apparent association with undoubted Trevisker sherds (author’s inspection of archive). The fifth comes from the probable entrance grave at Tregeseal, St Just-in-Penwith (Thomas and Wailes 1967, fig 6, no 2 and references: Hencken 1932, fig 15); there is a Trevisker vessel from Tregeseal (Patchett 1944, B13) but its relationship with the whetstone is uncertain. Occasional examples of small perforate whetstones do occur in Middle Bronze Age contexts – for example in the enclosure ditch at Castle Hill, Honiton, Devon (Fitzpatrick et al 1999, fig 22) – but these appear to have a flatter, more oval shape. The few whetstones associated with Beaker material and with earlier Early Bronze Age artefacts are imperforate, of larger size and less regular shapes (for example, Green and Rollo-Smith 1984, 309; Annable and Simpson 1964, nos 69, 90, 302–3). Beaker age bracers, while frequently having a single perforation at each end are of proportions very different to S4 (Woodward et al 2006, fig 3); the only known example from Cornwall is part of a type with four perforations, a surface find from Foxhole, near Padstow (Royal Cornwall Museum 1966/22). S4 may be regarded as a whetstone pendant belonging to Needham’s Bronze Age Period 4 and its deposition
may indicate the continued significance of the Beaker mound. S5 and S6 appear to have been found close together in the vicinity of the Beaker mound. Their generally spherical shape, in S5 deliberately manufactured, in S6 almost entirely natural, recalls that of the Later Neolithic plain and decorated stone balls of north-east Scotland, although these, with an average size of around 70mm in diameter, are larger and form much more precise spheres (Marshall 1977, 40). Stone balls have insufficient associations for their usage to be definitively determined: the two functions most frequently discussed are as ceremonial tokens and as weaponry (see Edmonds 1992 and references). I am indebted to Andrew T Young of Exeter University for the information that a sparse scatter of undecorated and poorly published balls occurs across England; he, however, considers the Lower Boscaswell examples insufficiently regular to be grouped with Later Neolithic stone balls and suggests that they may have been hammer stones of exceptionally rounded shape. If the comparison with Later Neolithic stone balls has any validity, S5 and S6 will have been broadly contemporary with the Beaker mound. Either as ‘stone balls’ or as hammer stones of exceptionally even form, their deposition may, like whetstone pendant S4, relate to the significance of the mound. It is unclear whether any of the unstratified and unenumerated stone work was found sufficiently close to the mound to have been deposited with reference to it.

Charcoal

Rowena Gale

This report presents the analysis of charcoal (fuel debris) recovered from the burnt mound and associated pit. Species identification was undertaken to obtain environmental data, indicate the type of wood selected for use as fuel and to isolate suitable material for radiocarbon dating.

Methods

The processed samples were mostly charcoal-rich and it was necessary to sub-sample the largest; 25% sub-samples were examined from samples 10–12; 50% sub-samples were examined from samples 20–22. The charcoal was generally well-preserved and many samples included intact pieces of narrow roundwood.

The samples were prepared using standard methods (Gale and Cutler 2000). Anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood. When possible, the maturity of the wood was assessed (heartwood/sapwood) and stem diameters recorded. It should be noted that during the charring process wood may be reduced in volume by up to 40%.

Results

The taxa identified are presented in Table 2. Classification follows that of Flora Europaea (Tutin, Heywood et al 1964–80). Group names are given when anatomical differences between related genera are too slight to allow secure identification to genus level. These include members of the Pomoideae (Crataegus, Malus, Pyrus and Sorbus), Leguminosae (Ulex and Cytisus) and Salicaceae (Salix and Populus). When a genus is represented by a single species in the British flora, it is named as the most likely origin of the wood, given the provenance and period, but it should be noted that it is rarely possible to name individual species from wood features and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974). The anatomical structure of the charcoal was consistent with the following taxa or groups of taxa:

Betulaceae. Betula sp., birch
Corylaceae. Corylus avellana L., hazel
Fagaceae. Quercus sp., oak
Oleaceae. Fraxinus excelsior L., ash
Leguminosae. Cytisus scoparius (L.) Link (broom) or Ulex sp., gorse
Rosaceae. Subfamilies:
  Pomoideae, which includes Crataegus sp., hawthorn; Malus sp., apple; Pyrus sp., pear; Sorbus spp., rowan, service tree and whitebeam.
  These taxa are anatomically similar; one or more taxa may be represented in the charcoal.
  Prunoideae. Prunus spinosa L., blackthorn.
Salicaceae. Salix sp., willow, and Populus sp., poplar.
In most respects these taxa are anatomically similar.

The burnt mound (102) yielded charcoal-rich samples 20–25. These consisted almost entirely of
roundwood, predominantly from hazel (*Corylus avellana*), oak (*Quercus sp.*), and/or poplar (*Populus sp.*), although blackthorn (*Prunus spinosa*) and the hawthorn/Sorbus group (Pomoideae) were also frequent. Growth rates varied. Fragments of hazel stem sometimes included wide growth rings characteristic of coppice growth.

Charcoal obtained from stone-lined pit [112] (samples 26–29) was less frequent but similar in character to that from the mound, with the addition of gorse (*Ulex sp.*) or broom (*Cytisus scoparius*) in sample 28.

**Radiocarbon dating samples**

Each sample included ample material for conventional dating but since the archaeological contexts were prone to disturbance and movement, single large fragments of charcoal (less likely to have shifted) were selected where possible from each sample.

**Discussion**

The charred remains of firewood from the burnt mound (102) and stone-lined pit [112], layer (114) indicate the predominant use of roundwood from oak, hazel and willow/poplar and, probably slightly less frequently, the hawthorn group and blackthorn; also, but rarely, gorse/broom.

Charcoal deposits consisted of narrow roundwood. The structure and growth patterns recorded in some stem fragments were consistent with those of coppiced/managed woodland. For example, hazel roundwood included the wide early growth rings typical of coppice growth (Morgan 1982). Such rapid growth requires non-competitive conditions such as those in recently felled coppiced woodland. But fast-grown roundwood, such as this, does not necessarily imply the sourcing of fuel from managed woodland since rapid growth also occurs in optimal conditions offered by nutrient/moisture-rich open land and hedgerows. However, given the predominance of narrow roundwood and the almost complete absence of more mature wood in the samples, coppiced woodland would seem to be the most likely source capable of supplying the volume of fuel required.

Evidence of Beaker activity is rare in Cornwall and the inference of woodland management at this time provides an insight into the local economy and exploitation of woodland resources. Fuel residues associated with a Bronze Age structure at Boden Vean, St Anthony-in-Meneage, on the Lizard, indicated that firewood consisted mainly of oak heartwood but also included hazel and gorse/broom (Gale 2005); there was insufficient evidence, however, to indicate the use of managed woodland.

**Environmental evidence**

Fuel supplies may well have been collected very locally and thus reflect the character of the immediate environment, which, as discussed above, probably included managed woodland. The evidence suggests a woodland composition with oak/hazel probably forming the dominant cover. The high ratio of willow/poplar (typically species of damp/waterlogged soils) in samples from field 4 would be consistent with the siting of the burnt mound close to a source of water.
Charred plant remains

J. Jones

The samples were processed by the Historic Environment Service and were flotation sieved; the dried floats were then sent to the author for examination. The samples were predominantly charcoal with only a few charred plant remains from the Beaker site.

The results are shown in Table 3.

The only charred remains from the Beaker site were a single whole sloe (Prunus spinosa) stone and a fragment of hazel (Corylus avellana). Both these taxa were also identified in the charcoal record and are therefore likely to have derived from fuel associated with the burnt mound. Cleavers (Galium aparine) is a scrambling annual of hedgerow and scrub and may have arrived twining to a twiggy branch.

Conclusion

It is not possible to suggest any interpretation from the limited charred plant remains recovered from St Just, although the taxa recovered support the evidence from the charcoal which suggests the collection of fuel from local woodland.

Radiocarbon dating

Four samples, two each from mound (102) and from pit [112], were submitted for accelerator mass spectrometry dating (AMS) at the University of Waikato in New Zealand. All were derived from large pieces of charcoal from hazel, willow, hawthorn/Sorbus, which are short-lived species, and oak roundwood (Table 4).

Table 3  Charred plant remains from the Lower Boscaswell Beaker site

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</thead>
</table>
| (102)      | 20        | 5                   | 600             | 100% charcoal
|            |           |                     |                 | 1 whole Prunus spinosa (sloe) |
| (102)      | 21        | 5                   | 470             | 100% charcoal |
| (102)      | 22        | 5                   | 620             | 100% charcoal |
| (102)      | 23        | 5                   | 10              | 1 fragment Corylus avellana (hazel) |
| (102)      | 24        | 5                   | 530             | 100% charcoal |
| (102)      | 25        | 5                   | 50              | 1 Galium aparine (cleavers) |
| (114)      | 26        | 5                   | 10              | 100% charcoal |
| (114)      | 27        | 5                   | 20              | 60% charcoal/40% mineral |
| (114)      | 28        | 5                   | 20              | 95% charcoal/5% mineral |
| (114)      | 29        | 5                   | 10              | 100% charcoal |
| (104)      | 30        |                     | 500             | 100% charcoal |

Table 4  Results from the Lower Boscaswell radiocarbon dating

<table>
<thead>
<tr>
<th>Feature</th>
<th>Context</th>
<th>Lab. no</th>
<th>Age BP</th>
<th>Material</th>
<th>Delta 13</th>
<th>Calendrical years 68%</th>
<th>Calendrical years 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mound</td>
<td>(102)</td>
<td>Wk-19377</td>
<td>3736±38</td>
<td>Charcoal (hazel)</td>
<td>-27.5 ±0.2%</td>
<td>2200–2120 BC (43.7%)</td>
<td>2290–2120 BC (5.7%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2090–2040 BC (24.5%)</td>
<td>2230–2020 BC (89.7%)</td>
</tr>
<tr>
<td>Mound</td>
<td>(102)</td>
<td>Wk-19380</td>
<td>3733±39</td>
<td>Charcoal (hazel)</td>
<td>-26 ±0.2%</td>
<td>2200–2120BC (41.7%)</td>
<td>2290–2020 BC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2100–2040BC (26.5%)</td>
<td></td>
</tr>
<tr>
<td>Pit</td>
<td>[112]</td>
<td>Wk-19378</td>
<td>3696±36</td>
<td>Charcoal (willow)</td>
<td>-25.3 ±0.2%</td>
<td>2140–2030 BC</td>
<td>2220–1970 BC</td>
</tr>
<tr>
<td>Pit</td>
<td>[112]</td>
<td>Wk-19379</td>
<td>3685±41</td>
<td>Charcoal (oak roundwood)</td>
<td>-24.9 ±0.2%</td>
<td>2140–2020BC (67.2%)</td>
<td>2220–1950 BC</td>
</tr>
</tbody>
</table>
The results

The radiocarbon determinations from mound (102), 3736±38 BP, 2230–2020 cal BC (89.7%) (Wk-19377) and 3733±39 BP, 2290–2020 cal BC (Wk-19380), and from pit [112] 3696±36 BP, 2220–1970 cal BC (Wk-19378) and 3685±41 BP, 2220–1950 cal BC (Wk-19379), are very similar and suggest a tight phase of activity between 2220 and 1950 cal BC, with the weight of probability at 68% falling in the years around 2100 cal BC (Tables 4 and 5). It is notable that the two pairs of dates, from the mound and from the pit, are virtually identical, although the significance of the slightly later date of the latter is uncertain.

The Try Beaker

The Try menhir, in the parish of Gulval, west Penwith, was excavated by Vivian Russell and PAS Pool over two seasons, in 1958 and 1962. The results were quickly published and appeared in Cornish Archaeology (Russell and Pool 1964). The site was significant as a handled Beaker vessel and Trevisker Ware sherds were found in association with a cremation deposit. It was only the second handled Beaker to be found in Cornwall, the other example coming from a barrow on Denzell Downs (Borlase 1872, 243–7).

Unfortunately at the time of the Try excavation the charcoal from the cist was not considered for radiocarbon dating. Recently it has become possible to date quite small amounts of cremated human bone (Aerts et al. 2001). This technique represents a significant breakthrough and means that it is possible to closely date previously undated burials and thence to establish refined chronologies for Early Bronze Age ceramic forms (Sheridan 2003). The establishment of a precise date for the Try site was of importance as it would provide the first radiocarbon determination in Cornwall to be associated with a Beaker burial and had the potential to shed light on the origins of Trevisker Ware and the currency of Beakers in Cornish burial contexts.

The site

The site at Try consisted of three elements: a 2.7m high standing stone (Weatherhill 1997, 112), to the east of which was a cist and pit covered by a cairn; to the east of the cairn was a shallow depression or pit (Russell and Pool 1964). The site appears to have developed in a linear fashion from west to east. The earliest element was the standing stone, although this part of the site was undated, followed by construction of the cist. The cist contained a handled Beaker vessel and, lying nearby, two unburnt bones which could not be identified. The cist was then deliberately filled with soil containing fragments of cremated human bone, haematite, small water-worn pebbles, charcoal, and sherds from a second and possibly a third Beaker, and of Trevisker Ware. The excavators were puzzled by the association of Beaker and Trevisker material and could not explain this (ibid, 22). The cist was also associated with a pit which lay to the south west. It was infilled with charcoal, soil and three sherds of Beaker, and partially sealed by a stone slab. The cist and pit were subsequently covered by a cairn. A deposit of charcoal, water-worn stones and sherds of Trevisker Ware ‘two to three inches thick’ was found in the top of the cairn. This deposit was originally
interpreted as being the remains of a disturbed secondary burial although no cremated bone was recovered from the layer (*ibid*, 6).

A second pit or depression was recorded in the excavation report as a layer (*ibid*, 16). It contained fragments from several Trevisker vessels, cremated human bone and four flints. The excavators interpreted this material as being derived from the cairn; however, both the plan and section drawings show what appears to be a shallow pit (*ibid*, 17) and it is suggested here that the Trevisker Ware had been deliberately placed within the pit.

This slightly revised sequence has two implications: firstly, that the pit and the cist were contemporary, and that both predated the construction of the cairn; and secondly that the handled Beaker and the Trevisker Ware were deposited into the site at the same time (see below).

**Radiocarbon dating**

In September 2005 one of the authors (AJ) visited the Royal Cornwall Museum and extracted a small amount of cremated bone from a soil sample that had been taken from the cist. The sample was submitted for accelerator mass spectrometry dating (AMS) at the University of Groningen in Holland by Alison Sheridan of the National Museum of Scotland.

**The results**

The radiocarbon determination from the cist fell between 3410±50 BP, 1880–1600 cal BC (95%) (GrA-30170). The weight of probability at 68% is for the date being between 1770–1630 cal BC (Table 6). This determination is significant as it is the only scientifically dated Beaker burial in Cornwall and Devon and because its date suggests that Beakers in the region continued in circulation until the end of the Beaker-using period, c 1700 cal BC.

**Discussion**

This determination lies within Stuart Needham’s (1996) Periods 3 (2050–1700 cal BC) and 4 (1700–1500 cal BC), at the end of the British Beaker sequence and within his phase of ‘Beakers as past reference c 1950–1700/1600 cal BC’ (Needham 2005, 210). This is appropriate for the association with Trevisker Ware and the general late date suggested for Cornish Beaker burials (Jones 2005, 25).

The date is also of interest as only two other handled Beakers are associated with reliable radiocarbon dates. A vessel from Gravelly Guy, in Oxfordshire 3666 ± 35 BP, 2150–1940 cal (UB 3123) was associated with an inhumation (Lambbrick and Allen 2004, 79). The second from Balfarg henge in Scotland (Mercer 1981, 133–6), is dated at 93% confidence to 3605±37 BP, 2050–1880 cal BC (OxA-13215) (Needham 2005, 204), which, although relatively late in the Beaker sequence, is rather earlier than the date from Try.

**New perspectives**

British Beakers are part of a Europe-wide phenomenon and have long been recognised by archaeologists as providing a link between Britain and the Continent (Abercromby 1912, 9; Harrison 1980, 9–15). They have been found in some numbers elsewhere in southern Britain in single-inhumation graves in association with a distinctive range of artefacts; these include barbed and tanged arrowheads, wrist-guards, the earliest copper daggers (Robertson-Mackay 1980) and gold objects (Barclay and Halpin 1999, 155; Hughes 2000), and have generally been associated with the introduction of single-grave burial and the start of new traditions at the beginning of the Bronze Age. Beakers have been traditionally associated with waves of migration, or ‘Beaker folk’ (Clarke 1970, 274–5; Brodie 1994, ch 3), sometimes linked to the diffusion of new technology or religion (Childe 1940, ch 6). More recently the movement of people has been downplayed and the spread of Beaker pottery has been linked to the exchange of prestige goods, even with the spread of the use of alcoholic beverages (Burgess and Shennan 1976; Shennan 1986; Sherratt 1991). Others have associated Beakers with certain types of political power (Thorpe and Richards 1984), with creating particular forms of social identity.
(Thomas 1991), or as part of a challenge to traditional kinds of authority (Braithwaite 1984).

It has been evident for some time that there is a great deal of variation in Beaker associations across the area over which they are distributed. Garwood (1999, 281) has suggested that regional cultural factors are central to the understanding of Beaker chronology and typology and Humphrey Case (1993; 1995b) has argued that Beakers are best understood in relation to local sequences. By dividing Britain into five regional groups, he found that regional diversity and complexity in Beaker forms is evident from the beginning (Case 1993, 265) and that the context of Beaker use varied between the different regions: in some areas Beakers were mainly associated with funerary behaviour, in others with both burial and domestic use. Regional patterning has been supported by Needham (2005) who has suggested that initial variations in Beaker use across Britain were the result of contacts with Beaker-using groups in different areas of the Continent. Needham (op cit) has made full use of the wide range of radiocarbon dates now available for Britain to put forward for the first time a properly dated chronological system. In this, small Beaker groups are seen as coming into Britain in his Period 1, c 2500–2250 cal BC, which he has labelled ‘Beaker as circumscribed, exclusive culture’. In Period 2, c 2250–1950 cal BC, termed ‘Beaker as instituted culture’, the use of Beaker pottery expands widely as do its associations, reflecting the impact of the ideas of the initial Beaker groups. Finally in Period 3, c 1950–1700/1600 cal BC ‘Beaker as past reference’ there is a strand of Beaker use not currently fully understood surviving as part of the multiple ceramic deposition practices of the Early Bronze Age.

Throughout these periods Needham suggests a series of lineages represented by different styles of Beaker that in many cases show continuance of use side-by-side over long periods. There do not appear to be any close parallels between Cornish Beakers and those in western France and it likely that the use of Beakers was introduced into the region from further east in Britain. Since Clarke (1970) compiled his corpus of British Beakers, and especially during the last ten years, the range of Cornish contexts with Beakers has greatly increased. In 1970 the majority of Beakers in Cornwall, seven of the 12 documented examples, were associated with Bronze Age burial activity (ibid, 477). Today the proportion of burial-associated Beakers is far lower (Jones 2005, 19), with only 12 vessels from funerary-related sites and around 60 or so vessels from other types of deposit such as pits and middens (appendix 1).

Attempts have been made recently to understand south-west Beakers from a more regional perspective (Quinnell 1988; 2003; Jones 2005, ch 2) than that outlined by Case (1993) or more recently by Needham (2005). The following discussion further explores the development of Cornish Beakers in the context of developments in national thinking and the new dates from Lower Boscaswell and Try. It focuses on the dating of Beakers in Cornish society, and their role, with special reference to burial-related contexts and the introduction of round barrows, and to rituals involving the consumption of food.

A time for Cornish Beakers

Beakers emerged on the Continent during the second quarter of the third millennium cal BC, but do not appear in Britain until the middle of that millennium (Needham 1996, 125; 2005). The first Beakers brought to Britain must have arrived through some form of contact with continental Europe. Evidence for continental contacts has been indicated by recent stable isotope analyses of human bone from early Beaker burials in the Wessex region (Fitzpatrick 2003; 2004). Other isotope analyses on human bone now indicates to varying degrees the movement of individuals both inside and from continental Europe and within Britain throughout the Later Neolithic and Early Bronze Age periods (Price et al 1998; Budd et al 2003; Budd et al 2004; Darvill 2006, 151–3; Van Linden 2007). Taken together, this work suggests that some of the earliest Beaker users in southern Britain may have come from continental Europe, although it is likely that Beaker ceramics were soon adopted by indigenous communities. These ceramics, their associated artefacts and their suggested social implications now have a history which can be traced in some detail from c 2500 cal BC to 1700–1600 cal BC in southern Britain.

The establishment of a chronology for Cornish Beakers has proved difficult because their numbers are comparatively small and there are few radiocarbon dates; of the four sites which currently have determinations, three are in the west of the county, where most Beaker pottery has been found (Figs 6 and 7). Other difficulties are caused by the complete absence of unburnt bone for stable isotope analyses and the lack of close comparanda for Cornish Beakers in western France, although the Beaker vessels at Lower Boscaswell do have
similarities to some which have been found in Ireland, including vessels from Grange, Co Limerick (Neil Carlin, pers comm).

It has recently been argued that Beaker use in Cornwall is likely to have been restricted to the period c 2000–1700 cal BC (Jones 2005, 22) and that Beaker ceramics were not closely associated with the appearance of barrows and cairns in the early second millennium cal BC. None of the earliest Beaker forms, such as Maritime Beakers and especially those with All Over Cord (AOC) decoration which date from around c 2500 cal BC (Needham 1996; 2005), have yet been found in the south-west peninsula. Several barrows have contained Beaker pottery in association with Trevisker Ware and Food Vessels, which are likely to postdate 2000 cal BC. Furthermore, where Beaker pottery is found in burial-related contexts in Cornwall, the associated rite is cremation (Jones 2005, 20, and see below) rather than inhumation, which generally predates cremation elsewhere in southern Britain (Barrett 1994, 114; Needham 1996; Ashbee 1984; Cleal et al 1995, 490–1; Barclay and Halpin 1999, 324–5; Darvill 2006, 146–53). The chronology of Cornish Beakers now needs reconsideration in the light of the dates from Boscaswell and Try and Needham’s (2005) work on overall chronology.

The dates from Lower Boscaswell 3736±38 BP, 2230–2020 cal BC (89.7%) (Wk-19377), and 3733±39 BP, 2290–2020 cal BC (Wk-19380), 3696±36BP, 2220–1970 cal BC (Wk-19378), and 3685±41 BP, 2220–1950 cal BC (Wk-19379) predate the previously suggested introduction of Beakers into Cornwall by a century or more and point to a phase of activity between 2220–1950 cal BC, with the weight of probability at 68% falling in the years around 2100 cal BC. This indicates a very late third millennium cal BC date for the use of the site. These determinations therefore lie firmly within Needham’s second period of Beaker use (2250–1950 cal BC), which saw an increasing use of Beakers and the emergence of increasingly divergent distinctions within societies (Needham 2005). The Boscaswell dates were obtained from a non funerary-related site, indicating a probable wide range of Beaker usage from their inception in Cornwall. Poldowrian was radiocarbon dated in 1979 with two determinations – 3490±90 BP, 2150–1500 cal BC (HAR2892) and 3360±70 BP, 1880–1490 cal BC (HAR3107) – from the bottom of the mound (Harris 1979) (Table 7). The wide standard deviations span most of Needham’s (2005) two later Beaker periods (2250–1950 and 1950–1700/1600 cal BC) and are more or less useless for fine-grained understanding of the Beaker chronology. Nonetheless, they are certainly not associated with the earliest phase of Beaker activity and in all probability postdate the Lower Boscaswell site. The Poldowrian vessels were tentatively classified as Clarke’s W/MR and therefore seemed too early for this radiocarbon range (Harris 1979, 23). However, in Needham’s (2005) categorization, again based on vessels from burial contexts, they fall well within the S-Profiled (SP) lineage which extends late in Beaker use.

The third radiocarbon determination is from a hearth pit at Nancemere, near Truro which falls between 3698±34 BP, 2200–1970 cal BC (Wk-21358). This is similar to the dates from Boscaswell, with the weight of probability at 68% again falling at around 2100 cal BC. This site provided several sherds from one or more Beakers but the assemblage is awaiting analysis (Appendix 1).

The fourth scientifically dated Cornish Beaker site is Try (see above), where cremated human bone from the cist beside the menhir (Russell and Pool 1964) gave a radiocarbon determination of 3410±50 BP, 1880–1600 cal BC (GrA-30170), with the weight of probability at 68% of a date in the period 1770–1630 cal BC. This lies at the very end of Beaker use in Britain (Needham 2005). Examination of the Try vessel in 2007 showed that it was poorly made and fired with a little surface spalling: there was a very small amount of wear on the rim and base, but even a small amount of use would have produced wear on such a poorly-made vessel. The Try Beaker is a clear, although late, example of poorly-made Beakers in burial contexts, and shows no evidence of long-term curation. The radiocarbon date is likely to relate closely to that of the manufacture of the Beaker. This date is, however, similar to those from Cornish barrows with other ceramic associations and cremation deposits, lying generally between 2000–1500 cal BC (Jones 2005, ch 3). It therefore appears on current data that most Cornish Beakers postdate Needham’s ‘fission horizon’ for British Beakers. This was a period of extensive diversification and increase of use which occurred at the beginning of his Period 2, ‘Beakers as instituted culture’ between c 2250 cal BC and 2150 cal BC. However, some Beakers may prove to have been in use in Cornwall rather earlier than this, and although continental forms of Beakers have not currently been found in Cornwall, other contemporary forms of artefact such as gold lunulae.
may have been exchanged between Ireland, Cornwall and France (Taylor 1980, 35; 1985, 190).

Although Beaker use in Cornwall was broadly contemporary with the emergence and spread of new burial rites and the barrow building tradition, there is certainly no indication from the currently available evidence that Beakers had any association with the earliest barrows or burials. Cremation burial, ring-cairn and barrow construction emerged at the same time, a little before 2000 cal BC, with Beakers adopted together with other Early Bronze Age ceramics (Food Vessel and Trevisker Ware) within the same chronological horizon. This is indicated by early radiocarbon determinations from a number of barrows without Beakers across Cornwall, including Chysauster, Trelan, Davidstow Moor and Stannon (Smith 1984; 1996; Christie 1988; Jones forthcoming) with dates before or around the turn of the second millennium cal BC. Another important inference from this chronology is that the inception of Beakers in Cornwall was not, as in Ireland (O’Brien 2005, 562–3; Needham 1996), associated with the introduction of the first metalworking (c. 2500–2300 cal BC) into Britain and Ireland. The dates from Lower Boscaswell are broadly contemporary with the switch from Irish copper sources at Ross Island to other sources in Ireland and Britain, such as the Great Orme, Mount Gabriel and Copa Hill, from around 2000 cal BC (Dutton and Fasham 1994, 251–2; Timberlake 2003, 115; O’Brien 1994, 187; 2005, 572). It is just possible that there was a little early Cornish bronze working, as has been suggested for tin working (O’Brien 2005, 564). However, there are no known Bronze Age metalworking sites in Cornwall (Herring 1997; Rohl and Needham 1998, 176) and the few hammerstones from west Cornwall, including that from field 34 to the south of the Lower Boscaswell site (Lawson-Jones forthcoming), are not well dated and have uncertain provenances (Craddock and Craddock 1997, 7).

In summary, current evidence supports the introduction of Beakers into Cornwall around 2100 cal BC, at about the same time that nationally the range of finds and contexts associated with Beakers increased (Needham 2005). This introduction was contemporary with the many changes linked to the local upsurge in ceremonial monument construction in the Early Bronze Age, with a background of changes in other social spheres such as social feasting, midden formation and an increasing range of ceramics selected for inclusion within pits.

A place for Cornish Beakers

Previous Cornish Beaker finds have come from four broad context types: midden mounds, pits, burials and as unstratified or residual stray finds (Jones 2005, 21; Cole et al forthcoming) (Figs 6 and 7). The burnt mound at Lower Boscaswell adds a fifth context type with the largest number of vessels, between 19 and 22, from any one site in Cornwall.

The numbers of Cornish Beakers from non-burial contexts has dramatically increased in recent years. Sherds from more than 30 vessels have been recovered from pits or layers which may have been associated with domestic activity (Appendix 1) (Jones 2005; Cole and Nowakowski forthcoming). Several are recorded from Gwithian and appear to be eroded sherds from cultivated soil layers (Quinnell in Nowakowski 2004): the previous interpretation of an association with a circular domestic structure (Megaw 1976; Simpson 1971; Darvill 1996) can now be discounted. The residual sherds from Trethellan may have a similar context (Nowakowski 1991). Three sherds from a probable Southern Beaker vessel came from a pit at Bosmaugan found along the Liskeard to Maudlin pipeline, which may have been associated with either ritual deposition or with settlement activity (Cole 1999), and sherds of a further vessel were recovered from a pit at Killigrew (Cole and Nowakowski forthcoming). Most recently, sherds from a probable Beaker were found in a hearth pit at Nancemere (Gossip 2005). The pits appear to be of the shallow open-topped type discussed by Thomas (1999, 64–74) as current throughout the Neolithic period and often containing depositions of pottery sherds: these may in many instances mark locales for significant activities within the landscape and, in Cornwall, show a long-standing tradition continuing into the period of Beaker use. How far it is appropriate to describe such pits as domestic is uncertain. Unfortunately, there are no radiocarbon determinations or datable associations for Beaker sherds from pits, domestic contexts or stray finds so the remainder of this discussion will focus upon three contexts: burnt mounds, midden mounds and funerary-related sites.

Mounds and middens

The feature excavated at Lower Boscaswell is probably related to a class of site known by the Irish term fulacht a fidiadh, or burnt mounds. These have a wide distribution around the British Isles, although
they are predominantly found along the Atlantic façade in Ireland, Scotland and Wales, and in the Welsh Marches (Buckley (ed) 1990; Cooney and Grogan 1994; Hedges 1977; Kelly 1992; Halsted 2005), with another concentration in the English Midlands (Hodder 1990; Beamish and Ripper 2000). The Lower Boscaswell site lies at the south-western tip of the burnt mound distribution with virtually no other sites known in the south-west peninsula: a site dating to the later second millennium cal BC has recently been excavated at Burlescombe in east Devon (Best and Gent forthcoming).

In Cornwall, only the Beaker mound at Poldowrian has previously been put forward as a possible burnt mound (Harris 1979), but, although this contained large amounts of charcoal and burnt stone, no hearth or trough (or large pit) characteristic of burnt mound sites was identified during the excavations. No hearth was identified at Lower Boscaswell either, although it is possible that hearths could have been located outside the excavated areas, both there and at Poldowrian. It is also probably unwise to draw too hard a distinction between Beaker mounds in Cornwall without pits (see below) and the Lower Boscaswell site, as all may have been associated with specialized procedures for the consumption of food.

Evidence from a range of prehistoric sites in Britain suggests that inter-communal cooking places were often sited in liminal places on the margins of settlements or at significant points in the landscape (Field 2001: 64; Parker Pearson 2003, 18; Richards 2005, 43, 210) which may have been accessible to more than one community. Alternatively, although no evidence for metalworking was found, it may also be more than coincidence that the Lower Boscaswell mound was sited in an area with one of the densest concentrations of metal ores in the county (Sharpe 1992a). Small parties or individuals belonging to one or more community (Clark and Martin 2005) may have spent time in the area prospecting for ores; prospecting activity is likely to have been constrained by ritualized conditions (Budd and Taylor, 1995, 138–40), which could have included formalized food sharing.

As Parker Pearson (2003, 13) has pointed out, the troughs could have been used to boil large joints of meat. If so, these sites could have been used for the preparation of big open air meals, which could have established bonds through the public consumption of

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**Table 7** Radiocarbon determinations from Beaker sites in Cornwall

<table>
<thead>
<tr>
<th>Site</th>
<th>Calibrated date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boscaswell Wk-19377</td>
<td>3736±38BP</td>
</tr>
<tr>
<td>Boscaswell Wk-19380</td>
<td>3733±39BP</td>
</tr>
<tr>
<td>Boscaswell Wk-19378</td>
<td>3696±36BP</td>
</tr>
<tr>
<td>Boscaswell Wk-19379</td>
<td>3685±41BP</td>
</tr>
<tr>
<td>Poldowrian HAR-2892</td>
<td>3490±90BP</td>
</tr>
<tr>
<td>Poldowrian HAR-3107</td>
<td>3360±70BP</td>
</tr>
<tr>
<td>Try GrA-30170</td>
<td>3410±50BP</td>
</tr>
<tr>
<td>Nancemere Wk-21358</td>
<td>3698±34BP</td>
</tr>
</tbody>
</table>

3000CalBC 2500CalBC 2000CalBC 1500CalBC 1000CalBC

Calibrated date
meat. As feasting involves the slaughter of valued animals, it often marked special occasions such as funerals and alliances or the celebration of seasonal events. Occasions such as these were frequently designed to reinforce status as well as creating debts and obligations between communities and individuals (Parker Pearson ibid, 10). At Lower Boscaswell, feasts may have been social events between members of different communities, perhaps held at significant times of the year.

The possibility that the site represented something more than everyday food consumption is implied by the placing of fresh Beaker sherds on the south-western side of the mound to join smaller sherds from vessels used at the site on previous occasions. The separation and burial of sherds from Beakers and other Bronze Age pottery is well-documented from a variety of sites in the south west and elsewhere (Brück 2001, 152–3; Quinell 1998–9; 2003, 14–17; 2004–5; Jones 2005, ch 5). The Beaker vessels at Lower Boscaswell may well have been broken because they had had belonged to certain individuals or had been used for activities such as the sharing of food or drink at particular events. The placing of the sherds on the mound may have been part of a process of formally closing the site.

The final stone capping on the mound and the infilling of the top of the pit with unburnt granite stones, rather than with fire-cracked stones from the mound, is also indicative of a planned procedure. This would have marked an end to activities and transformed the site from one kind of place to another.

Although the mound at Boscaswell initially took the form of a burnt mound cooking site, its capping with stone may represent a desire to seal off previous activities to create a site which would have a very different appearance. The formation of a mound may provide a link with other types of Beaker and non-Beaker sites, such as the Beaker mound at Poldowrian and the cairns and barrows that were first appearing in the landscape just before 2000 cal BC, and which were often moundified as a final act of closure (Miles 1975; Jones 2005, 115).

The site at Poldowrian covered an area of 6m by 9m and survived to a height of approximately 0.4m. These dimensions are not dissimilar to those of the Boscaswell mound, and both sites were comprised of similar deposits, although the Beaker sherds at Poldowrian do not appear to have been confined to one part of the mound (Harris 1979). It may have been a midden mound made up from cultural material, Beaker pottery, burnt clay and charcoal from cooking-related activities. No barrows are recorded in the immediate vicinity of the Beaker mound at Poldowrian, although a significant number are found a few hundred metres to the north on the higher ground.

Coastal middens are recorded in the Harlyn Bay area (Crawford 1921) and at least one of these, at Cataclews, was associated with Beaker pottery (Patchett 1944, 23). As at Lower Boscaswell, Beakers may have been incorporated within mounds accumulated from social interaction involving drinking or feasting. The site at Cataclews, possibly close to a safe harbour, may have been linked to the exchange of gold-work around the Atlantic façade resulting in the nearby deposition of the Harlyn lunulae (Taylor 1970, 53). No Beakers were included within any of the barrows around Harlyn Bay: this type of vessel may have been associated with forms of social behaviour which did not include burial. Petrological analysis of Cornish Bronze Age pottery (appendix 1; Parker Pearson 1990) indicates that, unlike other pottery forms, most Beakers were made from local clays and did not enter wider exchange networks; suggesting a close association with specific events, places and people.

The final stone capping on the mound and the infilling of the top of the pit with unburnt granite stones, rather than with fire-cracked stones from the mound, is also indicative of a planned procedure. This would have marked an end to activities and transformed the site from one kind of place to another.
transformed by nineteenth-century mining, which may have destroyed sites or buried them beneath metres of waste. Down-slope ploughing has also produced fields with deep lynches, which could conceal smaller-scale monuments. Small cairns are known from other parts of the Penwith coastal zone (Bonnington 1999), where mining has not made a major impact, so that they may have extended into this area.

The Lower Boscaswell mound could be interpreted as reflecting both geographically and socially widespread practices associated with social feasting and the cooking of food, which was subsequently given a local context by being memorialised through the creation of a mound. The mounding process may have directly referenced, or have rapidly become linked to, other types of monuments such as barrows in which ideas concerned with closure and the marking of significant places in the landscape were expressed.

In summary, the site at Boscaswell may be related to the fulacht fiadh sites which are widely distributed around Britain and Ireland. It may also be linked to other forms of mound sites apparently associated with the consumption of food such as that at Poldowrian and another possible site at Cataclews, which also appear to date from around 2000 cal BC.

**Burials and burial-related activity**

In the past, Beakers have been linked both with the introduction of round barrows and the single grave burial tradition (for example, Ashbee 1960, 71–4). Although Kinnes (1979, 75) recognized indigenous elements within the British round barrow tradition, he emphasised the importance of Beaker users in introducing elements of the single inhumation tradition from the Continent. More recently, it has been argued that Beaker deposition in inhumation contexts may have been more directly linked to the creation of particular social identities, with the Beaker and other objects in the grave being strategically placed by mourners to create an image of a personality after death and to make a statement about their own status (Barrett 1994, 117–9; Thomas 1991).

However, these arguments are difficult to apply in regions such as the south-west peninsula where the number of Beakers is small, are apparently fairly late in the sequence (see above) and are often found in association with cremation burials and with other ceramic types (Quinnell 2003; Jones 2005, ch 2). This implies that burials with Beaker associations in the southwest were not directly linked with the spread of new burial rites in the middle of the third millennium cal BC, but arrived later, c 2100 cal BC to 2000 cal BC, as part of the local barrow building tradition. This tradition, while adopting the round barrow form, expressed the commemoration of the deceased in ways specific to the region. In Cornwall, Beakers were not the usual choice of ceramic for inclusion within a barrow. Of the 80 or so barrows with ceramic associations, only 11 Beakers are represented in burial-related contexts, compared with around 45 Trevisker vessels (Jones 2005, 31). Of these 11 vessels, only the sherds from two Beakers at Lousey (Christie 1985) were certainly associated with an inhumation burial, although a cremation was also present. The large cist at Harrowbarrow may also have held an inhumation destroyed in acidic soil conditions (Thomas and Harggroves 1990). The remaining examples were either associated with small cists or with cremation deposits. Of these, five sites – Denezell Downs, possibly Crean, Carvinack, Try and Davidstow Moor site 22 (Borlase 1872, 264–7; Marsden 1923; Dudley 1964; Russell and Pool 1964; Christie 1988) – were found with or near to cremations. The three remaining sites, at Sancreed, Tregiffian and Trevedra, are poorly documented but were reported to have been associated with cists without any human bone (Borlase 1872, 171; Patchett 1953; Russell and Patchett 1954).

The five examples where Beakers have been found in association with cremation deposits – Try, Carvinack, Davidstow 22, Lousey Barrow and Denezell Downs – provide evidence for the range of ways Beakers were deposited into burial-related contexts in Cornwall. Carvinack was excavated by Dudley (1964). The site initially consisted of three
small cairns, four pits and a quartz platform encircled by a low bank which contained a large quantity of quartz. A complete rusticated Beaker with fingernail decoration was associated with a cremation deposit in a pit beneath one of the small cairns; a second cremation deposit from the other end of the pit was not associated with any pottery. The quantity of human bone within the pit is uncertain, but given the size of the vessel, it unlikely to have represented a whole person. Sherds from a smashed Food Vessel were recovered near to a pit which contained charcoal and a cupped pebble but no burial activity. After a period of time, these features were covered by a mound, from which parts of four Trevisker vessels were recovered from two deposits in the south-eastern quadrant: these belonged to a series of deposits within the mound, which included a small cremation deposit and stone discs.

The ceramic associations at Carvinack are significant because it is the only site in Cornwall where three different ceramic types, Beaker, Food Vessels and Trevisker Ware have been found in association sealed by a mound. The association between late Beaker and Food Vessel is paralleled in Devon at Broad Down (Quinnell 2003, 13). The Carvinack Beaker was distinctively decorated, associated with a cremation deposit and buried complete inside a pit which was sealed beneath its own cairn. It was not catalogued by Clarke (1970) but is of a type generally considered as very late in the Beaker tradition. The Food Vessel was poorly decorated and smashed beside a pit. The Trevisker Ware was well made and finely decorated. It was brought to the site in a fragmentary state and placed in deposits within the mound. The differences in the treatment of the vessels may suggest that rather than marking individual identities of the deceased, different pot forms were used to highlight particular acts at the barrow and make distinctions between them. The possibility that Crean represented a site with similar practices to Carvinack has been explored by Jones (2005) but is not pursued here because of uncertainties about the character of the vessel (Appendix 1), currently unavailable for study.

Davidstow site 22 was one of the most complex barrows in the Davidstow Moor cemetery (Christie 1988; Jones 2005, 100–2). During the Late Neolithic it appears to have consisted of a post-ring which enclosed an area which later became the focus for a number of pits and probably for the deposition of Grooved Ware. During the Early Bronze Age a cairn-ring was constructed and the site was mounded. A complete but poorly-made Beaker decorated with a chevron design was recovered from a central pit, accompanied by a quantity of charcoal and a few fragments of unidentified bone (Christie 1988): the Beaker is of indeterminate but probably late type (ibid, fig 71). A second cremation deposit was recovered from one of the pits, but this was not associated with any ceramics. Other sherds of pottery were recovered from the south-east quadrant of the barrow and from the floor of the north-east quadrant. At least two plain vessels were represented by these sherds (ibid, 1988), which might belong to the Trevisker Ware series.

Once again, at Davidstow site 22 the Beaker was complete and the accompanying deposit involved a token amount of bone mixed with charcoal. By contrast, the remaining pottery was plain and was possibly introduced onto the site in a fragmentary state. Again it seems that different kinds of pots were treated in contrasting ways, with some decorated and whole and others undecorated and broken. Again the relationship between the burial and the Beaker is ambiguous and indirect.

Lousey Barrow was partially excavated by Croft Andrew in 1940 (Christie 1985, 46–60). The barrow was found to comprise a ditch which encircled a mound consisting of an inner cairn covered by alternating layers of clay stone and earth. Beneath the mound were five cists which contained tiny white pebbles and ‘carbonaceous substances’ and a complex burial deposit. This consisted of an extended humation and a deposit of cremated bone around which were scattered sherds of two Beakers. The Beakers were comb-stamped, one also including fingernail decoration, and fragmentary, although the limited nature of the excavation probably means that further sherds were present but left unexcavated. They both appear to belong to the Southern or Long-Necked tradition. The bones from the site were not analysed so it is not possible to ascertain whether the burials were complete or partial. Unlike the ‘traditional’ Beaker burial, where the pot is placed next to the individual, the Beakers were fragmented and strewn around in a circle, so that the direct association between a pot and a person was diminished. As at Carvinack, several other features such as the small pebble-filled cists were brought together by being sealed beneath a mound.

The Denzell Downs barrow was excavated by Borlase (1872, 244) following the discovery of a Collared Urn by a farmer who had ploughed close to the edge of a mound. A trench was excavated across the mound, which was found to be made up of
different coloured soils. Four deposits of cremated human bone were encountered. Three of these were not accompanied by finds but the fourth, which is described as being large enough to fill ‘three or four quarts’, had an upright handled Beaker in its midst (*ibid*, 245). No other vessels were found within the barrow but the extent of the trenching appears to have been quite limited. It is also uncertain how many individuals were represented by the cremated deposits. However, as at most of the other sites, the Beaker was deposited whole.

In addition to the standing stone, the site at Try consisted of a cist and two pits, one, like the cist, sealed by the cairn. The cist contained a handled Beaker and was carefully filled to the top with redeposited rab incorporating fragments of cremated human bone from a mature adult, haematite, small water-worn pebbles, charcoal, sherds from another Beaker and a Trevisker Ware vessel, and two unburnt (non-human?) bones. The adjacent pit contained charcoal, soil and three sherds of Beaker; probably from the same vessel as the sherds in the cist. The second pit held fragments from at least four Trevisker vessels, cremated human bone and flint. The Trevisker Ware mostly consisted of rim-sherds ornamented by cord-impressed decoration. Sherds from the same Trevisker vessel were also present within the cist. A deposit of charcoal, water-worn stones and sherds of Trevisker Ware was found in the top of the cairn. The careful infilling of the cist to the top and the scattering of cremated bone throughout the filling has parallels with some Dartmoor cists with Beaker deposits (Quinnell 2003). Handled Beakers are seen as late in the Beaker ceramic tradition (Needham 2005).

Again, the relationship between the human bone and the Beaker is less than straightforward. It seems likely that fragments from a human cremation were placed in the cist together with a variety of other things, including broken pottery and pebbles, and the whole assemblage may be viewed as a structured deposit (see Quinnell 2003, 12, 16) rather than as a burial *per se*. As at Carvinack and Davidstow, there were differences in the ways in which particular pots were treated. At Try, the handled Beaker was complete and placed empty into a cist with a mixed deposit containing a variety of materials. The few remaining Beaker sherds were fragmentary and were confined to the cist and pit sealed by the cairn. As at Carvinack and possibly Davidstow, the Trevisker Ware was found in a fragmentary state and selected so that particular decorated sherds were incorporated into the cist, the cairn deposit and the shallow pit to the east of the cairn. However, there are numerous other nuances in the data from Cornish barrows: many Cornish barrows without Beakers have produced complete Trevisker vessels.

The Beakers found in Cornwall have a variety of relationships with other contemporary pot forms, being found with either Food Vessels (one instance) or Trevisker Ware (three instances). Two unidentified plain vessels were also recorded from Davidstow Moor, which are likely to be Trevisker Ware. However, none of the Cornish Beakers were associated with Collared Urns. As the use of Beakers and Collared Urns was at least partially overlapping, this lack of association may have been intentional.

With the exception of Lousey and Try, at most sites only one Beaker was deposited and, as elsewhere in Britain (Boast 1995), they were often poorly made, specifically at Try (see above), indicating that they were specially made for the occasion and were not family heirlooms or vessels with ancestral connections (Bradley 2000, 130–1; 2002, 58; Woodward 2002) but were made for the moment. This is in accord with the use of local clays (Appendix 1; Parker Pearson 1990). Beakers were also normally deposited as complete vessels. The exceptions to this are Lousey, where two vessels were broken into sherds before they were deposited, and Try, where, in addition to the complete vessel, sherds of Beaker were found. It may be significant that the stylistically earliest Beaker material from this group of sites was the broken vessels at Lousey. The deposition of Beakers as sherds in burial contexts may continue the tradition of sherd deposition so common in the preceding Neolithic (for example, Gossip and Jones 2007). Use of fragmented vessels was also frequent in burial-associated contexts in Devon (Quinnell 2003). The use of whole Beaker pots in burial-related contexts could be, on current evidence, a late strand in funerary traditions.

This strand is emphasised by the associated Trevisker Ware and the Food Vessel from Carvinack, and the other non-Beaker vessels from Try and Davidstow, which were incomplete and broken. These vessels were usually manufactured from more distant clay sources on the Lizard (Parker Pearson 1990). This could suggest that different types of pottery, with different motifs and clay sources was being used in contrasting ways to draw attention to certain acts, not all of which were associated with the deposition of human remains.
To summarize, burial sites with Beakers in Cornwall are comparatively rare and the majority of those with funerary associations are associated with whole or partial cremation deposits rather than with inhumations. Even on those occasions when Beakers were selected for use in a funerary site, the association between human bones and Beakers was variable. Of the six sites described in detail above, a direct relationship between human remains and Beakers is limited to just three sites – Carvinack, Denzell Downs and Try – and even at these sites the quantities of bone are uncertain, so that it is unclear how many individuals were interred or how much of any person was represented. This suggests that Beakers were not being deployed to denote the status of the individual, or to create an idealised image of the role that the deceased (or mourners) may have aspired to. Rather, they may have been used in ritualised events at the barrow so that these were made more memorable and ‘magical’, in the same way that the smashing of pots, the lighting of fires and use of coloured soils and stones would have done at many of the region’s barrows (Miles 1975; Jones 2005, ch 5; Jones and Quinnell 2006). All the Beakers involved, with the probable exception of Lousey, are late within the Beaker tradition, dating from Needham’s (2005) period 3 c 1950-1700/1600 cal BC.

Conclusions: a time and place for Cornish Beakers

The dating of Cornish Beaker sites is still at an early stage; additional radiocarbon determinations from Beaker-associated burials and from other contexts must be a priority for future studies to enable relationships between different types of context to be better understood and more secure model to be produced.

Currently the first Beaker use in Cornwall appears to have occurred during Needham’s (2005) ‘fission’ or expansion period between 2250 cal BC and 2150 cal BC, within his period 2, at a time when the range of Beaker contexts and associations seems to have greatly expanded in Britain. Ideas of Beaker use entered the region from southern Britain, most probably from Devon given the similarity in the types of context in which they occur. Nationally at this period, Beakers were no longer strongly associated with high-status burial and were being absorbed into developing regional traditions of barrow burial and ceremonial usage.

The proportion of Beakers in Cornish barrows which are of late types, broadly Needham’s (2005) period 3, c 1950-1700/1600 cal BC, indicates some continued significance well into the developed Early Bronze Age funerary tradition in Cornwall. Most appear to have been made for special occasions or one-off events from locally available clays. When used in funerary rituals, they were employed as part of a set of pre-existing practices involving the deposition of sherd of pottery, charcoal and stone and only portions of human cremations. These practices may well have had their roots in the Neolithic period and need not be seen as innovatory, apart from the close connection with round barrows and cairns. Cornwall, with the use of its local Trevisker style pottery as well as Food Vessels and Collared Urns, developed very complex ways of ceremonial, commemorative and funerary practise. The use of Beakers may have allowed an additional layer of meaning or distinction to be articulated, so that an aspect of a particular event was made more memorable or meaningful. The same may be true of many other contexts in which Beakers appear, such as the midden mounds and the Lower Boscaswell burnt mound, where highly distinctive Beaker pottery may have been associated with social events that involved the sharing of food. The different contexts of Beaker use may have been interlinked with sharing and communal use, which could have made their occasional incorporation in barrows appropriate.

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Appendix 1  Beaker finds in Cornwall;

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<th>Site, parish</th>
<th>Vessel total</th>
<th>Clarke Fabric</th>
<th>Context</th>
<th>Principal references</th>
</tr>
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<tbody>
<tr>
<td>BARROWS; BURIALS AND BURIAL-RELATED</td>
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<th>Site, parish</th>
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<th>Clarke Fabric</th>
<th>Context</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Denzell Downs, St Mawgan-in-Pydar</td>
<td>1 –</td>
<td>Gabbroic with chert</td>
<td>Complete miniature handled vessel recovered from a barrow within a deposit of cremated bone.</td>
<td>Borlase 1872; Patchett 1950, no A12; Parker Pearson 1990, no 159</td>
</tr>
<tr>
<td>Carvinack, Kenwyn</td>
<td>1 –</td>
<td>Local slate fabric</td>
<td>Complete rusticated Beaker containing cremation from a barrow containing a Food Vessel and Trevisker sherds.</td>
<td>Dudley 1964</td>
</tr>
<tr>
<td>Crean, St Buryan</td>
<td>1 –</td>
<td>Local quartz sands</td>
<td>Complete, plain, Beaker-like vessel found in a small cist without any human bone. Identified as a later Bronze Age urn by Patchett, reassigned as a Beaker-related vessel by Parker Pearson. Currently unavailable for study. Trevisker Ware also found.</td>
<td>Marsden 1923; Parker Pearson 1990, no 156; Patchett 1944, no F20</td>
</tr>
<tr>
<td>Davidstow site 22, Davidstow</td>
<td>1 –</td>
<td>Grog</td>
<td>Complete Beaker from a central pit below the barrow associated with fragments of unidentified cremated bone and charcoal. Sherds from two plain vessels (Trevisker?) also found.</td>
<td>Christie 1988; Patchett 1944, no A9; Clarke 1970, no 97</td>
</tr>
<tr>
<td>Harrowbarrow, Calstock</td>
<td>1 N2 Local metamorphic aureole</td>
<td>Most of a Beaker recovered from a cist; no surviving bone.</td>
<td>Thomas and Hartgroves 1990</td>
<td></td>
</tr>
<tr>
<td>Lousey Barrow, St Juliot</td>
<td>2 S2</td>
<td>Grog with shale, gog with sandstone, etc</td>
<td>Sherds from two Beakers found below barrow. Associated with a complex burial deposit comprising an inhumation and a cremation.</td>
<td>Christie 1985; 1988, 163; Patchett 1944, no A7; Clarke 1970, nos 102 and 103</td>
</tr>
<tr>
<td>Durval, Sancreed</td>
<td>1 S? –</td>
<td>Complete Beaker (vessel lost) found with ashes but no bone below a flat stone. May have been from a barrow.</td>
<td>Borlase 1872, 171; Patchett 1944, no A8; Clarke 1970, no 98</td>
<td></td>
</tr>
<tr>
<td>Tregiffian Farm, St Buryan</td>
<td>1 S2 Local granitic</td>
<td>Found as sherds of which enough survived to make a reconstruction. From small cist. No bone evident. Further sherds probably from another vessel have been deposited in the RCM but their context is uncertain.</td>
<td>Patchett 1953; Patchett 1950, no A10; Parker Pearson 1990, no 154, Clarke 1970, no 104</td>
<td></td>
</tr>
<tr>
<td>Tregiffian Vean, St Just in Penwith</td>
<td>1 – Local granitic</td>
<td>Found in cist. Not included in Clarke and not a classic Beaker. In an unpublished note ApSimon referred to it as a Food Vessel with Beaker traits ‘or thereabouts’</td>
<td>Patchett 1944, no A6; Parker Pearson 1990, no 155</td>
<td></td>
</tr>
<tr>
<td>Trevedra, St Just in Penwith</td>
<td>1 S2 Granite sands</td>
<td>Found as sherds of which enough survived to reconstruct vessel. Recovered from a small cist; cist destroyed prior to investigation, some sherds collected from outside its area. No bone evident.</td>
<td>Russell and Patchett 1954; Parker Pearson 1990, no 157; Clarke 1970, no 105</td>
<td></td>
</tr>
<tr>
<td>Try, Gwyl</td>
<td>2+ SH4 and S2 Local sedimentary and greenstone inclusions</td>
<td>Complete handled vessel in cist. Further sherds of Beaker and Trevisker Ware found in cist and pits.</td>
<td>Russell and Pool 1964; Parker Pearson 1990, no 161; Jones and Quinnell (this volume); Clarke 1970, no 106</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 1  Beaker finds in Cornwall, continued

<table>
<thead>
<tr>
<th>Site, parish</th>
<th>Vessel total</th>
<th>Clarke group*</th>
<th>Fabric</th>
<th>Context</th>
<th>Principal references</th>
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</thead>
<tbody>
<tr>
<td><strong>PITS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bosmaugan, St Winnow</td>
<td>1</td>
<td>?</td>
<td>Mixed temper including crushed vein-quartz</td>
<td>Two sherds were found within a pit. One sherd has a simple pointed rim and diagonal lines of probable finger-nail decoration.</td>
<td>Cole 1999</td>
</tr>
<tr>
<td>Killigrew Round, Trispen</td>
<td>1</td>
<td>S2</td>
<td>Local granitic-derived source</td>
<td>46 sherds from an incomplete single Beaker came from a pit.</td>
<td>Cole and Nowakowski forthcoming</td>
</tr>
<tr>
<td><strong>MOUNDS/MIDDENS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Boscaswell, St Just in Penwith</td>
<td>19–22</td>
<td>S2 +</td>
<td>Local granitic; local stream granitic-derived; local mica-rich basic rock; gabbroic</td>
<td>146 sherds found in burnt mound.</td>
<td>Jones and Quinnell (this volume)</td>
</tr>
<tr>
<td>Cataclews, Harlyn, St Merryn</td>
<td>2?</td>
<td>?</td>
<td>Local slate</td>
<td>Sherds found in a midden. A2 doubtful as Beaker; form of both vessels uncertain.</td>
<td>Patchett 1944, Nos A1 and A2, Clarke 1970, Nos 95, 96</td>
</tr>
<tr>
<td>Poldowrian, St Keverne</td>
<td>5</td>
<td>W/MR</td>
<td>Local gabbroic</td>
<td>100 small sherds of comb-stamped and incised pottery recovered from a mound.</td>
<td>Harris 1979</td>
</tr>
<tr>
<td>Praa, Germoe</td>
<td>1</td>
<td>S2</td>
<td>Local quartz sands</td>
<td>Vessel found in midden in sand-hills.</td>
<td>Patchett 1944, no A3; Parker Pearson 1990, no 160 Clarke 1970, no 101</td>
</tr>
<tr>
<td><strong>MISCELLANEOUS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Gwithian</td>
<td>8</td>
<td>?</td>
<td>Gabbroic, some with grog and rock admixture inclusions</td>
<td>Small sherds from wide area of buried soils and later deposits: comb stamped, incised, rusticated.</td>
<td>Nowakowski 2004, appendix 2; Clarke 1970, no 101</td>
</tr>
<tr>
<td>Higher Besore (Richard Lander School), Kenwyn</td>
<td>2+</td>
<td>?</td>
<td>Gabbroic, micaceous</td>
<td>About six small sherds in postholes, possibly redeposited</td>
<td>Gossip and Johns 2006</td>
</tr>
<tr>
<td>Polcoverack Field 24, St Keverne</td>
<td>15+</td>
<td>Indet.</td>
<td>Local gabbroic, two gabbroic with mica</td>
<td>26+ sherds found during field-walking mainly in two areas, two ‘burnt mounds’ noted in field. Comb-stamped, incised, finger-nail.</td>
<td>Smith 1987</td>
</tr>
<tr>
<td>Trehellian Farm, Newquay</td>
<td>3?</td>
<td>?</td>
<td>?</td>
<td>Three sherds found during excavations of a Middle Bronze Age settlement.</td>
<td>Nowakowski 1991</td>
</tr>
</tbody>
</table>

* Clarke’s (1970) terminology is used for ease of reference.
An Early Bronze Age pit at Trenoweth, Portreath, and other results from the Reskadinnick to Portreath transfer pipeline

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Archaeological recording during construction of a sewage transfer pipeline by South West Water led to the discovery of a substantial Early Bronze Age pit at Trenoweth near Portreath (SW6463 4422). The pit was 1.6m deep and is thought to have held a large timber or stone upright. After removal of the upright, successive deposits were placed in the pit: finds included pottery, stone objects and flints. The pit or upright may have been deliberately sited in relation to Carn Brea, over which the midwinter sun rises when viewed from the site. Three radiocarbon determinations were obtained. Analysis of charred plant remains indicates an environment that included grassland, woodland and cultivation of cereals.

In October 2000, work began on a new sewage treatment works for the Camborne area, located on a valley side at Kieve Hill, Camborne (SW 6322 4200), and construction of a transfer pipeline between Reskadinnick (north of Camborne) and Portreath (Illogan) (SW 6635 4566). South West Water commissioned the Historic Environment Service (formerly Cornwall Archaeological Unit), Cornwall County Council, to carry out archaeological recording during this work, having previously commissioned an archaeological assessment and geophysical survey (Reynolds 1998; GSB Prospection 1998).

The ground works were monitored throughout, from October 2000 to November 2001. Guided by the results of the geophysical survey, four areas were investigated more closely, with the topsoil stripped under archaeological supervision and the areas cleaned, inspected and excavated as appropriate. In addition a record was made of the cross sections of 21 historic field boundaries breached during the work, and an earthwork survey was made of part of an early twentieth century tailing works at Kieve affected by an overflow pipe. Samples were taken from the valley bottom at Kieve and Coombe for pollen analysis and samples from excavated features were processed and analysed for palaeo-environmental evidence. The results of the work have been presented in a detailed archive report (Reynolds 2005).

A complex of features in field 16 at Trenoweth, in the parish of Illogan, proved to be of particular interest. The main purpose of this paper is to report on this site and to provide an outline of other results from the project.

Location and historic character of the landscape

The project area lies close to the north Cornish coast in Camborne and Illogan parishes (Fig 1). The soils are mostly brown earths comprised of fine loams over Palaeozoic slaty mudstone or siltstone. Much of the central part of the pipeline, along a strip close to the coast, runs across Recently Enclosed Land
(Cornwall County Council 1996), the former downland of North Cliffs and Reskajeage Downs enclosed in the nineteenth and twentieth centuries. To east and west the pipeline passed through Anciently Enclosed Land associated with settlements of medieval origin such as Carvannel and Tregea to the north east and Reskadinnick to the south; this Anciently Enclosed Land would be expected to have higher potential for buried remains of prehistoric settlement and enclosure (ibid.).

In places the pipeline and works coincide with ‘Steep Sided Valleys’, characterised by wooded valley sides and sites such as bridges and mills (ibid.). The floor of the Red River valley, north of Reskadinnick, contains a succession of nineteenth and early twentieth century tailing works, which extracted tin ore from silts washed down from the mines around Camborne and Pool. The pipeline route passed to the north of Tehidy, seat of the Bassett family and a major ornamental landscape of the eighteenth and nineteenth centuries.

The Historic Environment Record (HER) notes several important archaeological sites in the general area, including prehistoric flint scatters and barrows along the coastal strip, the Iron Age promontory fort or cliff castle known as Crane Castle and the site of a Roman villa at Magor (Fig 1). Two enclosures at Tehidy are probably of a late prehistoric or Roman date (one enclosure shown in Fig 2).
Summary of results from the pipeline and sewage treatment works

The results of the archaeological recording, while not spectacular, provided some further understanding of the character, development and potential of the various historic landscape character types affected by the development.

The absence of features on the valley sides at Kieve Hill, Coombe and Illogan Woods is as might be expected: such steep slopes would always have been best used as pasture or woodland. Sections within the floor of the Red River Valley produced the expected deep stratigraphy associated with years of intensive streamworking. In two locations samples were taken for pollen analysis with the objective of retrieving evidence for the early environment of the valley. At Kieve Hill (SW 6338 4200) samples from 2m of clays, thought to be streaming deposits, overlying the natural shillet, were analysed by Heather Tinsley. However, no early land surface was identified and the shillet contained no pollen. Downstream at Coombe (SW 6296 4225) a former marsh was represented by an organic layer 0.5m thick found beneath more than 1m of made ground and tin streaming waste. A bulk sample was analysed by Heather Tinsley, who suggests an eighteenth- or nineteenth-century date for the sample, based on the 4–5% of pine pollen, unusually high for Cornwall, and a pollen grain from *Echinops* (globe thistle), an introduced species (Tinsley 2005). Otherwise, the pollen assemblage was dominated by wetland taxa, including sedges, meadowsweet, marsh valerian, AN EARLY BRONZE AGE PIT AT TRENOWETH

Fig 2 Location of Trenoweth and field 16.
ferns, bog moss and heath plants; there were also pollen taxa typical of disturbed ground and evidence for birch and hazel woodland, pine and oak in the vicinity.

Reskajeage Downs is likely to have had a long history as rough ground and much of it is shown as such on the Ordnance Survey 1st edition 1:2500 map of c 1880. Evidence for former grassland or heathland in the form of charred plant remains was recovered from three ditches in fields 10 and 11 (SW 6272 4314; SW 6369 4364). However, a ditch [14] in field 10 (SW 6311 4325) contained evidence for oats and barley, as well as gorse and heather, suggesting an episode of cultivation on the downland. This ditch, and one or two others, all undated, may be evidence of the former enclosure of parts of this area.

Fig 3 The geophysical survey results in field 16 (GSB Prospection).

Fig 4 Excavated features in field 16.
There is a better documented phase of downland enclosure further west in field 9 (SW 6280 4270), where the watching brief identified the ditches of an eighteenth- or nineteenth-century smallholding shown on the 1840 Camborne tithe map.

No medieval or seventeenth- and eighteenth-century finds were recovered from this extensive area of Recently Enclosed Land, reflecting its non-intensive history of use; finds of this date were generally infrequent along the pipeline but did occur in the Anciently Enclosed Land in the Kieve – Coombe area in the west and from Tehidy Barton to Tregoe to the east.

More intriguing is the general lack of flint artefacts from the Reskajeage Downs area, as numerous flint have been found during fieldwalking in the area to the north of the pipeline, providing evidence of activity from the Mesolithic to the Early Bronze Age (Reed 2000). Evidence from Trenoweth, discussed below, suggests that the pastoral character of the area had been established by the Early Bronze Age (c 2000 BC). At that date, however, the habitat appears to have been well-grazed grassland, with some evidence for cereals, rather than heathland.

Two locations produced evidence of more complex histories. One of these was field 16 at Trenoweth, the results from which are described below. The other was field 22 at Tregoe (SW 6536 4460), within an area characterised as Anciently Enclosed Land. Geophysical survey identified a field system and the watching brief recorded a number of ditches, one containing Iron Age pottery and charred remains of cereal grains, including bread-type wheat. It is probable that there is an Iron Age settlement in the vicinity.

**Trenoweth, field 16 (SW 6464 4420)**

Field 16 is set on the north coastal shelf in Illogan parish at 80m above OD. The ground slopes gently down to the north and there are extensive views, in particular north east to St Agnes Beacon and beyond but also south east to Carn Brea, although the ground rises in this direction. The settlement of Trenoweth is on the northern edge of the field and Tehidy Barton lies a little to the south east (Fig 2). Both are recorded in late seventeenth and eighteenth century records (Cornwall Record Office, B/5–8, 21, 22) and are probably of post-medieval date. Tehidy Barton appears as Trehiddy Farm on the first Ordnance Survey 1 inch map of 1813; Trenoweth is shown on Martyn’s map of 1748, although there and on the 1813 map it is named Troy.

![Fig 5 Pit [44] partly excavated (west side fully excavated).](image)
A number of possible features were recorded by the geophysical survey in field 16 (Fig 3) and it was therefore selected for a controlled topsoil strip under archaeological supervision. An area 50m long and 8m wide was examined and this resulted in the recording of two pits, [44] and [42], and several ditches representing at least two phases of field systems (Fig 4).

**Pit [44]**

The most notable of these features was the large oval pit [44], 2.5m long, 1.74m wide and up to 1.64m deep (Figs 5–10), cut into a loose and friable stony shillet natural. Six fills were excavated from it (Fig 6). The upper fill (45) was a brown, friable silty clay with occasional charcoal and quartz stones. It contained three sherd s of abraded Bronze Age (or earlier) pottery, a notched piece of slate (S5) and four flints, including a good quality Neolithic knife and a Mesolithic blade. The charcoal was found to consist of oak, hazel and blackthorn and provided a radiocarbon date of 2040–1740 cal BC (at 95.4% probability), 3564±55 BP (Wk-11800). Fill (45) was 2.50m long, 1.2m wide and lay within a cut 0.34m deep made into the top of the underlying fill (46).

Fill (46) was an orange-brown silty clay, with occasional shillet fragments, quartz and small stones. Oak and hazel charcoal was again present in moderate quantities, together with lumps of clay. The context also contained a gabbroic greenstone rubber reused as a hammer stone (S2) and a reused Mesolithic or Early Neolithic flint core. This fill was the most extensive within the pit, filling its whole area (2.5m long by 1.74m wide), and would originally have been 0.65m deep before (45) was cut into it.

Layer (47) filled a cut made into the underlying fill (48). This very distinctive fill consisted of a quite firm, stone-free light-brown clay loam with pieces of burnt clay and incorporated 20% charcoal. It also contained eight very abraded sherd s of Bronze Age pottery. The charcoal mainly consisted of narrow oak, blackthorn, hazel and birch roundwood. This gave a radiocarbon date of 2150–1870 cal BC (at 89.1% confidence), 3619±58 BP (Wk-11799). The deposit also contained large numbers of stem fragments and seeds and tubers from a range of grassland taxa, suggesting that burnt hay, dung or more probably turf was included in the deposit (Carruthers below). The deposit was about 1 square metre in area and 0.14m deep.

Context (48) was a yellow-brown quite firm clay loam, incorporating 20% shillet pieces, giving the
impression of redeposited natural. It also contained occasional charcoal flecks but not as much as the later, upper fills. A water-rounded greenstone pebble (S4) was recovered from the fill.

A distinctive lens of material within (48) was identified as a separate context, (49). This was a brown clay loam with flecks of charcoal. Its stratigraphic relationship with (48) suggests that it was deposited during the same backfilling episode, perhaps as an unintended contaminant.

The final and lowest fill within the pit, (50), occupied a roughly circular small pit, cut into the base of the main pit at its south-eastern end. Two steps of shallow ‘ledging’ fed into this cut from the north west, from the base of the main part of the pit. Fill (50) consisted of a light-brown friable clay loam and contained numerous fist-sized quartz pieces, small pieces of shillet and charcoal fragments (found to be of oak and hazel). Most notably, against the sides of the base pit, and sealed by (50), lay two pieces of the same broken shillet stone (S3), placed on opposing sides of the cut. When reunited, these two pieces were found to fit together perfectly and to mimic the shape of a stone axe. Also recovered from within this fill was a bevelled pebble (S1), typically Mesolithic in form, and also a flint blade or flake, a flakelet, and a scraper, the latter being of probable Neolithic – Bronze Age date. The lower part of (50) within the base pit was found to be more friable and contained 50% shillet fragments, occasional fragments of charcoal and more than 50
small quartz stones. This was initially identified as a separate context but was more probably a continuation of (50). A shillet disc was recovered from this lower area.

A radiocarbon date on charcoal from (50) produced a range of 2460–2190 cal BC (at 90.7% confidence), 3834±42 BP (Wk-12192). This derived from a second sample submitted from (50): an initial sample (Wk-11801) gave a result of cal AD 430–690 (Wk-11801), which was clearly at odds with the evidence from the dates and artefacts above this deposit.

The quartz stones are likely to have been packing stones and the shape of the cut at the base of pit [44] suggests that it originally held a large monolith (a standing stone) or more probably, given the roughly circular base, a timber pole of approximately 0.4m maximum diameter. The base of the pit suggests that such a large stone or timber pole could have been slid base first into the freshly-cut hole, from the northwest edge, then levered upright to be supported against the south-eastern edge of the pit and packed at its base by the quartz stones. It was probably during this process that the two pieces of axe-shaped stone (S3) were placed on the base of the pit.

Whilst the overall form of the pit suggests that it housed a large upright, this is not supported by the character of the fills; in particular there is no sign of a post pipe. If there was an upright in the pit, then its removal appears to have included the thorough clearing out of all associated fills, except probably (50) at the base, as the subsequent fills extend right across the pit. An unexplained feature of the pit is
the undercutting towards the base. It is not clear whether this was created deliberately or is the result of erosion arising from the pit being left open; the loose character of the shillet natural could certainly help account for it. There then followed the deposition of layer (48). A shallow pit was dug into (48) and filled with (47), which was then sealed by deposit (46). This in turn was cut, and filled with (45). The radiocarbon determinations for the upper fills, (45) and (47), are very similar, whilst the lower fill (50) is distinctly earlier; together they suggest that 2460–2190 BC gives a range for the beginning of the site and 2150–1740 BC for the activities which culminated in its closure.

A similar but slightly larger and less distinct circular feature was identified by the geophysical survey some 30m to the north east of pit [44]. This however proved to be just off the pipeline corridor and could not be investigated.

Ditches

Six ditches were identified and excavated in close proximity to the pit. Four of these, all surviving only as very shallow cuts, formed two pairs of ditches, [31] and [33] and [35] and [37], which would have run along either side of two boundary banks. The two boundaries appear to have been contemporary, as one ran off the other at a right angle. The boundaries are likely to have been part of the post-medieval field system associated with Tehidy Barton or Trenoweth, although the boundaries had been removed by the time of the 1840 tithe map. Ditch [37], fill (38), contained a sherd of post-medieval pottery and two substantial shards of glass identified as part of a seventeenth-century ‘onion bottle’ (Reynolds 2005).

Ditch [39] shows clearly on the geophysical survey, slightly curving and aligned north-south, and was found to underlie the former boundary represented by ditches [35] and [37]. It contained two fills: (40) was a stone-free dark brown clay loam with occasional flecks of charcoal. The lower fill (41), was an orange-brown clay loam with plentiful fragments of shillet. Heather, gorse and oak were identified among charred plant remains and charcoal from a soil sample. The ditch was 0.29m deep and 1.25m wide and thus more substantial than the later boundary ditches.

The two former field boundaries which this feature precedes are likely to have been early post-medieval or even medieval in date and it can therefore be assumed that ditch [39] dates to the medieval period or earlier. A radiocarbon determination from the upper fill (40) gave an anomalous date of 6060–5890 BC (at 95.4% confidence level), 7098±45 BP (Wk-18867), presumably on Mesolithic charcoal which had become incorporated in the fill.

Ditch [29] was quite slight, 1.15 m wide but only 0.15m deep at its most substantial extent. A Late Neolithic or Bronze Age flint, thought to be a broken knife, was found in its single fill, which was an orange-brown clay loam with shillet. The flint may have been residual so the date of the ditch is uncertain (Lawson-Jones below). The ditch may be part of a linear feature aligned north-east to south-west shown on the geophysical survey, which appears to be a double-ditched boundary; this may be associated with [31]/[33] and [35]/[37], but as [29] and its parallel ditch are more widely spaced they could represent a track or possibly part of an earlier boundary system.

Pit [42]

A small pit [42] 0.53m in diameter and 0.19m deep was located on the line of the former boundary hedge represented by ditches [35] and [37]. The fill (43) was a firm light-brown clay-loam, which was found to contain a number of well-preserved fragments of hazel shell and nine small flints, Late Neolithic – Early Bronze Age in character and thought to be knapping waste. A radiocarbon determination of 2280–2030 cal BC (at 95.4% confidence), 3737±37 BP (Wk-18866) was obtained from hazel charcoal.

Discussion

The investigations in field 16 recovered evidence for four or more periods of activity, extending from early prehistory to the post-medieval period, and suggesting changes in the environment and in human activity over the course of many centuries.

Early prehistory

There is evidence for a little Mesolithic activity in field 16, but not for any intensive occupation. A couple of diagnostically Mesolithic flints were found in pit [44] and there is a radiocarbon date 6060–5890 cal BC (Wk-18867) from residual oak charcoal in
The bulk of the evidence is for activity in the Late Neolithic to Early Bronze Age.

Late Neolithic/Early Bronze Age – Pits [44] and [42]

Pits [44] and [42] appear to be broadly contemporary, although very different in character. It is impossible to state whether the large pit [44] was originally an isolated feature or part of a larger group; the latter possibility is suggested by a less well-defined anomaly on the geophysical survey which may represent another, slightly larger pit 30m to the north east. Further survey of the whole field would be of value. No broadly contemporary monuments are known in the immediate vicinity: the nearest known Bronze Age barrow is 1 km to the south west on North Cliffs, Illogan (SW 6380 4371; HER PRN 53513) and 2 km further along the coast there was a barrow group on Reskajeage Downs, Camborne (Thomas 1970, 136). The pit may, however, have been sited with respect to prominent hills: Carn Brea lies 5 km to the south east and St Agnes Beacon 9 km to the north east. When viewed from the position of pit [44], the midwinter sun rises over Carn Brea; observed on 19 December 2005 the sun rose a fraction to the east of the monument which marks the summit (Fig 11). It has yet to be tested whether St Agnes Beacon marks the midsummer sunrise. The long axis of the pit itself is not aligned on either hill, however.

It has been suggested above that pit [44] saw two main phases of use, first as the setting for a substantial stone or timber post, and then as the focus for the deliberate deposition of a sequence of layers. These two episodes may also be reflected in the distinct radiocarbon dates from the lower and upper fills: 2460–2190 cal BC for the former (Wk-12192) and 2040–1740 cal BC (Wk-11800) and 2150–1870 cal BC (Wk-11799) for the latter.

It is possible that the pit was dug solely as the receptacle for a range of deposits, rather than to take an upright. However, the form of the pit, as described above, particularly the ledging and rounded base, does strongly suggest that it was intended to take an upright, and this is the interpretation preferred here. It is quite likely too that the upright was a timber post rather than a monolith, judging from the rounded form of the base. By their nature, although they could have been common features, the sites of timber posts are unlikely to be discovered other than by excavation. One other example has been identified

Fig 11  Sunrise over Carn Brea from Trenoweth, 19 December 2005.
in Cornwall: at the St Stephen-in-Brannel Long Stone, a 0.3m diameter post was suggested by a rounded impression in the base of a 0.35m deep pit, predating two successive stone uprights (Miles and Miles 1971, 10). Such standing stones or posts are considered to have been associated with ritual practices, and may also have marked boundaries or acted as focal points in the landscape (Barnatt 1982, 95–102; Peters 1990). Such standing stones or posts are considered to have been associated with ritual practices, and may also have marked boundaries or acted as focal points in the landscape (Barnatt 1982, 95–102; Peters 1990). The occurrence of quartz pebbles has also been noted at similar sites, including the St Stephen-in-Brannel Long Stone, in which quartz was found amongst packing materials (Miles and Miles 1971). There is also a tradition of such stones being used in Bronze Age barrows, such as the Lousey Barrow, St Juliot (Christie et al. 1985, 45–60), Cocksbarrow, St Stephen-in-Brannel (ibid.) and Trelowthas Barrow, Probus (Nowakowski forthcoming).

Pit [44] was 1.5m deep. This is in marked contrast to the depth of some other pits dug to take standing stones: the St Stephen Long Stone and the Gun Rith menhir (St Buryan) were found when excavated to have surprisingly shallow foundations, the latter having fallen because of its lack of foundations (Johns and Preston-Jones 2004). Other stones, however, have been found to have been set in deeper pits:

- The Pipers, St Buryan, north-east stone (SW 4355 2482): 5.05m high, 1.5m below ground (Barnatt 1982, 226).
- Blind Fiddler, Sancreed (SW 4253 2819): 3.55m high, 1.2m below ground (ibid., 229).
- Men Gurta, St Breock (SW 9678 6831): 3.05m high, 0.93m deep (ibid., 236).
- Trelew, St Buryan (SW 4217 2693): 3m high, 0.9m below ground (ibid., 233; Borlase 1872, 101).
- Tresvennack, Paul (SW4418 2787): 3.55m high, about 1.2m below ground (Barnatt 1982, 229; Borlase 1872, 102–6).

If the suggested upright at Trenoweth followed a similar pattern we might expect the depth below ground to be about a quarter of the overall length, giving a height above ground in the order of 4.5m (15 feet).

Although possibly a chance inclusion, the two pieces of the broken axe-like stone (S3) may have been deliberately placed on either side of the base of the upright. Stone axes appear to have had a symbolic meaning beyond their functional use in prehistory (Bradley 1990). Axes were carved on the side of stone monuments in Brittany and recent laser surveys of Stonehenge have recorded previously unseen axe carvings. In Cornwall, two carvings of stone axes have been identified on the centre stone of Boscawen-Un stone circle, St Buryan (Herring 2000). The ‘axe’ recovered from pit [44] can be regarded as a symbolic skeuomorph: it was not made of the traditional stone for axes and would never have been practical in use. It was in a sense a ‘stage’ or ‘prop’ axe. Two axes made of chalk found at Woodhenge, Wiltshire, offer good comparanda from outside Cornwall (Edmonds 1995, fig 100).

The radiocarbon determination of 2460–2190 cal BC (Wk-12192) from fill (50) at the base of the pit provides a *terminus post quem* date at the beginning of the Early Bronze Age for this phase of the site. Comparable dates are uncommon in Cornwall: this period is not represented by a good range of well-dated sites and features and so must be regarded as poorly understood. Pits associated with Late Neolithic Grooved Ware have a range of 2870–2290 cal BC at Tremough (Gossip and Jones 2007) and 2900–2200 cal BC at Trevorva Cott, Probus (Nowakowski forthcoming). A pit or posthole (F6) at site 22 in the Davidstow Moor barrow group produced a date of 2890–2490 cal BC (HAR-6643) (not therefore overlapping with the Trenoweth date); Grooved Ware was also found on the site, which subsequently developed as a ring of uprights, then a cairn ring and finally a platform cairn (Christie 1988, 109–131; Gossip and Jones 2007). Dates from some other barrows also overlap with the early date from Trenoweth, although typically they are rather later (Jones 2005, 156). A shallow pit at Metha, St Newlyn East, was dated to 2700–2300 cal BC (Wk-12674) and contained a large sherd of an Early Bronze Age Food Vessel (Jones and Taylor, 2004, 41–42). Also around this period is a determination of 2880–2050 cal BC (HAR-5280) from one of a line of postholes predating the Trelan 2 barrow on Goonhilly Downs (Smith 1988, 214). This example offers an intriguing hint of the division and organisation of the landscape at this early date. Again with a date at the end of the third millennium BC is a site at Boscaswell, St Just, which has produced the earliest Beaker dates so far in Cornwall (Jones and Quinnell 2006). This site is likely to have been used for the preparation of food and may have been associated with gatherings in a coastal location.
After removal of the post or stone from pit [44] the site was not abandoned but instead saw some backfilling, recutting within the new fills and the systematic placing of a series of deposits, reflecting the significance which continued to be attached to the site. The radiocarbon dates from these layers – 2150–1770 cal BC (Wk-11799) and 2040–1740 cal BC (Wk-11800) – are comparable with those from other Early Bronze Age ritual sites in Cornwall, particularly barrows (Jones 2005, 156).

The beginning of the second phase seems to have been marked by deliberate preparation of the pit: any earlier upper layers associated with the upright were well cleared out all around the pit, while the initial second-phase layer filling the lower part of the pit, (48), was relatively clean and was perhaps a sealing layer. A shallow cut was made into the top of (48) which was then filled with the layer containing prehistoric pottery and the burnt grass and charcoal deposit (47), which appears to represent some sort of ritual activity or perhaps an offering or other special deposit within the pit. It is interesting that the taxa from the deposit represent several different environments: grassland, cultivated or disturbed land (there was also evidence for cereals in the form of emmer or spelt) and woodland, with the wood likely to have been brought from a more sheltered location, away from the coastal storms which would have produced more stressed wood.

A substantial timber upright may have had symbolic meanings associated with it with respect to woodland and wood, beyond its use as a convenient structural material (Brennand and Taylor 2003, 69). Perhaps the upright was originally placed to mark the end of clearance of coastal woodland into managed land, with a timber upright representing the old woodland. The burnt deposit in (47) could then be interpreted as an offering representing the new grassland and the old woodland, celebrating the successful clearance of the surrounding landscape from the wild. The plant remains from (47) have also been compared to deposits found with cremations, presumably deriving from pyre sites. Therefore it is also possible that the deposit was taken from the site of such a pyre and deposited within the pit. Evidence has been found of secondary burials associated with standing stones, although this is rare in Cornwall. The menhir at Try, Gulval, may be an example (Russell and Pool 1964), with its cist and Handled Beaker, for which there is a new date falling between 1880 and 1600 cal BC (Jones and Quinnell 2006).

After the deposition of (47) the pit was filled with layer (46), but a pit was then cut into the top of this and filled with deposit (45). Fill (46) could be another sealing layer, but it is not as clean as (48), containing charcoal, a greenstone tool (S2) and a Mesolithic–Early Neolithic flint core. Finds in (45) included sherds of prehistoric pottery and Mesolithic and Neolithic flints. Flints were not otherwise found in the immediate vicinity of pit [44] and it is therefore possible that some of the flints from these fills were deliberately collected and deposited, as may also have been the case with a Later Mesolithic bevelled pebble S1 found in fill (50) (Quinnell below).

Flints were also found in the small pit [42], 30m to the north east, which has a radiocarbon determination of 2280–2030 BC (Wk-18866), an Early Bronze Age date overlapping the earlier and later dates from pit [44]. The character of the flints is consistent with this date. The pit also contained oak and hazel charcoal, hazelnut shell fragments and a single indeterminate cereal grain. Comparable pit fills elsewhere in Cornwall have produced Neolithic dates (for example, Jones and Taylor 2004, Cole and Jones 2002–3; Jones and Reed 2006; Johns forthcoming). This pit is likely to be another component of the ritual practices undertaken at this site.

Flint scatters have been found along the coastal strip of Reskajeage Downs and North Cliffs, 1 km to the south west of Trenoweth, in particular as a result of 15 years of fieldwalking across two fields in this area by Mr H J Berryman (SW638 438 and SW633 435); the results have been analysed by M Reed (2000). Some 860 artefacts were collected in seven locations. Mesolithic, Neolithic and Bronze Age flints were identified in most of the locations, although the most frequent diagnostic flints were thought to be Neolithic and Bronze Age. Areas closer to field 16 have not been investigated in the same way and so it is not known if similar evidence is to be found here. The discovery of flint scatters along the coast that are broadly contemporary with the pits may suggest that there was settlement along the coastal strip at this time.

Late prehistory? – ditch [39]

This curving ditch was found to predate a post-medieval or perhaps medieval field system represented by double-ditched boundaries. Ditch [39] is not independently dated but could be prehistoric or Romano-British rather than medieval,
being of a different form and alignment from the historic boundaries. The presence of heather and gorse (as well as oak) amongst the charred plant remains is suggestive of a grassland or heathland environment here at this time.

Later prehistoric activity in the wider area is demonstrated by the presence of a scatter of Iron Age or Romano-British settlement enclosures or ‘rounds’, the nearest being a cropmark enclosure 480m to the south (PRN 53520) and a small earthwork enclosure 600m to the south west, at the edge of Tehidy Woods (PRN 26677).

Post-medieval field system

A field system discovered in field 16 (Trenoweth) is thought to be of post-medieval date. It predates the 1840 tithe map, having disappeared by this date, but has shallow double-ditched boundaries of characteristic post-medieval type, although it is possible that they perpetuate the lines of medieval boundaries. The ditches would have flanked a substantial earthen bank or ‘Cornish hedge’.

Conclusion

Operations such as the construction of pipelines and roads allow us to examine a ‘slice’ of archaeological potential across the landscape and give an insight into the time depth behind what we see today. On the Reskadinnick to Portreath pipeline the fullest picture came from Trenoweth, with evidence of changing land use and reorganisation of boundaries and enclosure. In addition, the work has shown how major monuments can be added to the distribution of early prehistoric ceremonial monuments as apparent from extant sites and antiquarian accounts.

During the Early Bronze Age the location investigated in field 16 at Trenoweth was evidently a special place, being selected for the erection of a very substantial upright. The importance of the site may have been associated with its relationship with prominent local hills, as Carn Brea, to the south east, marks the midwinter sun rise. The site remained important after the upright had been removed, as the pit was then used for a succession of deposits, incorporating pot, flint, stone objects and plant remains. The environmental evidence from the pit may relate to land use in a wider hinterland rather than in the immediate vicinity and indicates evidence for grassland and cereal cultivation as well as woodland, although not for heathland at this date. There is evidence too of woodland and of cereal cultivation from the small Early Bronze Age pit, [42]. However, by the time that ditch [39] was in use, probably in late prehistory or the medieval period, the local habitat was evidently heath or grassland.

Pottery from contexts within pit [44]

Henrietta Quinnell

Gabbroic

Nine small abraded sherds weighing 12g, three from (45) and six from (47), could all be from the same vessel; one sherd has an incised line. However in view of the disparity in their contexts they may derive from different vessels of a similar type.

Dr R Taylor examined the sherds with a binocular microscope and comments on inclusions:

Feldspar. Soft white altered grains, 0.05–2mm.
Amphibole. Light to medium grey fibrous grains and angular aggregates, 0.2–1.1mm.
Quartz. Colourless to white, transparent to translucent angular grains, 0.2–3mm.
Magnetite. Rare black angular grains, 0.2mm.

This description is consistent with petrographic descriptions of gabbroic-sourced clays in which quartz is a regular component.

Slate tempered

A single abraded sherd weighing 4g from (47). Dr R Taylor comments that it contains sub-rounded rock fragments of light to medium grey micaceous slate and silty slate, 0.2–2.2mm, and sparse sub-angular quartz grains, 0.4–3mm, and that this could well be local to the site.

Comment

The quality of the gabbroic pottery is matched by that of some of the Grooved Ware from Tremough and at that site gabbroic material was in use with some locally made fabric (Taylor 2007). However, at this date in the late third millennium BC ceramics could derive from early versions of Food Vessels or
Collared Urns; alternatively they could relate to Beakers. As the sherds are abraded it seems likely that they are redeposited and do not result from an act of structured deposition.

Stone from contexts within pit [44]

Henrietta Quinnell

**S1** (Fig 12) (50) Bevelled pebble, 130mm by 40mm by 20mm; the narrower end has two adjoining abraded facets with some subsequent damage. One edge possibly smoothed through use. Dr Taylor comments: ‘A bladed wave-rounded cobble tool of fine-grained greywacke sandstone weathered to buff colour. There has been some abrasive wear at the narrow end and some battering and flaking. Presumably of local origin.’

Bevelled pebbles are commonly found in Later Mesolithic assemblages (Berridge and Roberts 1986, 20) and no examples are known from closed Neolithic or later contexts in Cornwall. The same is true for occurrences in Wales, which, like those in Cornwall and Devon, are always coastal (Burrow 2003, 23). The function of these pebbles has never been definitely established but some research suggests they may have been used in the working of skins, in particular those of seals (Jacobi 1980, 189 and fig 4.30; Fletcher 2005). **S1** has been redeposited but its inclusion could indicate some deliberate referencing of earlier activity on the site.

**S2** (Fig 12) (46) Broken rubbing stone or possible muller, subsequently used as a hammer stone. Surviving dimensions 80mm by 80mm by 43mm thick. The largest surviving surface worn smooth. Dr Taylor comments: ‘A fragment of a wave-rounded cobble of coarse gabbroic greenstone. The natural hardness and toughness of the rock has resulted in a natural smooth surface but there is an element of polishing of some grains which indicates use from some form of burnishing or smoothing. Some of the smaller fractures around the acute-angled edges suggest subsequent use as a hammer stone. Not a local rock but possibly transported from the St Ives area to the west by marine processes.’

Multi-purpose tools are common throughout prehistoric Cornish contexts but **S2** from the end of the third millennium BC appears to come from the earliest secure context within the county.

**S3** (Not illus) (50) Dr Taylor describes this as ‘a large bladed cobble of silty sandstone weathered to a buff colour and fractured about two-thirds of the way along its length. The cobble has a crude axe-like form but its general shape does not resemble that associated with Neolithic axes. The surface is pitted and rough and shows no evidence of any working. The lithology is such that it would be difficult to produce a cutting edge that would have performed effectively as an axe. This appears to be a naturally shaped bladed cobble with some degree of rounding produced by a stream or river and of local origin.’ Given the location of the two parts of **S3** its apparent similarity to an axe may not be fortuitous. A possible

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*Fig 12 Stone objects from pit [44]. S1, Later Mesolithic bevelled pebble from context (50); S2, broken rubbing stone or muller, re-used as a hammer stone, from context (46).*
comparable piece, a cobbles of axe-like form, was found in one of the Grooved Ware pits at Tremough (Gossip and Jones 2007).

S4 (Not illus) (48) A fragment of a wave-rounded cobbles of volcanic greenstone. The exfoliated area is probably the result of localised heating or burning.

S5 (Not illus) (45) Dr Taylor describes this as ‘a slate fragment of local origin with a recent penetration fracture at one end. There is no evidence of any usage.’

Flint

Anna Lawson-Jones

This small assemblage totals 27 pieces of worked flint plus a single naturally broken piece (Table 1). There were no worked chert or quartz artefacts. The assemblage includes a mixture of unabraded, abraded, re-used, damaged and heavily repatinated pieces. It ranges in date from the Mesolithic to the Bronze Age. The majority of the material is of pebble flint origin, with the exception of a single piece of nodular flint.

Twenty two of the pieces came from field 16, of which three were unstratified and nine recovered during wet sieving of soil samples from two pits. The six remaining pieces came from different fields on the pipeline, and all were unstratified (with the exception of one found in a boundary context during section recording).

Raw material sources

Pebble flint in Cornwall primarily comes from the surrounding beaches. It represents not only the nearest flint source but also a surprisingly abundant and varied one. The often small size of available pebble flint affected the size of finished pieces and sometimes necessitated the use of anvils during core reduction, resulting in distal damage. This was noted on two pieces in the assemblage. The use of pebble flint in Cornwall is not in itself a datable characteristic since it was a source utilised throughout the prehistoric period.

Nodular material does not occur naturally in Cornwall. It would have been imported into Cornwall in the form of unmodified nodules, prepared cores, or perhaps occasionally as finished artefacts. The closest sources for nodular flint are in Devon, including Beer Head on the south-east coast (Saville 1981, Tingle 1998), more than 100 km from the project area, and some slightly closer secondary sources, for example the Devon head and gravel deposits of western Devon (Wainwright and Smith 1980), plus a range of other sources in Devon recently discussed by Newberry (2002). In Cornwall the use of nodular flint is indicative of the third and second millennia (Healy 1985; Berridge and Roberts 1986). The field 16 assemblage contains a single definite nodular piece.

Dating

Despite being a small assemblage, lacking in classic tool forms, it has been possible to date some of the material on form and indirectly on variable levels of patination (in the recognition of re-worked formerly patinated pieces or where a number of pieces of flint sealed in the same deposit have variable degrees of reticitation implying a significant difference in date).

The earliest pieces within the field 16 assemblage (on the basis of their form in conjunction with patination) may fall within the Mesolithic – Early Neolithic period; for example, the elongate heavily patinated piece from fill (45), pit [44]. By inference, other similarly patinated pieces from pit [44] should probably be seen as residual, including a core from context (46) and a thick elongate flake recovered from near pit [44].

The nodular knife piece found in pit [44], fill (45), is Neolithic on the basis of both its raw material and form. Despite heat damage and blistering, and the loss of its bulbar end, this piece is a fine quality artefact with lateral and distal retouch still visible.

The remaining material is characteristically Later Neolithic to Early Bronze Age in date, lacking the blade element and tending to be larger and more derived from flakes than the Mesolithic and transitional material (Edmonds 1995). It also has a greater tendency to be retouched; for example, the thick patinated flake found in field 16 east, which had been modified into a steeply retouched end scraper with a sharply convex or nosed working edge.

Distribution

The watching brief did not reveal any concentrated lithic scatters, suggesting that no focused occupation or knapping sites were disturbed along the length of the pipeline, although a hint of in situ knapping is suggested by the tiny debitage from pit [42] in field
### Table 1  Analysis of flint finds from field 16

<table>
<thead>
<tr>
<th>Context (field 16)</th>
<th>Raw material</th>
<th>Cortex</th>
<th>Form</th>
<th>Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unstratified (east)</td>
<td>P</td>
<td>P</td>
<td>Re-worked broad point / side scraper.</td>
<td>Late Neolithic – Bronze Age</td>
<td>Thick patinated flake with reworked convex side scraper/broad point? Mottled  mid-grey flint.</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>P</td>
<td>S</td>
<td>Rejuvenation flake</td>
<td>Late Neolithic – Early Bronze Age</td>
<td>Thick, angular flake core rejuvenation piece. Pale creamy tan.</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>P</td>
<td>S</td>
<td>Flakelet</td>
<td>Prehistoric / undiagnostic</td>
<td>Dark grey featureless flakelet.</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>P</td>
<td>P</td>
<td>End scraper.</td>
<td>Late Neolithic – Early Bronze Age</td>
<td>End scraper on an oval primary flake. White – pale grey. SS10</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>P</td>
<td>–</td>
<td>Tried core</td>
<td>Late Neolithic – Early Bronze Age</td>
<td>Abandoned (?) undiagnostic flake core. Mid to dark greenish brown. SS10</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>U</td>
<td>T</td>
<td>Bladelet / waste</td>
<td>Late Neolithic – Early Bronze Age</td>
<td>Hinged, waste thick bladelet. Mid grey-brown. SS10</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>U</td>
<td>T</td>
<td>Waste</td>
<td>Late Neolithic – Early Bronze Age</td>
<td>Tiny, elongate pale creamy brown debitage. SS10</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>U</td>
<td>T</td>
<td>Waste</td>
<td>Late Neolithic – Early Bronze Age</td>
<td>Tiny, pale creamy brown debitage. SS10</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>U</td>
<td>T</td>
<td>Waste</td>
<td>Late Neolithic – Early Bronze Age</td>
<td>Tiny, mid grey-brown debitage. SS10</td>
</tr>
<tr>
<td>(43), pit [42]</td>
<td>U</td>
<td>T</td>
<td>Waste</td>
<td>Late Neolithic – Early Bronze Age</td>
<td>Tiny, mid grey-brown debitage. SS10</td>
</tr>
<tr>
<td>(50), pit [44]</td>
<td>P</td>
<td>P</td>
<td>Scraper</td>
<td>Neolithic – Bronze Age</td>
<td>Split pebble end scraper with steep retouch. Mottled, pale grey.</td>
</tr>
<tr>
<td>(50), pit [44]</td>
<td>U</td>
<td>T</td>
<td>Flakelet</td>
<td>Prehistoric – undiagnostic</td>
<td>Small mid grey brown flakelet with dorsal scaling. Debitage. SS11</td>
</tr>
</tbody>
</table>

**Key.** Raw material: P – pebble flint; N – nodular flint; U – unknown. Cortex – original surface: P – primary (50% +), S – secondary (< 50%), T- tertiary (or none visible). SS – soil sample number.
16. The absence of burnt material, usually interpreted as a feature of occupation sites, would corroborate this, although the assemblage is too limited for substantive conclusions.

Field 16 was the only field found to have any concentration of flint, much of which was associated with features. Interestingly the flint work spans a considerable period, ranging from Mesolithic through to Early Bronze Age material. Research has shown that ‘residual’ material within plough soil horizons does not significantly shift from the original point of deposition in level areas of cultivation (Gingell 1980). This is likely to apply to much of the broadly Mesolithic material found in this field.

Ditch [29] produced a single piece of broadly Late Neolithic – Bronze Age date. Pit [42], in addition to a core and an end scraper, produced seven small pieces of debitage (recovered during wet sieving of soil samples), all of which would fit comfortably within a Late Neolithic – Bronze Age horizon, concurring with the Early Bronze Age radiocarbon date attained from this feature.

Pit [44] in contrast contained larger pieces, several of which were very heavily patinated. One of these, from context (46), showed later, probably Early Bronze Age, reworking. A broadly contemporary Late Neolithic – Early Bronze Age knife made on nodular flint came from context (45). The broken axe-shaped stone placed in the bottom of the feature may imply that selection and deliberate deposition of material was taking place in pit [44]. It is uncertain whether this could be suggested for the flint.

Charred plant remains

Wendy J Carruthers

Environmental samples were taken from a number of features during the excavations along the pipeline, and these were processed using standard methods of flotation, using a 250 micron mesh sieve to recover the flot and 1mm mesh to retain the residue. The dried flots from 18 samples were sent to the author for assessment in June 2002. The assessment showed that eight of the flots contained enough charred plant remains to warrant full sorting and analysis (Carruthers, HES archive). Twelve of the samples produced fairly large quantities of charcoal, and the larger fragments from these flots (> 2mm) were extracted and sent to a charcoal specialist, Rowena Gale, for analysis (see below).

This report focuses on the results from field 16, including Bronze Age pits [42] and [44]. Other sites on the pipeline are less well dated: they are briefly outlined here and are described and discussed more fully in the archive report (Reynolds 2005). Charred plant remains were fairly sparse in most of the samples and in general very little evidence for the cultivation of cereals was recovered.

Results

Table 2 presents the results of the analysis, including summarised data from samples that were taken no further than the assessment stage. Nomenclature and most of the habitat information follows Stace (1991).

Field 16

The main feature of interest, pit [44], was found in this field along with a small pit [42] and a ditch [39].

Seven samples from pit [44] were examined, five of which produced few or no charred plant remains. Most of the charred material was recovered from an ashy deposit towards the bottom of the feature, context (47) (sample 13). The presence of large numbers of grass-sized Poaceae stem (culm) fragments, in addition to seeds and tubers from a range of grassland taxa suggests that burnt hay, dung or possibly turf had been deposited in the pit. Plantain (Plantago major and P. lanceolata) seeds and thistle (Cirsium/Carduus sp.) achenes were particularly frequent, and several weeds of cultivated or disturbed land were present, e.g. black nightshade (Solanum nigrum) and stinging nettles (Urtica dioica). This combination of taxa suggests open, well-grazed grassland with areas of soil disturbance and nutrient enrichment. Hay meadow taxa were not much in evidence, although poor, acidic soils often do not support a wide range of typical hay meadow herbs. The presence of several tubers is of some significance, since cut hay is unlikely to contain tubers located at the base of the stem and below ground level. This suggests that the remains represent burnt turves from a well-grazed pasture, rather than hay or dung. This type of deposit is sometimes found in cremations, presumably representing the ground surface that had been burnt beneath the cremation pyre.

It is interesting to note that no heather or gorse remains (including charcoal; Gale, below) were
**Table 2** Charred plant remains

<table>
<thead>
<tr>
<th>Field</th>
<th>Field 10</th>
<th>Field 10</th>
<th>Field 11</th>
<th>Field 16</th>
<th>Field 16</th>
<th>Field 16</th>
<th>Field 16</th>
<th>Field 22</th>
<th>Other assessment samples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample no.</strong></td>
<td>3a</td>
<td>4</td>
<td>3</td>
<td>9</td>
<td>10</td>
<td>13</td>
<td>14</td>
<td>8</td>
<td>(5 samples)</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>(8)</td>
<td>(15)</td>
<td>(4)</td>
<td>(40)</td>
<td>(43)</td>
<td>(47)</td>
<td>(45)</td>
<td>(28)</td>
<td></td>
</tr>
<tr>
<td><strong>Feature and type</strong></td>
<td>Ditch</td>
<td>Ditch</td>
<td>Ditch</td>
<td>Ditch</td>
<td>Pit</td>
<td>Pit</td>
<td>Pit</td>
<td>Ditch</td>
<td></td>
</tr>
<tr>
<td><strong>Taxa</strong></td>
<td>[7]</td>
<td>[14]</td>
<td>[3]</td>
<td>[39]</td>
<td>[42]</td>
<td>[44]</td>
<td>[44]</td>
<td>[27]</td>
<td></td>
</tr>
</tbody>
</table>

- Indeterminate cereal grain frag. 1 1 2
- *Triticum* cf. *aestivum* (cf. bread-type wheat) 1
- *Triticum* *dicoecum/spelta* (emmer/spelt glume base) 2
- *Avena* sp. (wild/cultivated oat grain fragment) 5
- *Hordeum* sp. (balled barley grain) 4
- *Corylus avellana* L. (hazelnut shell fragment) 3 4 7
- *Rubus* sect. *Glandulosus* (bramble seed) 3

**Grassland and meadows**

- *Carex* sp. (sedge) GMw 1 1 1
- Cyperaceae NFI 2
- cf. Cyperaceae rhizome fragments 1
- Poaceae (small grass caryopses) 1 1 83 1 3
- Poaceae (grass culm fragments) 1 +++
- cf. Poaceae (cf. grass culm base) 1 3
- *Ranunculus repens/acsris/bulbous* (buttercup achene) 2
- *Plantago major* (great plantain seed) 112 2
- *Plantago lanceolata* (ribwort plantain seed) 1 22 1
- *Prunella vulgaris* (self heal nutlet) 1 1 1
- *Hypericum* sp. (St John’s wort seed) 1
- *Cirsium/Cardus* sp. (thistle/knapweed achene) G 46 1
- *Stellaria graminea* L. (lesser stitchwort seed) GEW 3 2
- *Trifolium/Lotus* sp. (clover/trefoil seed) DG 1
- *Potentilla* sp. (cinquefoil achene) EG 1
- cf. *Ranunculus ficaria* (cf. lesser celandine tuber) GHWw 5
- cf. *Conopodium majus* (cf. pignut tuber) GHW 2 1
- Rhizome/tuber NFI 23

**Cultivated and disturbed ground**

- *Stellaria media* (L.)Vill (chickweed seed) CDn 7 1
- *Rumex* sp. (dock nutlet) CD 52 4 1
- cf. *Fallopia convolvulus* (cf. black bindweed embryo) CDH 1
- *Galium* sp. (cleavers nutlet fragment) CDH 1
- *Solanum nigrum* L. (black nightshade seed) CD 16 1
- *Urtica dioica* (stinging nettle achene) CDn 7 1
- *Chenopodium album* L. (fat hen seed) CDn 1
### AN EARLY BRONZE AGE PIT AT TRENOWETH

<table>
<thead>
<tr>
<th>Field</th>
<th>Field 10</th>
<th>Field 10</th>
<th>Field 11</th>
<th>Field 16</th>
<th>Field 16</th>
<th>Field 16</th>
<th>Field 16</th>
<th>Field 22</th>
<th>Other assessment samples</th>
</tr>
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<tbody>
<tr>
<td>Sample no.</td>
<td>3a</td>
<td>4</td>
<td>3</td>
<td>9</td>
<td>10</td>
<td>13</td>
<td>14</td>
<td>8</td>
<td>(5 samples)</td>
</tr>
<tr>
<td>Context</td>
<td>(8)</td>
<td>(15)</td>
<td>(4)</td>
<td>(40)</td>
<td>(43)</td>
<td>(47)</td>
<td>(45)</td>
<td>(28)</td>
<td></td>
</tr>
<tr>
<td>Feature and type</td>
<td>Ditch</td>
<td>Ditch</td>
<td>Ditch</td>
<td>Ditch</td>
<td>Pit</td>
<td>Pit</td>
<td>Pit</td>
<td>Ditch</td>
<td></td>
</tr>
<tr>
<td>Taxa</td>
<td>Ditch</td>
<td>Ditch</td>
<td>Ditch</td>
<td>Ditch</td>
<td>Pit</td>
<td>Pit</td>
<td>Pit</td>
<td>Ditch</td>
<td></td>
</tr>
</tbody>
</table>

**Field 10**
- Atriplex patula/prostrata (orache seed) CD
- Chenopodiaceae embryo
- Persicaria maculosa/lapathifolia (redshank/pale persicaria achene) 2
- Valerianella densa (L.) Pollich (narrow-fruited cornsalad fruit) AD 1
- Primulaceae cf. Anagallis arvensis (cf. scarlet pimpernel seed) CD 1

**Moorland and heath**
- Danthonia decumbens (L.) DC (heath grass caryopsis) GE 1
- Rumex acetosa agg. (sheep’s sorrel nutlet) GEa 2
- Ulex sp. (gorse seed) GE 1
- Ulex sp. seeds and adhering pod GE 1
- Legume pod cf. Ulex sp. 2
- Ulex sp. (gorse spines) GE 1
- Ericaceae (heather/ling fruit) E 1
- Erica cinerea L. (bell heather seed) Ed 1
- Erica cinerea L. (bell heather leaf) Ed 1

**TOTAL:** 16 92 26 31 48 414 16 9 11

**Sample volume (litres):** 8 15 12 24 6 48 20 34 91

**Fragments per litre:** 2.0 6.1 2.2 1.3 8.0 8.6 0.8 0.3 0.1

KEY: ++++ = frequent but not quantified; A = arable; C = cultivated; D = disturbed; E = heath; G = grassland; H = hedgerow; M = marsh; W = woods; a = acidic soils; d = dry; n = nutrient-rich; w = wet/damp. Feature types: D = ditch; P = pit
present in this feature, apart from a single bell-heather seed in the top fill, sample 14, context (45). Sample 14 contained much smaller quantities of remains from some of the taxa in sample 13, but no tubers or culm fragments were recovered. It is possible that heathland vegetation had not yet developed on the site at the time that the pit was in use. One emmer/spelt (*Triticum dicoccum*/*spelta*) glume base and five hulled barley (*Hordeum* sp.) grains were recovered from sample 13, and this could represent a trace of domestic waste or ritually deposited grain. Emmer, spelt and barley (both naked and hulled) were recovered from the Bronze Age settlement at Trethellan Farm, Newquay (Straker 1991), with naked barley being the dominant cereal.

Ditch [39] produced a small amount of charred plant remains from grassland or heathland vegetation, including gorse and heather remains. This feature is thought to be medieval or earlier, from the stratigraphic evidence.

Pit [42] contained 47 fragments of well-preserved hazelnut (*Corylus avellana*) shell and an indeterminate cereal fragment. The presence of hazel charcoal in several samples, including the Bronze Age pit fills, suggests that hazelnuts may have been a valuable food source. Assemblages of this type are frequently found in early prehistoric contexts.

**Charred plant remains from other fields**

**Field 10** (SW 6272 4314): Ditch [14] (SW 6311 4325) produced some evidence of cultivation, namely two oats (*Avena* sp.) and one hulled barley (*Hordeum* sp.) but also frequent charred remains of heathland vegetation: gorse (*Ulex* sp.) pod fragments, seeds and spines, and the seeds and leaves of bell heather (*Erica cinerea*). Oats date mostly from the Roman period onwards. Another undated ditch (7), parallel with the existing field boundary, also produced a few grassland/heathland remains, but no cereals.

**Field 11** (SW 6369 4364): Ditch [3], a possible nineteenth / early twentieth century land drain, contained a small amount of charred material from grassland / heathland vegetation.

**Field 22** (SW 6536 4460): Ditch [27] produced three cereal grains, including bread-type wheat (*Triticum cf. aestivum*-type), and a few weeds of cultivated or disturbed soils. Since bread-type wheat has been found in deposits dating back to the Neolithic period, the remains provide no clues as to the date of the feature. However, Iron Age pottery was also found in this feature.

**Comparisons with other sites in Cornwall**

Because of the lack of dating evidence from most of the features, it is not possible to make comparisons with other sites. The Bronze Age pit, [44], does provide a small amount of comparable data, although too few cereals were recovered to determine which crops were dominant.

Nearby sites include the Liskeard to Maudlin pipeline (Carruthers, in Cole 1999) and the A30 Indian Queens bypass (unpublished assessment reports by Straker, pers comm). Work is still in progress on these sites, but preliminary results show that a similar range of sparse cereal remains and burnt heathland vegetation has been recovered from prehistoric and Roman deposits. Oats are again common in many of the Roman samples.

Published sites in Cornwall include Roman and early medieval deposits from Reawla (Straker 1992), Duckpool (Straker 1995) and Tintagel (Straker 1997). The Roman-period round at Reawla produced emmer/spelt wheat and barley with a few oats, while the other two sites produced assemblages dominated by oats. A Romano-British midden and features from Atlantic Road, Newquay contained barley, emmer/spelt wheat, some bread-type wheat and oats (Carruthers forthcoming). All of the sites produced evidence for burning heathland vegetation, indicating that this vegetation type probably dominated the landscape for much of the past. Since the Bronze Age pit [44] produced only grassland taxa, there is clearly a need for well-dated pollen sequences for this region, to try to clarify the sequence of vegetation changes.

**Charcoal**

*Rowena Gale*

Eighteen environmental samples were collected from features including pits, ditches, a posthole and spread from fields 10, 11, 14, 16 and 22. Charcoal and/or charred plant remains were present in all samples, although often sparsely. With the exception of pits [44] and [42], which have been dated to the Bronze Age, the features probably relate to medieval or post-medieval periods. Twelve samples of charcoal (seven of which refer to the Bronze Age pit [44] in
field 16) were selected for full analysis to obtain environmental data and to select suitable material for radiocarbon dating.

**Materials and methods**

Bulk soil samples were processed by Wendy Carruthers by flotation and sieving using 1mm and 0.5mm meshes. The resulting floats and residues were scanned under low magnification and the charcoal separated from plant macrofossils. Charcoal fragments measuring >2mm in radial cross-section were considered for species identification. The charcoal was generally poorly preserved. Samples were prepared for examination using standard methods (Gale and Cutler 2000). The fragments were supported in washed sand and examined using a Nikon Labophot-2 microscope at magnifications up to x400. The anatomical structures were matched to prepared reference slides of modern wood. When possible, the maturity of the wood was assessed (i.e., heartwood/ sapwood), and stem diameters and the number of growth rings recorded. It should be noted that charred wood may be reduced in volume by up to 40%.

**Results**

The charcoal analysis is summarised in Table 3 and discussed below. Group names are given when anatomical differences between related genera are too slight to allow secure identification to genus level. These include members of the Pomoideae (Crataegus, Malus, Pyrus and Sorbus), Leguminosae (Ulex and Cytisus) and Ericaceae (Calluna and Erica). Where a genus is represented by a single species in the British flora this is named as the most likely origin of the wood, given the provenance and period, but it should be noted that it is rarely possible to name individual species from wood features, and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974). Classification follows that of Flora Europaea (Tutin, Heywood et al 1964–80).

The taxa or groups of taxa identified include:

- Betulaceae. *Betula* sp., birch
- Corylaceae. *Corylus avellana* L., hazel
- Ericaceae. *Erica* sp. and *Calluna vulgaris*, heathers and ling. Many members of the heather family are anatomically similar.
- Fagaceae. *Quercus* sp., oak
- Leguminosae. *Cytisus scoparius* (L.) Link, broom; *Ulex* spp., gorse. These taxa are anatomically similar but, given the evidence from the charred plant remains (Carruthers, this vol), gorse seems the more likely.
- Rosaceae. Subfamilies:
  - Pomoideae which includes *Crataegus* sp., hawthorn; *Malus* sp., apple; *Pyrus* sp., pear; *Sorbus* spp., rowan, service tree and whitebeam. These taxa are anatomically similar.

**Table 3** Charcoal for C\(^{14}\) selection

<table>
<thead>
<tr>
<th>Sample</th>
<th>Context</th>
<th>Field/feature and feature type</th>
<th>Betula</th>
<th>Corylus</th>
<th>Ericaceae</th>
<th>Pomoideae</th>
<th>Prunus</th>
<th>Quercus</th>
<th>Ulex</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bronze Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>(50)</td>
<td>Field 16, pit [44]</td>
<td>–</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>42h</td>
<td>–</td>
</tr>
<tr>
<td>17</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>15h, 1s</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>(47)</td>
<td>1</td>
<td>1r</td>
<td>–</td>
<td>–</td>
<td>12r</td>
<td>9h, 10s, 25r, 2tr</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>(45)</td>
<td>–</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>2r</td>
<td>1h</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>(46)</td>
<td>–</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>2r</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>(45)</td>
<td>Field 16, pit [42]</td>
<td>–</td>
<td>3</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>33h, 2s</td>
<td>–</td>
</tr>
<tr>
<td><strong>Undated features – probably medieval or later</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(2)</td>
<td>Field 11, posthole</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>3r</td>
<td>89h, 4s</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>(4)</td>
<td>Field 11, ditch</td>
<td>–</td>
<td>–</td>
<td>3</td>
<td>–</td>
<td>–</td>
<td>1h</td>
<td>–</td>
</tr>
<tr>
<td>6</td>
<td>(19)/(20)</td>
<td>Field 22, pit</td>
<td>–</td>
<td>5</td>
<td>–</td>
<td>1</td>
<td>8r</td>
<td>1h</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>(28)</td>
<td>Field 22, ditch</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>1</td>
<td>14h</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>(40)</td>
<td>Field 16, ditch [39]</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>3h</td>
<td>–</td>
</tr>
<tr>
<td>18</td>
<td>(58)</td>
<td>Field 14, spread</td>
<td>–</td>
<td>1</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>3h</td>
<td>–</td>
</tr>
</tbody>
</table>

The number of fragments identified is indicated. Charcoal suitable for radiocarbon dating is shown in bold type.

Key. h = heartwood; r = roundwood (diameter <20mm); rt = rootwood; s = sapwood (diameter unknown).
Prunoideae which includes *P. avium* (L.) L., cherry; *P. padus* L., bird cherry, and *P. spinosa* L., blackthorn. In this instance the broad heterocellular rays suggest *P. spinosa* as the more likely.

**Field 11**

Field 11 (SW 6369 4364) was the most westerly of those from which charcoal was examined, and was also the closest to the shoreline. Charcoal examined from the fill of posthole [1] consisted mainly of oak (*Quercus* sp.), probably from a wide pole or trunk, although a small quantity of twiggy blackthorn (*Prunus spinosa*) (diameters of about 3–8mm), was also present. Ditch [3] formed a narrow channel and was possibly a nineteenth or early twentieth century land drain. Charcoal from the fill of the ditch [3] was sparse but included oak (*Quercus* sp.) and members of the heather family (Ericaceae).

**Field 14**

A spread of charcoal [58] in field 14 (SW 6445 4406) included oak (*Quercus* sp.) and hazel (*Corylus avellana*).

**Field 16**

Charcoal was examined from four contexts (45, 46, 47 and 50) from the large pit [44], dated to the Bronze Age. Samples 11 and 17 from the lower fill (50) contained oak (*Quercus* sp.) and hazel (*Corylus avellana*). Context (47) (lower mid-level) included a larger quantity of charcoal, which mainly consisted of narrow roundwood from oak (*Quercus* sp.) (for example, diameter 10mm, six growth rings), blackthorn (*Prunus spinosa*) (diameter 10mm, about three growth rings), hazel (*Corylus avellana*) (diameter 15mm, eight growth rings, initial rings wide) and birch (*Betula* sp.). Oak heartwood and possibly root were also present, and, in addition, fragments of herbaceous stem, tentatively identified as nettle, *Urtica* sp. This horizon also included burnt hay (Carruthers, above). The overlying and upper fills (46) and (45) produced very little charcoal but included oak (*Quercus* sp.) (twiggy in (46)) and hazel (*Corylus avellana*), with the addition of blackthorn (*Prunus spinosa*) in (45).

Charcoal from ditch [39], possibly prehistoric, was recorded as oak (*Quercus* sp.) heartwood. The ditch predated the former hedged double boundary ditches, which may have been medieval in origin.

**Field 22**

(SW 6536 4460) Charcoal deposits in pit [18] consisted mainly of oak (*Quercus* sp.) heartwood and sapwood, but also included hazel (*Corylus avellana*). Oak (*Quercus* sp.) was identified from ditch [28] together with the hawthorn/ *Sorbus* group (Pomoideae) and blackthorn (*Prunus spinosa*). Blackthorn roundwood measured about 15mm in diameter. These features may date to the medieval or earlier periods.

**Discussion**

Environmental samples taken from features along the coastal stretch from fields 10, 11, 14, 16 and 22 produced comparatively little in the way of charcoal and charred plant remains. The current analysis focuses on charcoal from fields 11, 14, 16 and 22. Suitable material for radiocarbon dating was isolated (see Table 3).

The origin of the charcoal is unknown, and it was relatively sparse in most contexts. Deposits in pits and postholes have been attributed as probable fuel debris. Similar origins probably apply to charcoal recovered from ditches although debris from the burning scrub clearance or hedge prunings could also be relevant.

Charcoal was examined from several layers and indicated the consistent presence of oak (*Quercus* sp.), mostly heartwood, and hazel (*Corylus avellana*); in some contexts, blackthorn (*Prunus spinosa*) and/ or birch (*Betula* sp.) also occurred (see Table 2). Charcoal in context (47) was slightly different in character in that, not only was it more abundant than in the other layers, but it was also mainly composed of narrow roundwood. Burnt herbaceous stems (probably nettle) were also present and, in addition, the layer contained a quantity of burnt hay (Carruthers, above). The combination of hay and narrow roundwood would have provided a fast-burning, high-energy heat-source and these may, perhaps, have been selected for this purpose. The association of hay (grass stems), nettle and narrow roundwood, however, could also represent the clearance of an overgrown scrubby area, perhaps on derelict land or pasture (nettles tend to grow more profusely on nitrogen-rich soils and are sometimes indicative of past habitation or settlement (Brooks and Johannes 1990). Such an assemblage would be the sort of material that results from raking through a rough grassy patch when gathering together fallen
or woody debris. Alternatively, it could be interpreted as the burnt remains of winter fodder composed of hay, wilted nettles and branches of leaf fodder.

On the assumption that most of the charcoal derived from fuel deposits, it is clear that oak (*Quercus* sp.) occurred more frequently than other species, and included a high proportion of heartwood. Despite the uncertainty of dating for these features the preference and availability of oak appears to have remained stable throughout the periods represented.

The route of the pipeline was sited on exposed acid soils on the north Cornish coastline. In the present day, woody vegetation consists of thorn hedges and heathland (gorse and heather); the fields are currently under cultivation. To the south of the site sheltered valleys support broadleaf woodland. Exposure to harsh winds and winter gales would always have been a dominant factor in the extent and character of woodland along the cliffs in this region. The presence of charcoal and charred plant remains (Carruthers above) from gorse and heather were recorded from ?medieval and later contexts in fields 10, 11, 16 and 22, suggesting that the coastal environment may have been similar to that of today, although perhaps supporting open or scattered woodland, dominated by oak.

Interestingly, neither gorse nor heather was identified from the Bronze Age pits, [44] and [42], in Field 16, which could imply either the presence of a more closed type of woodland and thus ready availability of firewood from a range of species (for example, oak, hazel, birch, blackthorn and hawthorn) or that gorse and heather were present but were not gathered as fuel. Since both gorse and heather provide an excellent source of fuel and kindling, and produce an intensely hot, if short-lived, fire (Edlin 1949, 1951; Mabey 1996), it seems unlikely that these would not have been used had they been available close to the site of burning. It may be worth recording that none of the roundwood from context (47) demonstrated growth under stressed conditions. These were relatively fast-grown stems and the hazel included the rapid initial growth sometimes characteristic of coppice stems (Morgan 1982), although, in this instance, there was insufficient evidence to support the use of coppiced wood. It could be argued either that firewood was gathered from more sheltered sites elsewhere and burnt near the pit, or that charcoal was brought to the pit from activities sited further afield.

**Conclusion**

This report presents the analysis of charcoal mostly from pits, postholes and ditches from fields 11, 14, 16 and 22. Pits [44] and [42] have been dated to the Bronze Age. Most of the remaining features are provisionally dated as medieval or later but secure dating for these features remains to be verified (charcoal suitable for C14 dating was isolated from each feature). The charcoal was mostly attributed to

### Table 4 Radiocarbon determinations

<table>
<thead>
<tr>
<th>Laboratory reference</th>
<th>Context</th>
<th>Result</th>
<th>68.2% probability</th>
<th>95.4% probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wk-11799</td>
<td>Pit [44], layer (47) <em>Prunus</em> roundwood</td>
<td>3619±58BP</td>
<td>2040–1880BC (64.5%)</td>
<td>2150–1870BC (89.1%)</td>
</tr>
<tr>
<td>Wk-11800</td>
<td>Pit [44], layer (45) <em>Corylus</em> (hazel)</td>
<td>3564±55BP</td>
<td>1980–1870BC (46.2%)</td>
<td>1800–1770BC (7.3%)</td>
</tr>
<tr>
<td>Wk-11801</td>
<td>Pit [44], layer (50) <em>Quercus</em> (oak sapwood)</td>
<td>1447±59BP</td>
<td>AD560–660 (68.2%)</td>
<td>AD430–690 (95.4%)</td>
</tr>
<tr>
<td>Wk-12192</td>
<td>Pit [44], layer (50) <em>Corylus</em> (hazel)</td>
<td>3834±42BP</td>
<td>2350–2200BC (63.3%)</td>
<td>2400–2380BC (4.9%)</td>
</tr>
<tr>
<td>Wk-18866</td>
<td>Pit [42], layer (43) <em>Corylus</em> (hazel)</td>
<td>3737±37BP</td>
<td>2200–2120BC (44.7%)</td>
<td>2280–2240BC (5.5%)</td>
</tr>
<tr>
<td>Wk-18867</td>
<td>Ditch [39], layer (40) <em>Quercus</em> (oak heartwood)</td>
<td>7098±45BP</td>
<td>6030–5970BC (42%)</td>
<td>6060–5890BC (95.4%)</td>
</tr>
</tbody>
</table>

The dates were calibrated using OxCal v3.5 and OxCal v3.10 (Wk-18866 and 18867).
fuel debris, and, although generally rather sparse, it identified the use of oak (*Quercus* sp.), hazel (*Corylus avellana*), blackthorn (*Prunus spinosa*), birch (*Betula* sp.), gorse (*Ulex* sp.), the hawthorn/ *Sorbus* group (Pomoideae) and heather or ling (*Erica* or *Calluna*).

Environmental evidence suggests that since perhaps the medieval period the coastal landscape may have supported open heathland with scattered oak-dominated woodland. The origin of charcoal from the Bronze Age pit [44] (context 47) was more ambiguous and appeared to have originated from fuel gathered from trees growing in less stressed conditions than would be anticipated on or near the headland.

Radiocarbon determinations

Three samples from pit [44], identified as suitable by Rowena Gale, were initially submitted to the University of Waikato Radiocarbon Dating Laboratory. Context (45) is an upper fill, (47) a middle fill, and (50) the lowest fill. As the determination from (50) (Wk-11801) proved anomalous compared to those from the fills above, a further sample from the same context was submitted (Wk-12192). Further samples were submitted from pit [42] and ditch [39] to secure dates for other activity in the vicinity of pit [44].

Acknowledgements

The project was commissioned by South West Water (project manager Keith Field).

This report has been compiled by Peter Rose, Historic Environment Service, from an initial report by Ann Reynolds (2005) and incorporating additional specialists’ reports. Comments on the draft were provided by Henrietta Quinnell and Andy Jones. The illustrations are by Sean Taylor and Carl Thorpe. The archaeological recording was undertaken by Ann Reynolds, Dick Cole and Sean Taylor.

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The HES project number is 2000081. The project archive is to be deposited at the Royal Cornwall Museum, accession number TRURI: 2005.118.

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In 1991 a standing stone on Eathorne Farm, Mabe, was removed from its original position by the landowner. When subsequently approached by concerned parties, the owner agreed that the stone could be re-erected and it was then set in a new location against a hedge in the field in which it had formerly stood (NGR SW 7461 331364). It remained in this position, draped in barbed wire (Payne and Lewsey 1999, 164) and concealed by vegetation.

In 2005 the farm changed hands and the new owner, Jo Clarkson, was eager to have the stone reset in its original position. A team of volunteers from Cornwall Archaeological Society and the Historic Environment Service of Cornwall County Council, aided by members of the Cornwall Earth Mysteries Group, turned out on Sunday 14 August 2005 to re-erect the stone.

Background and location

The Eathorne menhir lies on Eathorne Farm, approximately 2.5 kilometres north east of Constantine in Mabe parish (Fig 1). It is sited in a field currently under pasture, which slopes gently south towards a wide valley running north east – south west, in an area characterised as Anciently Enclosed Land (Cornwall County Council 1996). This zone is made up of farming settlements documented before the seventeenth century AD – the Eathorne settlement name was first recorded in 1332 (Gover 1948, 518) – and with field patterns of medieval origin; over most of Cornwall Anciently Enclosed Land also represents the area settled, enclosed and farmed in later prehistory (Cornwall County Council 1996). The field has been ploughed in the past and this process has removed any trace of above-ground prehistoric or Roman-period archaeology in the immediate area.

The menhir is unshaped and of granite. It was described and photographed by Charles Henderson (1930) and later noted by Craig Weatherhill (1997, 61), who described it as 2.4m high and ‘slim and regular in shape but with a curiously bent top’. The stone was not, however, depicted on any Ordnance Survey map editions and was not designated as a Scheduled Monument.

Method

The former position of the menhir at SW 74605 31357 was established by using RAF 1946 and CCC 1989 vertical air photographs and ground-level photographs taken before it was removed. A JCB was used to strip the topsoil from the immediate area of the socket. Once this was located the area was hand-dug and the position of the socket recorded using a Total Station EDM, the results being plotted directly into a CAD program (AutoCAD).
excavation area was planned at 1:20 and the socket planned and sectioned at 1:10. Sampling was limited to the primary fill of the socket (6), considered to be the only material available that was undisturbed by the uprooting of the stone.

**Results**

The topsoil strip enabled an area measuring approximately 5.7m by 5m to be investigated (Fig 2). The area was covered by a ploughsoil which had a depth of around 0.3m. The upper part of the horizon, context (1), was very a disturbed loose, root-filled, dark brown silty clay loam. The lower part (2) was a darker clay loam, which contained flints, pebbles and post-medieval and modern artefacts. Removal of the ploughsoil horizons revealed the disturbed stone-socket [5], which was oval in plan, 0.4m by 0.5m across and up to 0.5m deep. The socket was cut into the natural subsoil, an orange granitic clay, and butted up against the west side of a large, low *in situ* granite boulder measuring 1.28m by 1.7m.

Excavation of the socket revealed two cuts. The later cut [3] was entirely within the original [5] and had probably been caused when the stone was pushed over in the 1990s. The resulting void had become filled with (4), a deposit of mixed ploughsoil, displaced packing stones and charcoal fragments of uncertain origin (Fig 3). Little undisturbed material remained within the cut, the exceptions being an *in situ* packing stone which survived in the western side of the original cut and a very compact deposit (6) of clay loam with charcoal flecks which was located in the base of the socket. The last remaining *in situ* packing stone was left unexcavated (Fig 4) but as layer (6) appeared to be undisturbed it was excavated...
and sampled. A radiocarbon determination was subsequently obtained.

Following the excavation of the socket, offerings symbolic of our modern age, including a coin and the handle of a shovel which was broken during the excavation were ceremoniously placed into the socket, together with a quartz pebble. The stone was carefully returned to position (Fig 5) using a sling suspended from a crane.

**Worked stone**

*Anna Lawson-Jones*

Six flints were found during the excavation. Five of these came from the upper ploughsoil (1) and all these are of pale, mottled colouration, typical of the flint found on many Cornish beaches. Of the five pieces, three are small unmodified water-rounded pebbles; one is a heavily burnt flake-like piece which probably blistered away naturally from a larger pebble during heating and the fifth is a larger cherty piece with a long utilised edge and a triangular cross-section. The utilised edge is 36mm long and shows focused wear or damage along its central portion, giving the appearance of a slight notch, 10mm wide. Slighter ventral removals then run on up to the tip, forming what would have been a slicing/scraping tool of indeterminate date. It is possible that this piece represents a reused piece since some of the non-working edges appear abraded.

The sixth piece of flint was an unstratified find from within the immediate area of the stone-socket. This is markedly darker, less mottled and grainy and – on the basis of its cortex – probably comes from a nodular source, the nearest origin for which would have been Devon. Its edges appear fresh and sharp, clearly showing slight use-wear along two edges which converge to form a still very sharp piercing tool with its point still intact. The removal of a ventral flake and the softening of the opposing bulb and bulbar platform allowed for controlled, comfortable handling during use. The full length of the piece is 37mm, the point or piercer itself having a length of approximately 15mm. This piece, on the basis of both technology and the likely source of the raw material is Neolithic. Interestingly, the lack of post-use damage or abrasion suggests that it may have come from a relatively undisturbed context.

A further 20 unmodified pebbles, mainly quartzite, were recovered from unstratified contexts plus a single small piece of burnt killas. The upper ploughsoil (1) produced ten unmodified pieces of stone, again mostly quartzite pebbles of variable shape and size. The lower ploughsoil horizon (2) produced five thin pieces of grey slate, which may originally have joined, plus two gritstones. The larger, thin, flat gritstone piece shows distal use-wear in the form of flaked thinning, perhaps from slashing or chopping activity or use as a wedge. There are lines on each face but these may be natural rather than the result of deliberate action.
Other finds

Several other finds were recovered from the ploughsoil (1), including modern glass and three small sherds of pottery. Of these, one was medieval and another post-medieval; the third was a pre-medieval gabbroic sherd but unfortunately too small to determine whether it was of prehistoric or Roman date.

Charcoal

Rowena Gale

A small sample of charcoal was examined and identified to species to isolate short-lived material for radiocarbon dating.

The sample was sparse and consisted of very small pieces of charcoal. Fragments measuring $>1$mm in cross-section were examined. The charcoal was prepared using standard methods (Gale and Cutler 2000). Anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood. Where possible, the maturity of the wood was assessed; that is, whether heartwood or sapwood.

Results

Layer (6) – four fragments of oak (*Quercus* sp.) heartwood. The fragments were too small to assess the possible maturity of the wood (roundwood or largewood).

Since this charcoal derives from heartwood there is the possibility that it originated from a fairly mature tree and may, therefore, have been several decades or even centuries old when felled. On this basis it was not recommended for radiocarbon dating.
Radiocarbon dating

The sample for the radiocarbon determination was taken from what appeared to be an *in situ* deposit at the base of the socket for the standing stone. As no short-lived species charcoal was available, the sample was derived from pieces of charcoal from oak, a long-lived species which would not normally be recommended for dating (Gale above). However, as there are no published dates from standing stones in the south west it was decided to submit the sample and it was sent for accelerator mass spectrometry dating (AMS) at the University of Waikato in New Zealand. This method of dating can be carried out on very small amounts of material and gives a high precision date.

The probability distributions (Table 1) have been calculated using OxCal (v3.10). The 95% level of probability has been used throughout this report.

Discussion

The first to third century radiocarbon determination from the sample was extremely surprising: it had been expected that the date would, by analogy with dated sites in Wales and Ireland (Williams 1988, 118–8; Lynch 1991, 394–5; 2000, 136), and in line with current interpretations of prehistory in the south west, fall somewhere in the period 3000–1000 cal BC, and not in the Romano-British period which has not traditionally been associated with standing stones, but rather with stone heads and carved funerary stones (Rynne 1972; Ross 1974, 94–171; Green 1986). Taken at face value, however, the date from the base of the socket indicates that the standing stone was first erected during the Roman period; if the charcoal used for dating came from mature oak the date could fall within the late Roman or even the early post-Roman era. No artefactual material dating

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*Figure 5  The Eathorne menhir re-erected*
to this period was recovered, however, and no apparently comparable sites are known in Cornwall. An alternative hypothesis is therefore that the stone was in fact of Bronze Age date but fell and was re-erected during the Roman period, at which time some charcoal was incorporated into the basal fill of the socket.

The following section considers both these possibilities, offering thereby a perspective which allows for a plurality of interpretation which is not wedded to one particular outcome but rather allows readers to determine a balance of probabilities (cf Darvill et al. 1999, 158–9).

A Bronze Age menhir?

Standing stones or menhirs are usually understood as monuments of the Neolithic or Bronze Age periods. In Brittany there is good evidence that they were being erected during the earlier part of the Neolithic: fragments from broken menhirs have been found reused within early passage graves (Bradley 1990, 53; Patton 1993). In Britain the available dates are of the Later Neolithic or Bronze Age (c 3000–1000 cal BC) (Burgess 1980, 345–7; Barnatt 1982, 96–7; Williams 1988, 48–53; Lynch 1991, 348–50; 2000, 136–7). Cornwall does not appear to be an exception to this general pattern, but few standing stones in the region have been excavated under controlled conditions. Those which have been investigated have been found either to be devoid of datable finds (Miles and Miles 1971) or were associated with Early Bronze Age pottery (Barnatt 1982, 96–7). Only a standing stone at Try, Gulval, has an associated radiocarbon date and this falls between 1880 and 1600 cal BC, in the Early Bronze Age (Jones and Quinnell, this volume). However, this determination was from a cist beside the menhir rather than from the stone socket, which is likely to predate the cist (Russell and Pool 1964; Jones 2005, 25).

The function of standing stones is uncertain. Recent suggestions include arguments for their association with astronomical alignments, that they were boundary or grave markers or that they marked significant focal points in the landscape (Barnatt 1982, 100–2; Williams 1988, 54–60; Peters 1990; Ruggles 1999). Some Cornish standing stones were certainly located near to Early Bronze Age monument complexes (Jones 2005, 47–51), while others were linked with cists (Russell and Pool 1964; Miles and Miles 1971). However, as Barnatt (1982, 97) has pointed out, not all are certainly associated with burials and there is no constant relationship between standing stones and other monument forms such as barrows or cairns. Indeed, even within Cornwall it is quite likely that there were regional variations in the principles underlying the location of stones. For example, standing stones in south-east Penwith, which are frequently located on the sides of valleys linking the lowland and upland, may have been sited as boundary features, marking the change in topography or differences in land use (Barnatt 1982, 100; Peters 1990). Those on the Lizard, however, were sited near watersheds and may have been designed to be prominent from particular points in the landscape (Barnatt 1982, 101–2). In fact, given the probable length of their chronology it is unlikely that there was a single functional explanation for the erection of standing stones. It is rather more likely that what is, after all, a relatively simple way of marking a particular site, would have served different purposes over time.

Given the lack of contextual information, the function of the Eathorne menhir is uncertain. The site was not associated with an immediately adjacent burial, or with a topographically distinctive point in the landscape, and no astronomical function can be demonstrated. The presence of worked flint and perhaps also the quartz pebbles suggest some prehistoric activity in the area of the stone. Quartz pebbles and crystals have been found in association with many prehistoric sites, including standing stones and barrows, in Cornwall and more generally within the Atlantic fringe (Dudley 1964; Miles and Miles 1971; Darvill 2002; Jones 2005, 113). The large in situ granite boulder found beside the stone socket could also have been a factor in its siting. Other Bronze Age monuments were certainly sited beside boulders and it has been argued that natural stones may have been venerated or considered to
have held special properties (Jones 2004–5). However, it is uncertain how prominent this boulder would have been in the Bronze Age, given the changes brought about by agricultural improvement to the field in which it lies.

It is possible that the site could have marked a long-standing land-use boundary (cf Peters 1990): there is a clear transition between higher land to the north of the monument, much of it unenclosed downs and rough ground until the nineteenth century, and Anciently Enclosed Land to the south. Hence, over much of the past four millennia the zone in which the menhir stands is likely to have been transitional between the upland rough grazing to the north and an area of settlement and cultivation to the south. An alternative view is that the stone stands on or close to a perceived boundary not to mark the latter but because the boundary was itself seen as an appropriate location for a ceremonial or otherwise ‘special’ monument.

Part of the importance of the site may also have been in what could be seen from it. From the stone there are clear views south to Goonhilly Downs, where a cluster of barrows is located around the Dry Tree standing stone. This view may have been intended: had the menhir been sited any distance further to the south these views would probably have been blocked.

The menhir represents a relatively rare survival of a megalithic monument in Anciently Enclosed Land; more often such features have fallen victim to post-medieval agricultural improvement. Nonetheless, it lies within a relatively busy wider landscape of earlier prehistoric ceremonial monuments. Charles Henderson recorded a standing stone, no longer extant, north of Treworval, 2.3 km to the south east (Cornwall Historic Environment Record (HER) PRN 24426), and a ‘longstone’ field name at Nanjarrow approximately 1.9 kilometres to the south west of the Eathorne stone may indicate the former presence of another standing stone, although it could also refer to a nearby cross-shaft (HER PRN 24581). A cluster of crop marks interpreted as possible Bronze Age barrows has been plotted from air photographs in the Treworval area (HER PRN 51808, 51813–7) and an isolated mound at Higher Treglidg with 1.6m to the south may also be a barrow (HER PRN 24360).

Other prehistoric ceremonial monuments stood in the area of higher ground to the north of the stone. In the mid eighteenth century William Borlase (1769, 162) noted the recent destruction of a standing stone which had stood ‘in a village called Mên-Perhen’ in Constantine parish. He described it as a ‘large pyramidal stone, twenty foot above the ground, and four foot in the ground; it made above twenty stone posts for gates when it was clove up by the farmer who gave me this account’. The exact location of this stone – prior to its destruction apparently the largest standing stone recorded in Cornwall – is unknown but the implication in Borlase’s account is that it was sited within or close to a farm settlement. A farm named as ‘Men Pern’ on the Constantine tithe map of c 1840 and still extant (now named on OS maps as Maen Pearne, located at NGR SW 7343 3116) is located on a ridge approximately 1.1 km to the west of the Eathorne stone; it is conceivable that the stone was formerly visible from the Eathorne menhir. A short distance further north on the same ridge were two unusually large and spectacular natural stones, the Tolmen, destroyed in 1869, and the still-extant Maen Toll (Borlase 1769, 173–4; pls XI and XIII; Stanier 1988, 47–9). As with the Mên-Perhen, the Maen Toll was also the focus for a farm settlement.

The tithe map for Mabe parish (c 1840) shows a rock outcrop and a feature labelled as ‘heap of stones’, probably a Bronze Age cairn, at Pelastine Cairn on unenclosed rough ground about 800m to the north of the Eathorne menhir. The area has been substantially quarried during the nineteenth and twentieth centuries and no remains of the feature are known. A further Bronze Age ceremonial and funerary site appears to have existed about 1 km north east of the Eathorne stone, close to the settlements of Higher Spargo and Trevone: an urn was found in a ‘cavity’ in a rock outcrop being quarried in the 1840s and another came from a large megalithic cist in the same area (West Briton 13 October 1848, cited in Douch 1962, 95). Two barrows are known at New Lestraynes, roughly 2.4 km north west of Eathorne (HER PRN 18371).

A Roman-period menhir?

The Eathorne radiocarbon determination falls well outside the usual Late Neolithic – Early Bronze Age horizon assumed for standing stones in Britain. However, it is clear that during a broad chronological period spanning the Later Iron Age into the post-Roman period there are instances of both standing stones and other earlier prehistoric monuments being utilised as the focus of funerary, ceremonial and votive activities, and of the setting up of new erect
stones. While there are at the moment no certain instances from Cornwall of stones resembling earlier prehistoric megaliths having been erected at this time, a brief examination of the wider evidence for attention to earlier monuments during this period may establish a broader context in which to assess the probability of such an event.

Cornwall offers several instances of activity of an apparently ceremonial nature at earlier prehistoric sites during the later prehistoric, and particularly in the Roman period. Excavation of the Try menhir, Gulval, revealed a Beaker-accompanied cist burial immediately adjacent to the east of the stone but also found that the western side of the cut in which the stone stood had been disturbed and a deposit of horse bones and a coin of Gallienus (258–268 AD) inserted (Russell and Pool 1964, 15). Although undated it seems most probable that the deposit was made within a relatively short time after the currency of the coin; the excavators proposed in their final report that the deposits probably occurred ‘during Roman times’ (ibid., 24), although in an interim account the disturbance had been described as ‘the burial of a horse, probably modern’ (Pool and Russell, 1959, 128). A hoard of approximately 200 Roman coins was found in ‘clearing round a large stone’ in a field in Sancreed parish in 1829 (West Briton, 20 March 1829) and an urn containing Roman coins was said to have been recovered from the foot of a ‘very long and large stone’ near Carn, in Morvah (Hitchins 1803, 226–7; Borlase 1872, 183; HES PRN 30654). Both these sites are likely to have been within or close to Romano-British courtyard house settlements, however, and so may not represent earlier prehistoric standing stones.

William Borlase (1769, 300n, 307–8) cited reports by Tonkin of the discovery in 1700 of Roman coins and other distinctive items during the late Iron Age and Roman period (André 1961; Dark 1993; Galliou 1989, 138). Some small stone circles in Ireland first constructed during the Late Bronze Age also show hints of activity in the early centuries AD (for example, O’Brien 2004) and several major earlier prehistoric ceremonial monument complexes were substantially re-shaped during the course of the Irish Iron Age, probably including the erection of standing stones, and were used into the early medieval period as royal inauguration and assembly sites (Raftery 1997, 64–71; Waddeall 1998, 325–54; Bradley 2002, 141–6; Newman 1998).

In Brittany a number of standing stones and other earlier monuments show evidence of the deposition of coins and other distinctive items during the late Iron Age and Roman period (André 1961; Dark 1993; Galliou 1989, 129, 136, 137, 141, 151, 157; Gouezin 1994, 65, 103; Leroux and Provost 1990, 85; Pool and Russell 1964, 24). Several such monuments were also the focus for funerary activity. In Finistère, for example, a Roman-period cremation urn was excavated in 1890 from the foot of a menhir at Saint-Julien, Riec-sur-Belon (Galliou 1989, 138); Roman-period burials were found within the mound covering a dolmen at Rosmeur, Penmarc’h (ibid., 151), and a cremation burial accompanied by a pipe-clay Venus statuette came from an allée couverte at Kerléon, Riec-sur-Belon (ibid., 138). Late prehistoric and Roman-period burials are also known from earlier prehistoric monuments in northern France and northern Germany (Bradley 2002, 118–9, 124–30, 130–34).

In Cornwall an association between later prehistoric funerary activity and earlier sites may have occurred at Trethellan, Newquay, where Iron Age burials were found immediately adjacent to the
remains of a Bronze Age settlement (Nowakowski 1991). The settlement, in its abandonment phase, may have had the appearance of a group of barrows or cairns (Jones 2008). The Iron Age cemetery at Harlyn Bay also clustered around a circular structure, recently identified as a roundhouse of the Middle Bronze Age (Whimster 1977; Jones forthcoming). There are also instances of cist burials inserted into the remains of earlier settlements on Scilly (Ashbee 1974, 179–80; Ratcliffe and Straker 1996, 74).

These widely distributed examples together testify to a more than passing interest in earlier monuments in the later prehistoric and Roman periods, extending in some areas into the early medieval era (Bradley 2002, 113–5). How should we interpret and understand this? Barrett (1999) argues that Bronze Age barrows would have had significance in the cultural landscape of Iron Age communities in southern Britain, providing physical evidence of an unknown past: a ‘mythical history’ to be partly read through their physical presence. He also emphasises that barrows were no longer the focus of ‘votive or ritual modification’ (ibid., 258). The diverse examples cited above, however, suggest that, on occasion, distinctive elements of the past were in fact given considerable roles in contemporary ritual and funerary activity (cf Bradley 2002, 135–6; Hingley 1999; O’Brien 2002).

Dark (1993) has argued for a significant difference in the nature of these activities between southern Britain and Brittany. In the Armorican examples, he argues, there is evidence for earlier sites having been the focus of specifically religious activities during the Roman period, in some instances continued into the post-Roman era through ‘Christianisation’ of the sites. In Britain, however, he views the practices at earlier sites as essentially ‘superstitious’ – that is, these were seen as the ‘proper’ places for certain forms of depositional or funerary practice. Clearly, the reasons for the patterns of activity which took place at earlier sites are likely to have been complex, bound up with contemporary legendary or mythological ‘histories’ and associations of the monuments as well, perhaps, as the sheer physical distinctiveness and presence in the landscape of many of the structures.

Much of the archaeologically detectable activity associated specifically with standing stones during the period extending from the later Iron Age into the post-Roman era is funerary in nature. In Wales, excavations around the Devil’s Quoit standing stone at Stackpole Warren, Dyfed, revealed an Iron Age crouched inhumation succeeded by three child burials (Benson et al 1990; Selkirk 1982); erection of the standing stone itself was dated to the second millennium BC (Benson et al 1990, 185). At Plas Goggerdan, also Dyfed, three Iron Age crouched burials and a cremation were associated with three first millennium BC ring ditches adjacent to a standing stone. Twenty-two east-west extended inhumations were also found in the vicinity, with a coffin stain from one of them dated to the third–seventh centuries AD (Murphy 1992). In this instance, however, the excavator emphasised that the standing stone itself could not be dated to any particular phase and, while possibly earlier prehistoric in origin, might as easily have been erected in association with the post-Roman cemetery or indeed at some point in the nineteenth century AD (ibid., 27).

In Ireland, excavations around a stone at Kiltullagh on the Roscommon-Mayo border revealed a ring barrow and a deposit of cremated human bone in a shallow pit dated to the fifth century AD, both of which were interpreted as deriving from pagan Irish Iron Age traditions, together with an apparently Christian inhumation without grave goods extending east-west from the base of the stone (McCormick et al 1995). Further disturbed inhumations found immediately to the south of the stone dated to the early centuries AD (ibid., 97). At Ballykeel South, Co Clare, a male long-cist inhumation dated to c 400AD was found ‘just west of the site of a standing stone’ (Heritage Council [Ireland], unpublished excavations). At Cloghatuskan, Dooye, Co Donegal, an unworked upright stone appears to have been set up as the focal point of the final phase of a cemetery of more than 70 inhumations established over the remains of a settlement probably of the early centuries AD (Ó Riordain and Rynne, 1961).

The clearest examples in Cornwall of upright stones with a chronology close to that suggested by the Eathorne radiocarbon date are the inscribed stones set up as burial markers or memorials during the early Christian period. Charles Thomas (1994, 30–37) has suggested that these may have originated in southern Ireland in the later Roman period, deriving from contacts with Romanised culture and possibly as an insular imitation of Roman memorial stones. From Ireland, Thomas suggests, the fashion of setting up inscribed stones as memorials went to south-west Wales with migrant groups ‘not long after 400 AD’ (ibid., 37) and thence to Cornwall and south-west Britain more generally. Several early
inscribed stones in Cornwall are notably irregular, resembling prehistoric standing stones; indeed, Thomas suggests that stones such as the sixth-century AD Drustan stone at Castle Dore and others among the larger inscribed stones in the south west were in fact re-used menhirs (ibid., 279, 296; cf Petts 2002). He also ponders whether the inscribed stone tradition may not itself have grown out of a possible – although archaeologically unconfirmed – later prehistoric use in Ireland of unworked upright stones as markers for burial places and indeed whether some similar tradition may not have existed in southwest Wales and Cornwall (Thomas 1994, 13). The stone at Cloghatuskan, Co Donegal, noted above, and perhaps also those from Kiltullagh and Ballykeel South, may represent just such occurrences.

In this context, a tapering, probably partly shaped, upright stone found in Tintagel churchyard during excavations in the early 1990s is of particular interest (Nowakowski and Thomas, 1990, 16–17; 1992, 6–7). The stone is of a distinctive form of pink granite and had evidently been brought some distance to the site. It appears to have been the focus for a cluster of fifth-sixth century AD Christian graves. A substantial standing stone in the churchyard of Mabe, Christianised by the addition of an inscribed cross, may be an early prehistoric menhir which became the focus for an early Christian foundation and burial place (Thomas 1994, 11–12). Alternatively it could have been a stone first erected in the later prehistoric, Roman or early post-Roman periods to mark one or more burials.

A hint of popular attention to standing stones in the post-Roman period comes in the Life of St Samson, probably written in the seventh century AD but purportedly relating events of the early sixth century. This includes an episode in which the saint, recently arrived in Cornwall from south Wales, confronts a group of people engaged in some form of non-Christian ceremonial or religious activity and Christianises a standing stone which forms part of their activities by carving a cross on it (Thomas 1994, 229; Olson 1989, 9, 16).

**Conclusion**

It is not in the end possible to determine whether the Eathorne menhir dates from the Bronze Age or was a new structure in the early centuries AD. The examples of earlier monuments reused in the later prehistoric and Roman periods cited above indicate a broad interest in earlier monument forms at that time and this could have provided a context in which a new stone was set up or an earlier stone re-erected. It is entirely uncertain, however, whether there was any element of continuity between practices associated with standing stones in the Bronze Age and those in this later period. There is in any case a lack of firm evidence in Cornwall for the nature of ceremonial activity in the Later Bronze Age and Iron Age. This is no less the case at Eathorne, where there were no Iron Age or Romano-British finds associated with the stone’s former position.

It is certainly possible that Iron Age and Roman-period activity at Eathorne included some degree of veneration of ‘ancestral’ prehistoric features and the landscape they inhabited. Given its prominence and unusual shape, the Eathorne menhir – if of Bronze Age origin – may well have continued to accrue and hold meanings long after its original purpose had been forgotten. Seen in this context, even if the Eathorne menhir was not the focus of active religious or ceremonial expression, it could have been a focus for folk stories and superstitions. The stone may have been thought to mark the grave of an ancestral member of the community or the location of a significant event, or simply to have been the work of supernatural forces: with the exception of fogous there are few examples of megalithic monumentality during the Iron Age and Roman periods in Cornwall and the remains of earlier monuments such as quoits and standing stones must have been particularly impressive because they were so different from any contemporary structure. It is plausible, therefore, that if the stone fell during the Romano-British period, people living nearby might have believed that this was inauspicious and felt the need to re-erect it.

If, however, the stone was first erected during the Roman period, was this for religious or ceremonial reasons? Was it a focus for burials or the display of trophies or symbols? Could it represent an attempt to establish physical evidence of a fictive ancestry in the area, in imitation of other nearby stones such as that at Men Pern? Or could the stone have had a much more prosaic origin, perhaps set up by the local Romano-British farming community simply to mark the bounds of the commons they grazed. Of course, this would not have precluded the menhir from having symbolic meanings or from gaining them over time. Until other comparable examples emerge to provide additional evidence these are unanswerable questions. If the stone was in fact only a boundary marker, however, those who originally set
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it up did their work well: the stone stood for almost two millennia. If it was a Bronze Age stone re-erected, those who set it up first would probably not be surprised at having set a precedent for their twenty-first century successors.

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Cornwall’s National Mapping Programme (NMP) was a major project interpreting, mapping and recording archaeological sites visible on aerial photographs in Cornwall and the Isles of Scilly. It began in January 1994 and was completed in the spring of 2006 and was carried out by the Historic Environment Service (HES) of Cornwall County Council, formerly Cornwall Archaeological Unit. The project formed part of a nationwide initiative undertaken and funded by English Heritage. This brief report sets out the background to the project, outlines its spheres of interest and methodology and summarises its achievements and results.

Aerial photography has long been recognised as one of the most important tools for discovering archaeological sites. Thousands of previously unknown sites have been identified by archaeologists carrying out reconnaissance flights and studying photographs taken for various purposes by organisations such as the Ordnance Survey. In 1965 the Royal Commission on the Historical Monuments of England (RCHME) established the Air Photographs Unit as part of its National Monuments Record. The unit provided a national archive for aerial photographs and, since 1967, has carried out its own flights throughout England. The archive was taken over by English Heritage in 1999 and is currently home to two million vertical photographs and more than half a million specialist oblique photographs.

At various times in the past, archaeologists and archaeological organisations across the country have carried out mapping from aerial photographs using a range of methods and at varying levels of detail. Recognising the inconsistent levels of mapping, and aware that many of the photographs in the national archive had never been studied by archaeologists, RCHME and English Heritage initiated an ambitious programme of archaeological mapping from aerial photographs in 1988.

Four pilot projects were set up and these led to the creation of the National Mapping Programme (NMP). The Cornwall project was one of a number of county-based NMP projects established in the early 1990s (the others being Essex, Nottinghamshire and Northamptonshire). The overarching aim of the NMP is to ‘enhance our understanding about past human settlement, by providing information and syntheses for all archaeological sites and landscapes visible on aerial photographs from the Neolithic period to the twentieth century’ (Bewley 2001, 78).

To achieve this aim a methodology was developed from previous selective approaches to mapping from aerial photographs (for example, Benson and Miles 1974, Palmer 1984). The methodology ensures that all archaeological features visible on aerial photographs are mapped, interpreted and recorded to a consistent standard and that the resulting information is incorporated into the county Historic Environment Record and National Monument Record databases. The scope of the project encompasses all visible archaeological features (including probable and possible features), dating from the Neolithic to the twentieth century. This includes both plough-levelled sites and those with upstanding remains, regardless of whether or not they have been previously surveyed. The exceptions are features still in use or fossilised by later structures that are still in use (for instance, buildings, field hedges, canals and railways); these features were not recorded.
Removed field boundaries which had been mapped by the Ordnance Survey (the 1st edition 1:2500 map of c. 1880 was the earliest source consulted) were not transcribed. Neither were previously surveyed sites which had not been photographed or which were completely obscured by vegetation (and therefore not visible on photographs).

A cornerstone of NMP methodology is the consultation of all available aerial photographs and during the Cornwall project more than 50,000 images were examined. These are housed in four collections: the National Monuments Record Centre in Swindon, Cambridge University and Cornwall County Council Historic Environment Service and Technical Support Services. The majority (approximately 40,000) of these are vertical photographs taken for non-archaeological purposes such as military and cartographic reconnaissance or civil engineering projects.

The value of vertical photography is that it covers large areas of landscape, by contrast with specialist oblique photography which is typically used on specific sites and is therefore far more selective in its coverage. Vertical photography proved a rich source of information during the project. For instance, the mapping team recorded numerous cropmark sites from RAF photographs taken in the summer of 1946 and many earthwork features picked out by optimum light conditions on County Council images taken in the autumn of 1988.

Another key aspect of the project methodology is the high level of accuracy achieved by computerised rectification of oblique images. Once an archaeological site has been identified, the photographic image is digitally manipulated to remove the distortions due to height and camera angle. This process requires a number of control points to be chosen from the photograph (for example, corners of fields or buildings), which are then marked on the corresponding map of the area. These control points are used to transform the image into a corrected plan view using specialist computer software. For this purpose the project used AERIAL, a programme developed by John Haigh of Bradford University.

During the early part of the Cornwall project the rectified images were transcribed as line drawings onto 1:10,000 map overlays, using standardised conventions and line widths. As technology developed, transcription methodology evolved and later mapping was carried out in a digital environment. After 1998 archaeological features were plotted digitally from the rectified images using a computer drawing package (AutoCAD). In this way, as each successive photograph was scanned, rectified and plotted, so a map of the historic and prehistoric landscape gradually emerged.

The NMP mapping of the whole of Cornwall and the Isles of Scilly was a huge task and should be regarded as an outstanding achievement. It has produced an enormous amount of data. The project team mapped and recorded some 30,000 archaeological features, of which 75 per cent are new discoveries. More than 24,000 individual site records in the county Historic Environment Record (HER) have been created or enhanced.

The project has completely transformed not only the amount of information known about Cornwall’s archaeology, but also the ways in which it can be accessed. As a result of the project, coupled with the use of Geographical Information System (GIS) software, whole historic and prehistoric landscapes have been mapped and can be viewed in their entirety. A full presentation of the project results, including on-line access to the NMP mapping of the whole county, is available via the project website, flyingpast.org.

Perhaps the most significant value of the project data, made up as it is of a wide range of sites from all periods, is that it provides a ‘total’ overview of Cornwall’s archaeological landscape: while it can undoubtedly be argued that certain aspects of the project are of particular interest, the whole is greater

Fig 1 NMP mapping of the medieval and pre-medieval landscape around Goonhoskyn, St Enoder. This landscape is notable for the high density of enclosures, many of which are interpreted as prehistoric or Romano-British in date. In some cases field boundaries and other linear features associated with these enclosures are on a different alignment to the present-day field pattern, which is likely to derive from the enclosure of medieval strip fields. While some of the enclosures can be interpreted as Cornish rounds, others are very small and their function is uncertain. Of particular interest are several sites consisting of complexes of features (such as those towards the top right and bottom left of the map) and further investigation is needed to establish their nature. Most of the features in this map have been plough-levelled and are visible only as cropmarks. Ditches are depicted in blue, banks in red.
than the parts. Nonetheless, there are five key areas in which the NMP has added significantly to knowledge of Cornish archaeology, broken new ground and contributed to archaeological research in the county.

**Archaeology in lowland Cornwall**

The first of these outcomes is the enhancement of our knowledge of the nature and extent of the archaeological resource in lowland Cornwall. Of particular importance is the identification of well over one thousand new enclosures interpreted as late prehistoric or Romano-British in date (Fig 1). Many are likely to be enclosed settlements and a reappraisal of the settlement pattern in Iron Age and Roman Cornwall revealed by the project is a priority for future research. As a first step, an analysis of the prehistoric and Roman landscape around the Camel estuary has been prepared for publication in a future volume of *Cornish Archaeology*.

**Rare and unusual sites**

The second important result has been the recording of prehistoric sites of types which are rare or which were previously unknown in Cornwall. Several lowland open settlements have been recorded, for instance, with the best example at Lellizzick, near Padstow; verified by follow-up geophysical survey (Payne 1998) and excavation by Time Team in 2007. Other unusual sites include three possible henges, a probable long barrow or mortuary enclosure (Young forthcoming) and a cursus monument (Trevarthen 2004) (Fig 2). Further close analysis of the project database is likely to identify more examples and this is another priority for future research.

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**Fig 2** A probable cursus monument at Trifle, near Downderry, in south-east Cornwall. The parallel ditches of the monument can be seen as dark lines crossing two fields and a lane; there is a terminal towards the bottom left of the photo. Like many cursus monuments elsewhere in the country, the feature is aligned north east – south west. (© Cornwall County Council.)

**Fig 3** NMP mapping of the multi-phase landscape at Tregonning Hill, Breage. Castle Pencaire, a multiple enclosure hillfort, sits on the summit. On the lower slopes are two rounds, one of which (towards the top of the map) has been partially ploughed down. The siting of rounds in the immediate vicinity of hillforts is not uncommon in Cornwall, but the significance of this is not fully understood. The eastern and northern slopes of the hill show an extensive pattern of stony banks defining medieval outfield strips. Post-medieval industrial activity is represented by shafts and lines of lode-back pits and by china-stone quarrying. Ditches are depicted in blue, banks in red; industrial features are in black.
Upland survey
The third of the major outcomes has been the mapping of previously unsurveyed monument-rich upland landscapes such as the Lizard peninsula and the Hensbarrow Downs (Fig 3). In some areas large numbers of new sites have been interpreted and mapped, from Bronze Age barrows to tinners’ pits and peat storage ‘steads’.

Mining remains
The project has also generated detailed mapping of Cornwall’s extensive mining remains, plotting thousands of individual features associated with this archaeologically important industry. The mapping of post-medieval mining was a key source of information in the development of the successful Cornwall and west Devon Mining Landscape World Heritage Site bid. Defining the nature and extent of the archaeological remains of the mining industry was an essential element of the bid and mapping from aerial photographs provided around 40 per cent of the data collated by the World Heritage Site team.

The NMP has also identified and mapped large numbers of early mining features. Of particular interest are almost 300 previously unsurveyed tin streamworks (Fig 4). Some of these are likely to have their origins in the medieval period and represent the earliest recorded tin workings in the county.

Twentieth-century military features
The fifth outcome is the systematic recording of World War II military features. At the outset of the project very few features of this type were recorded in the Historic Environment Record; the NMP identified and mapped more than 500. The most remarkable are the range of temporary installations, such as the tented camps housing troops in the build-up to the D-Day invasions of 1944 (Fig 5). Wartime aerial photographs are the only effective source for the location of ephemeral features such as these.

Using the data
Information produced by the project represents a major enhancement to the Cornwall and Scilly Historic Environment Record (HER). As such it is consulted on a daily basis by a range of end users, including members of the public, and informs strategic and individual planning decisions in Cornwall and the Isles of Scilly. As an integral part of the HER, the data are regularly and routinely...
consulted during archaeological assessments and evaluations carried out by the Historic Environment Service and other archaeological organisations. It is also used by Cornwall’s Historic Environment advice team to inform the management of agri-environment schemes, such as Higher Level Stewardship.

On a wider level, the dataset facilitates further research and decisions regarding the management and preservation of archaeological sites and historic landscapes within Cornwall and the Isles of Scilly. An example of this was information provided to English Heritage’s Monuments Protection Programme (MPP).

The data also provide a key source of information in the development and delivery of large-scale management projects across the county. The most notable of these is the World Heritage Site project, but NMP data have also been employed in other initiatives, including Cornwall’s HEATH project, for which the mapping has provided a key dataset in the process of identifying and mapping the archaeological resource on west Cornwall’s rough ground (Herring 2005).

The main dissemination of results from the project is through a website, flyingpast.org, which can be accessed via the Historic Environment Service’s Historic Cornwall web portal (www.historic-cornwall.org.uk/flyingpast/). A downloadable version of the final project report (Young 2007) is available on the website. NMP mapping can also be inspected at the offices of the Historic Environment Service in Truro and at the National Monuments Record Centre in Swindon.

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Old Tom:
the discovery of an unfinished cross on
Catshole Tor, Bodmin Moor

ANDREW LANGDON

In April 2006, a large unfinished granite Latin cross was discovered on the slopes of Catshole Tor in St Breward parish on Bodmin Moor. This paper reports on its discovery, gives an account of the cross and discusses the importance of the monument and its context.

‘Old Tom’ was discovered by Steve Hartgroves of Cornwall County Council Historic Environment Service while walking among the granite boulders and clitter on Catshole Tor in April 2006. The stone consists of the upper arm and one horizontal arm of a Latin cross, with the lower part of the stone still firmly embedded in the ground; only the upper exposed parts are carved. It was christened ‘Old Tom’ by Steve Hartgroves in reference to the name of its place of discovery and by comparison with the Long Tom cross near Minions. The cross has been added to the Cornwall Historic Environment Record as PRN 174373.

Bodmin Moor is littered with evidence of the work of stonemasons. Boulders with drill holes and partially split stones are commonly seen, and broken or unfinished millstones, cider and cheese-presses can be found. All these are post medieval in date. More difficult to identify are the remains of medieval stone working, although granite is known to have been extensively quarried and cut to supply stone for Cornish churches, particularly in the fifteenth and sixteenth centuries (Mattingly 2005, 31).

Three medieval cross-bases have recently been found on Bodmin Moor: one on Showery Tor, one on the slopes of Roughtor and a third on Craddock Moor. Their discovery is still relatively rare, however, and an unfinished cross is an exciting and very unusual find.

The cross is situated 200 metres north of the summit of Catshole Tor at NGR SX 16759 78697, just east of a rectangular post-medieval enclosure (Fig 1). It lies only 100m from the parish boundary between St Breward and Altarnun.

The cross consists of a large slab of moorland granite lying east – west on its edge, with the head pointing to the west. Its upper edge has been carved to form a Latin cross, and shows the upper and one horizontal cross arm (Figs 2 and 3). The shaft is also carved on its upper edge, and tapers towards the foot; it has a marked entasis (convex curve) on its upper side and further evidence of a tapered tenon. The faces of the cross are unworked except for an incised Latin cross that has been carved on the top face with its lower arm running three-quarters of the way down the shaft.

The overall height of the cross is 2.6m (8ft 6 1/4ins) and the visible width of the cross-head above ground is 0.88m (2ft 10 1/2ins). The width of the shaft visible above ground level varies between 0.69m (2ft 3ins) and 0.63m (2ft 0 3/4ins), with the thickness between 0.27m (10 1/2ins) and 0.3m (1ft). The upper arm is 0.48m (1ft 9ins) wide and the upper horizontal arm 0.28m (11ins) wide.
Fig 1 Location of the newly discovered cross.
Although it has always been considered that medieval Cornish crosses were carved out of moorland ‘surface granite’ or ‘grass rock’ (Langdon 1896, 15), this new discovery is the first tangible evidence to support that theory in Cornwall. The cross appears never to have been finished or moved: it is in situ, just where the stonemason started carving and later abandoned it (Fig 3).

This discovery throws up a number of questions. First, why has the cross not been spotted and recorded in the past? It is situated in a remote location among a large area of granite clutter on the slopes of the tor and is not close to known footpaths. Approached from the south, east or west, the cross is not immediately obvious and, as the finished face of the cross faces north, it is often in shadow.

It is impossible to say who carved the monument but one can speculate that it is likely to have been a local stonemason working the moorstone for a living. He was probably commissioned to produce the cross for a parish, by the late medieval equivalent of parochial church council. Yet as the cross site is close to the parish boundary it is uncertain whether the project was for St Breward, Altarnun, or another parish.

Why was the cross abandoned and never completed? There is no sign of any fracture in the stone and no evidence of any fissure, fault or glitch
that may have caused the stonemason to abandon the project. Was funding for the project stopped? Perhaps the mason thought he would not be paid? Was a decision made that the cross was no longer required? We shall never know.

Where and what was the intended function of the cross? With so much surface granite on Bodmin Moor, one could argue that it would not have been necessary to move a finished cross a long distance. In other words, if a stonemason was commissioned to carve a stone cross for the parish, he would use surface granite found near to where the cross was intended to be set up. What purpose would a cross on Catshole Tor have served, assuming that it was not to be moved further? Was the cross being produced to mark a church path or trackway? There is the possibility that paths running close to the cross site once existed but have since disappeared, and the adjacent enclosure is evidence of human activity here in the medieval period. However, located so close to the parish boundary between St Breward and Altarnun, the cross is perhaps more likely to have been intended as a boundary cross.

One cannot rule out the possibility that the cross was being carved for a site elsewhere, even though this would perhaps have required transporting it some distance off the moor. This latin cross is massive and slightly unusual for the neighbouring parishes. No latin crosses survive in St Breward parish and there is no evidence to suggest that latin crosses were ever a parochial style adopted in this area. In Altarnun, one latin cross exists beside the A30 trunk road, near the former site of St Vincent’s mine, but this is very much smaller than ‘Old Tom’ (Langdon, A G, 1896, 200; Langdon, A, 2005, 9).

Less than ten per cent of Cornish crosses are carved in the latin style and only in the parishes of Paul in Penwith and St Neot and St Cleer in east Cornwall could they be described as the prevailing parochial style. Overall, ‘Old Tom’ is most like the Tregrylls Cross in Lesnewth parish, which is 12 miles to the north.

Perhaps the most difficult question to answer is when the cross was carved. Latin crosses are simple, rough and rarely decorated with features that can be dated. However, Ellis (1953, 145) suggests that the tall latin cross at St Cleer’s holy well could be as late as the fifteenth century and one would expect any latin cross with chamfered edges to date to at least the fourteenth or fifteenth centuries. Wayside crosses are generally believed to date from the late eleventh or twelfth centuries in Cornwall. In summary, it is possible to suggest that this cross was carved at some time between the twelfth and fifteenth centuries, but not to be more precise.

Although this is the first cross to be discovered in situ in the process of manufacture, one from west Penwith was allegedly discovered close to the granite bed-rock from which it was carved. In 1973, a wheel-headed wayside cross was discovered at Mayon in Sennen parish built into the foundations of a hedge that was removed to enlarge a field. According to the late Cyril Orchard, who re-erected the cross, a massive granite boulder, possibly part of the bed-rock, was found beneath the hedge with the outline of the wheel-headed cross carved in it. Mr Orchard suggested that the cross was cut out of this same piece of rock. The cross was set up on an exposed piece of the same rock (Henderson 1952–83, 934; Langdon 1997, 60) but the rest of the
boulder was re-buried so this assertion cannot now be verified.

The only other example of an unfinished cross abandoned in a moorland context is at Rippon Tor, on Dartmoor (Fig 4). This is again a Latin cross, lying amongst clutter on the northern slopes of the tor. It has been ‘roughed-out’ of a large boulder and is still attached to a piece of this stone around its head. Although a Latin cross, its style is different to ‘Old Tom’ in having the short, chunky horizontal arms typical of Dartmoor crosses. Masson-Phillips (1937, 299, 325–6) suggested that the cross was abandoned because it fractured, a view with which the present writer agrees, although Crossing (1987, 161–2) and other writers have taken the view that the cross was never intended to be set up.

The particular significance of ‘Old Tom’ is in its setting, and the fact that the cross was abandoned and unfinished. Many of the questions it throws up will never be answered with any certainty, although it is possible to speculate. At Minions we have a cross known as ‘Long Tom’ and we now have another for which the name ‘Old Tom’ looks likely to stick. As the cross was never finished it would serve no purpose to erect it and would destroy its original historic context. The stone should be left in its present position and consideration given to scheduling the area to preserve the cross and its immediate landscape.

Acknowledgements

I would like to thank Steve Hartgroves for sharing his discovery with me, for without his keen eyes this remarkable discovery would not have been made. I am indebted to Ann Preston-Jones for reading through and editing these notes and also for accompanying the writer in search of both ‘Old Tom’ and the cross on Rippon Tor. Thanks also to Sean Taylor for adding a scale to the drawing of Old Tom and to Bryn Tapper for the location map.

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A molendinary conundrum

CHARLES THOMAS

The word ‘molendinary, defined in the Oxford English Dictionary as ‘pertaining to a mill’, was used by Sir Walter Scott in 1830.

The following note describes an inscription, apparently seventeenth century, on an outer corner of a former mill-house, which I and others have seen in the past, which was photographed and which probably still exists, although today it is not on public view. The inscription is enigmatic. I cannot claim to have solved the puzzle – perhaps some reader of these lines will do so? – but it is time to record what is currently known.

Old-style millers, operators of water-powered grist mills, formed a caste of specialists with their own secrets and specialised vocabulary. Kelly’s Directory of Cornwall for 1939 listed 88 Cornish millers, most of them working as individuals, all now gone. Near the end come these entries:

Thomas, Wm. Jas. & Sons, Penpords, Camborne
Trelor, Benj Arthur, Pendarves Mill, Treslothan, Camborne
Trelor, V, Drannack Mill, Gwinear, Hayle

As a boy in Camborne before and during the War and after it until the 1950s, I knew these men and was allowed to visit their establishments, often getting covered with flour and always enriched by what they told me. At Drannack Mill, north of Gwinear parish church and down in the Nanpissker valley, Vivian Trelor and his sister were our favourites. Their way of life was Victorian and they were quite unable to cope with accounts, taxes, officialdom and, after 1939, wartime regulations. As their solicitor, my father spent many hours shielding them from the outside world. The mill hummed and clicked and shook in the background, and Vivian showed me its workings, allowed me to help in winding things up and down, and taught me the words for millstones and parts thereof, dressing tools and other gadgets. I still have my small black dialect notebook with some 1946 entries about words for the various grooves on a millstone’s face. Mr Trelor, born in 1884, inherited Drannack Mill from his father James. For something like 40 years – they never went anywhere – Miss Trelor and her brother had the same main midday meal (‘dinner’): two pasties each a foot long. Once, driving back to Camborne with my father, I worked out that if all the pasties the Trelors had consumed over, say, 40 years were laid end to end they would stretch from Drannack to the far side of Redruth, five and a half miles!

On my last visit to the mill in summer 1954 I was introduced to an older enthusiast who had called on the Trelors with a camera. He was Arthur J Saundry, whose knowledge of Cornish mills and milling was then, and today still would be, unrivalled. AJ S, as he can be called, was a printer and stationer at Chapel Street, Penzance, and proprietor of the annual Saundry’s One and All Almanac (now greatly sought after because the pre-war issues regularly held Jack Clemo’s first dialect stories). This began in the 1870s as Rodda’s “One and All” Almanac (sic) and when it ceased in 1928 it was rescued by AJ S’s father John Saundry (as Saundry’s Penzance Almanack; 1929 only) and then passed to his son. In commenting that our knowledge of Cornish watermills remains impoverished because AJ S never found time to complete the massive book that he alone could have written, one must add that...
his detailed photographs and meticulous notes are preserved in the Courtney Library, Royal Institution of Cornwall. I say meticulous because AJS undertook a great deal of historical research and, trained in youth as a hot-metal compositor, neatly typed out almost everything, with dates and sources. He spent much time on a favourite hobby, lecturing about mills to Old Cornwall Societies. D E Benney's An introduction to Cornish water-mills (1972) is nicely presented and uses some of AJS's photographs (for example, page 9), but is no more than an introduction.

From 1954 until I moved to the University of Edinburgh in 1958, I worked as a Workers' Educational Association (WEA) tutor, giving introductory classes in archaeology around west Cornwall. I often met AJS or called on him at his Chapel Street shop. On one such occasion in 1956 we began the inevitable conversation about water-mills and I was given the photograph reproduced here as Figure 1. AJS explained that it was rough granite, not very large, limewashed, with letters picked out in black paint, and that it was visible on the outer corner of what had been the miller's house, attached to the mill, at Truthwall Mill, Ludgvan (NGR SW 5245 3240), an appurtenance of Truthwall (pronounced 'Truthell', th as in 'this') in the adjoining parish of Sithney. The stone was then visible when driving past, at a bend in the side road from Crowlas, and I went to look at it some months later. I had no idea what the inscription signified. Presumably the separate 'EM' and 'W' at the top were the initials of a later miller, whereas the two lines of symbols below seemed to be integral with the date of 1687. The complex of buildings included the mill itself, which, so the late H L Douch's notes at the RIC inform us, was 'Trethewell . . . one water mill' in 1525, 'Trehwell manor mill' in 1602 and 'Trythall Mill' in 1696. The dwelling, so AJS told me, appears in Ludgvan church records at various times as Chyvelin or Chyvellan (= house of the mill).

A few years later, before the house was sold and converted into a dwelling, the lettered stone appeared to have been freshly painted or whitewashed, and the markings again picked out in black. A second photograph by Mrs L Reader of Lelant (Fig 2), undated but sent to me in the early 1960s, shows in the top right corner another small 'W' and two little crescents, not visible in Figure 1. I do not know whether AJS ever saw this depiction, but it must be included.

Early in 1959 I happened to meet AJS in Penzance. We went and sat in the Morrab Library and he told me that he had had more ideas about the
Truthwall stone. He had been talking to Mordon, R Morton Nance, Grand Bard of Cornwall, whom we both knew. Mordon frequently helped AJS with the meanings of Cornish place-names and related matters. AJS had come across a small reference work, Rudolf Koch’s *The book of signs* (1930). This perplexing catalogue of 493 symbols with their meanings relates in part to medieval and later masons’ marks in Germany, and had certainly inspired AJS. ‘Opinions vary as to the lettering [at Truthwall Mill] being Greek or Hebrew’, he wrote in a letter dated 21 September 1958 (RIC, Saundry papers). Now, however, he had apparently persuaded himself that the two lines with their ‘1687’ shown in Figure 1 represented, first, a record or terrier of the mill holding, the tenement centred on the mill and the dwelling, and second, with the symbols or letters standing for words, a record in Cornish rather than English. I was not informed whether R Morton Nance had been asked about this or, if so, how he had reacted.

Confident that I knew enough Cornish to go along with AJS’s exciting notion, we tried to work it out. Figure 3 gives, in a single line, the symbols as far as the ‘1687’ with, below them, the numbers and letters for which they might stand. Assuming that so basic a statement might begin with the attached land, and taking no 2 as a simplified Greek capital π (≡ P), I suggested ‘1 plus P’, *idn park*, ‘one enclosure, one in-field by the house’. AJS had already decided that the symbols nos 3 and 4 stood for the number 7 and the word *erow* (or *erw*, ‘acre, field’, a statute acre rather than the larger Cornish acre). This would be *seyth erow* in Cornish. (The separate matter of how symbol no 3 could mean ‘7’ can engage us again in a moment.) Symbol no 5, the large M, might then be for the central feature, the mill (*melyn*). Next we have six symbols, three pairs, each with a figure 1 followed by a kind of letter. The best I could suggest was that symbol no 7, rather than being based on the Greek capital *omega* (long O), was a curtailed form of Greek cursive *lamba* (≡ L), and that we now had the ‘water’ aspects: 1 L 1 P 1 H could in Cornish be *idn lyn* (or *lidn*), *idn pol*, *idn hal* – ‘one leat or millstream, one (mill) pond, one marshy plot’. I noted all this in pencil on lined pages torn by AJS from a diary (apparently a German diary, since the first page has 21 OktObEr top right).

Looking back, of course, there are flaws in this. It would be unusual to write the noun *melyn*, ‘mill’, without the preceding article an, ‘the’, which normally causes lenition (*an velyn* or *an melyn*, so no ‘M’). I remember finding my notes some while after AJS had died and wondering whether the words supposedly indicated by the letters could not have been in Latin. Choosing nouns of much the same meaning, this is quite sustainable: *unum Pratum, septem agri; molendinum, unus Lacus, unus Pons* (if the second P is otherwise Cornish *pons*, ‘bridge’, and not *pol*, ‘pool’), *unum Harundinetum* (= reed-thicket, reed-bed, ‘marshy plot’). But why Latin in late seventeenth century Ludgvan? Cornish was almost certainly still known here by some people.

AJS had decided that symbol no 4, as a square with a dotted gap or entrance bottom right, meant ‘field’, *erow*. As for the preceding numeral, he showed me an incremental set of 1 to 8, in which ‘seven’ was indeed explicable, but I have absolutely no idea where he found this; there are one or two hints of incremental stroke-numerals in Koch’s *Book of signs*, but not as in Figure 4 here, which I have re-drawn from my note of the time.

Is there any other lettered building stone, now or formerly displayed at a mill or any other class of building in Cornwall, that contains these peculiar symbols? AJS knew of none. Or were these markings once current elsewhere in Britain, or beyond, and should the Truthwall Mill stone be regarded as an exotic import? As for the stone itself,

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**Fig 3 Tentative readings of the symbols on the Truthwall Mill stone by A J Saundry and the author, 1959.**
the miller’s house at Truthwall, much altered into a private residence (as is Treloar’s mill at Drannack), was listed Grade II from September 1988. The current listing text states ‘Datestone 1687 probably reset’, and I understand that it is now inside some part of the dwelling.

This note has not faced all the puzzles. The two symbols or letters, the small Latin cross and the sideways-facing ‘bracket’ after the ‘1687’ in Figures 1 and 2, perhaps served as the initials of the miller of that date. Who knows? Or does the cross invite the Church’s approval of the statement? In the face of what, for Cornwall, must be a unique piece of lettering, I have to confess myself beaten, and, with the shade of Arthur J Saundry of Penzance, I invite and await enlightenment.

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Recent work by Cornwall County Council Historic Environment Service (HES)

2005–2006

Bodmin Priory

This site was excavated in 1985 by Cornwall Committee for Rescue Archaeology, the predecessor to Cornwall Archaeological Unit and HES. Maintenance and repair on the site are now the responsibility of Cornwall County Council and CCC Property Group commissioned HES to produce a conservation brief for repair and ongoing maintenance of the historic remains.

• Project manager: Colin Buck.

The Dodman, Gorran

HES undertook archaeological supervision of work by the National Trust to install a new lightning conductor on the late nineteenth century granite cross at Dodman Point. A small collection of prehistoric flintwork was recovered from the lightning conductor trench and from eroding path surfaces in the immediate area. The flints included examples dating from both the Mesolithic era (c. 7,000–4,000 BC) and the Late Neolithic – Early Bronze Age (c. 2500–1500 BC). Some of the flint had been exposed to fire, suggesting a possible habitation site in the vicinity.

• Project officer: Graeme Kirkham. Project manager: Andy Jones.

Boden, St Anthony in Meneage

Post-exavocation analysis of material from the 2003 excavations of a Bronze Age roundhouse at Boden included study of sherds from a Trevisker-ware vessel of c. 1500 BC. This work, funded by English Heritage, has shown them to be part of a huge pot, which must be among the largest vessels ever found in prehistoric Britain. The recovered sherds represent about an eighth of the vessel overall, although there is approximately a quarter of the upper, decorated part present and about half the circumference of the rim; no base sherds were present. The internal rim diameter has been estimated at around 53cm and, as reconstructed, the pot would have stood 92cm high. It would originally have weighed about 240 kg and had a capacity of some 218 litres (57 gallons). While these dimensions are approximate, it is certainly the largest Trevisker-ware vessel known.

The vessel had two handles decorated with incised lines and body decoration made up of three zones of bordered cord-impressed zigzags and incised chevrons. This decoration is also without parallel: neither the use of incision and cord impression together nor the three complex decorative zones separated by plain bands have previously been recorded.

[A report on the Boden investigations will be published in a future volume of Cornish Archaeology.]


Mount Edgcumbe Country Park, Millbrook

Cornwall County Council’s Traffic Engineering department commissioned an archaeological assessment in advance of a proposed multi-use trail
at Mount Edgcumbe Country Park. The proposed route followed existing drives, walks and carriageways and it was also planned to reinstate the carriageway through the ‘Deer Park’. The HES assessment investigated the potential impact of the route on the historic features and character of the park, an internationally important landscape and one of only two Grade 1 Registered Parks and Gardens in Cornwall. The report made recommendations intended to minimise the impact of the proposed trail on the parkland landscape and outlined archaeological mitigation during the construction of the trail.

- Project officers: Peter Dudley, Neil Craze. Project managers: Peter Rose and Peter Herring.

**Butter Well, Poltesco, Grade-Ruan**

HES undertook a programme of archaeological recording for the National Trust during clearing out of the Butter Well at Poltesco, on the Lizard peninsula. Built over a natural spring of particularly cold water, it was formerly used by the nearby Carleon House for storing butter and other perishable foods. The well is mainly constructed of slabs of polished serpentine derived from the serpentine factory which flourished at Carleon Cove in the mid to late nineteenth century. The well was previously in poor condition; a falling tree and a large tumbled boulder had caused the roof to collapse and tree roots were destabilising the walls. The interior had partially filled up with silt, collapsed roofing slabs and dense roots, and was cleared out prior to consolidation of the stonework and fitting of a new door.


**Pendennis and St Mawes castles**

HES carried out a series of watching briefs for English Heritage during works to upgrade the electric supply, replace fences, improve drainage and convert the former Army Service Corps Stores at Pendennis and caretaker’s quarters at St Mawes into holiday accommodation.


**Harbour Restaurant, Boscastle**

A study was commissioned by the National Trust in advance of acquisition of the former Harbour Restaurant, Boscastle, seriously damaged during the floods in August 2004. The restaurant forms the eastern part of a courtyard complex originally built about 1800 as pilchard cellars. After the demise of the pilchard seining industry, the building saw many different uses, including commercial, residential and civic functions, all of which have left traces in the surviving fabric.

The eastern, taller range has undergone revision of its floor levels at least twice in its history, the first time when the building was converted to a public hall, and again in modern times when new upper floors were inserted to accommodate flats. The northern, rear range has also seen considerable changes. The original floor level of the pilchard cellar is still visible within its ground floor. This part
was walled in on its (originally open) courtyard side, and later the range was heightened to become two full storeys. In 1909, at the time of conversion to a public hall, this range was subdivided.

**Project officer:** Emma Ruddle. **Project manager:** Nigel Thomas.

### Kestle Barton, Manaccan

This is a picturesque farmstead including a sixteenth-century farmhouse and a rare group of both traditional and planned farm buildings that have experienced little alteration since the late nineteenth century. HES was commissioned to undertake recording of the buildings in the context of proposals to refurbish them as dwellings and business premises.

The earliest surviving farm buildings were of cob and were originally thatch roofed. The nineteenth-century development appears to be the beginning of a phased replacement of the earlier structures with slate-roofed stone buildings. Much interesting original joinery and ironwork survives from this period. It may have been intended to create a planned layout of buildings inspired by model farms. This scheme was never completed: the old barns were allowed to remain, albeit with their thatched roofs replaced with scantle slate coverings. The onset of World War I appears to have stifled ambition for further change and the buildings survived with little subsequent alteration.

**Project officers:** Eric Berry, Peter Dudley. **Project manager:** Nigel Thomas.

### Padstow

The Environment Agency commissioned HES to carry out an archaeological assessment of the northern breakwater of Padstow inner harbour, a Grade II listed structure and within Padstow’s Conservation Area. The study was required in advance of strengthening works undertaken to address structural issues resulting from the late twentieth century conversion of the inner harbour to a wet dock. The masonry wall face to the breakwater was surveyed and research revealed that part of the harbour was built during the early nineteenth century to create a wide quay surface which could accommodate buildings.

**Project officers:** Kate Newell, James Gossip. **Project manager:** Nigel Thomas.

### St Martin-by-Looe church

HES carried out recording work on the roof of the church for the Parochial Church Council during a programme of repairs. The church has a complex construction sequence. It clearly has Norman origins, as attested by the survival of a twelfth-century doorway. Parts of the nave may survive from the original building. Surviving re-sited arcade features and a lancet window in the south wall of the nave suggest that a south aisle was added c. 1200. The lower part of the west tower may have been added in the fourteenth century.

In the late fifteenth century the roofs over the nave and chancel were replaced and the tower was probably remodelled. In the early sixteenth century the south aisle was remodelled and extended, probably in two phases to include a south chancel aisle, and a north chapel was added. Slightly later, but pre-Reformation, a south transept chapel was added and at about this time the east wall of the chancel was rebuilt. In the nineteenth or very early twentieth century the north wall of the chancel was rebuilt and a north porch added to the north doorway as a feature which disguised buttressing to the leaning nave wall.

**Project officers:** Eric Berry, Kate Newell. **Project manager:** Nigel Thomas.

### St Clement’s church, Withiel

Recording during roof repairs revealed that the building was significantly extended and rebuilt in the early sixteenth century, that it underwent a Picturesque Gothic remodelling in the late eighteenth or early nineteenth century (apparently prompted by structural failure) and further works, including entire replacement of the nave and chancel roofs, about 1900. Surviving from the medieval building is a short length of wall west of the south arcade and evidence for a leaning north wall adjoining the tower. Tudor-period extensions included a south aisle (including the surviving wagon roof), a north chancel chapel, a west tower and a south porch.

The Picturesque Gothic scheme involved the rebuilding of the east end of the south aisle, this having become necessary due to a racked (leaning) roof, and complete rebuilding of the nave and chancel except for the south arcade. A probable former north chancel chapel was demolished and replaced with a lean-to aisle, now vestry, incorporating the former north arcade features.
Trenance Cottages, Newquay

Restormel Borough Council, the present owners, requested HES to undertake an assessment in advance of proposed renovation and presentation works on this late eighteenth-early nineteenth century cottage row, which represents an important survival from the pre-park landscape of the Tolcarne valley. The tithe survey of 1839 records the building as a ‘malt house and garden’ and the 1841 census lists a maltster. No evidence relating to malting was observed in the field. The row comprises three cottages with an attached projecting range of outbuildings set at right angles on the north end. The rear wall of the cottages is of one build, indicating that the complex was constructed as an entity. The front wall of the southern cottage projects beyond the other two and this seems to represent a refronting, creating a larger property and also providing a larder space for the middle cottage. Keystone voussoirs on many of the doors and windows of the front elevation suggest the cottages were upgraded or adapted as one exercise.

Maritime projects

Royal Anne Galley marine environmental assessment

HES and Penzance-based maritime archaeologist Kevin Camidge were commissioned by English Heritage to undertake a desk-based assessment of the Royal Anne Galley, a protected wreck lying just off Lizard Point.

The Royal Anne Galley was a small, fast warship, an oared frigate. Her launch was recorded in the London Journal: ‘Tuesday [30 June 1709] was launched at Woolwich the Royal Anne Galley, of a new invention under the direction of the Marquis of Carmarthen, carrying 40 guns, being the finest that was ever built’. In the late seventeenth and early eighteenth centuries at least 22 such galley frigates were built for the Royal Navy; they were originally designed to combat Barbary Corsairs in the Western Mediterranean. The Royal Anne’s service history is well documented in Admiralty records held at the Public Record Office Kew and mainly comprised convoy duty or ‘hunting pirates’.

The Royal Anne was wrecked in a storm off the Lizard on 10 November 1721. About 200 crew and passengers were lost including John, 3rd Lord Belhaven, who was en voyage to take up a new post as Governor of Barbados. According to local tradition and nineteenth-century literary sources, the ship’s crew and passengers were buried in hastily dug mass-graves at nearby Pistol Meadow, now owned by the National Trust.

The wreck site was discovered in 1991 by local diver Rob Sherratt when a large sounding lead was found adjacent to two iron guns. Subsequently numerous objects were recovered from the seabed in the immediate vicinity, including items of cutlery bearing the Belhaven crest, which led to the identification of the site. The site was designated under the Protection of Wrecks Act as the Royal Anne in 1993. The designation extends for a radius of 100m from position Latitude 49˚57’.27N, Longitude 005˚12’.56W (datum unknown).

The centre of the protected area lies 154m from another, undesignated, wreck site at Quadrant Rock. It has long been suspected that the Quadrant Rock site represents part of the wreck of the Royal Anne and the desk-based assessment considered the evidence for this. English Heritage has since advised the Department of Culture, Media and Sport that they can recommend re-designation of the Royal Anne Galley site to encompass the Quadrant Rock site.

Although the Royal Anne lies close inshore in less than 5m of seawater the area is surrounded by rocks and large Atlantic swells make access difficult. The rocky seabed is a very dynamic environment with deep gullies and crevices obscured by thick kelp. No organic material has been recovered to date and the site seems to be artefact-bearing rather than containing any remaining ship’s structure.

The desk-based assessment included an archaeological and environmental assessment of the Royal Anne and also an assessment of methods of data collection and a methodology to integrate all the disparate oceanographic data sets in order to provide high quality, auditable advice which is applicable not just to the management of the Royal Anne but to protected wreck sites in general.

Project staff: Bryn Tapper. Specialists and consultants: David Gregory, National Museum of Denmark (iron corrosion specialist); Mark Jones, Mary Rose Archaeological Services; Jon Rees, CEFAS (physical oceanographer); Phil Rees (marine geologist). Project managers: Charles Johns and Kevin Camidge.
South West Wave Hub

HES was commissioned by Halcrow Ltd to undertake an archaeological and historical assessment of the proposed South West Wave Hub, off Hayle, as part of the wider Environmental Impact Assessment for the Wave Hub project. This consists of three parts: the Wave Hub Unit itself, some 35km offshore at a depth of approximately 50m; a cable running from the Wave Hub to the shore, and a substation, to be constructed at the site of the former Hayle power station, connecting the cable to existing power lines.

This project was the first to adopt a seamless approach to the assessment of maritime, intertidal and terrestrial sites and incorporated desk-based research, geophysical techniques and a walkover survey of the terrestrial part of the project area.

- Project staff: Bryn Tapper. Specialists and consultants: Kevin Cambridge (maritime archaeologist); Phil Rees (marine geologist). Project manager: Charles Johns.

England’s Historic Seascapes: Scarborough to Hartlepool pilot area

HES was commissioned by English Heritage to undertake a project to apply Marine Historic Landscape Characterisation (MHLC) to the coastal, intertidal and marine zones of North Yorkshire and Teesside, from Scarborough to Hartlepool, as part of the Historic Seascapes project. This was one of four pilot projects of varying coastal and marine contexts designed to test the methodology recently developed by Wessex Archaeology in Liverpool Bay. The MHLC aims to provide a base survey that will better inform marine spatial planning and encourage the sustainable future use and management of the marine environment. Initial characterisation is being applied to two trial areas, a coastal and inshore area centred on Scarborough and an offshore area over the Dogger Bank.


Islands in a common sea

The Islands in Common Sea project is a partnership between HES, the School of History and Archaeology at the University of Cardiff and the School of Conservation Studies (Archaeology and Historic Environment) at the University of Bournemouth. The project seeks to reinvigorate archaeological research into the prehistory of the Isles of Scilly, explore the relationship between the archipelago and the south-west British mainland and enhance understanding of the archaeology of the Atlantic façade.

The first season of fieldwork was undertaken in September 2005; sites investigated and recorded on St Mary’s included a Bronze Age cairn exposed in the cliff face at Pendrathen and a recently discovered Iron Age – Romano-British cist grave cemetery. On St Martin’s, in addition to coastal monitoring, vegetation management and survey was undertaken on two Bronze Age cairns on Tinkler’s Hill and a possible prehistoric settlement and field system was surveyed at Round Bowl.

- Project staff: Carl Thorpe. Specialists and consultants: Jacqui Mulville, School of History and Archaeology, University of Cardiff (co-director); Amelia Pannett, Cambrian Archaeology Litchis); Helen Smith, University of Bournemouth (co-director); Tim Young, School of History and Archaeology, University of Cardiff (geophysics). Students (Cardiff University): Jill Campbell, Julia Geall, Matt Jones, Libby Lane, Fiona Pink, Sarah Rose, Imogen Sambrook, Paul Tasker. HES project manager: Charles Johns.

Tamar Valley Mining Heritage Project

HES was commissioned to carry out archaeological assessments of several sites on the Devon side of the Tamar, including Wheal Russell mine, New Quay, Gawton mine and the Bere Alston to Tavistock Railway, as part of the Tamar Valley Mining Heritage Project. This is aimed at preserving the mining heritage of the valley but also at conserving the natural environment and tapping into local knowledge.

The survey of Wheal Russell Mine identified 65 sites: the remains include seven shafts, three adits, three water wheel pits, late medieval openworks and gunnises, large spoil dumps, reservoirs, leats (up to 2.5 miles long), incline tramways and railway routes. The entire ore dressing floor and related buildings were identified as well as Impham Quay, a small eighteenth-century ore quay. Other important sites in the assessment included the Devon Great Consols Incline railway down to Morwellham, the Tavistock Canal (south terminus) and a related canal incline.

Gawton Mine, one of the earliest scheduled mine sites in the south west, has probably the best examples
of mineral ore and arsenic dressing buildings in the south west and the best extant remains of a mid eighteenth century ore quay. The study identified 70 sites: nine shafts, four adits, two water wheel pits, late medieval openworks and gunnises, large spoil dumps, well preserved reservoirs, settling tanks, a long leat and three incline tramways.

The Bere Alston-Tavistock Railway assessment focused on the remains and condition of the railway, bridges and track to assess the potential for conversion for public access. Recommendations were made for positive conservation management of the bridges and track.

- Project staff: John Smith, Ainsley Cocks. Project manager: Colin Buck.

Lescudjack Castle, Penzance

The Iron Age hillfort known as Lescudjack Castle, although a Scheduled Monument, is one of west Penwith’s least known archaeological treasures. It lies within the north-east suburbs of Penzance, surrounded by houses, but has superb views to St Michael’s Mount and across Mount’s Bay. In the nineteenth and early twentieth century it provided a vantage point which was used frequently by artists and photographers.

Part of the site came up for sale in 2005 and was purchased by Penwith District Council with the aim of protecting an important element of the area’s heritage and creating a new public open space. With help from the Heritage Lottery Fund, the Council commissioned HES to provide an archaeological assessment of the site.

Other hillforts in west Cornwall are located on upland rough ground and Lescudjack is unusual in being sited close to the coast and at only 60m above sea level. It was once a substantial earthwork: William Hals described it in the early eighteenth century as ‘that notable treble entrenchment of earth, after the British manner’. However, because it lay within Penzance’s agricultural hinterland – the hillfort interior had been divided into several fields by c 1700 – and was subsequently engulfed by expansion of the town’s built-up area, preservation of the former earthworks is relatively poor. By the early 1860s the enclosing earthen rampart had ‘almost disappeared’. In the later twentieth century construction of houses around the site and road widening encroached further on the former line of the ramparts. Since World War II a substantial part of the interior has been used as allotments.

Despite this history, Lescudjack remains a spectacular site. Its striking situation, views and basic plan are preserved and there is potential for the survival of buried archaeology. A geophysical survey carried out as part of the assessment indicated an internal quarry ditch, providing a hint of the probable scale of the original ramparts; a surviving fragment of these was identified during a measured survey and walkover carried out by HES. Geophysics also showed a possible entrance, facing downhill towards a plausible location for a former landing place for sea-going vessels in the lee of the Penzance headland. The way in which the hillfort was laid out suggests that it was intended to be particularly impressive from this direction. The site would also have been particularly prominent from the sea and it is possible that it was located as it was with the aim of being visible and accessible to seaborne traders arriving in Mount’s Bay.

The HES assessment also traced the more recent history of the area. During much of the eighteenth and nineteenth centuries the hillfort was part of a larger property owned by the Rogers family, major landholders and mining magnates in west Cornwall, several of whom also had antiquarian interests. There was some copper mining in the immediate vicinity of the hillfort ramparts during the later eighteenth century. Evidence was also found for two nineteenth-century schemes which, had they gone ahead, would have had a significant impact on the site. In the 1830–40s the hillfort was proposed as the site for a villa estate, and several access roads were built, the project reflecting Penzance’s commercial success and growing reputation as a resort at this period. About 1860 the Castle was proposed as the site for a large Victorian Gothic viewing tower, to be built by public subscription as a monument to the Penzance-born Sir Humphry Davy.

[A report on the results of the Lescudjack Castle assessment will appear in a future volume of Cornish Archaeology.]

- Project officer: Graeme Kirkham. Project manager: Andy Jones.

The HEATH project

HEATH is an international partnership project, funded through the Heritage Lottery Fund and Interreg (NW Europe) and administered by Natural England (formerly English Nature) with partners in Cornwall (including Cornwall County Council), Brittany, Normandy, and the Netherlands. The title
acronym, HEATH, which stands for Heathland: Environment, Agriculture, Tourism and Heritage, reflects its wide-ranging approach, including recognition of the historic and economic aspects of heathland and rough ground.

The historic environment forms an important element of west Cornwall’s heathlands: the heaths were created by Bronze and Iron Age farming practices, and maintained by medieval and early modern ones, most importantly grazing, but also the cutting of turf (peat) and furze (gorse) for fuel and bracken for animal bedding.

The HES contribution to HEATH included archaeological assessments on six substantial areas of heathland on the Lizard, all National Nature Reserves: Goonhilly Downs, Polcoverack, Lizard Downs, Main Dale, Golgotham, and Crousas Downs. Rapid management assessments were also undertaken on more than 50 other areas in west Cornwall to provide land managers with baseline information on areas of sensitivity, help guide vegetation clearance and highlight opportunities for access and interpretation.

Additionally, English Heritage supported production of two substantial reports, to be published in 2008 or 2009. The first of these provides an overview of the agricultural, economic, social, archaeological and cultural significance of rough ground, from prehistory to the present. The second study brings together guidance on good management of the rough ground historic environment.

English Heritage also provided ‘in kind’ support with a review of the palaeoenvironmental literature for west Cornwall by Dr Vanessa Straker (English Heritage)
Heritage’s South West Archaeological Science Advisor), to summarise current knowledge of prehistoric and historic environments on west Cornish heathlands, and a programme of sampling and prospecting for suitable deposits for further analysis and appraisal.

- Project officers: Peter Dudley, Graeme Kirkham, Matt Mossop, Cathy Parkes, Bryn Tapper, Sean Taylor, and Megan Val Baker. Project manager: Peter Herring.

**Turnaware, St Just-in-Roseland**

The National Trust commissioned HES to survey its land on the River Fal at Turnaware. The most extensive archaeological remains here are those forming the World War II complex used in advance of D-Day, 1944. Here, as elsewhere, the embarkation piers were dismantled after the war, together with the huts used in running the ‘hard’ or slipway complex. The slipway berths flanking the piers survive well, however, as do the bases of buildings, with a range of other remains, from access ways to possible wartime graffiti.

The best-known earlier archaeology is a hoard of Roman coins, found by soldiers in 1943, above the Point. The hoard and its context are unfortunately poorly recorded and most of the coins are now lost. In the medieval period charcoal was made in the woods, leaving dozens of working platforms. A fishery at Turnaware was recorded in the twelfth century and a sixteenth-century map shows a weir or fenced fish trap east of the Bar. Submerged and tidal remains visible nearby are probably associated with the oyster trade, still continued today. In the nineteenth century Turnaware was part of the ornamental landscape of the Trelissick estate. A plantation enhanced the view from Trelissick House, across the Fal, and an alcove in Camerance Wood is thought to have held a seat, offering a view back over the river to the mansion and its grounds for parties exploring this shore.

- Project officers: Cathy Parkes, Nigel Thomas, Emma Ruddle. Project manager: Peter Herring.

**North Land’s End pipeline, St Just-in-Penwith**

Between May 2005 and February 2006 HES undertook a watching brief on a South West Water sewage transfer pipeline laid between Boscaswell and St Just. This identified a series of archaeological finds and features, ranging from substantial prehistoric flint scatters to medieval and post-medieval boundaries and other landscape features. The two most significant discoveries were an Early Bronze Age ‘burnt mound’ site associated with Beaker pottery and a Romano-British site with evidence for metalworking.

The Romano-British site was located in a field to the north of Botallack. A 40m long curving ditch contained a charcoal-rich fill which included a small quantity of Romano-British pottery and metal slag. Scanning of the residues from the samples with a magnet produced small amounts of hammer-scale, which was probably associated with smithing or iron-working. The charcoal from the ditch consisted of narrow roundwood, mainly of oak but also hazel, holly, the hawthorn/Sorbus group and birch, with indications of exploitation of managed, coppiced woodland sources. A radiocarbon determination of AD 210 – 420 was obtained from the ditch, which may have been part of an enclosure. An undated post-ring structure may have been associated with it.

[The results of the work on the Beaker burnt mound are reported in this volume; the Romano-British site and other elements of the project will be reported in a future volume.]

- Project officers: Matt Mossop, Emma Ruddle and Adam Sharpe. Project manager: Andy Jones.

**Truro College playing fields, Kenwyn**

HES carried out an archaeological excavation at Truro College playing fields, Threemilestone, in advance of construction work for the new Fal Building and upgrading of sports fields at the college. Three large areas were topsoil-stripped by machine, targeting possible archaeological features indicated by a geophysical survey. The archaeological work was concentrated in one of the areas adjacent to the site of the new Richard Lander School where Late Bronze Age activity and a Late Iron Age settlement of 12 round or oval structures were discovered by HES in 2004. Further remains of the Late Iron Age settlement were discovered in the 2005 project, in the form of an oval structure which appears to have been ancillary to one of the houses excavated during the Richard Lander School development. All structures with presumed domestic function on that site were associated with oval enclosures, perhaps for protecting livestock or crops.

Fragments of Middle-Late Iron Age South Western Decorated Ware dating to the second or first century BC were recovered from the gully
surrounding the structure, a La Tène brooch, well-preserved by Cornish standards and of broadly the same date, was discovered alongside this pottery. A little to the east, a steep-sided, L-shaped ditch may be broadly contemporary, containing Middle Iron Age South Western Decorated Ware. The ditch extended beyond the limits of the site and may have been part of a field system.

This ditch was found to overlie another prehistoric settlement, but in this case dating to the Early Iron Age (provisionally seventh to fourth centuries BC), perhaps the most significant discovery in the excavation. This took the form of four structures comprising rings of postholes, three of which had internal hearth pits. These structures were presumably roofed and probably had wattle and daub walls. They produced exclusively Early Iron Age pottery. Finds also included fragments of ‘anvil’ or ‘pillow’ stones from one of the structures, with traces of metallurgical debris adhering to them, suggesting that they were connected with metalworking. Fragments of copper alloy ingots were also found in this area. This structure contained a hearth-pit with more than 200 sherds of pottery. Associated with these post-rings were several possible four-post arrangements, perhaps indicating above-ground storage structures.

Further Early Iron Age pottery was found in a group of pits and postholes a little to the east. The same area contained Late Bronze Age features, including an elongated pit producing pottery similar to sherds excavated a short distance to the south during the 2004 excavations; another pit containing Late Bronze Age pottery produced an unusual group of six mullers and a broken saddle quern. These finds are of particular interest since the deposition of worn cereal processing equipment in Cornwall is typically associated with the abandonment of houses of Middle Bronze Age date.

The earliest activity at the site was represented by Middle Bronze Age (c 1500 BC) Trevisker Ware pottery in the same area and to the west, from a post-ring structure. Although this material may be residual it suggests that there was a settlement of this date in the near vicinity.

[A report on the work at Truro College, together with the results of investigations carried out on the new Richard Lander School site nearby, will be published in a future volume of Cornish Archaeology.]


**Tregony**

HES was commissioned to undertake archaeological recording at Penlee House, Tregony, in advance of development. This followed previous surveys that had identified a number of potential sites within the development area. A key target for investigation was a small rectangular ditched enclosure of potentially Romano-British date identified by a geophysical survey. This was probably square and measured 16m across. Within it were a number of pits and other features. At the base of one of the pits were discovered two pottery vessels. The tallest, a poorly-made jar, contained the cremated remains of an elderly woman. The other vessel is a small, handled jug. A hole had been made, deliberately, in the side of this vessel in antiquity, and the vessel contained further cremated remains of the same person. Both vessels have been tentatively assigned to the second century AD and both, although made in Cornwall, copy the form of Black Burnished Ware vessels from Dorset.

Three large pits containing deposits of charred cereal grains were excavated in the same general area. A pit within the enclosure was observed to contain a large postpipe that may have held a stone, perhaps a memorial to the woman buried nearby. The other two pits were adjacent to each other, situated 10m to the north-east of the enclosure. In addition to the charred grain found at their bases, these pits held two fragments of tile, one with incised wavy decoration, and two pottery sherds, one with an incised linear and zigzag decoration. A fragment of tile was also recovered from the enclosure ditch. The presence of three fragments of probable Roman tile is rare in a Cornish context, previous examples being known only from the villa at Magor, and from Little Quoit Farm at St Columb. Three different fabrics have been identified from these two sites: local gabbroic (from the Lizard); one with igneous inclusions, possibly local, but thought more likely to be continental; and a calcareous fabric, possibly manufactured in the Solent area.

Cemetry enclosures of this period are fairly common in lowland Britain, but are previously unknown in Cornwall, and indeed Devon, although...
a number of cremations have been found in Exeter in a Roman military context. However, a number of unstratified finds and cropmark enclosures in Cornwall may relate to similar sites. [A report on the Tregony cremation burial and other aspects of the project will be published in a future volume.]

- Project staff: Francis Shepherd, Imogen Wood.

Scheduled Monument Management Project

A number of initiatives were undertaken through the Scheduled Monument Management Project, funded by English Heritage, the Heritage Lottery Fund, Cornwall County Council and the St Piran’s Trust.

St Piran’s Church, Perranzabuloe

Working with the St Piran Trust and many volunteers, HES carried out a four-week excavation at the site of the medieval parish church of Perranzabuloe, located in the dunes to the north-east of Perranporth, in September and October 2005. The church is believed to date to the eleventh or twelfth centuries and lies some 250 metres to the east of St Piran’s Oratory, which local tradition claims was constructed by Cornwall’s patron saint.

Originally a small structure, the church was enlarged between the thirteenth and fifteenth centuries, when a tower was also added. For much of its later life, the church was subject to sand inundation: by the eighteenth century it was quite normal for parishioners to have to dig out the porch in order to gain entrance to the church. Early in the nineteenth century, a decision was taken to build a new church about 2.5km inland and in 1804–5 St Piran’s was part-demolished to provide materials for the new church and then allowed to decay. C S Gilbert famously described the old church in 1820 as ‘ruinous, being divested of its roof, pillars, window frames and towers’, adding that ‘broken walls, staring windows and shattered tombstones are here seen in melancholy confusion, while the interior of the ruin is filled with sea sand.’

By the beginning of the twentieth century the remains of the church were completely masked by sand. Part of the site was excavated by T F G Dexter between 1917 and 1920, who concentrated his efforts at the eastern end and excavated along the walls to define the shape and size of the structure. No consolidation was carried out after the excavation: the exposed stonework was allowed to deteriorate and some of the walling was lost to collapse.

The 2005 excavation was carried out by a team of archaeologists and a large number of local volunteers. More than 200 tonnes of sand were removed and much of the northern wall of the church and the footings for the tower were uncovered for the first time in nearly 200 years. Important finds included the discovery of a carved column base near the internal entrance to the tower and the remains of a grave slab dating to the 1620s. Four evaluation trenches were also dug to investigate potential below-ground archaeological remains outside the church, which had been identified by a geophysical survey in 2004. The old ground surface of the churchyard (buried below later sand blow) and the stone-faced boundary of the churchyard enclosure were both examined, with considerable disturbance from mining activity noted on the exterior of the enclosure. One trench was excavated in an attempt to locate evidence for a cottage depicted on an eighteenth-century painting of the church. The building was not found but prehistoric pottery of probable Bronze Age date was recovered in association with evidence of possible industrial activity.

[An illustrated booklet describing the investigations at St Piran’s church is available from the Historic Environment Service.]

Wharncliffe Arms, Tintagel

A uniquely decorated and inscribed stone cross of probable eleventh-century date, located in the forecourt of the former Wharncliffe Arms Hotel in Tintagel (SX 05750 88417), was restored in February 2006. The cross, which had been loose on its base for many years, was lifted for safe storage during building works at the former hotel and this provided the opportunity to reset it securely.

St Clether holy well and chapel

Work to improve access to St Clether holy well and chapel, including path surfacing and provision of new gates and stiles, took place in December 2005. The work was organised by the owner of the monument in liaison with HES.

Marshall’s Shaft whim engine house, Troon, Camborne

Work organised by Cornwall County Council’s Countryside Service was carried out on numerous industrial heritage sites as part of the Mineral Tramways Project. Conservation masons undertook extensive repointing, the resetting of loose masonry, installation of a lightning conductor and replacement of rotting timber lintels on this building at the western end of the Great Flat Lode. HES acted as historic building consultants during the works, also upgrading the existing building survey.

- Project manager: Adam Sharpe.

St Just Regeneration Project: Botallack arsenic calciner

This clifftop structure on Botallack cliffs, with its associated labyrinths and chimney, is the best-preserved arsenic works in Cornwall and has been a Scheduled Monument for many years. With a number of other mine structures in the area, it was conserved and made safe by the Objective One-funded St. Just Regeneration Project, organised by Cornwall County Council’s Countryside Service. HES provided consultancy throughout the project.

- Project manager: Adam Sharpe.
Exeter Archaeology: projects in Cornwall, 2006

Melbur Pit, SW 9166 5606
St Stephen’s-in-Brannel
A J Passmore of Exeter Archaeology recorded an engine house prior to its demolition. It dated to the 1880s and would have housed a small horizontal steam engine and winding machinery. A later extension had largely been removed. (Exeter Archaeol. Rep. 06.82)

St Pinnock, SX 2004 6321
Church of St Pynochus
J Allan, T Collings and R Parker of Exeter Archaeology carried out a rapid assessment of the structural history and furnishings of the church on behalf of the Churches Conservation Trust to inform the Trustees in their consideration of whether the church might be taken into their care. (Exeter Archaeol. Rep. 06.60)
There is no doubt that Harold Fox will be considered one of the great historians of the south west and all work on medieval and later landscapes in Cornwall will for a long time be informed by his ground-breaking research. With meticulous and critical scholarship he regularly overturned established views on the form and development of rural and coastal settlement, economy and society. His Cambridge University PhD thesis (Fox 1971) on the field systems of Devon and Cornwall was both exceptionally wide-ranging and deep. Although rarely cited in Cornish publications, its influence has been transmitted partly through Harold’s own secondary research and partly through the use made of it by later landscape historians (e.g., Herring 2006). Relentlessly compiling the case for widespread small-scale open fields and their early enclosure (largely in the later medieval period) and thus their absence from most traditional sources, he built on one of the more overlooked aspects of the 1950s work of W G Hoskins and H P R Finberg.

Using documents as the framework for his thesis, he constructed an unassailable case, much to the chagrin of those who preferred Devon and Cornwall to have never had strip fields but instead to have been the home of solitary pastoralists working in their Celtic fields. Harold told me that people would even jeer from the back rows of audiences when he first started to present this work in Cornwall! But, he knew what the implications of the existence of communal and cooperative systems were for our understanding of medieval south-western society and subsequent work has confirmed and reinforced his conclusions. Probably the most accessible and complete presentation of his thoughts on the peculiar form of Cornish medieval estates and landholding systems (from which so much of our equally peculiar history can be read) can be found in the introductory essay (co-written with Oliver Padel) in the Devon and Cornwall Record Society publication of extracts from the Arundell estate archive (Fox and Padel 2000), now held by the Cornwall Record Office. This is essential reading for anyone contemplating medieval Cornwall.

Harold also followed Hoskins and Finberg to the Department (now Centre) of English Local History at Leicester where he was based from 1976 until just a few weeks before his untimely death. Although he produced significant work on the Midlands (using his flair for placing the particular within generalising models to profitably turn over the well-ploughed ground of the study of the classic Three-Field systems of England’s great ridge and furrow landscape), his affection for his native Devon and neighbouring Cornwall endured and he always had stimulating work on the go down here.

Being a largely solitary, but sensitive person, he was drawn to the study of people on the edge of society, seeing the wider value of studying transient workers who made occasional and seasonal use of marginal parts of the landscape, the coast and the moors in particular. He brought medieval summer tanners, millstone makers, shepherds and cowherds back into our peninsular story. But he also worked out how they related to and fitted in with the mainstream economy and society and so how they...
contributed to the bigger picture. Opportunism and speculation, as much as desperation, were often the key (Fox 1994a; 1994b).

Harold undertook the first detailed historical work on outfield cultivation of ‘wastes’ in Devon and Cornwall, tying farmers’ opportunism to market peaks and so to regional and national trends (Fox 1973). He de-romanticised popular accounts of south Devon coastal settlements replacing them with more authentic (and much more romantic) tales of huers, palaces, seines, cellars, lights and chapels (Fox 2001). Shoals of pilchards were exploited with the sort of opportunism that will be familiar to those who know how Cornish and Devon miners invested capital and craft in the pursuit of equally elusive veins. A second monograph, on pastoral use of the ‘alluring uplands’ of Dartmoor, was left nearly complete on his death; this will be published posthumously.

He was one of the closest and most precise and critical observers of the particular place, but his breadth of reading and awareness of broader issues meant he had the ability and confidence to place the particular within the patterns of the general. For example, Harold was one of the first to identify agricultural sub-regions within both Devon and Cornwall, initially in his 1971 thesis, and sporadically thereafter. He eventually used the French geographers’ term pays to help understand and present the sub-regions of Devon and Cornwall (Fox 1989). Particular and distinctive forms of mixed agriculture developed in a varied landscape offering different opportunities and producing different modes of operation, reflected in such enduring aspects as varying dialect, vernacular architecture and hedging styles.

He was a beautiful writer, creating quiet dramas in each paragraph, and with never either a wasted or a wrong word. He was also a close, critical, but encouraging reader and one of his largely unseen contributions to studies of the south west was the support he gave to those making their way in the world that he cared for most. He was very supportive of societies, local and national and was good at taking the stories and lessons to be learnt from the south west to the rest of the UK. We will increasingly miss that influence.

On a personal level, everything I have ever written on medieval Cornwall was written with Harold as the reader in mind. I knew he would get to see it, eventually, and he would always let me know how it might have been improved. Restless rascally eyes and mind, with an attractive interest in the less conventional sides of people and the darker corners of places, made for excellent company. People wanted to be his friend, to work him out, to explore our remarkable part of the world with him.

Peter Herring

References


REVIEWS

Rillaton reconsidered and the Kentish Ringlemere gold cup: the British Museum’s publication of Europe’s Bronze Age cups

PAUL ASHBEE


This publication from the British Museum reviews, in the light of the crushed, corrugated gold cup found in 2001 on Ringlemere Farm, near Sandwich in eastern Kent, the nature of western Europe’s precious cups – unique, distinctive vessels. Investigation of the Ringlemere cup’s find-spot showed that it was likely to have been ploughed from a huge barrow, 150m in diameter, which had been sited upon a single-entranced henge. This remarkable discovery, made by a responsible metal detectorist, has now been definitively published. The A4 glossy-backed publication is edited by Stuart Needham, Keith Parfitt and Gill Varndell and they are joined by Aaron Birchenough, Chris Butler, Caroline Cartwright and Susan La Niece. Illustrations are by Barry Corke and Stephen Crummy.

There are nine comprehensive chapters, the work of the principal authors. Thus, ‘The background and survey work’ and ‘The excavations 2002–2005’ are the work of Keith Parfitt; ‘The gold cup’ is by Stuart Needham, supported by Susan La Niece, and ‘Other prehistoric material’, together with some radiocarbon dates, is by Stuart Needham, Gill Varndell, Chris Butler and Keith Parfitt; the latter also examines ‘Ringlemere and ritual and burial landscapes of Kent’. Thereafter, Stuart Needham discusses ‘Precious cups of the Early Bronze Age’, ‘Precious cups: concept, context and custodianship’, ‘Networks of contact and meaning: the beginning of the Channel Bronze Age’, and, with Gill Varndell, he has set down a catalogue of ‘Early Bronze Age precious cups in north-west Europe’. There is a modest but effective bibliography and lists of figures, tables, plates and remarkable colour plates.

The catalogue is of considerable value to all concerned with the series of cups termed ‘precious’. The Ringlemere cup (Fig 1), found in a plough-crushed condition, takes pride of place with an ‘ideal reconstruction’, a computer-based technique which has been used for the 15 vessels studied. Seven of these are of gold, two of silver, two of amber and four of shale. Details are also given of a cup, perhaps of shale, found in a large barrow at Stoborough, Dorset (Ashbee 1960, 86). Of especial interest is the illustration (fig 41) of the Rillaton gold cup (Fig 2) with a corrugated, rounded base. The evidence for this is a watercolour sketch (Needham et al, 2006, colour plate 7) which depicts the cup as found, perhaps even made in 1818, which clearly shows that its base has subsequently been flattened. This is important because it has for a long time been thought to be beaker-like (Ashbee 1960, pl XXIVa; Clarke 1970, II, frontispiece).

Until the discovery of the Fritzdorf cup in 1955, the Rillaton cup was thought to be unique, although counterparts in amber and shale were known. Its vicissitudes were considerable and it is no longer the cup taken from a cist in the great Rillaton cairn early in the nineteenth century. Indeed, its history is obscure prior to its 1837 acquisition by William IV.
Fig 1  The Ringlemere cup  
(after Needham et al, 2006)

Fig 2  The Rillaton cup  
(after Needham et al, 2006)

Fig 3  The Fritzdorf cup  
(after Needham et al, 2006)
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Subsequently it lingered for long among the miscellany at Osborne House, on the Isle of Wight, came into the hands of George V, who is reputed to have used it as a receptacle for his collar studs, and it was finally passed to the British Museum by Edward VIII. R A Smith (1936–7, 2) records damage. It is unknown whether or not its base was flattened by royal command, but it should not be overlooked that it also spent some time on a mine captain’s chimney-piece. Smith (ibid.) said that ‘The metal has now been pressed into its original shape, but a few cracks remain, and the handle has been replaced with some extra added rivets.’ Moreover, it should be noted that until the discovery of Kent’s Ringlemere gold cup, few thought about the Rillaton cup’s base, as the handle attachments were similar to those of the Fritzdorf cup (Ashbee 1960, pl XXIV, a, b; Piggott 1965, 134). The frontispiece in Clarke (1970, II) clearly shows, however, the Rillaton cup’s mutilated base. Notably, during the nineteenth century, Daniel Wilson (1851, 406–7) reported the date of the cup’s discovery as 1818, saying that ‘It is bell-shaped and rounded below, like the Danish gold cups . . . engraved in the Guide to Northern Antiquities’. Sir Edward Smirke (1867) advanced its date of discovery to 1837 and prefaced his account of the cups . . . engraved in the Guide to Northern Antiquities with an engraving of cup and base reproduced by Clarke (ibid., pl 12), and a handle with rivets and lozengiform washers similar to those of the Rillaton and Fritzdorf cups. It has a body height of 123 mm and is therefore larger than the Rillaton cup (Fig 2), which has an estimated body height of 95 mm, and marginally larger than the Fritzdorf cup (Fig 3), which has a body height of 121 mm.

The cups have been the subject of reconstruction drawings. An ideal reconstruction of the Rillaton cup (ibid., 85, fig 4i) convincingly depicts it as having a rounded base, but, unlike the Ringlemere cup, corrugated. This reconstruction is substantiated by a watercolour depiction of the Rillaton cup by Charles Hamilton Smith dated 1837, which has come to light in Plymouth and West Devon Record Office, Plymouth (ibid., 84).

It is likely that the Rillaton gold cup’s interment within a pottery vessel, in a stone cist, together with an ogival dagger and what may have been faience beads, all furnishing a cremation burial (Gerloff 1975, 107), kept it from damage. Only the cup and a piece of the dagger have survived and, as can be seen from the newly-found watercolour sketch (Needham et al 2006, colour pl 6), the cup was clearly undamaged when found. It has been said that it was found as early as 1818 (Wilson 1851, 406–7) and that before 1837 it adorned a mine captain’s chimney-piece. Stuart Needham has now established that there is a considerable amount of recent damage, besides the flattening of the base. Indeed, there has been polishing and there are striations, stress cracks, presumably from the base flattening, and not least what may have been nineteenth-century repairs involving the use of solder. Moreover, the handle may have been removed and re-attached, and a missing rivet provided.

As was briefly observed above, the similarities of workmanship observed in the Rillaton and Fritzdorf gold cups (Ashbee 1960, 146) were thought significant, although whether or not the western European craftsmen were directly influenced by those of Mycenae (Piggott 1965, 134) is debatable. Nevertheless, it can now be seen, in the pages of this remarkable report (Needham et al 2006, 83–8) that there are three gold cups – Rillaton, Fritzdorf and Ringlemere (Figs 1–3) – which could have been the work of a specific craftsman, or perhaps a school. Two not dissimilar gold cups found on the European mainland are without handles but are clearly allied to, or are perhaps inspired by, the small southern English-Rhinelan trio. That from Eschenz, canton of Thurgau, Switzerland (Ashbee 1977) bears corrugations, supplemented by bossed and oblique stroke decoration, and has a pronounced tapering, corrugated orbicular base with an omphalos. A not dissimilar gold cup of broader proportions but, sadly, without provenance, although said to be south German (ibid., 92–3), is ornamented with pointillé pendant triangles below its rim topping the corrugations above its maximum girth. Below this are vertical and oblique rills, which emphasize its shallow, rounded, corrugated base.

Closely allied to these two cups is the Gölenkamp gold cup from Bentheim, in Neidersachsen,
Germany. Its decoration is corrugations below the rim, a triple banding of bosses, divided one from another by considerable corrugations. Below these the cup has a plain body with a shallow convex base bearing corrugations which emphasise the flattened omphalos (Needham et al 2006, 88–90).

Composite construction – that is the top secured to a rounded base by rivets – is the mode employed in the Breton silver cup series. It was also used for certain gold cups. A plain gold upper body-part is known from Ploumiliau, Côtes-du-Nord, Brittany (Briard 1984, 134, fig 83a), while a broadly corrugated upper body-piece is known from Cuxwold in Lincolnshire (Gerloff 1975, 257, pl 57 N).

During 1974 the fragments of a much-corroded, handled silver cup, composite and of a plain form comparable with the Fritzdorf gold cup, was dug from a considerable barrow called Bruns Bras, in Saint-Adrien, about six miles north of Guingamp, in Brittany (Briard 1978; Ashbee 1979; Clarke et al 1985, 135). Silver is not unknown in Breton earlier Bronze Age contexts. Pins and even wire-spiral arm-rings were, with what was termed a silver bowl, dug from a barrow at Saint-Fiacre, Morbihan, during the nineteenth century (Piggott 1938, 100). This, from a recent reconsideration, has been reconstructed as a beaker-like hollow-based cup (Needham et al 2006, 94–5). It accompanied a considerable assemblage of bronze daggers, axes and arrowheads, besides gold nails from a dagger hilt. Because of the complexities of cupellation it is possible that fine silver may have had an even greater prestige than gold during the Bronze and Iron Ages (Tylecote 1962, sv).

Sabine Gerloff (1975, 184) followed a suggestion by Stuart Piggott (1938, 83) that Early Bronze Age ceramic cups, particularly those of the Rhineland’s Adlerberg assemblages, were an inspiration for the southern English cups of gold, amber and shale. In Britain, however, there is a not inconsiderable repertoire of handled beakers (Clarke 1970, 412–5), some of which have decorated handles and certain of which recall the precious cups. Some Food Vessels have been dictated by the perhaps prestigious block of amber from which it was made. Found in an oak coffin, where it could have furnished an inhumation burial, it was accompanied by a Wessex II ogival dagger (ApSimon 1954, 58), a whetstone and a fine-grained rock battleaxe, clearly a symbol of office. The only other amber cup, that from Clandon Barrow, near Dorchester, Dorset (Drew and Piggott 1937; Clarke et al 1985, 122–3), has an oval, almost pointed base, and its handle is missing. Nonetheless, its form is comparable, in a general sense, with that of the Fritzdorf gold cup. It furnished a secondary interment in the barrow, where it was accompanied by an...
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atypical Wessex II ogival dagger, a quadrangular gold plate, a shale macehead with gold studs, a perforated incense cup and a collared urn.

The shale cups were featured by the Curwens (1924) and detailed by R D S Newall (1928). There were two from the Amesbury district in Wiltshire and two from Honiton, Devon (Fox 1964, 71–3, plates 25–6). They have now been studied anew by Stuart Needham (Needham et al., 2006, 83–104). They have line-ornamented handles not unlike those of the Rillaton and Fritzdorf gold cups and similar bases. One of the Amesbury shale cups has zoned, encircling line decoration, as does one from Devon. This has zigzag line ornament inside its rim. The bases are pronouncedly ovoid and, like the amber cup from the Clandon barrow, almost pointed. The second cup from Amesbury has around it a single zone of lines, as does that from Farway Down, Honiton. The base of the Amesbury cup is best defined as a flattened ovoid. In general terms the form of these shale cups is that of the Rillaton and Fritzdorf gold cups, a likeness accentuated by the decoration of the handles. The Ringlemere cup’s pronounced shoulder might well have been difficult to copy in shale.

The last of the cups detailed by Stuart Needham (ibid., 103–4) is one dug from the Stoborough ‘King Barrow’ in Dorset in 1767 (Ashbee 1960, 86–7). A body had been partially wrapped in animal skins in a large oak-trunk coffin and the cup, said to have been of wood or shale, was at the unwrapped end of the inhumation burial. It was depicted by Richard Gough (1786, xliv) as broken or distorted. R. Kirwan (1868, 628) and, later, J. Clift (1908) consider it to have been of shale. Stuart Needham has pursued the various sources and presents us with the depiction of a possibly handled, round-bottomed, line-ornamented, rather squat vessel. The diagonal line ornament of the base is not dissimilar in effect to that of the Swiss Eschenz gold cup and the unprovenanced south German example. It is stressed that the early accounts do not mention a handle but Stuart Needham is of the view that the depictions give the impression of the stump of a handle. The close scrutiny of the details of the Stoborough cup, such as they are, is a fitting conclusion to his consideration of the 15 cups.

Functionally the gold, amber and shale cups, a graduated series, are likely to have been special and prestigious drinking cups, perhaps, as has been noted above, an element of what Gordon Childe (1956, 131) termed the ‘ideology’. In passing it should be remembered that ‘drinking cups’ was a term originally applied to beakers by Colt Hoare and Thurnam (1871, 388), ‘beaker’ being an appellation introduced by John Abercromby (1904). Although the nature of the drink consumed from the prestigious cups is elusive, traces of beverages have been found in certain beakers. An age-bent horn ladle found in a beaker during the nineteenth century at Inverurie, Scotland (Ashbee 1960, 122), hints at a liquid carefully measured when apportioned. More recently, traces of mead, flavoured with meadow-sweet, have been detected in a late-style beaker, also found in Scotland (Harrison 1980, 104). On the other hand, beverages, perhaps the counterparts of beers or ales, may have been regularly consumed to, perhaps, redress vitamin deficiencies.

Stuart Needham (Needham et al. 2006, 60–3) has discussed the chronology of the cups and, after an assessment of the appropriate factors, sees the metal cups as partially preceding those of amber and shale. Nonetheless, it is not impossible that the gold, silver, amber and shale cups were used contemporaneously, for in archaeological terms such a situation can be seen. A piece of pointillé ornamented ogival dagger was associated with the Rillaton cup which, as has been stressed, has affinities with those from Fritzdorf and Ringlemere. Ogival daggers define, for the most part, Wessex II (ApSimon 1954), approximately the two centuries prior to 1500 BC. Such a dagger also accompanied the Hove amber cup and a not dissimilar dagger the shale cup from Farway Down. Although the cups recall, in a general sense, certain beaker forms, yet, when they were made, beakers were almost a millennium in the past. They could, however, stand beside such as the Wessex gold-encased shale cones, which are patently aggrandised versions of Beaker conical shale buttons. Indeed, it can be said that most of the Wessex goldwork has a general Beaker character (Coles and Taylor 1971). It is possible that the cups were, in their particular form, archaistic, to invoke the mores of a then perceived ancient past. The monumental dimension of this notion could have been the siting of barrows, as at Ringlemere, upon henges (Needham et al. 2006, 16–30).

Following upon the details of the excavation of the Ringlemere barrow and the realisation that it had been sited upon a henge, Keith Parfitt, who led the work, discusses ‘Ringlemere and ritual and burial landscapes of Kent’. He rightly sees, as has the present writer (Ashbee and Dunning 1960; Ashbee 2005, 119–53) that the paucity of field monuments...
This is shown, before all else, by the recurring exotic Channel Bronze Age (Needham 1947, 143) and the pivotal region. Cornwall, funerary finery equalling that of Wessex, Ringlemere, Hove, Clandon and in Devon and of southern, central regions there was, as at Britain. Nonetheless, it is merging that in this string with its amber, from its great barrow, reinforces this. The emergence, however, of the Ringlemere cup, ceramics, as a satellite region removed from Wessex. east Kent, in terms of its barrows, bronzes and developments in the Low Countries. A further development has been the discovery of Trevisker ware (ApSimon and Greenfield 1972), hitherto thought of as essentially Cornish, at Monkton in Kent (Gibson, MacPherson-Grant and Stewart 1997), while there is also a probable piece from Baston Manor (Philp 2002, 38–9). Across the Channel there are a sandhill find from the Pas-de-Calais (ApSimon and Greenfield 1972, 375) and one from the Île Tathou, off the Normandy coast (Needham et al 2006, 75). In this context the early Scillonian pottery found in the La Varde passage grave on Guernsey (Kendrick 1928, 113, fig 41) should be noted. In this particular direction, however, there is the feeling that the nature of a relationship with Armorica, as, for example, the

Stuart Needham has developed the concept of a Channel Bronze Age (Needham et al 2006, 75–9). This is shown, before all else, by the recurring exotic objects from the barrows of England’s southern coastal strip, from Rillaton to Ringlemere, with a link into the Rhineland at Fritzdorf. Wessex, with Stonehenge and its supportive monuments and barrows, cannot be other than the central, key factor in such a scheme. Nevertheless, Cornwall and Kent at the extremities, linked by such phenomena as the Hove barrow, in Sussex, Clandon in Dorset, and the Farway Down complex in Devon, emerge as of earlier Bronze Age character. There are, of course, the Fritzdorf and other German cups to consider and thus Needham sees a Channel – Rhine – Frisian network.

Since the discovery of the Dover Bronze Age boat (Ashbee 2005, 135) and the bronzes from Langdon Bay (Coombs 1975; Muckelroy 1981, 281–7), the notion of Channel and North Sea crossings to France and the Rhine estuary has emerged as likely and practical. Thus, before all else, Needham has defined a south coast maritime system (Needham et al 2006, 75–81). This, taken together with the Channel coastal distribution of the precious cups and related artefacts, leads him to say that these cups could have been the instruments of propitiatory rites pertaining to sea-going activities. The facts supporting this unattractive concept are cogent and not unconvincing. Small numbers of modest daggers and pins from deep in the European mainland have been found in Wessex and other graves (ApSimon 1954, 46), while British and Irish flanged axes were conveyed eastwards (Butler 1963, 27–47; Needham et al 2006, 80, fig 39). Hilversum urns have for long been thought of as largely of western inspiration (Dunning 1936) and in this context Start Needham brings forward a specific biconical urn from Wouldham in Kent (Cruse and Harrison 1983) which is thought to have been the precursors of urn developments in the Low Countries. A further development has been the discovery of Trevisker ware (ApSimon and Greenfield 1972), hitherto thought of as essentially Cornish, at Monkton in Kent (Gibson, MacPherson-Grant and Stewart 1997), while there is also a probable piece from Baston Manor (Philp 2002, 38–9). Across the Channel there are a sandhill find from the Pas-de-Calais (ApSimon and Greenfield 1972, 375) and one from the Île Tathou, off the Normandy coast (Needham et al 2006, 75). In this context the early Scillonian pottery found in the La Varde passage grave on Guernsey (Kendrick 1928, 113, fig 41) should be noted. In this particular direction, however, there is the feeling that the nature of a relationship with Armorica, as, for example, the

in Kent, and even upon the chalklands of east Kent, has been brought about by later land-use (Needham et al 2006, 47–52). At the conclusion of his consideration Parfitt tells us of a dozen potential earthen long barrows, six of which are at no great distance from Ringlemere, and that the Medway’s stone-built long barrows could have looked to a causewayed enclosure at Burham, a mile or more distant. The possibility that the Roman amphitheatre at Richborough may have been an adaptation of an earlier henge, as at Maunbury Rings, Dorchester (Bradley 1976), is also noted. Its henge-like form was noted by Stukeley (Ashbee 2001, 86; 2005, 113). It is also stressed that after the publication of L V Grinsell’s account of Bronze Age round barrows in Kent (1992), D R J Perkins (2004) counted 739 potential round barrow sites in the county. On the southern part of the east Kent chalklands there were 356 ring-ditch sites, with another 315 on the Isle of Thanet. ‘Special’ barrows, as in Wessex, are absent, but local centres have been identified, as at Wingham Bridge, Ringlemere and flanking the Wantsum Channel, which separates Thanet from Kent.

It is clear that Kent, at the south-eastern end of southern England, was in Neolithic and Bronze Age times, a local centre comparable with the Sussex Downs and Dorset, and with, to the west of Wessex and the great centre about Stonehenge, Devon and Cornwall. Gordon Childe (1947, 143) saw the earlier Bronze Age of Cornwall as a parallel culture rather than an outpost of Wessex society, although Stuart Piggott (1938) had already seen on Farway Down, in Devon, and at Rillaton, elements which he thought of as more at home in Wessex. Later, the present writer, with G C Dunning (1960), saw the chalk of east Kent, in terms of its barrows, bronzes and ceramics, as a satellite region removed from Wessex. The emergence, however, of the Ringlemere cup, with its amber, from its great barrow, reinforces this notion to some extent, for the Wessex earlier Bronze Age, with its focal monuments, must have been a central place for a very much wider area of southern Britain. Nonetheless, it is emerging that in this string of southern, central regions there was, as at Ringlemere, Hove, Clandon and in Devon and Cornwall, funerary finery equalling that of Wessex, the pivotal region.
Wessex I weaponry, may have been overstated and that cultural autonomy was maintained on both sides of the Channel, although there may have been occasional exchanges and small-scale migrations (Needham 2000).

In his exposition of the nature of the Channel Bronze Age, Stuart Needham gives considerable weight to the southern English incidence of amber, the fossil resin from the extinct conifer *Pinus Succinifer*. The principal European source is the erstwhile Prussian coast of the Baltic, while quantities are also thrown up on the shores of East Anglia, sometimes as blocks the size of building bricks (Taylor 1980, 45). However, it is thought that most of the British amber must be from beyond the North Sea as, with the exception of the Little Cressingham, Norfolk, burial (Thurnam 1871, 454), there is a lack of amber in east coast prehistoric contexts. It is therefore felt that most of Britain’s amber is from beyond the North Sea and thus presumably from the principal European source, and that the East Anglian amber was a trigger for more from the Baltic. Such amber is likely to have been brought to Britain as blocks and fashioned into dagger pommels, beads, discs and the like in the west.

Needham’s ‘Channel Bronze Age’, despite its succinct title, is better seen as the Channel – Rhine – Frisian network, a term which he also uses. Some valuable observations are in the last paragraphs of this section (Needham et al 2006, 75–81), notably concerning axe hoards in coastal locations and the emergence of tin-bronze, which would have led to a demand for tin, as is said, upon a prodigious scale. Tin ores in Britain were limited to Cornwall (Hencken 1932, 158–88; Piggott 1977) and Devon, while in Ireland small amounts are associated with the gold of the Wicklow Mountains. Upon the European mainland there is tin in Bohemia, Brittany, Italy and Spain, while many sources such as in Germany (Clark 1952, 195) may have been worked out. Once found, the separation of tin ore from its parent rock was not too difficult a process and thus eventually extraction must have been upon a huge scale (Tylecote 1962, 53–72). That there would have been adequate sea traffic for transport to southern England is a concluding comment.

It emerges that the cups can be considered as a feature of a specific network with its own particular ideology and organisation, and that Britain is likely to have had various networks which addressed which addressed particular aspects of the British Bronze Age’s social structure. Certain axes, particularly those from coastal locations, as in Neolithic times, may have had certain aesthetic, indeed magical properties, and they emerge as an important element within the Channel concept. Socially, the cups were involved in the ritual servicing of a maritime exchange organisation which held the Channel – Rhine – Frisian network together. The Wessex phenomenon, based upon Stonehenge and its surrounding landscape east and west of the Avon, as defined by Stuart Piggott (1938) was a society apart and the coastal areas – Kent, Sussex, Dorset, Devon and Cornwall – would thus have developed their own rituals, involving the cups, as they were geared to the mechanics of maritime exchange.

From all that is detailed and discussed by this notable publication, which begins with the crushed Ringlemere cup from Kent, we are behoven to look at the cherished patterns of Bronze Age development anew.

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Despite its provincial title, the relevance of this engaging volume on the analysis and interpretation of Late Neolithic and Early Bronze Age barrows and related monuments is not restricted to the south-west peninsula, for while it certainly emphasises the importance of regional analysis, there is a broader significance that is applicable right across the country. It is undoubtedly one of the more important and significant studies relating to prehistoric Cornwall to be published for a considerable while.

Some of the problems discussed and investigated are timely as they have also emerged elsewhere during the past couple of decades: the phasing of ceremonial activity at sites such as Amesbury G71 in Wessex (Christie 1967); short chronologies as in the Brenig Valley, Gwynedd (Lynch 1993); the sheer range of circular monuments from Shrewton, Wiltshire (Green and Rollo-Smith 1984); the lack of burial from certain mounds at West Heath, Sussex (Drewett et al 1988); or the continuity of tradition at West Ashby in Lincolnshire (Field, N, 1985). Generally, however, the status of ‘barrow’ studies still rests upon the pioneering work by John Thurnam, Leslie Grinsell, Paul Ashbee and others, who prepared the typologies and put great numbers of spots on maps. Unfortunately, aside from the superb review by Anne Woodward (2000), little new work appears to have filtered through to the archaeological mainstream. Consequently, there is still a widely-held perception that barrows are essentially single-phase monuments constructed to cover burials, with the purpose being entirely funerary. By placing fresh evidence centre stage, this work dispels that view and leaves it abundantly clear that in Cornwall, at least, the construction of mounds came at the very end of a long period of ceremonial activity, that burial was a rare and by no means primary event and that the purpose of these enigmatic monuments was often far from funerary.

The volume is essentially the result of a PhD thesis but is nevertheless eminently readable and engrossing. It sets out to investigate how cemetery sites developed, considers what factors influenced their siting in certain geographical locales and assesses the role that artefacts and burial activity played in them. It begins healthily by stressing the lack of regional synthesis within prehistory, in contrast to the over emphasis that is placed on the Wessex area. Indeed, the point is adequately made that second millennium BC activity in Cornwall was sometimes formerly regarded simply as an ‘extension of the Wessex Culture’. The vision presented here is of a ‘mosaic of small communities’, rather than of relationships based on the idea of core and peripheral zones that was current during the 1980s, and it is suggested that the limited role played by burial in the Cornish sites indicates the presence of a distinctive regional tradition. Presumably Borlase, who ‘recognised the significance of studying barrows at a regional scale’, would have approved highly.

The origins of the tradition appears to rest in the Late Neolithic. Circular monument types, here described as ring ditches, post rings, stone circles and...
barrows, span both the Late Neolithic and Early Bronze Age, and a similar continuity can be detected in the common treatment of certain cultural artefacts. In some respects this is hardly surprising for, as an artificial archaeological construct based on museum artefact typology, the three-age system serves to mask chronologies and development in other fields. In other parts of the country circularity in monument design had an earlier genesis (Kinnes 1976) and circular structures are also known beneath both long cairns and long earthen mounds. The reason for circularity and mounding is not explored here beyond the effect of the latter on drawing to a conclusion ceremonial use of each site and, while there is recognition that the coloured materials used to construct these monuments might be symbolic, potential sources of material such as rock outcrops were not investigated as extraction locales. It is important to emphasise the longevity of the use of these circular structures and that while they may often not have contained burials they nevertheless ‘provided ritual arenas for the formal placing of artefacts and deposits or pits’. The barrow catalogued as Davidstow 22 emphasises this development, where a Neolithic post ring with pits containing Grooved Ware and Beaker pottery was ‘remodelled into a barrow’ in the early second millennium BC, with the pit contents, in this case pottery together with charcoal and quartz, being thought to imply a ‘shared ritual tradition’. The main difference in Neolithic monument construction when compared with Dorset is that there appears to be a relative paucity of henges in Cornwall, but it may be that aerial photographs of the river valleys will in future redress this balance.

While the tradition continued during the second millennium BC and circular monuments were built on a very much more extensive scale, Beakers appear to have had little impact; the catalyst for the increase in numbers of cairns and barrows must be sought elsewhere. Despite the Davidstow 22 evidence, the association of Beakers with ceremonial sites is thought to have been a late development and there is little evidence for any early Beaker-related barrow building, or indeed of metallurgy. The earliest Cornish Beakers appear to have arrived at around 2000 BC, although this is based on just two C14 dates from one site and it should be noted that a single early date would change the emphasis. In Wessex, Beaker burials were often placed in older monuments such as long barrows or, initially at least, in flat graves that were sometimes successively reused. At Wilsford cum Lake G52, for example, this occurred as many as nine times before a mound was eventually constructed (Smith 1991, 19–22). Like those in Dorset and, indeed, many simple interments across Wessex, Beaker burials in Cornwall were not high status; at least, there is a lack of associated prestige artefacts. Neither were they ‘associated with the creation of social identity or with the obligations of mourners’. Instead they ‘may have been more closely associated with local cosmologies . . . linked to veneration or control of sacred places in the landscape’.

As already noted, modern excavations on Cornish barrows have emphasised that inhumation deposits are rare. Further, when bone is present it need not necessarily indicate burial and it can therefore be difficult to distinguish between ‘burial rite and ritual act involving human bone’. Indeed, in the 30 or so ‘fully excavated barrows studied, only one definitive and one probable primary inhumation burial’ were recovered. This is of considerable importance regarding the interpretation of the nature of these monuments.

While burial was demonstrably of limited importance in terms of the life of these monuments, the deposition of objects and materials – pottery, charcoal and quartz, together with the occasional token bone – indicates that a variety of other practices took central stage. The tradition of placing such material in pits is considered to have a Neolithic origin and the addition of bone seen as incorporating new objects into the general pattern of established ritual activity.

Where there is datable material, the majority of barrows can now be demonstrated to have been constructed between c 1900 and 1650 cal BC, with a ‘peak’ of activity occurring around 1800. Nevertheless it is important to recognise that sites with multiple dates exhibit some continuity and that the stratigraphical and artefactual evidence supports multi-phased activity over many, in some cases hundreds, of years. The question is pertinent raised as to ‘why there was such a huge increase in ceremonial sites from around 2000 BC.’ The problem is not restricted to Cornwall and might only be answered by fresh investigation into the social factors at play in contemporary settlements or perhaps into environmental change.

The call for more radiocarbon dates is important. This is something that in conjunction with Bayesian statistical techniques might dramatically improve our understanding of the chronology of these sites and it
would be interesting if *barrow construction* as opposed to prior *ceremonial use* of each site was eventually shown to focus on a certain chronological horizon.

With regard to context, survival rates are acknowledged as potentially uneven and large areas of lowland were therefore not studied, even though geophysical surveys have identified ring ditches, evidently levelled barrows, in low-lying parts of Cornwall. Given the apparent good response of geophysics in the area it would be interesting to know to what extent aerial survey might make a difference.

Jones bemoans the lack of landscape information in the Sites and Monuments Record as a serious failing, but with the increase in Geographical Information System databases this will surely be rectified in due course. However, there is no substitute for getting out there and experiencing both land and monuments, and recording at first hand, and Jones does this. Cemeteries are not observed to focus around Earlier Neolithic monuments, which after all were at least a millennium earlier and may have reflected completely different belief systems. Rather, they were constructed in places of special character, built around distinctive natural features, hills, outcrops, focal points and were often 'aligned on, or incorporated prominent outcrops of rock . . .' Jones notes that we should 'be careful in assuming that blank spaces are indicative of a lack of cultural importance'. This is important as a number of very prominent landscape features – for example, the Hogs Back, in Surrey, or Sidbury Hill, in Wiltshire, and there are many others – are devoid of barrows. The point is aptly made here that many distinctive places – natural rock outcrops and other natural features – may have held a certain cosmological significance. As Bradley (2000) has pointed out, 'monuments may have been built at a discreet distance from sacred natural places'. Indeed, it may be that many blank spaces on the distribution map occur because certain natural features had too great a sacred significance to allow them to be defiled by human constructions.

Six locations were analysed in the field during the study and the visual relationships between groups recorded. It was concluded that there was little attempt to seek prominence or intervisibility; even sites such as Tregarrick Tor, on Bodmin Moor, were noted to be ‘quite restricted’ in vista. The widely-accepted idea of barrows being deliberately constructed on vantage points to heighten their visibility therefore has to be abandoned. Such observations have also been made in Wessex, although the view persists and Peters (2000) has described a contrast between the landscape positions of ‘conspicuous’ and ‘inconspicuous’ barrows. In many cases it would have been possible to site barrows on even higher points to obtain greater visibility should that have been of primary importance. In Cornwall, where views are often panoramic, the vista from the monument is considered the most significant, but it is also of the utmost importance to observe (and also re-emphasise) that ‘many of the larger mounded sites which have greater visibility in the landscape might only have achieved this in the final phase, perhaps after centuries of being inconspicuous’. Of greater interest is that the study found that the form of cemeteries appeared to be related to the local topography. Narrow ridges for example influenced layout and clearly encouraged linearity.

Jones calls for more field studies ‘which specifically look at topography of the cemetery’, disentangle chronology and cemetery layout and address exactly why certain topographic locations were chosen. More palaeoenvironmental information is also needed, not just to determine the vegetation cover in which monuments were placed, but also how the local area was modified as a result of barrow construction; for example, the implications of stripping turf from large areas.

The author is also keen to redress the balance of the Wessex influence and, in arguing for regional variety, compares the Cornish data with that from east Devon, where the early second millennium BC material is considered distinctive as a result of the local topography. He concludes that the ‘layout of many of the East Devon cemeteries is probably due to their locations on long narrow ridges rather than any intentional link with Wessex’. Although he aims to construct a local archaeology in order to isolate local characteristics, there are also lessons and conclusions of national significance. Certainly the exercise should be extended to other regions, as he suggests, and although he aims to avoid generalisation and a ‘centralised’ view, there is much that can be drawn out from the *similarities* as well as the differences. After all, the nearest match to the Rillaton cup comes from a barrow in Kent (Needham *et al*, 2006), while other round-based cups of broadly similar date do not have a chalk-based distribution but can instead be traced along the south coast, as at Hove and Hengistbury Head, for example. Similarly,
while there are undoubtedly rich burials in Wessex, by far the greater number of barrows there have no such deposits. While Hoare (1812) excavated dozens with little or no result in terms of rich artefacts, Piggott (1938) merely utilised the useful material in categorising the Wessex Culture and brought it to our attention. In any case, not all such rich deposits are primary. The Upton Lovell finery, for example, is a secondary deposit and consequently the kind of exercise carried out here, if applied to the Wessex barrows, might be just as fruitful.

The study emphasises that invariably Cornish barrows began as ritual enclosures – cairn rings, stake and post rings and ditches – and were only subsequently modified by the addition of a covering mound. Few contained burial activity and only a third of barrows investigated contained any kind of human bone. Far from being cemeteries, they were places where ‘a variety of ritual acts took place and sacred and powerful landscape features were referenced’. The artefacts found within them provide witness to a process of transformation and metamorphosis. Oak became charcoal, clay was initially taken from the earth and heated to make pottery and then broken to be deposited in fragments, while human bones were burnt and crushed. ‘Sometimes pots were buried whole and sometimes people were formally buried. But these were special acts’.

The book should be on every prehistorian’s shelf both as a statement of position and for future reference. The appendices listing such aspects as radiocarbon dates are particularly useful. At 170 pages it is by no means an onerous read and its £30 price tag by no means excessive.

David Field

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Lynch, F, 1993 *Excavations in the Brenig Valley*, Bangor


Following Dr C A Raleigh Radford’s excavations in the 1930s and 1950s, his interpretation of Tintagel as a ‘Celtic’ monastery stood until the 1970s and 1980s, when a process of revision led us to the model generally accepted today, namely that it is a post-Roman stronghold of Dumnonian royalty. The process of modern research was in particular driven by Charles Thomas, with reviews of the finds, analysis of ongoing ‘rescue’ work, organisation of excavations at Tintagel churchyard, and general detective work, culminating in his publication of *Tintagel, Arthur and Archaeology* for English Heritage (Thomas 1993), which stands as the fullest and clearest exposition and overview of the site.

In setting models for the development of Tintagel, Professor Thomas helped to frame outstanding questions and set directions for future research. This provided the context for the excavations carried out through the 1990s for English Heritage by Professor Christopher Morris and his team from Glasgow University. The programme that developed was small scale, compared to the hugeness of the site, but carefully targeted and very productive. The team focused on revisiting Dr Radford’s work in two areas: around his Site C buildings on the Island and,
on the ‘mainland’, his Site T – investigations of the Great Ditch which marks the landward perimeter of the site, outside the Lower Ward of the thirteenth century castle. Part of the work involved locating and reinvestigating Radford’s trenches. The building on Site C was also re-excavated, both to establish the nature of Radford’s work and the character and origins of the reconstructed walling. But previously undisturbed areas were investigated too, in particular the Lower Terrace at Site C, and an area immediately south of the Site C buildings, to establish the character and potential of the site through modern excavation.

This is a traditional but modern excavation report, a substantial, well-produced, built-to-last, detailed and technical volume, which sets out systematically and thoroughly the results of the excavations. Over eight chapters, there is a description for each trench of the stratigraphy, a summary of artefacts and ecofacts, a general discussion and conclusions. In a further two chapters the artefacts and ecofacts are described and discussed by no fewer than 19 contributors. One slight difficulty of presentation is that a significant part of the programme, the important excavations on the Lower Terrace, has been previously published (Harry and Morris 1997). Consequently they are summarised here, but without, for example, a plan showing the structures, or a detailed account of the finds. The book ends with an overview that draws in discussion from the last two decades, particularly regarding the post-Roman phase, including the nature of trade with the Mediterranean, Tintagel’s role in this, and the date range of the post-Roman occupation.

The Glasgow team also carried out a thorough study of the archives of the 1930s/1950s work, for which there was never a final report, hoping to improve understanding of the stratigraphic record. They were able to construct a calendar of the works and although some additional records of Dr Radford’s, including correspondence, became available after his death in 1998, it is now clear that very little stratigraphic information has survived. A key source is the collection of 58 plans by J A Wright, chief architectural draughtsman for the Ministry of Works. An interesting example is a section across site F (figure 145), which shows the amount of debris overlying the walls of the building, and also seems to show that the top of one of the walls had been exposed in a path, which presumably resulted in its discovery. However, it is not always clear how the plans are to be read, as they variously serve as archive plans, drafts for publication and instructions for consolidation work.

So what has the 1990s’ programme added to our understanding of Tintagel? Firstly, we now have a clearer idea of the nature and extent of Dr Radford’s excavations, recording and records; in short, we have to accept that things were done very differently 70 years ago, particularly on Ministry of Works sites. Probably of most significance was the Glasgow team’s work in and around the buildings of Site C, which demonstrated that although the upper part of the walls have been rebuilt (and have cement mortar) the footings, and therefore the outlines of the buildings, are for the most part original.

What is more, the excavations around the Site C buildings uncovered a small area of surviving stratigraphy (trench C15), probably protected by a Radford spoil heap, sufficient to show that the rectangular building here was not later medieval but part of the post-Roman story. This is a crucial discovery, considering suggestions in the past that the more obvious rectangular structures on the Island might have been associated with the medieval castle. The other striking feature about this discovery (although not made much of in the report) is the contrast between the firmly rectangular shape of this building compared to, say, the oval or round-ended houses still in use in the sixth century AD at Trethurgy (Quinnell 2004). This must be another indicator of the distinctive character and status of Tintagel.

Excavations on the Lower Terrace of Site C have given the best evidence so far for the character and chronology of the archaeological deposits, with 12 phases identified, including remains of three structures and radiocarbon dates giving a range from the early fifth century AD to the late sixth or seventh century, although one of the structures (phase W) is later than that. The excavators suggest that the slightness of the structures supports Charles Thomas’s view that occupation could well have been seasonal. The absence of E-ware at Tintagel has been used to define a tight date range for the site, ending in the sixth century, but the Glasgow team urge consideration of a longer date range, well into the seventh century, in the light of the radiocarbon dates.

Undoubtedly the most dramatic and best known of the artefacts is the inscribed slate found incorporated in a post-Roman drain next to the building on Site C. The report includes a detailed study by Charles Thomas describing the two phases of writing on the stone, both of great significance.
In summary then, the authors build a picture of a massive site of 12 hectares (30 acres) with extensive occupation of the fifth to seventh centuries right across it. It was demonstrably of high status, with contacts with the Mediterranean, south-west France and southern Spain, trade in wine, olive oil and exotic glass and with evidence for literacy, implying a system of education and the use of Latin. Archaeologically and culturally Tintagel is truly an outstanding site; the Glasgow team’s programme, culminating in this report, does due justice to its importance.

The report helpfully follows Charles Thomas’s numbering system for the overall periods, and includes some further side lights on ‘period III’, the centuries of apparent neglect after the seventh century. The authors divide this into IIIA, later pre-conquest, and IIIB, post-conquest (but pre-castle). A single piece of eighth to ninth century glass, from a cup, was found in the later levels on Site C, and may indicate a casual presence on the Island, although it is consistent with finds from other ‘royal’ sites. And work on Radford’s archive gives greater credence to the finding of an Alfredian coin (871–99) picked up by a visitor in 1935. The 1990s programme also reinforced the indications of activity on the Island in the twelfth century, before the construction of the castle. This takes the form of twelfth-century pottery from Somerset, found in the backfilled deposits on Site C. Finally, for period IV, the time of the castle, pottery of the thirteenth to fifteenth centuries has also been found on the terraces around site C, although without any contemporary structural evidence here. Nevertheless, this offers for the first time evidence for later medieval activity on the Island, beyond the Inner Ward.

As the authors tell us, the evidence from Tintagel is often contradictory, conflicting or equivocal and there is no shortage of questions remaining; not least, why did the main phase of activity end in the seventh century? More intriguing, I think: just what was going on at Tintagel in the late Roman period, and why there?

Peter Rose

References


Quinnell, H., 2004. Trethurgy. Excavations at Trethurgy Round, St Austell: community and status in Roman and post-Roman Cornwall, Truro

Alongside the Reverend William Borlase (1696–1772) and W C Borlase (1848–1899), John Thomas Blight (1835–1911) was one of Cornwall’s most important antiquaries. In common with these doyens of pre-modern Cornish archaeology he lived in the west of the county but unlike them was not a gentleman of independent means. Nonetheless, by the time Blight reached 30, he had become a member of the Society of Antiquaries and a correspondent of the Cambrian Archaeological Society, and had produced a prodigious amount of written papers and engravings in a phenomenally short period of time. Indeed, by the age of 23 he had written and illustrated three significant works, Ancient crosses and other antiquities in the west of Cornwall (1856), Ancient crosses and other Antiquities in the east of Cornwall (1858) and A week at the Lands End (1861), which remarkably are all still in print and of interest to the modern reader, 150 years later. Yet by the time Blight was 35 he had become mentally ill and was committed to St Lawrence’s asylum in Bodmin. It is small wonder then that his rapid rise and tragic fall should provide material worthy of a biography.

The dust of heroes is the second book to cover Blight’s life. In 1977 John Mitchell wrote the concise and fast-paced A short life at the Lands End. However, in the period since that account was written new evidence about Blight’s later life has emerged. First, Charles Thomas discovered pictures which appear to show Blight at the Harlyn Bay excavations in 1900, accompanied by his friend and fellow archaeologist William Iago. Secondly, a diary written by Blight during the earlier part of his confinement at St Lawrence’s was found in a car boot sale in Kent. These new discoveries have enabled Bates and Spurgin to look at Blight’s life anew.

As well as including fresh material, the approach of The dust of heroes is a very different book from Mitchell’s. At 260 pages it has room to communicate Blight’s story in a much more discursive style and includes a good deal of anecdotal information concerning local characters, as well as descriptive images of life in the west of Cornwall. Probably because of the comparative lack of information about Blight’s earlier life, the first two chapters are particularly rich in this kind of detail, which, depending on one’s disposition, the reader may find entertaining or distracting. For the most part I found the former to be the case and enjoyed the descriptions of Penzance and its society.

The succeeding chapters chart Blight’s early successes and acceptance into local polite society as well as the beginnings of wider recognition. Throughout the first half of the book, his wide-ranging talents as a writer, engraver and artist are made evident. However, it was his ability to appreciate archaeological sites and their landscapes, as well as his enjoyment of excavation, which was particularly interesting. The former quality is not always immediately obvious in the writings of some of his successors, such as W C Borlase, and this in itself makes Blight noteworthy.

Blight’s lack of financial independence and need for patronage is a recurring theme. This not only serves to demonstrate how he was often poorly served by his patrons but also how dependant he was upon them. The Reverend R S Hawker’s frequently harsh and changeable behaviour towards Blight might be excused by his own mental state but, given their friendship, J O Halliwell’s is rather more difficult to understand. Bates and Spurgin are very fair in their treatment of Halliwell but it seemed to me that he rather used Blight’s talent to get his Shakespearean illustrations completed but gave comparatively little in return. Encouraging Blight to holiday with his family, whilst failing to appreciate his poor financial position appears somewhat thoughtless and his failure to recognise or act during the early stages of Blight’s illness seems a little callous; especially when one considers that towards the end of his life Halliwell tried to sell off Blight’s work for a considerably larger sum of money than he had paid for it.

The final chapters, which deal with Blight’s slide into mental illness as a result of overwork, a growing obsession with Evelina Pidwell and disappointment regarding his financial situation are well written, and the new evidence concerning his confinement at St Lawrence’s is both fascinating and at times moving. Sadly, it is all too apparent that on the one hand Blight was fully aware of his situation but on the
other was also in need of care. Again, the authors are even-handed in their treatment of the subject and it is difficult to envisage how he could have been better looked after in an age before care in the community. Indeed, Victorian attitudes to mental illness are demonstrated by his publisher announcing his death many years in advance of its occurrence.

Two criticisms which can be made of the biography are the lack of discussion of Penzance as an intellectual centre and the absence of a critical appraisal of Blight as an archaeologist. The writers rightfully identify the dilemma Blight faced because of his difficulty in living on what he could make from drawings and other work, in the context of his own aspirations to become part of the moneyed intelligentsia of the period. However, they do not address the wider social changes which were occurring at this time. This is disappointing given that the Victorian period saw both the emergence of a strongly visible middle class in provincial Britain and the rise of natural historians and writers such as T H Huxley, A R Wallace, and Thomas Hardy, who like Blight were educated and from humbler backgrounds but similarly did not have family fortunes to further their careers. Too little coverage is given to the significance of his contribution to archaeology, especially in relation to the broader context of antiquarian activity in the nineteenth century and the emergence of archaeology as a modern discipline. It is also disappointing that some changes to archaeological terminology are not picked up on, for example the ‘stone circle’ on Kenidjack headland, St Just, would nowadays be referred to as a ring cairn. Figure 49 is captioned ‘Headland at Kenidjack’ but in fact shows Maen Castle. Finally, it would have been useful if the volume had also included a complete list of his published works.

However, I do not wish to conclude on a negative note as I found The dust of heroes to be an enjoyable read and would strongly recommend it to anyone interested in Blight’s life, Cornish archaeology or Victorian Cornwall. The volume is very well illustrated and it was delightful to see colour reproductions of Blight’s water colours as well as his more frequently reproduced, and therefore better-known, engravings.

Andy M Jones