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Cornish Archaeology 39–40

2000–1

CORNISH ARCHAEOLOGY

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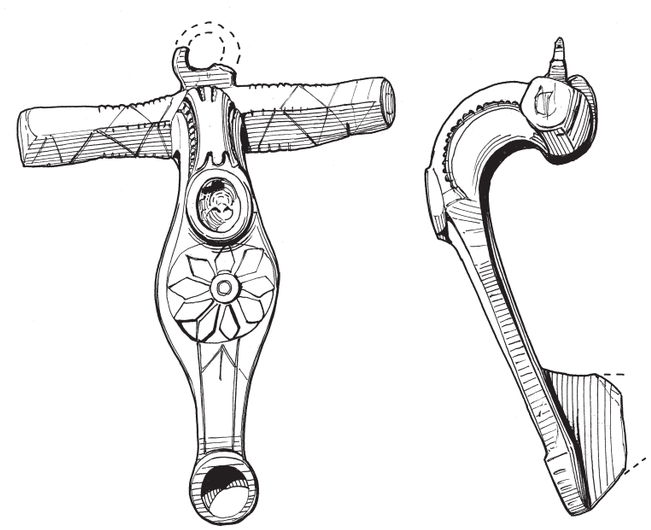

HENDHYSCANS KERNOW

COVER: Leaded bronze enamelled bow brooch from Nornour, Isles of Scilly. Drawing: Judith Dobie, English Heritage.

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EDITORS

PETER HERRING AND GRAEME KIRKHAM

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Editorial

This enlarged volume is the second double number of *Cornish Archaeology,* again bringing the journal closer to once more being published and distributed to members in the year which appears on the cover. It is the editors' hope and intention that this can be accomplished before the end of 2005.

The volume also marks the end of the journal's fourth decade of publication and, as before, an index will be produced to cover the last ten numbers (31–40). This will be published separately and distributed to members as soon as available.

Finally, the present editors would like to record their grateful thanks to former editor Peter Gathercole for his help, advice and encouragement in the preparation of the present volume.

Cornish Archaeology 39–40, 2000–1

Roman Nornour, Isles of Scilly: a reconsideration

with a catalogue of Roman finds from the 1969–73 excavations

SARNIA BUTCHER, with contributions by R D PENHALLURICK and D F WILLIAMS

Summary

The nature of the occupation of Nornour in the Roman period is discussed and the finds reviewed in the light of work done since their first publication in Dudley 1968.

There are detailed reports on the Roman-period finds from the later excavations and a catalogue of all coins from the site by Roger Penhallurick.

Introduction

In 1962 some surprising discoveries were made on the remote islet of Nornour, one of the uninhabited Eastern Islands which lie between St Mary's and St Martin's on the eastern edge of the Isles of Scilly (Figs 1 and 2; SV 944 148). A large number of Roman brooches were found in and around a group of stone buildings of prehistoric appearance. Subsequent excavations showed that the buildings were part of a settlement originating in the Bronze Age and occupied through the Iron Age, but with very little evidence for domestic occupation in the Roman period.

The site had been exposed by high seas during a gale in March 1962 and, as it was vulnerable to further destruction, the Inspectorate of Ancient Monuments funded excavations. These were directed from 1962–66 by Dorothy Dudley (Dudley 1968, with a catalogue of the brooches by M R Hull). In 1969 the sea exposed further buildings which were excavated by the present writer from 1969–73. A report on the prehistoric buildings and finds was published (Butcher 1978) but, since the Roman-period brooch finds were from recent deposits and were of similar types to those published in the first report, it was decided to relate the whole collection to further work being undertaken on Roman brooches in general (Bayley and Butcher 2004). A full re-appraisal of the Nornour brooches based on this work will appear in a forthcoming volume of *Cornish Archaeology*.

In the original report (Dudley 1968), the site at Nornour was interpreted as a brooch-making workshop in the Roman period. The subsequent excavations investigated the suggested workshop but failed to find any evidence for it (Butcher 1978, 54; see also Butcher 1977, 43–4) and a study of the objects themselves seems to show too great a diversity of technique and material for the brooches to share a common origin. The analyses carried out in the Ancient Monuments Laboratory (hereafter AM Laboratory; now English Heritage Centre for Archaeology, Portsmouth) also show that a variety of alloys were used (Bayley and Butcher 2004, appendix 1).

If there was no brooch-making workshop on Nornour it is necessary to consider other explanations for the presence of a large group of Imperial coins and Roman-provincial trinkets on a remote site

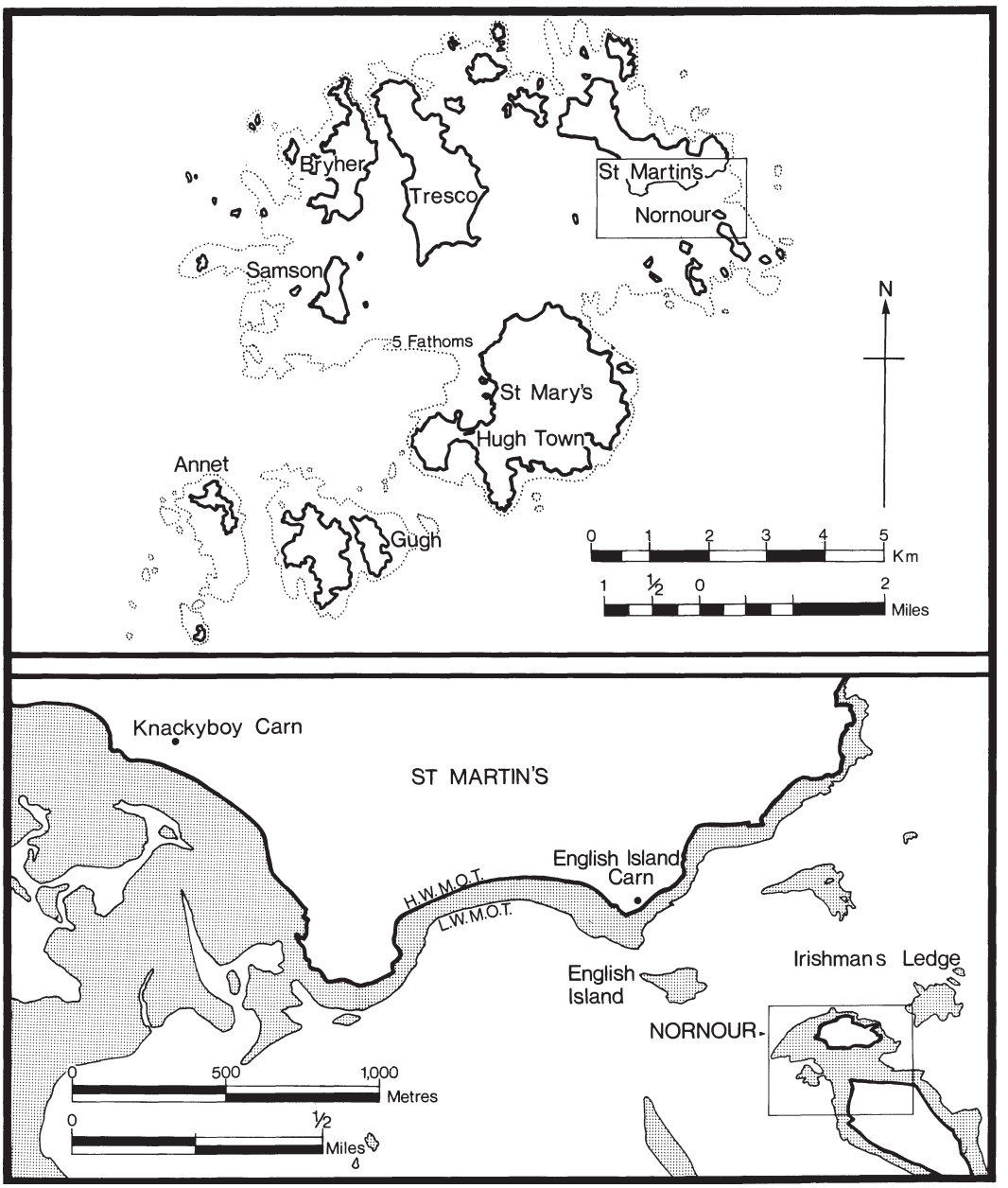

Fig 1 Nornour: location maps

which shows virtually no evidence for domestic occupation in this period. The paucity of similar objects from the rest of Scilly has been underlined by publication of the site at Halangy (Ashbee 1996). Here only five brooches and no coins were found in a settlement showing plenty of evidence of occupation throughout the same period by people who maintained the native prehistoric way of life. There are very few such objects from other sites in Scilly.

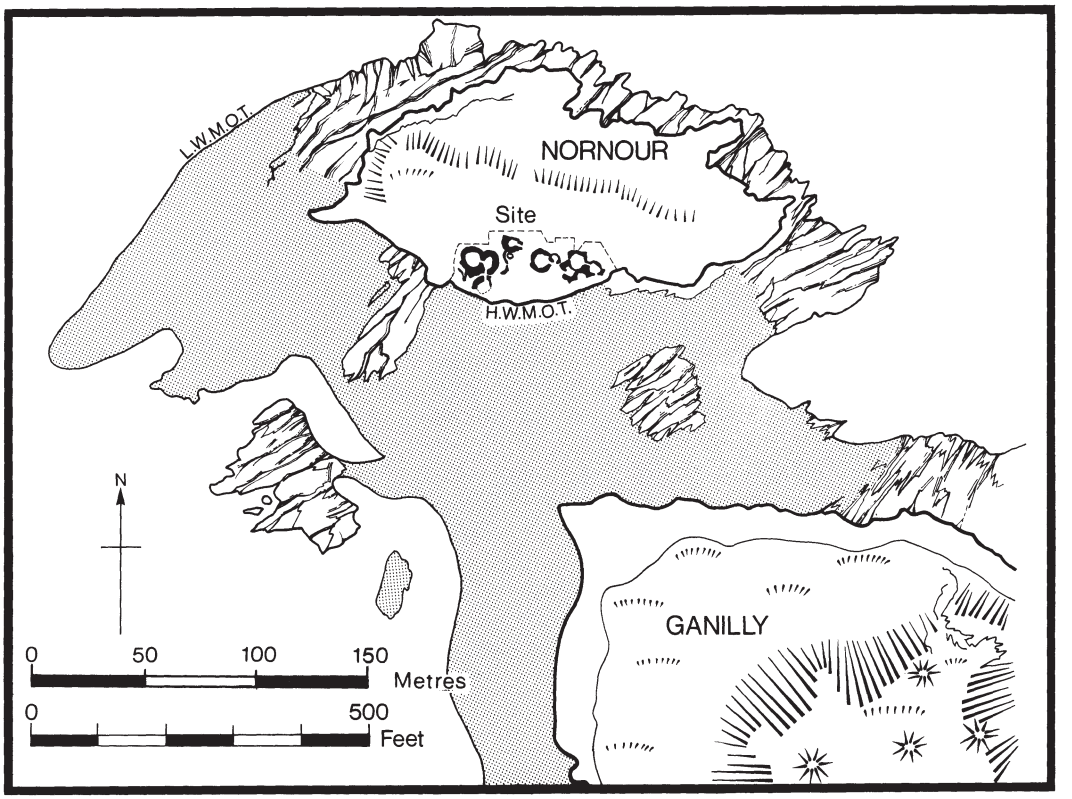

Fig 2 Nornour: map of island with location of excavated site

Another explanation for the Roman material at Nornour was to see it as the result of a shipwreck (Fulford 1989). This seems difficult to sustain when the variety of origins and the spread of dates are considered: the main groups of brooches range from late first to early third century, with a few later; the figurines are second century; the rings are mainly third century; the coins first to fourth century. It might still be plausible if all the objects could be regarded as a hoard, but the brooches and rings were of very little intrinsic value and the coins are not typical of those found in Romano-British hoards (see discussion below). Coins would seem to have little practical use on such a remote site but are commonly found as offerings at shrines. The presence of a shrine, at or near the site, would seem the most probable explanation of the whole collection from Roman-period Nornour.

Brooches have been recognised as votives at known temple sites – for example, Uley, Gloucestershire (Woodward and Leach 1993), Bolards, Côte d'Or (Fauduet and Pommeret 1985), and many others – as have various other personal trinkets such as rings and bracelets, of which there are quite a number at Nornour. Usually they are of types in general use – that is, they were not made for votive use – though a few brooch types, found in numbers at temples elsewhere, may be the exception. The horseman (Hull 1968, no 132) is one of these and at Lamyatt Beacon, Somerset, there were even cruder versions, as if merely token representations (Leech 1986, 316–19). At this period brooches were worn as clothes fasteners as well as ornaments by both men and women: a brooch would have a close personal association and might be the most valued object an ordinary worshipper could give.

The clay figurines found at Nornour are the most obviously 'religious' objects from the site. They portray two deities: a mother-goddess figure and the 'Pseudo-Venus', who also has a fertility aspect

Fig 3 Figurines from the 1962-66 Nornour excavations, in Isles of Scilly Museum (Frank Gibson). Left: Dea Nutrix, leg and part of basket-chair. Centre and right: 'Pseudo-Venus'.

(Fig 3 and discussion below). Other finds which may have been used as votive gifts include rings, mostly third century, and bracelets of fourth century types, suggesting that the offering of personal trinkets of little intrinsic value continued at a period when brooches had gone out of general use.

The lack of evidence for domestic occupation in the Roman period is further indication of a special use for the site. If so many brooches, coins and trinkets of standard Roman types could be brought there, it seems certain that pottery could also have been imported, and yet there is very little pottery of this period to set beside the great quantities of prehistoric pottery in rubbish from the earlier occupation. There are a few sherds of Romano-British coarse wares, probably Cornish (Dudley 1968, fig 7), and one sherd of Gaulish Samian. Again, Halangy shows what can be expected from a settlement site of the period, with quantities of gabbroic domestic ware and even 12 sherds of Samian (Ashbee 1996).

In contrast to the lack of domestic vessels, there are numerous miniature pots, far too small for everyday use and only found in levels associated with the Roman period finds (Fig 7, and discussion below; Dudley 1968, 5). One from the later excavations was examined by Dr D F Williams, who concluded that it was likely to be of gabbroic ware from the Lizard (Butcher 1978, 73). Dr Williams has recently confirmed that a further group of these little pots from Nornour are also of gabbroic ware (below), so it is likely that all those found on the site (about 30, some fragmentary) are of this material. There is some doubt as to their date, as the ware could be very much earlier; however Mrs Quinnell (below) observes that much gabbroic pottery of Roman date from Cornwall is of similarly coarse ware; further, none of the abundant Bronze Age pottery from Nornour is gabbroic. Miniature vessels, often of very simple shapes, have been found at temples elsewhere – 94 vessels at Uley, for example, where they are thought to have contained offerings (Woodward and Leach 1993, 140–5).

There are quite a few fragments of glass, apparently brought as scrap (see Dorothy Charlesworth's report in Butcher 1978, 86–7; and discussion below), which are difficult to explain if they are not the raw material for enamelling, as once thought. The small pieces are of many different colours; just possibly they were seen as attractive tokens and were offered instead of trinkets by the poorest. Fragments of

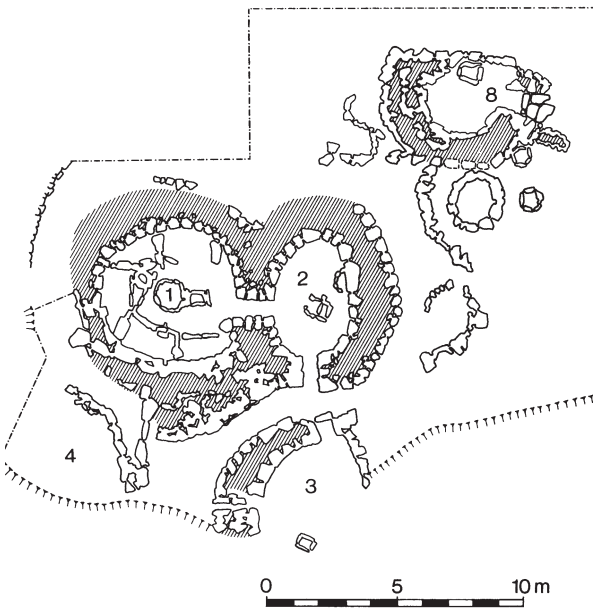

Fig 4 Plan of the western area of settlement at Nornour. Buildings 1–4, 1969-73 excavations (David S Neal)

millefiori glass in a child's burial in Roman London were interpreted as playthings, but there were also three 'pseudo-Venus' figurines, which might suggest a votive association (Barber *et al* 1990).

There are no structures at Nornour which resemble the usual forms of provincial Roman religious building. All the Roman-period finds came from Buildings 1 and 2 (Fig 4) and surrounding rubbish layers. Buildings 1–2 are conjoined stone huts of the same form as the prehistoric structures nearby (Butcher 1978, 51, fig A, Buildings 5–7 and 9–11), where quantities of domestic rubbish demonstrate lengthy occupation from the second millennium BC but which contained no Roman trinkets or other finds datable to the period. Building 1 also originated in the prehistoric period and shows the same internal layout as another of the earlier houses, Building 5. However, in the latest phase a curious circular 'table' was added in the centre (described as 'central circular hearth' in Butcher 1978, 52–3, and 'Hearth 1' in Dudley 1968), and surrounded by a low stone 'bench' against a ring of orthostats (Figs 4 and 6). Seven miniature pots were found in the top layer of the 'table' (Dudley 1968, 5). The brooches, coins and other Roman-period finds came from the filling over these internal structures.

The central circular 'table' in Building 1 is late in the sequence, overlying earlier hearths, and the stone piers forming alcoves surrounding it lie over the postholes of an earlier interior (Butcher 1978, 52–6). One of the slabs of the 'bench' overlay ash from an early central hearth. Unfortunately no datable material was found for these structures but it is clear that the central feature and the ring of orthostats surrounding it on all but the east side must have been open in the Roman period and were most probably built then: nothing Roman was found under them. The shape outlined by the orthostats surrounding the central area is similar to that of Structure G at Trethurgy, Cornwall, which is interpreted as a possible shrine (Quinnell 2004). The dimensions of the area enclosed are also similar, but at Trethurgy this structure forms the complete building (hence too small to be a habitation) whereas Building 1 at Nornour is larger overall.

The nature of the finds and internal structures associated with Building 1, combined with the absence of evidence for domestic occupation, suggests that it was used as a shrine for a cult

sufficiently famous to draw visitors during the period covered by the brooches and coins; that is, first to fourth centuries AD. The objects which the present survey suggests as votives give no clear lead as to the nature of the cult. The figurines have associations with fertility, healing and the after-life; a few of the brooches are representational: the dagger brooch is martial, the sea leopard is a companion of Bacchus and associated with the voyage to the Isles of the Blessed, while the nine shoe-sole brooches could well be tokens for the success of a journey (Hull 1968, nos 236, 130, 216–30; catalogue below no 325, Fig 10). This is to assume that the representational brooches were chosen for their association, but the great majority of the brooches showed none and it is likely that most of the trinkets were simply personal offerings.

Charles Thomas (1985, 167–72) suggests that somewhere nearby, but not on the present site, there was a shrine of Sulis. This is an attractive idea in view of the strong association of some of the brooches with the area where both the temple of Sulis Minerva at Bath and the Mendip metalworking industry were located (see below), and of the importance of the Bristol Channel on sea routes which might include Scilly.

In Thomas's model of sea-level changes in Scilly (1985), Nornour lies close to an inlet which would have formed a natural harbour on the eastern side of the main island, an obvious destination for ships from mainland ports. Recent work (Ratcliffe and Straker 1996; 1997) suggests that the break-up of the main land-mass of Scilly may have begun earlier than in Thomas's model, but the evidence for food crops and animals found in the prehistoric settlement at Nornour shows that at least in the Bronze and Early Iron Ages there must have been cultivated land and pasture nearby. One model resulting from the recent work suggests that by the Roman period the Eastern Islands were already separated (Johns and Tapper 2003). This is provisional and may be modified by more detailed surveys, but if it is confirmed it may even increase the suitability of Nornour as a possible religious site. Nowadays the island, with its distinctive rocky crest, is a prominent seamark; this would always have contributed to its special character but as a reminder of a lost settlement it could have had added significance.

The reason for the abundance of Roman-provincial trinkets and Imperial coins at the shrine, if such it was, must surely lie in its position on the western sea routes. Until the advent of large, modern vessels Scilly has always been a port of call, for shelter and provisions, for ships plying between the ports of western mainland Europe and western Britain. In the Roman period there were industries which might ship their heavy goods from western British ports: for example, iron from the Forest of Dean or silver/lead from Mendip; wharves are known to have existed at Gloucester. Wine and oil from southern Europe were imported into Britain and some may have taken the old western maritime route instead of the Rhône–Rhine line indicated by amphora distribution (Cunliffe 2001).There were Roman military bases in the north of the province which might have used sea connections in addition to the road system; for instance, Maryport for the Cumbrian garrison. On the other hand, the number of plate brooches found at Nornour of types probably originating in the Rhineland suggests that there was a connection with the routes through Channel ports into the heart of the Empire as well as with the western seaboard. It can be imagined that seamen and merchants on these hazardous voyages would call to make offerings at a shrine and that the diversity of the finds reflects the different origins of their journeys and of the individuals involved. It must also be considered that local people would have visited a shrine, perhaps bringing offerings of local produce. That they respected the site is suggested by the paucity of comparable objects from other sites of the period in Scilly discovered so far: the coins and trinkets would surely have been plundered unless there was some protection, whether physical or superstitious.

A more recent analogy may add substance to the scanty indications of votive practice suggested for ancient Nornour, and especially to the mundane personal nature of some offerings. In an account of his travels in 1833 Charles Darwin describes an isolated tree which he came across on the deserted plains of Patagonia 'which the Indians reverence as the altar of Walleechu'. They suspended 'various offerings, such as cigars, bread, meat, pieces of cloth, etc. Poor Indians, not having anything better,

only pull a thread out of their ponchos, and fasten it to the tree. Richer Indians are accustomed to pour spirits and maté into a certain hole, and likewise to smoke upwards, thinking thus to afford all possible gratification to Walleechu.' 'The Gauchos think that the Indians consider the tree as the god itself but it seems far more probable that they regard it as the altar. The only cause I can imagine for this choice is its being a landmark in a dangerous passage . . . .' (Darwin 1860, 69–70).

The Roman-period finds

The provenance of the 1962–66 finds

The area excavated in 1962–66 centred on Buildings 1 and 2 (Fig 4). In the published report Miss Dudley made it clear that the Roman finds were in the upper layers of these 'Rooms' and also 'lay on [their] wide north walls and on the area to the north' (Dudley 1968, 18). Her suggestion that the latter were 'swept down from some room presumed to exist uphill' was tested by further clearance and trenching in the later excavations but no evidence for occupation of any sort was found on the slopes above the settlement.

Miss Dudley's interim reports and lecture notes, now in the archives of the Isles of Scilly Museum, amplify the general statements in the published report.

In the manuscript 1962 interim report, describing excavation of the interior of Building 1, she notes the upper layers and says 'eventually the sand blows were cleared away revealing a shapeless

Fig 5 Buildings 1 and 2 at Nornour from the north east (Sarnia Butcher)

Fig 6 Interior of Building 1 at Nornour, c 1963 (Charles Woolf)

mass of stones filling the whole space excavated'; later in the same interim: 'From the very beginning finds were numerous and occurred everywhere and anywhere: they were under stones, between stones, in a pocket of soil, in a small hollow; similar brooches were found at the top or the bottom – there was no stratification at all, similarly sherds of the same pot were found in any position and even in the outer room' (ie, 'Room II'). Miss Dudley also told the writer that there were many instances where she thought that brooches had been deliberately placed on ledges in the walls of Buildings 1 and 2 (Butcher 1978, 65).

In the interim report for 1963 the completion of excavation of Room 2 is described, including:

> 'The filling of Room 2, for the first 3 feet, resembled that of Room 1, consisting of a mass of large stones mixed with dark sandy soil; in this the finds of brooches, coins, sherds of figurines, beads and pottery sherds occurred haphazardly as in Room I excavation. Below this a layer of soil averaging about 2 feet in depth in which very few finds of any sort were made; the lowest filling was made up of many stones, large and small and a soil, sandy, very black in places, which contained sherds of the Bronze Age and Iron Age with relatively few of Romano-British date; no finds resembled those found in the uppermost layer . . . .'

The report also notes that 'A piece from a bronze dagger was found in a chink in the wall'. In the section headed 'Conclusions', number 4 is 'Very few brooches were found this year.' Those noted above were therefore presumably mainly from 1962, when the excavation of 'Room 2' was begun.

Manuscript notes for a lecture in Scilly in October 1964 emphasise the paucity of pottery in the Roman occupation of Building 1–2 and comment on the suggestion that a trader had set up a shop or workshop here: 'If this trader had landed with men and women to settle – where are their houses and their pottery?' (Although more houses were later found to the east (Butcher 1978) they contained no pottery or other finds of the Roman period.)

Provenance of the finds from the 1969–73 excavations

When excavations were resumed in 1969 the buildings already excavated (1 and 2) were cleared. They had been left open and a defensive bank (the excavated spoil) built along the southern margin. By 1969 heavy seas had washed this bank away and had thrown stones and sand over the exposed buildings. This was cleared and the tops of the walls cleaned. Subsequently the wall in the north-east quadrant of Building 1 was partly excavated, to clarify the junction with Building 2, and the parts of the southern walls which had not been uncovered in 1962–66 were investigated (Butcher 1978, 51–2). When Building 3 to the south was recognised the beach which covered it was cleared (*ibid,* 56) and this recent sand cover was the provenance of many of the finds catalogued below. Some finds also came from the upper layers in the passage between Buildings 1–2 and Building 3 (*ibid,* 60–62).

Most of the finds came from these disturbed deposits, presumably washed out of the earlier spoil dump. It seems probable that many of them were originally in the upper layers of Buildings 1–2 or in the walls themselves: rubble from the collapsed upper courses was cleared in 1962–63 and was the source of most of the Roman-period finds noted by Miss Dudley.

A small area of the north wall at the junction of Buildings 1 and 2 excavated in 1970 (*ibid*, 52) produced coins of Vespasian, Trajan, Julia Domna, and a commemorative, AD 330–4, beads (nos 18–21), the spring of a brooch (no 330), a spoon (no 12) and the enamel disc (no 11) (see catalogue below); these were found behind the stone buttress, in the late filling of the rebuilt wall.

Note. The catalogue also includes five objects found by Mr Ron Symons in 1972, on the beach near the area excavated. Mr Symons was the original discoverer of the Nornour site in 1962.

The Roman coins from Nornour

R D Penhallurick

The Roman finds from Nornour have been interpreted as votive offerings by seamen in the hope of fair winds and a safe journey. This interpretation has been queried by Michael Fulford (1989) who favours a shipwreck or two to explain the Nornour finds.

The argument is that the finds are not varied enough to compare with the personal items offered at shrines and temples, but are more typical of a ship's cargo. The coins, moreover, are not typical of Romano-British hoards because:

1. Almost half (45%) are late first century to Commodus (AD 177–92), issues 'rare on rural sites, whether religious or secular'.
2. There is a scarcity of late third century radiate coins, the commonest on Romano-British sites, including Cornwall.
3. A 'substantial collection' (36%) of coins of the House of Constantine is sandwiched between a small number of later third century and later fourth century coins.

Fulford sees the coins as deriving from perhaps two dispersed hoards; the first ranging in date down to Commodus, the second comprising the remainder in which the handful of third century radiate coins would not be out of place. This sounds reasonable enough. But why should coins from two shipwrecks, separated by about 200 years, turn up on the same site? Why should the coins and other small finds be left untouched if they were not votive offerings? Furthermore, would not shipwrecks have resulted in a greater variety of finds, such as the ubiquitous amphorae? On the assumption that human nature has not changed to any noticeable degree over the last two millennia, any wreckage capable of recovery would have been dispersed quickly amongst inhabitants grateful for any small mercy the sea cared to throw at them.

That the Nornour site was a shrine of some sort remains the best explanation, at least for the time being, and that it remained in use for several hundred years. The condition of the coins, detailed below, would suggest losses over a long period.

Coins may remain in circulation for a long time, as hoards from Cornwall testify. The worn first century coins from Gare, Lamorran, were deposited in or soon after the reign of Postumus (AD 259–268). Similarly, in the Pennance hoard, Budock, coins of Gallienus (AD 253–268) and Postumus were deposited in the reign of Constantine I (AD 307–31). A characteristic of Cornish hoards is the large number of coins dating from the late third century, whereas only seven from Postumus to the Tetrici (AD 270–3) have been found on Nornour and none elsewhere on Scilly. There is no unequivocal explanation for this, though it may be the case that the earlier, larger coins of superior quality were preferred as votive offerings in place of the poor quality debased coinage of the late third century that no longer resembled the old familiar issues. As Harl (1996, 132) notes, 'their shoddy appearance and light feel would have dismayed any who recalled the denominations of less than a generation earlier.'

The earliest coin of Vespasian (AD 71, CAT 298) and the even better *sestertius* of Trajan, minted in AD 114–17 (CAT 1401), are in a far better state of preservation than those of Domitian (AD 81–96, CAT 1057, 1059, 1388, 1410) and it is tempting, if perhaps a little unwise, to assume that that they were deposited not long after minting. The coins of Constantine and his family are in variable states of wear, though one of Constantius II (CAT 1409) is in near mint condition and must have been deposited soon after it was struck in AD 330–35. Similarly the latest coin, the only one of Gratian, suffered little wear after it was struck in AD 367–75, the surviving detail remaining sharp.

Note. The coins found in the 1962–66 excavations were identified by R A G Carson and listed briefly in Dudley 1968, 27–8. They are catalogued below.

The brooches

Brooches are the most abundant category amongst the Nornour Roman-period finds: well over 300 are known and there are indications that a good number of finds by beachcombers have gone unrecorded. The total is larger than the majority of brooch collections from Roman sites in Britain. The following examples are from major excavations of sites occupied in the same general period: Baldock, Herts (settlement), 130 brooches; Hayling Island, Hants (temple), 118; Richborough, Kent (fortress and port), 400; Fishbourne, West Sussex (palace), 43; Camerton, Somerset (settlement), 105; Caerleon, Gwent (fortress), 117. These are only crude analogies, as much depends on the area excavated and the duration of the occupation, but they do emphasise the unusual nature of the Nornour collection: such a large number from so small an area, let alone the remote location.

In the first excavation report, the view was put forward that the numbers of brooches could be accounted for by manufacture on the site (Hull 1968, 28). It was suggested that the 'table' (referred to as the 'central hearth') in Room 1 was suitable for annealing (Dudley 1968, 17). One of the main objects of the 1969–73 excavations was to obtain more evidence for manufacture, but none was forthcoming and analyses of all the relevant material by AM Laboratory were equally negative (Butcher 1978, 54; see also Butcher 1977, 43–4). Another argument for local manufacture was Mr Hull's view that a general homogeneity of technique could be seen throughout the collection (Hull 1968, 28). This certainly applies to the large group for which parallels are found mainly in south-western Britain, but there are a number of different elements, especially amongst the plate brooches. The programme of alloy analysis by AM Laboratory (Bayley and Butcher 2004) shows that various alloys are represented amongst the Nornour brooches, while the discovery of brooch moulds at Compton Dando, Somerset, suggests that the south-western industry is most likely to have been based in the Mendips (Bayley 1985).

The south-western brooches include numbers of small T-shaped brooches with simple relief decoration such as nos 304 and 307 (Fig 8 and catalogue below), or with small enamel cells as no 302

(*ibid*); a mould for a similar brooch was found at Compton Dando. These seem to be a regional form of the 'Colchester-derivative' type general in southern Britain in the later first century. The pin is usually hinged on an axial bar in a narrow head tube and this continues in more developed types such as no 301 (Fig 8 and catalogue below), which often have a tab cast in one with the head. This is sometimes pierced, resembling the loop found on other British brooches and thought to be intended to hold a chain, but is more often plain and therefore not functional. All the south-western types are made of leaded bronze.

Some of the standard British types found at Nornour, such as the headstud, Polden Hill and trumpet-headed, were also of leaded bronze (including Hull 1968, nos 99 and 101, a sub-type of headstud brooch for which a mould was found at Compton Dando) and may also be south-western products. Other headstud types, such as Hull 1968, no 235, which was brass, are more common on military sites in northern Britain and were probably made in that area (Bayley and Butcher 2004).

While nearly all the bow brooches were made somewhere in Britain, with few parallels from other provinces of the Empire, the plate brooches from Nornour show very different origins. There are numerous enamelled plate brooches of types which were produced on the Continent in the second and early third centuries AD. It is still not certain where this industry was centred but the pattern of distribution and the presence of cognate industries suggest the Rhineland as the most likely area. The industry was clearly on a large scale and produced a wide range of brooches strongly linked by the designs and decorative techniques employed. Some of these were extremely complex, such as the millefiori disc brooch, Hull 1968, no 205. Other distinctive products were the 'equal-ended' brooches like nos 319, 320 and 321 catalogued below (Fig 10 and catalogue below). These brooches reached all parts of the Roman Empire and occur sporadically on British sites, but the number found at Nornour is exceptional. Although those of Continental origin are the largest group of plate brooches from the site there is also a significant number with a mainly British distribution which can also be distinguished by differences of technique. These include the small enamelled plate brooches like Hull 1968, nos 191–3 and 257, the horse and rider (no 132), gilded oval (no 237) and eagle (no 133). They are unlikely to be products of the south-western industry and the distribution and context of each type suggests diverse origins and dates.

The range of dates represented by the Nornour brooches was made clear in Mr Hull's report and has been reinforced by more recent finds elsewhere. The earliest bow brooches are of British types which developed in the second half of the first century AD (Hull 1968, nos 1, 33 and 246). These could well be contemporary with the earliest coins from the site: four of Vespasian (AD 69–79). Some fragmentary plate brooches of Continental origin may be of similar date (Hull 1968, no 226; below no 325, Fig 10). The *floruit* of the abundant south-western bow brooches, and of some other types such as the headstud, was in the late first and early second centuries, while there are a number of others well dated to the later second century, such as Hull 1968, no 111. The plate brooches provide many more examples from the mid or later second century, while the millefiori disc brooch (Hull 1968, no 205), amongst others, probably dates no earlier than AD 200. The 'knee' brooches, Hull 1968, nos 112 and 241, are of types which began in the later second but continued into the third century, while there are one or two plates which may well belong to the later third: for example, Hull 1968, no 237.

The figurines (Fig 3)

The figurines found in 1962–66 were catalogued and discussed by Frank Jenkins in Miss Dudley's report (1968, 19–21, plate IVB). No further pieces were found in later work.

There were parts of several different figurines but they fall into two standard types: the 'Pseudo-Venus', a standing nude female with her right hand raised to her elaborately arranged hair and some drapery to her left, and the '*Dea Nutrix*', a draped female figure sitting in a basket chair and usually nursing an infant, sometimes two. Three of the fragments found at Nornour make one almost

complete 'Venus', approximately 165mm high, and there are pieces of at least two others. There is no complete *Dea Nutrix* but at least three different figurines are represented by a detached head, half of another head, fragments showing shoulders and the back of the chair, a large piece showing most of a chair, also the side of another larger chair with part of the sitter's draped right leg. Taking into account duplication of features and differences of clay and size, there were, therefore, at least six separate figures, three of each type.

There is no information on the site provenance of these pieces in the published report but the 1963 interim report mentions 'sherds of figurines' amongst the same late deposits as the brooches and other Roman-period finds. Some fragments show dark staining, possibly from contact with fire; this evidently happened after the figures were broken as other, joining, pieces are not stained.

Since Jenkins' thorough study of similar figurines known to him (including Jenkins 1958; 1959), some new material has come to light and Rouvier-Jeanlin (1972) has published the Gaulish finds in detail. These studies reinforce the points already made by Jenkins. He pointed out the number of figurines found at sacred springs and sanctuaries in Gaul compared with the few British finds with similar associations: where figurines did have an identifiable context it was usually with a burial. Miranda Green's lists of British finds show that they occurred more widely than Jenkins supposed, in both civil and military areas of the province (Green 1976; 1978; see also Green 1989). The presence of a 'Pseudo-Venus' figurine in the Roman temple site at Bath and another at the metal-working settlement at Charterhouse-on-Mendip may be significant in view of the suggested connections of Nornour with those sites.

A particularly interesting recent find was that of a child's lead coffin in a large cemetery to the east of London (Barber *et al* 1990, 10), which contained three 'Pseudo-Venus' figurines similar (though not identical) to no 1 of Jenkins' catalogue (Dudley 1968, 20) and also fragments of millefiori glass, thought to have been playthings. The figurine of a different type of mother goddess in another child's grave at Arrington, Cambridgeshire (Green 1993, 194–6), was interpreted as an offering for rebirth and protection in the afterlife rather than as a plaything.

The figurines from burials and sacred springs seem to emphasise the association with Celtic earth deities (Green 1986) rather than the more obvious sexual aspects of the classical Venus (who also originated as an earth spirit: cf Green 1989, 39). If this is the case then both types found at Nornour, the 'Pseudo-Venus' and the *Dea Nutrix,* could be interpreted as symbolic of prayers for fertility, health or safe passage to the afterlife. They are usually thought to have been the offerings of the lower ranks of provincial society: the subjects seldom appear in carved stone or other more expensive forms, while the clay figures were mass produced.

The figurines were a standard production of factories in central Gaul, using the white clay found in the Allier region, but other producers are known to have made similar figures in different clay, and some of the Nornour fragments are of a slightly coarser yellowish ware (although Jenkins thought the colour was all due to staining after burial). Rouvier-Jeanlin (1972) shows that production began in the first century although the mid-second century is the most likely date for the types found at Nornour. There is no reason to suppose production in Britain, although they were widely distributed there. It is doubtful whether the Nornour figurines are direct imports from the Continent but, as with many of the plate brooches, it remains a possibility that they were brought to the site by travellers from Continental ports. Like other finds, they can be seen as something cheap and portable but appropriate as an offering.

Other small finds

Apart from the large groups of brooches and coins, the site has yielded a considerable number of other small objects. Most of these are personal ornaments (none of precious metal or stone), but there are also a few apparently utilitarian pieces.

There are at least 35 finger-rings, about half of them with glass or paste (enamel) decoration in the bezel. The latter are of the types known as 'trinket rings', made of cheap copper alloy with imitation gemstones, which seem to have been manufactured in Britain in the third century (Henig 1974, vol 1, 164). They occur mainly in the south, notably on temple sites, including Uley, where Henig suggests that they were probably votives (Woodward and Leach 1993, 174), and Henley Wood, Somerset (Watts and Leach 1996, 84–5).

The numerous glass beads from the 1962–66 excavations were catalogued by Margaret Guido (Dudley 1968, 26–7) and included in her *corpus* (Guido 1978); she also examined those found in 1970 (see below). They are very varied but most are of types common in Roman Britain. It seems unlikely that the few which Mrs Guido thought could be pre–Roman need be so early at Nornour, in view of the long life of beads (often re-strung) and the absence of any other imported trinkets in Iron Age levels. Beads are sometimes found in votive assemblages (Guido 1978, 38).

Parts of ten or more bracelets were found, five of them the common late Roman type made of two wires twisted together. (Dudley 1968, nos 31–3; below nos 6 and 7).

Several incomplete enamelled pieces include two seal-box lids (Dudley 1968, nos 23–4), several small discs (Dudley 1968, nos 25–6; below nos 9–11) and one large ornate disc (Dudley 1968, no 22). These all show some form of attachment and it may be that they were deliberately detached from whatever objects they decorated in order to serve as votives: it is difficult to imagine that seal-boxes were in use at Nornour. The enamel decoration is similar to that on many of the Nornour plate brooches and they presumably came from the same workshops.

Perhaps even the un-enamelled incomplete discs and strips (Dudley 1968, nos 27–9; below nos 14–17) were also offerings; they would then have been shiny metal. However, some of these may be simply the result of the normal decomposition of objects in the ground.

The few objects of use rather than ornament include small iron knives, a very small iron arrowhead, iron bootnails, a whetstone and a bone point (Dudley 1968, nos 41–53) and a triangular copper alloy blade or chisel (below no 13). Two spoons of a distinctive type which has been found on temple sites might have had a ritual use (Dudley 1968, no 35; below no 12).

The glass

There were about 70 scraps of glass from the same deposits in Buildings 1 and 2 which produced the coins, figurines, brooches and other trinkets. These were examined by Dorothy Charlesworth and brief reports published (Dudley 1968, 25–6; Butcher 1978, 86–7). Professor Jennifer Price has recently re-examined them and her preliminary comments are summarised as follows:

Pieces of square or other prismatic food containers dating from the later first or second century were dominant, as they are in all communities on the fringe of the province. There were one or two pieces from cylindrical bottles which served the same purpose but date from the first century, and some other early Imperial fragments; also a few later pieces. Individual pieces noted include:

1962–66 excavations, Isles of Scilly Museum numbers

373 Body fragment, Pillar Moulded bowl; first century.
374 Fragment of bangle with two yellow marvered trails; later first century.
376 Fragment of mask-medallion originally attached to a jug; 'very worn and may have been curated carefully long after the vessel was broken'; first-second century.

383 Matt-glossy window glass: one fragment.
Neck of colourless glass vessel, second-third century.
Fragment of thin-walled convex body trimmed to circular disc.
1001 Fragment of neck, shoulder and handle of dolphin-handled jug; third-fourth century.

The glass from the 1969–73 excavations is completely different: virtually all of the 1969 glass appears to be post-medieval or modern. Many of the pieces have been heavily affected by sand action or rolled in water. (SB: These come from the beach and sea-washed deposits south of Building 1–2.)

This collection contrasts with the almost total absence of Roman glass from elsewhere in Scilly: one fragment from Halangy (Ashbee 1996, 73) and a piece from Charles Thomas's excavations on Tean, now in the Isles of Scilly Museum.

The miniature pots (Fig 7)

About 30 very small pots, all of similar shape and size, were found at Nornour. They are between 50 and 60mm high, with slightly everted bevelled rim, two lines of cord-impressed decoration round the neck, and a slightly everted shoulder sloping to a narrow base 20–25mm wide. The interior is a narrow hollow, as if simply impressed by a finger. The ware is coarse, with white grits, but the surface has usually been smoothed (see petrological description by David Williams, below). Both exterior and interior are often blackened by heat, but sometimes red. Many have a whitish deposit inside; a sample analysed by Roger Wilkes of the AM Laboratory showed that it was probably of post-burial origin.

All but one of the pots came from the 1962–66 excavations: seven were found in the large circular 'table' in the centre of Building 1 and one in the triangular stone 'box' nearby (Dudley 1968, 5). In lecture notes now in the Isles of Scilly Museum archives Miss Dudley says that the others were found 'here and there throughout the infill in both rooms' (that is, Buildings 1 and 2). The single example from the later excavations was in the upper filling of the passage outside the entrance to this building (Butcher 1978, 60; fig 36, no 156).

No close parallel has been found for the shape of these small vessels but they can be compared to various 'pygmy cups' from Bronze Age to Roman times. It has been suggested that some were used for rituals involving narcotics in Bronze Age ceremonies (Allen and Hopkins 2000) and at the Roman temple complex at Uley, where 94 were found, Henig suggests that they were used by the poorest votaries to make symbolic offerings of 'a few grains of cereal or a small quantity of wine or beer' (Woodward and Leach 1993, 112). Miniature pots have been found at a number of other shrines of the Roman period (Woodward 1992, 69).

At Nornour their site context places them with the undoubtedly Roman-period objects which this article suggests were also offerings at a shrine, but their fabric introduces doubt as to whether they were contemporary. Dr Williams (below) suggests that it is more likely to be pre-historic, but Mrs Quinnell writes (letter, 29 July 2003) that 'much gabbroic pottery of Roman date from Trethurgy and elsewhere in Cornwall is similarly coarse; moreover there are no Bronze Age comparanda for any miniatures so small or of this shape in gabbroic ware on the mainland'. Dr M A Owoc identified one of the cord impressions as of Bronze Age type, though with no close parallel (Owoc *et al* 2003). She comments (letter, 16 April 2003): 'the fact that its warp and weft elements fall closely in line with (but yet separate from) the group of mainland twined vessels from the Early and Middle Bronze Age suggest a [non-Scillonian] source and one perhaps separated in time.' This interpretation is supported by interim results of work on a larger sample, now in progress (Owoc, pers comm).

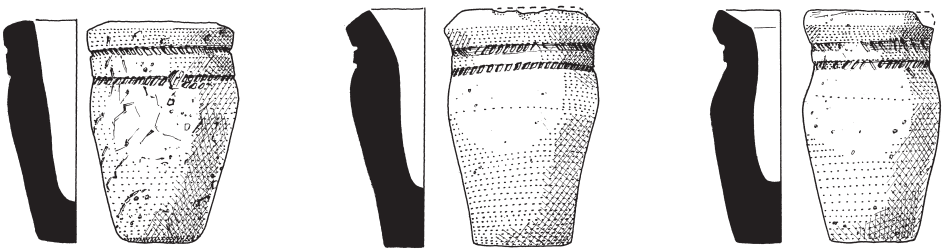

Fig 7 Three miniature pots; 1:2 (drawings by Judith Dobie, English Heritage)

Gabbroic ware was not present amongst the Bronze Age pottery from Nornour (Butcher 1978, 67–86) and, until the Roman period, virtually no imported objects were in use on the site. If a prehistoric date could be substantiated these pots would represent a significant exception, probably indicating a religious function at a time when the remaining evidence is entirely domestic. A further puzzle, whatever the date and function, is the lack of any similar vessels in gabbroic fabric on the mainland, where they must have been made.

A note on the fabrics of miniature pots from Nornour

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Isles of Scilly Museum catalogue nos 342, 351–6, 877–8, and a group of smaller fragments, 359

The clay fabrics of nine mostly complete miniature pots from Nornour, together with pieces of rim, body and base, were examined with the aid of a compound microscope (x40). Due to the importance of this find no sample was available for the destructive petrological technique of thin sectioning. Instead, a hand-specimen study was undertaken and this clearly showed that all of the vessels share a common fabric. They are all in a hard, rough, gritty fabric, dark grey to dark greyish-brown throughout (Munsell 5YR 5/1 – 10YR 4/2). The most conspicuous inclusions consist of white or dirty white grains of plagioclase felspar of variable size, together with some small dark-coloured grains of pyroxene / amphibole.

The Isles of Scilly are to a large extent made up of coarse tourmaline granites, including the area of the find site in the Eastern Isles. The absence of visible inclusions in the hand-specimen of granite or discrete minerals that have derived from these rocks, such as grains of quartz, orthoclase felspar or flecks of mica, make it extremely unlikely that they could have been made locally. A previous petrological analysis of prehistoric and Roman pottery from Nornour showed that the majority of it was made of granitic tempered clay, making it likely that local pottery production was carried on (Williams 1978). The exception was another miniature pot (Butcher 1978, fig 36, no 156); this was a vessel of gabbroic clay, a very distinctive fabric in thin section, comprising large altered prominent inclusions of plagioclase felspar, predominantly labradorite, colourless grains of amphibole and a few grains of pyroxene and olivine (Williams 1978, 73: 697217). These are exactly the range of minerals visible in the hand specimen of the miniature pots and it suggests that these too were made of a gabbroic clay. This pottery fabric, which was produced on the Lizard peninsula in Cornwall, is commonly found in the south west of the country from the Neolithic through to the Roman and, to

a lesser extent, medieval periods (Peacock 1969a; 1969b; 1975; Williams 1976). The fairly coarse, gritty nature of the miniature pots suggests that a prehistoric date might be more in keeping rather than Roman or later.

Catalogue of Roman-period finds from the 1969–73 excavations

Note: the site provenance of the finds is described above.

Coins

The coins are described in Roger Penhallurick's catalogue of all coins from the site (below). Most of those found in 1969–70 were in the beach to the south of Buildings 1 and 2, some of them overlying Building 3. These had probably been washed out from the 1962–66 spoil heaps above the south wall of Buildings 1–2 (Butcher 1978, 51) and consequently most of them probably came from the upper filling of those buildings.

Brooches

The brooches are numbered from 300 in order to follow on from those found in 1962–66 (Hull 1968, nos 1–265; fragments not catalogued there bring the number from the earlier excavations to more than 290).

300 1969 SF 55 AM Lab 733378 Fig 8

Leaded bronze Length 52mm

Developed Polden Hill brooch with spring of eight turns on bar within the semi-cylindrical crossbar which is held by the discoid ends. There is a round flange either side of the head. The chord is broken but would have been held in a loop ending the short crest on the head, also broken. Below this there is some fine chevron engraving and the crest is continued by a divided rib extending nearly halfway down the bow, which is otherwise plain except for a small knob at the foot.

A brooch from the earlier excavation, Hull 1968, no 243 (AM Lab 940416), is similar except that it lacks the extended crest, as do most of the otherwise similar brooches. Several from Wroxeter in Shrewsbury Museum have this feature but are not among those illustrated by Bushe-Fox. In his second Wroxeter report (1914, 11), eleven of the type were recorded, four from deposits dated AD 80–120. The general type is most common in the West Midlands and Wales.

From beach south of Building 1.

301 1969 SF 23 AM Lab 733357 Fig 8

Leaded bronze Length 52mm incomplete Butcher 1977, no 21

The pin was hinged in the round crossbar, plain except for end mouldings. A broken tab cast in one with the crossbar probably carried a loop, as in similar brooches.

Two long recesses on the head of the brooch once held enamel; only the stain remains, showing that both were divided into four blocks of juxtaposed colours. These fields are terminated by a moulding in the shape of a pair of leaves and there is another pair further down the bow, which has a small knobbed foot.

There were already four very similar brooches from Nornour (Hull 1968, nos 12–15) and a number of parallels show that it was a standard type in the south and west but give little indication of date;

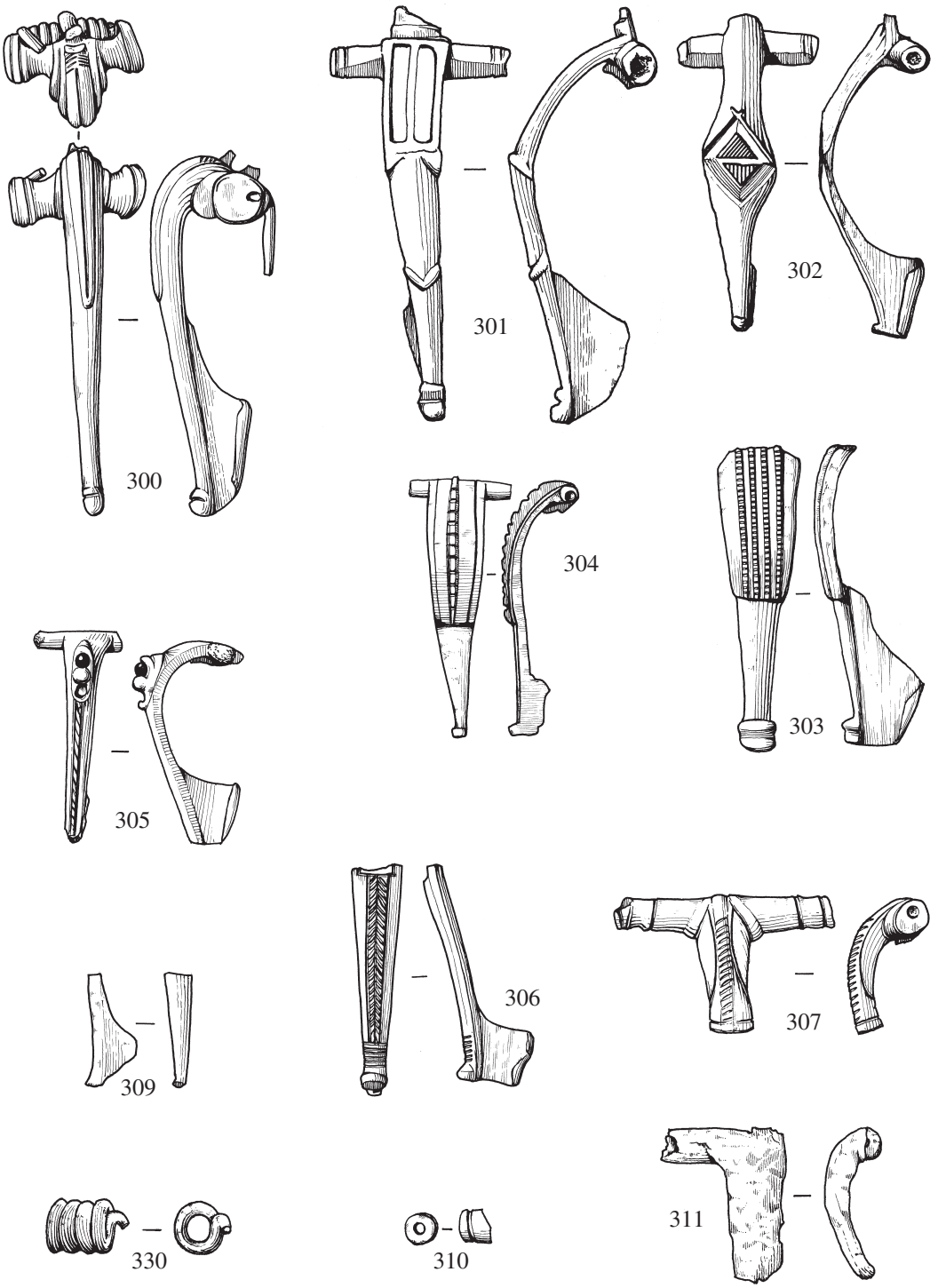

Fig 8 Brooches 300-7, 309-11 and 330, 1969-73 Nornour excavations; 1:1 (drawings by Frank Gardiner and Judith Dobie, English Heritage)

by analogy with related south-western types it is probably late first or early second century. The following brooches differ only in minor ways: Chichester, Sussex (Down 1981, fig 10, no 1); Whitton, Glamorgan (Jarrett and Wrathmell 1981, fig 70, no 19); Verulamium, Herts (Stead and Rigby 1989, fig 11, no 30; more angular profile, two pairs of leaves close together); Wanborough, Wilts (Anderson, Wacher and Fitzpatrick 2001, fig 24, no 106); Charterhouse, Somerset (Bristol Museum); Woodeaton, Oxon (Hull forthcoming, 2388).

From beach over Building 3.

302 1969 SF50 AM Lab 733374 Fig 8

Leaded bronze Length 41mm Butcher 1977, no 22

The (missing) pin was hinged in a plain narrow crossbar; a broken tab projects from the head. The plain bow expands in the centre where there is a lozenge-shaped decoration formed of two triangular cells for enamel: orange in the upper, greenish (now) in the lower.

Ten similar brooches came from the earlier excavations (Hull 1968, nos 37–46) and a number of parallels, listed below, come mainly from the south-west, including nine from Charterhouse on Mendip, Somerset. A mould for this type was found at Compton Dando, Somerset, a few miles from Charterhouse (Bayley 1985). There is little dating evidence: the context of the Gadebridge brooch probably pre-dates the Antonine house and those from Chew Valley and Uley are not later than *c* AD 200.

Charterhouse, Somerset, nine examples (seen in Bristol Museum); Chew Valley, Somerset (Rahtz and Greenfield 1978, fig 114, no 4); Cheddar, Somerset (seen in Wells Museum); Catsgore, Somerset (Leech 1982, fig 76, nos 7 and 8); Cattybrook, Somerset (Bennett 1980, fig 14, no 4); Uley, Glos, context *c* AD 200 (Woodward and Leach 1993, fig 124, no 4); Nettleton, Wilts (Wedlake 1982, fig 53, no 55); Gadebridge, Herts (Neal 1974, 8 (context), fig 54, no 18; Whitton, Glamorgan (Jarrett and Wrathmell 1981, fig 70, no 20); Exeter, Devon (Holbrook and Bidwell 1991, fig 101, no 18); Carvossa, Cornwall (Carlyon 1987, fig 7, no 24).

From beach south of Building 1.

303 1969 SF 31 AM Lab 733361 Fig 8

Leaded bronze, tinned Length (incomplete) 44mm

The head and crossbar are missing. The broad upper bow has four beaded ribs; the lower bow is plain and tapers to the knobbed foot. A brooch with similar decoration was found at Dorchester, Dorset (Aitken and Aitken 1982, fig 8, no 7).

From beach south of Building 1.

304 1969 SF52 AM Lab 733375 Fig 8

Leaded bronze / gunmetal Length 37mm

Simple T-shaped brooch, the pin hinged in the narrow crossbar. The upper bow is broad and has a central knurled rib; the lower bow plain and tapers to a small foot knob. The short catch-plate is broken.

Similar to two brooches from the earlier excavations: Hull 1968, nos 61 and 62. Other parallels: Lowbury Hill, Berks (now Oxon) (Atkinson 1916, pl ix, no 43); Wanborough, Wilts (Anderson, Wacher and Fitzpatrick 2001, fig 23, no 104); Catsgore, Somerset (Leech 1982, fig 78, no 25, head only); Dorchester, Dorset (Woodward *et al* 1993, fig 61, no 29, head only).

From beach south of Building 1.

305 1969 SF56 AM Lab 733379 Fig 8

Leaded bronze Length 32mm

Small T-shaped brooch; the (missing) pin was hinged on an iron rod inside the plain narrow crossbar.

A raised moulding riveted onto the bow has settings for two beads flanking a central boss. A dark blue glass globule remains in the upper setting. Below this a central cabled rib extends to the plain foot. There are incised lines across the turn of the catch-plate. A very similar brooch was found at Colliton Park, Dorchester (Aitken and Aitken 1982, fig 8, no 8) and another at Shapwick, Somerset (Hull forthcoming, 6573). There is no context dating for either.

From remains of dump south of Building 1.

306 1969 SF17 AM Lab 733354 Fig 8

Leaded bronze Surviving length *c* 30mm

The lower part of a bow brooch showing a central rib with fine chevron engraving, a foot moulding and a short catch-plate. Similar to the lower bows of Hull 1968, nos 80 and 82, from the earlier excavations. These have parallels almost exclusively from the south west, including one from Exeter (Holbrook and Bidwell 1991, fig 100, no 6; no 8 with similar decoration came from a context dated AD 75–80). There is also one from the temple site at Hayling Island, Hants (Soffe forthcoming).

From beach over Building 3.

307 1969 SF10 AM Lab 733350 Fig 8

Leaded bronze Surviving length *c* 21mm

The upper half of a brooch with wide moulded crossbar in which the pin was hinged. A pair of volutes at the head of the bow are followed by the curved line bordering a central knurled strip. Above the break there is a cross-moulding which marks the beginning of the waist decoration, of which lines indicating a possible triangular outline also remain. Some resemblance to Hull 1968, nos 34 and 94.

From beach south of Building 1.

308 1969 SF21 AM Lab 733355 Not illustrated

Bronze

Fragment; possibly the upper bow of a small brooch but might be part of the shoulder and bezel of a finger ring.

From beach over south part of Building 3.

309 1969 SF 46 AM Lab 733370 Fig 8

Leaded bronze

The lower part of a small brooch; the plain bow tapers to a very slight foot moulding.

From beach south of Building 2.

310 1969 SF 49 AM Lab 733373 Fig 8

Leaded bronze?

Fragment: one end of a brooch crossbar showing recess for the rod on which a pin would be hinged.

From beach south of Building 1.

311 1969 SF 6 AM Lab 733346 Fig 8

Leaded bronze / gunmetal

Part of the upper half of a T-shaped brooch: broken narrow crossbar and top of bow, apparently undecorated. The remains of the pin are hinged in the tube. Probably similar to Hull 1968, no 58, from the earlier excavations.

From south wall of Building 1: on top of black filling below beach debris.

312 1969 SF 2 AM Lab 733343 Fig 9

Leaded bronze Length 47mm Butcher 1977, no 20

Heavy enamelled T-shaped brooch. The pin is hinged on a rod in the crossbar, which is moulded at the ends and has a knurled rib along the top. There is fine engraved decoration on the head and alongside a cell for enamel which runs down the bow; the enamel is in juxtaposed blocks of alternating colours, black and (possibly) white. An incised V comes between the enamel and the out-turned disc on the foot, which probably also contained enamel. The sides of the bow are boldly toothed.

No parallel has been found for this brooch but it has features which are seen on other types: the style of engraved decoration is common on south-western brooches, including several at Nornour, but the toothed sides with forward-facing toe knob are most typical of the 'sawfish' type. There is a sub-group of these, commonest in the Midlands, which have a heavy moulding on the upper bow but are otherwise generally similar: for example, one from Dragonby, Lincs (May 1996, fig 11.9, no 102); another, from the temple site at Harlow, Essex, also has the panel of juxtaposed enamel down the bow (France and Gobel 1985, no 69). These connections suggest that Nornour 312 is a south-western product influenced by more standard brooches and that it probably dates to the later first century.

From recent sand filling the entrance passage to Building 2.

313 1972 SF 21 AM Lab 733397 Fig 9

Leaded bronze Length *c* 43mm plus headloop

Enamelled bow brooch of unusual form. It has a long narrow crossbar in which the (missing) pin was hinged, and the remains of a plain headloop. The crossbar is faceted and has an engraved zigzag line along the top. The bow is narrow at the top and bottom but expands in the middle to carry a large inset circle, obscured but apparently divided into rays with traces of enamel between. There are two circular studs, one above the central motif and the other on the foot; both were probably enamelled.

No parallel has been found. The two studs occur on a number of brooches, some also with the long crossbar – for example, Hengistbury, Dorset (Cunliffe 1987, no 18) and Exeter, Devon (Holbrook and Bidwell 1991, fig 100, no 4) – but none have the expanded central bow and its unusual decoration.

Found by Ron Symons on the beach south of Building 3.

314 1969 SF 38 AM Lab 733366 Fig 9

Bronze Length 38mm plus loop

Brooch of headstud type. The pin is hinged in a crossbar of which both ends are broken and there is a detached wire loop which presumably once fitted onto the head. A solid metal stud was apparently cast on the upper bow instead of the more usual riveted enamel stud, and the disc at the foot is also plain. The bow lacks the usual enamel decoration and instead has two longitudinal grooves. The broken catch-plate was of the usual shape for the type.

This is unlikely be an unfinished brooch awaiting decoration; the pin is fitted and there are two similarly plain parallels: Caernarfon, Gwynedd (Casey and Davies 1993, fig 10.1, no 7) and Coleshill, Warwicks (Warwickshire Museum:1979 excavations, no 285). It may simply be a cheaper version of the standard type. The alloy suggests that it is not a south-western product.

From top of the south wall of Building 1.

315 1972 SF 20 AM Lab 733396 Fig 9

(Leaded) gunmetal Length 40mm

Enamelled brooch with flat expanded bow. The missing pin was hinged in a narrow tube formed from the top of the head rolled upward. Below this there are flanges either side of a round plate with enamel centre and the rest of the bow is flat, expanding towards the foot. White enamel in the head

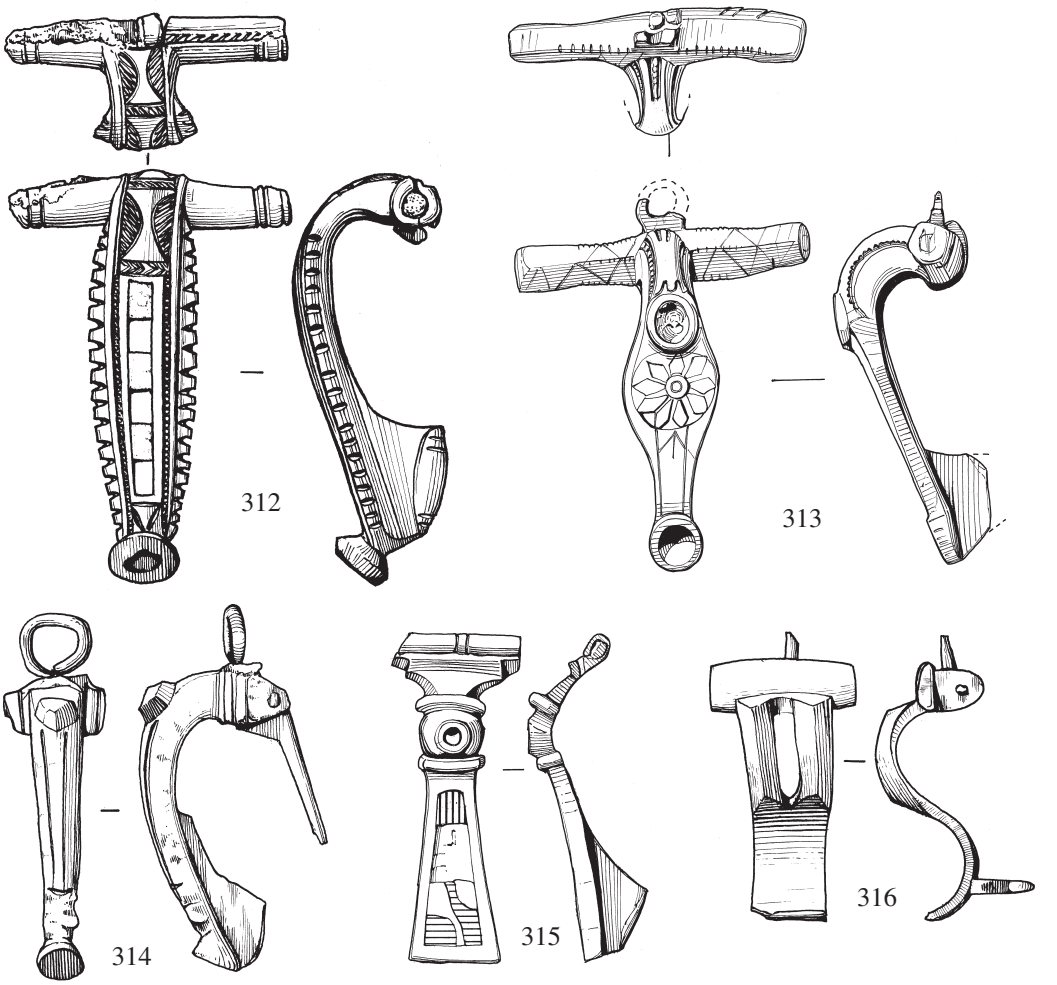

Fig 9 Brooches 312-16, 1969-73 Nornour excavations; 1:1 (drawings by Frank Gardiner and Judith Dobie, English Heritage)

disc shows a cup in which another colour would have been inset, and a large field on the lower bow had three juxtaposed blocks of enamel, the details now uncertain.

This is a most unusual brooch, for which it is difficult to find parallels. There is a Continental type which has the characteristic form of head (usually a first century feature, related to the Hod Hill type), together with the expanding flat bow decorated with juxtaposed or inset enamel, but they do not have the intervening disc. Examples of this type come from the Titelberg, Luxembourg (Thill 1969, abb 15, no 182), and from Normandy (Dollfus 1975, pl 50, no 495). A brooch from Anthée in the Museum of Namur does have an interpolated plate at the head but this is triangular. Another, from Velzeke, Belgium (seen by courtesy of M Marc Rogge) has a series of cross mouldings at the head; both these have inset and juxtaposed enamel in a large field on the lower bow. The alloy of Nornour 315 is also more typical of Continental brooches. While Nornour has many Continental plate brooches there are few amongst the bow types: eg, Hull 1968, nos 124–8, and these may be simpler copies.

Found on the beach by Ron Symons.

316 1970 SF 3 AM Lab 733382 Fig 9

Leaded bronze Length *c* 34mm

Knee brooch very similar to Hull 1968, nos 113–5. The pin is hinged between two lugs behind a nearly flat crossbar. The bow has an S-shaped profile; the upper part split into two ribs of triangular section and the lower a broad plain plate carrying the transverse crossbar.

Mr Hull believed that the Nornour examples were unique but a very similar brooch has been found subsequently at Uley (Woodward and Leach 1993, fig 124, no 13).

Although probably a south-western product there seems little doubt that these and related brooches (eg, Hull 1968, nos 112 and 241) are probably of similar date to the standard knee brooches of the late second and early third centuries.

From top of wall, Building 1.

317 1969 SF 22 AM Lab 733356 Fig 10

Leaded bronze Surviving length 34mm Butcher 1977, no 18

Flat rhomboid plate with an enamelled stud at each angle: that over the catch-plate is larger than the others and nearly oval; the side two are round and the one over the hinge incomplete. The main enamelled field contains a reserved metal ring defining a central cell. AM Laboratory has identified turquoise, golden brown and another colour of enamel. The missing pin was hinged between two lugs.

Enamelled studs are rare at Nornour; this is the only example amongst the rhomboid brooches and they occur on only three of the many disc brooches. Although the general shape is common on Continental enamelled brooches the details are so variable that it is difficult to quote close parallels. One from Camerton, Somerset, is similar but has juxtaposed enamel in the main field (Wedlake 1958, no 57); Sellye illustrates one from Pannonia (1939, pl xii, no 10).

From beach over southern part of Building 3.

318 1969 SF 35 AM Lab 733364 Fig 10

Leaded gunmetal Surviving length 34mm Butcher 1977, no 17

Small equal-ended plate brooch. The flat rectangular plate is flanked by two knurled cross-ribs from which project moulded terminals (one broken). The missing pin was hinged between two lugs. The central plate is divided into four square cells enamelled alternately turquoise and another colour.

This is very similar to Hull 1968, nos 161–3; there are no exact parallels for these brooches but otherwise similar ones with round or rhomboid plates are common on the Continent, with a few examples from Britain: for example, St Albans, Herts (Frere 1984, fig 8, no 48), from a context dated AD 155–210.

From beach outside south-west wall of Building 1.

319 1969 SF 30 AM Lab 733360 Fig 10

(Leaded) bronze Surviving length 31mm Butcher 1977, no 16

From beach south of Building 1.

320 1972 SF 22 AM Lab 733398 Fig 10

Leaded gunmetal Length 35mm

Found by Ron Symons on beach south of Building 3.

Two very similar equal-ended plate brooches. A small rhomboid central plate is flanked by long cross-ribs with zigzag mouldings and moulded terminals.

The central plate forms a cell for enamel but hardly any remains in 319; 320 has black spots inset in a field of uncertain colour. In each case the pin was hinged between two lugs.

Two other very similar brooches were found in the earlier excavations (Hull 1968, nos 157–8). As with brooch 318, the parallels have differently shaped plates, most frequently a rounded oval like the St Albans brooch cited; others come from Kidlington, Oxon (Hunter and Kirk 1954, fig 25, no 7), Liberchies, Hainault (Spitaels 1969, cat 155), Dalheim, Luxembourg (Spitaels 1969, cat 642), Montmaurin, Haute-Garonne (Feugère 1985, no 1893).

321 1969 SF 24 AM Lab 733358 Fig 10

Leaded bronze Length 51mm Butcher 1977, no 15

Enamelled equal-ended brooch. A large central disc is flanked by two similar projections of complex design including crescents and a small terminal boss. The main plate has a central hole, probably for the attachment of a riveted stud as on some other examples, and three concentric rings of juxtaposed enamel: blocks of black, orange, white and turquoise. There are traces of black enamel in the crescent fields and orange spots in the terminals. The missing pin was hinged between two lugs.

This is a common and widespread type on the Continent. Feugère (1985, 366–7) lists over 70 examples of which only three are from Britain, including this one and a doubtful brooch from Newstead. Hattatt adds one from Northumberland (1985, no 601). One from Madrano, Switzerland, was in a grave dated *c* AD 150–175 (inf Paule Spitaels) and Exner (1939, 94) quotes another from a burial at Wollstein *c* AD 150. Others, from cemeteries in Belgium and Luxembourg, are from late second century burials (Spitaels 1969, from which a further 12 can be added to Feugère's list).

From beach over Building 3.

322 1969 SF 37 AM Lab 733365 Fig 10

Leaded gunmetal Diameter *c* 28mm

Flat disc brooch in two pieces, one of which carries two lugs for a hinged pin and the other a transverse catch-plate. The thin plate is slightly dished and has traces of some material which may be an adhesive for a separate decorative plate, now missing. Others of this type have been found at Nornour (Hull 1968, nos 184–6, and no 323 below). No 186A also had a transverse catch-plate.

From sand over the south wall of Building 1.

323 1970 SF 26 AM Lab 733383 Fig 10

Leaded gunmetal Diameter *c* 24mm

Thin circular plate with remains of applied plate, attached by whitish adhesive. There are two lugs for a hinged pin and a lengthwise catch-plate.

From beach against south-western exterior of Building 1.

324 1969 SF 26 AM Lab 733359 Fig 10

Leaded bronze / gunmetal Maximum surviving diameter 27mm Butcher 1977, no 19

Part of an enamelled disc brooch, possibly deliberately cut down since the breaks look rather even. There is a central enamelled stud and the part of the disc which survives shows two fields of enamel divided by a reserved metal ring: AM Laboratory identified some turquoise enamel juxtaposed with another colour. A small segment of the plain rim survives and the back shows a slight ridge on the pin axis, with a central rivet for the stud and two lugs to hold a hinged pin.

There are numerous Continental parallels for the form of this brooch, usually with complex (ie, juxtaposed or millefiori) enamelling; for example, brooches from the Saalburg, (Böhme 1972, no 994) and from Flavion (Spitaels 1969, cat 502). It is particularly common in 'eastern Gaul' and Germania (Feugère 1985, 370, type 27 b I).

From beach east of hearth in Building 3.

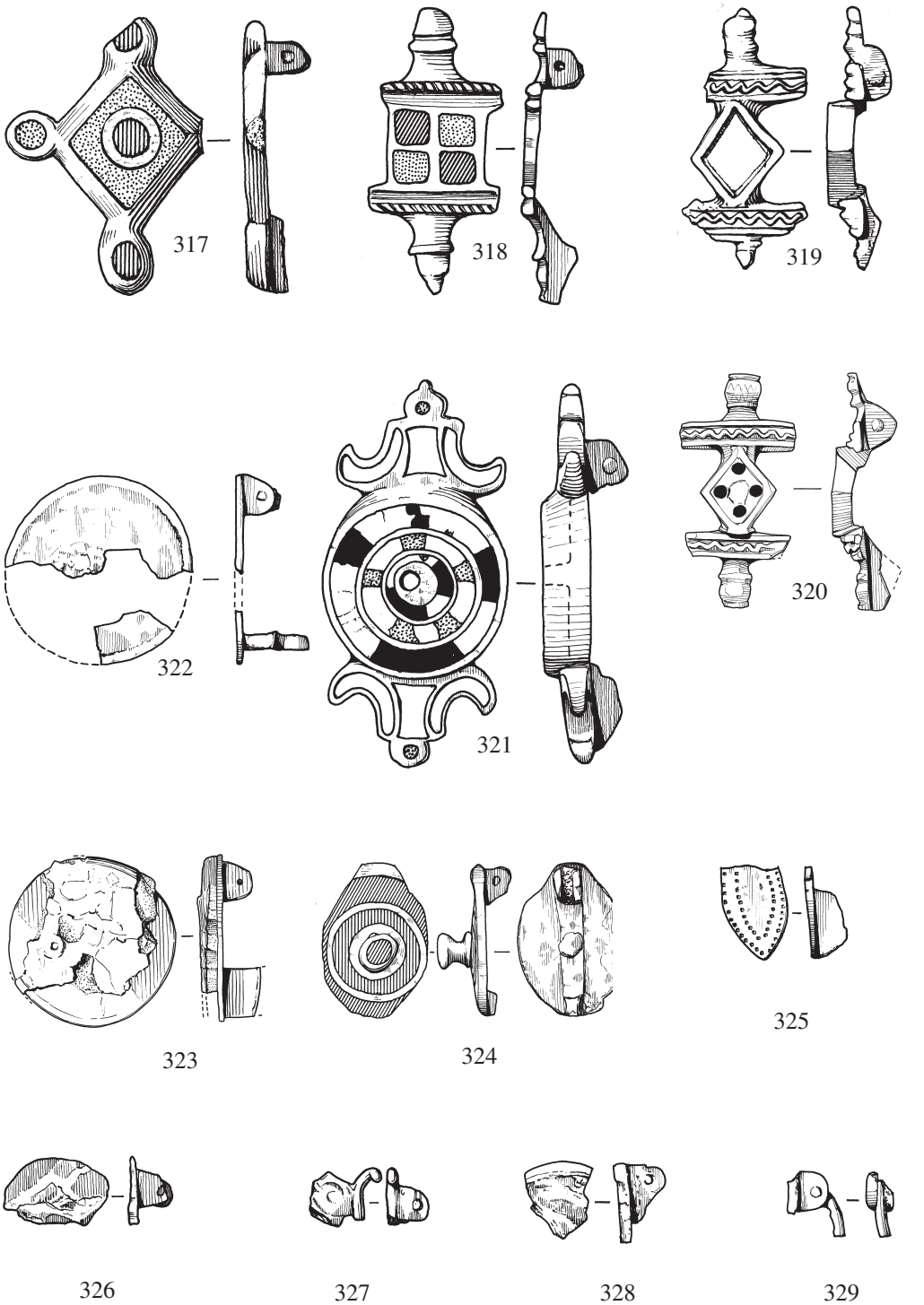

Fig 10 Brooches 317-29, 1969-73 Nornour excavations; 1:1 (drawings by Frank Gardiner and Judith Dobie, English Heritage)

325 1969 SF 54 AM Lab 733377 Fig 10

Leaded gunmetal Surviving length 13mm

Half of a shoe-sole plate brooch, showing a fairly pointed toe and two rows of fine punched decoration representing nails. The central catch-plate is broken.

Similar to the enamelled shoe-sole brooches, Hull 1968, nos 216–23. Non-enamelled examples have been found elsewhere and are thought to belong to the first century Continental production with tinned finish and fine punched decoration as on Hod Hill brooches; one from the fort at Hüfingen is quite similar to no 325 (Rieckhof 1975, taf 9, no 146). Others have an applied metal plate; there is one from Cornwall (Carlyon 1982, 162: brooch 1).

From beach grit south of Building 1.

Plate brooch fragments

326 1969 SF13 AM Lab 733352 Fig 10

Leaded bronze / gunmetal

Part of a flat plate brooch with the remains of a pin between two lugs at the back. There are traces of possible adhesive on the plate and this may be part of an applied plate brooch such as no 323 above.

From beach grit in Building 3.

327 1969 SF11 AM Lab 733351 Fig 10

Bronze

Fragment of spring between two lugs.

From beach over Building 3.

328 1969 SF 43 AM Lab 733368 Fig 10

Leaded bronze

Fragment of disc with two lugs for a hinged pin.

From beach south of Building 1.

329 1969 SF 47 AM Lab 733371 Fig 10

(Leaded) bronze

Fragment of plate with two lugs for a hinged pin.

From beach south of Building 1.

Brooch fragment

330 1970 SF 14 Fig 8

Part of spring; four turns. Probably from a bow brooch.

From filling of Building 2 north wall.

Finger-rings and intaglios

1 1969 SF 5 AM Lab 733345 Fig 11

Part of ring of copper alloy with oval intaglio of dark blue glass. The impressed figure shows the rather blurred outline of a horse. This is Henig 1974, vol 2, no 591.

From upper filling in passage outside entrance to Building 2.

2 1969 SF 1 AM Lab 733380 Fig 11

Dark blue semi-opaque glass intaglio with impressed figure. This is Henig 1974, vol 2, no 584, where it is compared to another from Kenchester described as a 'standing figure (female) with sceptre in right hand and left hand on chin', dated to the third century.

From upper filling (recent debris) of entrance passage to Building 2.

3 1969 SF 53 AM Lab 733376 Fig 11

Half of a plain copper alloy ring with empty oval bezel.

From beach south of Building 1.

4 1972 SF 19 AM Lab 733395 Fig 11

Copper alloy ring with small bezel containing traces of brownish enamel. Belongs to a group described by Henig: his type VIIIa with narrow hoops and prominent shoulders. These are usually third century (Henig 1974, vol 1, 50).

Found by Ron Symons on beach south of Buildings 1–3.

5 1969 SF 48 AM Lab 733372 Fig 11

Part of the bezel and one shoulder of a copper alloy 'trinket ring' of Henig (1974) type VIIIa. Probably third century.

From beach against the wall of Building 1.

Other small finds

6 1969 SF 8 AM Lab 733348 Fig 11

Part of a copper alloy bracelet formed of two strands of metal twisted together. This is a common type and is usually dated to the fourth century (cf Crummy 1983, 37; her no 1613 is similar; also Uley, Woodward and Leach 1993, fig 127, nos 16–23).

From beach grit amongst stones south of Building 2.

7 1969 SF 4 AM Lab 733344 Not illustrated

Fragment of bracelet similar to no 6 above; length about 15mm.

From debris of Building 1 wall; recent gale damage.

8 1970 SF 13 AM Lab 733384 Fig 11

Short strip of copper alloy *c* 5mm wide and 1–2mm thick; row of punched dots down centre; slightly curved or bent. Perhaps part of bracelet.

From beach on southwest side of Building 1.

9 1969 SF 15 AM Lab 733367 Fig 11

Disc of dark glass inset with a lighter colour; diameter 12mm, depth 3mm.

From loose material on top of south wall of Building 1.

10 1969 SF 15 AM Lab 733353 Fig 11

Copper alloy disc with ring of red enamel round central opening; diameter *c* 13mm. Perhaps attachment from disc brooch: seems too thin to be main plate of brooch.

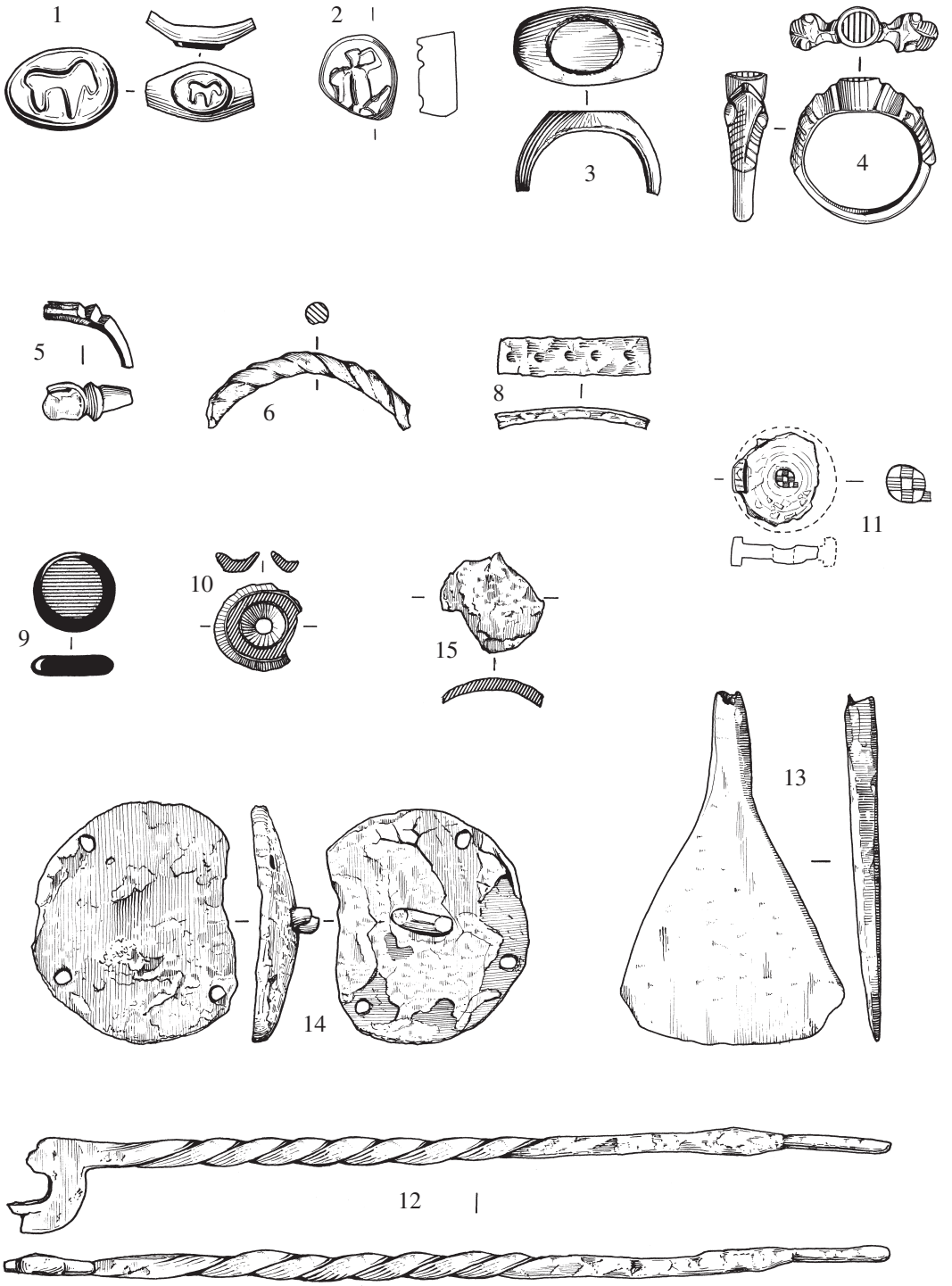

Fig 11 Small finds 1-6, 8-15, 1969-73 Nornour excavations. All 1:1 except no 2, 2:1 (drawings by Frank Gardiner and Judith Dobie, English Heritage)

11 1973 SF 23 AM Lab 733399 Fig 11

Copper alloy disc containing circular field of decayed enamel; rivet in centre; diameter *c* 13mm. Perhaps part of a disc brooch.

From filling of Building 1 wall north east of entrance: the wall here had collapsed (Butcher 1978, 52, and section, fig 18).

12 1970 SF 2 AM Lab 733381 Fig 11

Copper alloy spoon handle; length 120mm. Formed of two strips of metal twisted together and fused at the ends; one end pointed and the other an angled attachment for the missing bowl. Similar handles from Uley are illustrated in Woodward and Leach 1993, fig 134. A 'mandolin' spoon bowl with similar shaped attachment was found in the earlier excavations at Nornour (Dudley 1968, no 35).

From north wall filling at junction of Buildings 1 and 2.

13 1969 SF 9 AM Lab 733349 Fig 11

Copper alloy triangular blade with square tang. This resembles prehistoric implements, for example a chisel from Wiltshire in Devizes Museum (Cunnington and Goddard 1934, fig 15, no 321).

From beach grit south of Building 2 entrance.

14 1969 SF 34 AM Lab 733363 Fig 11

Copper alloy disc, slightly convex; diameter *c* 34mm. Regularly spaced holes near the edge, perhaps for attachment. A broken crescent-shaped projection from the centre was possibly originally a ring.

From fine beach grit south-west of Building 1.

15 1969 SF 44 AM Lab 733369 Fig 11

Fragment of convex copper alloy plate or disc. Maximum surviving width 15mm.

From beach south of Building 1.

16 1969 SF 32 AM Lab 733362 Not illustrated

Fragment of convex copper alloy plate or disc with three attachments, possibly rivets; badly decayed.

From top of surviving south-west wall of Building 1, under beach.

17 1969 SF 7 AM Lab 733387 Not illustrated

Fragment of copper alloy: rod of rectangular section; length *c* 20mm, 3x4mm section.

From bottom of beach grit over Building 3 wall.

Glass beads

These were seen by Mrs Margaret Guido; comments are taken from her letter of 14 August 1970.

18 1970 SF 1

Plain cylindrical bead of opaque blue glass; diameter 5mm, length 4mm.

M Guido: 'very characteristic Roman type . . . could be part of a segmented bead as there is a hint of a collar between two segments, but that could result from poor manufacture'.

From wall of Building 1, northeast quadrant.

19 1970 SF 9

M Guido: 'cylindrical translucent green-blue [glass] bead; a very characteristic Roman type'. Diameter 5mm; surviving length 12mm.

From wall of Building 1; filling behind buttress on north-east side.

20 1970 SF 5

Half of a flattish ring: greenish translucent glass with darker and lighter streaks; maximum surviving diameter 20mm, thickness 5mm.

M Guido: 'annular bottle-glass bead; likely to be first or second century… a very characteristic Roman type'.

From top of wall filling at junction of Buildings 1 and 2.

21 1973 SF 25

Segmented bead of dark green opaque glass; diameter 4mm, surviving length 10mm. These are common in the late third and fourth century (Guido 1978, 91–3).

From wall filling, Building 1.

Catalogue of Roman coins from Nornour

R D Penhallurick

Note. In the following list coins with the initial reference CAT are from the 1962–66 excavations; the number is that of the Isles of Scilly Museum catalogue. Those from the 1969–73 excavations are identified by year and small find number: for example, 1969 SF 20.

All the coins are of copper alloy. Text between square brackets [ ] is missing or illegible and is reconstructed from catalogued examples.

VESPASIAN (AD 69–79)

CAT 298 *as* (26mm) Good
Obv. [IMP CAE]S VESPASIAN AVG CO[S III]
Rev. IVDAEA [CAPTA]
Ex. S C.
BMC 604, AD 71

CAT 1408 *dupondius* (25mm) Worn
Obv. IMP [CAES VE]SP AVG [P M T P COS IIII CENS]
Rev. [FELICITAS PVBLICA]? S – C low in field
Cf *BMC,* 661, pl 26.8; if so, minted AD 73

1969 SF 42 Loose beach grit south of Building 1
dupondius (26mm) Worn, patina stable
Illegible. Vespasian confirmed at British Museum (B.M.)

1970 SF 7 Filling behind buttress of Building 1
dupondius (26mm) Worn, some active corrosion
Obv. Illegible
Rev. Illegible. Standing female figure

CAT 1400 *sestertius* (29mm) Very worn
Illegible. Heavy brow suggests Vespasian

CAT 1405 *dupondius* (27mm) Worn
Obv. [IMP CAE]S VESPASIAN AVG CO[S VIII P P]
Rev. FIDES PVBLI[CA], S – C in field
BMC, 828, pl 40.2. Mint of Lyons, AD 77–8
CAT 1404 *as*? (27mm) Worn. Illegible

Vespasian or **Titus**, as Caesar (AD 69–79), confirmed at B.M.
CAT 1056 *as* (26mm) Worn
Obv. Illegible
Rev. Illegible. Possibly figure of Victory

Domitian (AD 81–96)
CAT 1057 *as* (28mm) Worn
Obv. [IMP CAES D]OM[IT AVG GERM COS XII CENS PER P P]
Rev. [FORTUNAE AVGUSTI], S – C in field
BMC, 386, pl 76.2. AD 86
CAT 1059 *dupondius* (27mm) Worn
Obv. [IMP CAES DOM]IT [AVG GERM…]
After AD 83
CAT 1388 *dupondius* (28mm) Worn
Obv. [IMP CAES] DOMIT AVG GERM[….]
After AD 83
CAT 1410 *as* (23mm) Worn
Obv. Illegible. Domitian confirmed at B.M.

***c* Late First Century**
CAT 1391 *dupondius* or *as* (16mm) Illegible. Perhaps Domitian
CAT 1392 *as*? (26mm) Illegible. Perhaps Domitian
CAT 1375 *as* (26mm) Illegible

Trajan (AD 98–117)
1969 SF 20 Beach grit on Building 3 wall
dupondius (28mm) Good
Obv. IMP CAES NERVA TRAIAN AVG GER[M P M]
Rev. TR POT [COS II]
Ex. S C.
BMC, 719, pl 25.6. AD 98–9
(1962) 1 (*per* Mrs E. M. Minter)
dupondius (29mm) Worn
Obv. IMP CAES NERVA TRAIAN AVG GERM P M
Rev. TR PO[T – COS] IIII(?) [P P]
Ex. S C. AD 101–2 if COS IIII
1970 SF 10 Filling of wall, exterior Building 1–2
sestertius (32mm) Worn, but stable patina
Obv. [IMP CAES NERV(A)(E) TRAIA]NO AVG GER D[AC P M
TR P COS V P P]
Rev. Illegible [S P Q R OPTIMO PRINCIPI], S – C in field
BMC, 781, pl 28.5 is best fit. AD 103–5
CAT 299 *as* (27mm) Worn
Obv. [IMP CAES NERVAE TRAIANO AVG GER DAC P M TR P]

COS [V P P]
Rev. [S P Q R OPTIMO PRINCIPI]
Ex. [S C].
RIC, 569; *BMC,* 914, pl 35.2. AD 103–11

CAT 1373 *dupondius* (27mm) Worn
Obv. [IMP CAES NERVAE TRAIANO AVG GER DAC P M TR P COS V P P]
Rev. [FELICITAS – AVGVST], S – C in field
BMC, 991, pl 39.3. After AD 103

1969 SF 16 Beach over 'ram', 3ft south of Building 3
dupondius (28mm) Worn
Obv. [IMP CAES NERVAE TRAIANO AVG GER DAC P M
TR P COS V P P]
Rev. [S P Q R OPTIMO PRINCIPI]
Ex. S C.
Cf *BMC,* pl 34.8; *RIC,* 538–9. AD 103–11

1969 SF 41 Loose beach grit south of Building 1
dupondius (28mm)
Obv. [IMP CAES] NERVAE TRAIANO AVG GER [DAC P M
TR P COS V P P]
Rev. [S P Q R OPTIM]O PRINCIPI, S – C in field
RIC, 494; *BMC,* 885, pl 33.9. AD 103–11

CAT 1379 *as* (26mm) Worn
Obv. [IMP CAES NERVAE TRAIAN]O AVG GER DAC P [M
TR P COS VI P P]
Rev. [DACIA AVGUSTA]
Ex. [PROVINCIA / S C]
BMC, pl 37.10 for *sestertius.* AD 112–14

1974 Building 1, unstratified, on wall filling. Found during repairs to site.
sestertius (32mm) Worn, with good portrait
Obv. [IMP CAES TRAIANO] OPTIMO AVG GER [DAC P M
TR P COS (VI?) P P]
Cf *BMC,* pl 40.9. AD 114–15

CAT 1401 *sestertius* (32mm) Good
Obv. IMP CAES NER TRAIANO OPTIMO AVG GER DAC
PARTHICO P M TR P COS VI P P
Rev. [REX PART]HIS DATVS
Ex. S C.
BMC, 1046, pl 43.1. AD 114–17

1969 SF 45 South of Building 1
dupondius (26mm) Illegible
Trajan confirmed at B.M.

CAT 1376 *as* (27mm) Illegible

CAT 1387 *dupondius*? (26mm) Illegible
Obv. Bust r, suggestion of radiate crown

Trajan or **Hadrian**

1969 SF 3 Building 1, alcove 1, on top of recent sand filling
AE *dupondius* (25mm) Illegible

Hadrian (AD 117–138)
1969 SF 25 From beach
sestertius (32mm) Illegible
CAT 1058 *dupondius* (28mm) Illegible
AD 119–28, confirmed at B.M.
CAT 300 *as* (26mm) worn, but good obverse
Obv. [HADR]IANVS – AVGVSTVS
Rev. C[OS III]
Cf *BMC,* 1341, pl 82.13. After AD 119

Antoninus Pius (AD 138–61)
CAT 301 *sestertius* (30mm) Worn
Obv. [ANTONI]NVS AVG [PIVS P P TR P XVII]
Rev. [LIB]E[RTAS COS IIII]
BMC, 1947, pl 47.8. AD 153–4
1969 SF 33 Beach grit south of Building l
dupondius (26mm) Worn
Obv. Illegible
Rev. ANN(?)[ONA – AVG]
Cf *BMC,* 1730, pl 39.16 for *sestertius* rev
CAT 1389 *dupondius* (25mm) Worn
Obv. [ANTONI]NVS AVG [PIVS….]
Rev. Illegible
Irregular issue, confirmed at B.M.

Faustina I (wife of Antoninus Pius, died AD 141)
1969 SF 36 Top of midden south of Building 1
dupondius (26mm) Fine
Obv. DIVA AVGVSTA-FAVSTINA
Rev. AETER[NITAS], S – C in field
RIC, 1163a. Struck by Ant Pius after Faustina's death
CAT 302 probably *as* (24mm) Good obverse
Obv. DIVA FAV-STIN[A]
Rev. [AE]TER-[NITAS], S – C in field
Cf *BMC,* 1542 pl 37. After AD 141
1970 SF 11 Exterior of Building l–2
as? (17mm) Illegible

Marcus Aurelius (as Caesar, AD 139–161)
CAT 1395 *dupondius* or *as* (26mm)
Obv. [AVRELI]V[S] CAE-SAR AVG [PII F COS]
Rev. [IVVEN-TAS], S – C in field
BMC (Ant Pius), 1407. AD 140–4
CAT 1398 *dupondius* or *as* (26mm)
Obv. [AVR]ELIVS CAE-SAR A[VG PII F COS II]
Rev. S – C in field
BMC (Ant Pius), 1800. AD 145–60

Marcus Aurelius (as Augustus, AD 161–80)
CAT 1384 *sestertius* (30mm) Fair

Obv. [M ANTONINVS AVG ARM PARTH MAX]
Rev. [TR POT XXI IMP IIII COS III], S – C low in field
BMC, 1318; *RIC,* 948. Dec AD166 – Dec167

CAT 1378 *dupondius* (25mm) Worn
Obv. [M ANT]ONINVS AVG [TR P XXV]
Rev. [SALVTI AVG COS III], S – C in field
BMC, 1392, pl 82.11. AD 171–2

CAT 1377 *sestertius* (29mm) Very worn
Obv. [M ANT]ONINVS [AVG] GERM [TR P COS….]
Rev. VOTA [PVBLICA IMP VIIII COS III P P], S – C in field
Ex. Illegible
Var of *BMC,* 1639 (pl 88.6 for rev). Dec AD 176 – Dec 177

Faustina II (died AD 175)

CAT 1381 *dupondius* or *as* (24mm) Good
Obv. FAVSTINA AVG PII [AVG FIL]
Rev. FEL[ICI]-TAS, S – C in field
BMC, 2187; *RIC,* 1395 Ant Pius. Undated

CAT 1055 *dupondius* or *as* (22mm) Worn
Obv. [FAVSTINA AVGVSTA]
Rev. [AVGVSTI PII FIL], S – C in field
BMC, 2203, pl 50.10; *RIC,* 1390 Ant Pius. Undated

Commodus (AD 177–92)

CAT 1385 *sestertius* (30mm) Fair
Obv. [M COMM]ODVS ANT [P FELIX AVG BRIT]
Rev. [P M TR P XI IMP VII COS V P P]
Ex. [FI]D EXERCIT.
BMC, 880; *RIC,* 468b. AD 186

Crispina (wife of Commodus, died AD 183)

CAT 304 *dupondius* or *as* (26mm) Worn
Obv. [CRISP]INA – [AVGVSTA]
Rev. [IVNO LVC]INA, S – C in field
BMC, 433, pl 102.14; *RIC,* 680

Lucilla (wife of Lucius Verus, died AD 183)

CAT 303 *sestertius* (31mm) Worn
Obv. [LVCIL]LAE AVG AN[TONINI AVG F]
Rev. [VENVS], S – C in field
BMC, 1167, pl 76.12; *RIC,* 1763

Julia Domna (wife of Septimus Severus, died AD 217)

1970 SF 8 Filling behind buttress of Building l
sestertius (28mm) Worn, good patina
Obv. [IVLIA] – AV[GVSTA]
Rev. probably [HILARITAS], [S – C] in field
Cf *RIC,* 855. AD 196–211

Postumus (AD 259–68)

CAT 305 *antoninianus* (21mm) Very good

Obv. IMP C POSTVMVS P F AVG
Rev. P M TR P IIII COS III P P
Besly and Bland 1983, 2406. Principal mint (Trier?) AD 263

Claudius II Gothicus (AD 268–70)
CAT 306 *antoninianus* (21mm) Good
Obv. IMP C CLAVDIVS A[VG]
Rev. GENIV[S EX]ERCI
RIC, 48
CAT 307 *antoninianus* (19mm) Good
Obv. [I]MP C CLAVDIVS AVG
Rev. [VI]CT[OR]I-A AVG
RIC, 104

Tetricus I (AD 270–3)
CAT 1393 *antoninianus* (16mm) Worn
Obv. [IMP TETRICVS P F AVG] or similar
Rev. [SALVS AVG]
RIC, 121 ff; 123 if obv legend as above

Tetricus II (AD 270–3)
CAT 1390 *antoninianus* (16mm) Very worn
Obv. [C] P[IV] ESV T[ETRICVS CAES]
Rev. SPE[S AVGG]
Besly and Bland 1983, 2655, pl 32
CAT 309 *antoninianus* (18mm) Worn
Obv. [C P ES(V) TETRICVS CAES]
Rev. S[PES – A[VG]G
RIC, 271
CAT 308 *antoninianus* (17mm) Good
Obv. [C P E] TET[R]ICVS CAES
Rev. S[PES] PVBLICA
Var of *RIC,* 274; Besly and Bland 1983, Spes type l
CAT 1399 *antoninianus* (14mm) Worn
Obv. [C P(IV) E(SV) TETRICVS CAES]
Rev. [VICTORIA AVG]
RIC, 277 (Victory standing) or 278 (advancing)

Constantine I (AD 307–37)
CAT 311 *follis* (21mm) Good
Obv. IMP CONSTANTINVS P AVG
Rev. SOLI INV-IC-TO COMITI
Ex. PLN
Askew 1951, 807. Mint of London AD 309–13.
CAT 1394 AE 3 (19mm) Corroded, part missing
Obv. [CONSTA-]NTINVS AVG
Rev. [VIRTVS EX]ERCIT
Ex. [P or S]TR Mint of Trier AD 320–21
Cf *RIC,* 249, pl 4.264
CAT 313 *follis* (19mm) Fine, but broken in two

Obv. CONSTAN – TINVS AVG
Rev. SARMATIA – DEVICTA
Ex. STR crescent. Mint of Trier AD 323–4
RIC, 427 or 435

CAT 314 *follis* (19mm) Good
Obv. CONSTAN-TINVS AVG
Rev. PROVIDEN-TIAE AVGG
Ex. PTR, dot in crescent. Mint of Trier, AD 324–30
LRBC vol 1, 28

CAT 315 AE3 (18mm) Good
Obv. CONSTANTI-NVS MAX AVG
Rev. GLOR-IA EXERC-ITVS
Ex. [TRP?]. Probably mint of Trier, AD 330–5
LRBC vol 1, 53

CAT 324 AE4 (15mm) Good
Obv. CONSTANTI-NVS MAX AVG
Rev. [GLOR-IA] EXERC-ITVS
Ex. [P]CONST. Mint of Arles, AD 335–7
LRBC vol 1, 398

CAT 316 AE3 (13mm, fragment)
Obv. [CONSTANTI-NVS MAX AVG
Rev. [GLOR-IA EXERC-ITVS]
Ex. Missing. Mint of Arles, AD 335–41
LRBC vol 1, 405

COMMEMORATIVE (AD 330–46)

1970 SF 4 Wall, north side of Building l
AE3/4 (17mm) Good
Obv. CONSTAN-TINOPOLIS
Rev. Victory, no legend
Ex. TRST. Mint of Trier, AD 330–5
LRBC vol 1, 71

CAT 1386 AE3/4 (15mm) Good
Obv. [C]ONSTAN-TI[NOPOLIS]
Rev. Victory, no legend
Ex. [TR]P[*?]. Mint of Trier, AD 330–5
LRBC vol 1, 71 with *

CAT 1364 AE3/4 (16mm) Fairly good
Obv. [VRBS ROMA]
Rev. Romulus and Remus, no legend
Ex. TRS. Mint of Trier, AD 330–5
LRBC vol 1, 51

CAT 1406 AE3/4 (17mm) Two fragments, fairly good
Obv. VRBS – ROMA
Rev. Romulus and Remus, no legend
Ex. S[…]. AD 330–5

CRISPUS (as Caesar, AD 317–26)

CAT 317 AE3 (19mm) Good
Obv. IVL CRISPVS NOB [CAES]

Rev. BEATA TRAN-QVILLITAS
Ex. PTR[*?]. Mint of Trier, AD 321
RIC, 308 with *
CAT 1396 AE3 (19mm) Good, part missing
Obv. IVL CR[ISP]-VS NOB C
Rev. CAESARVM NOSTRORVM VOT/X in wreath
Ex. [PL]O[N crescent]. Mint of London, AD 320 – November 324
Askew 1951, 845

Constantine II (as Caesar, AD 317–37)
CAT 312 AE3 (19mm) Fine
Obv. CONSTANTI-NVS IVN N C
Rev. BEAT TRA-NQLITAS
Ex. PLON. Mint of London, AD 320 – Nov 324
Askew 1951, 862
CAT 321 AE3/4 (15mm) Fine
Obv. CONSTANTINVS IVN NOB
Rev. [GLOR-IA EX]ERC-ITVS
Ex. Crescent PLG. Mint of Lyons, AD 335–7
LRBC vol 1, 226
CAT 1415 AE3/4 (16mm) Good, part missing
Obv. CONSTANTI-[NVS IVN N C]
Rev. GLOR-IA EXE[R]C-ITVS
Ex. [PCONST]. Mint of Arles, AD 335–7
LRBC vol 1, 411. Confirmed at B.M.

Constantine II (as Augustus, AD 337–40)
CAT 320 AE3/4 (15mm) Worn
Obv. Indistinct, perhaps [IMP CON]STA-NTINVS [AVG]
Rev. [GLOR]IA EXERC-ITVS
Ex. Missing. Mint of Arles, AD 337–41.
Cf *LRBC* vol 1, 419

Constans (AD 337–50)
CAT 322 AE3/4 (15mm) Fine
Obv. CONSTAN-S P F AVG
Rev. VICTORIAE DD AVGGQ NN
Ex. TRP. Mint of Trier, AD 341–6
LRBC vol 1, 148
CAT 323 AE3/4 (15mm) Fine
Obv. CONCTAN-S P F AVG
Rev. VICTORIAE DD AVGGQ NN
Ex. TRS. Mint of Trier, AD 341–6
LRBC vol 1, 150
CAT 318 AE3/4 (16mm) Worn
Obv. [(D N) CONSTA]-NS P F AVG]
Rev. [VICTORIAE DD AVGGQ NN]
Ex. Illegible. AD 341–6
No number AE3/4 (13mm) Worn
Obv. Illegible. Bust r, probably Constans

Rev. [VICTORIAE DD AVGGQ NN]
Ex. Illegible. AD 341–6
CAT 1407 *centenionalis* (22mm) Good
Obv. D N CONSTA-NS P F AVG
Rev. FEL TEMP REPA-RATIO
Ex. R*S. Mint of Rome, AD 346–50
LRBC vol 2, 602

Constans (AD 337–50) or Constantius II (AD 337–61)
CAT 1403 AE3/4 (11mm) Illegible
Rev. [VICTORIAE DD AVGGQ NN]
Ex. Illegible. AD 341–6
LRBC vol 1, 137 etc for Trier types

Constantius II (as Caesar, AD 324–37)
CAT 1409 AE3 (19mm) Fine
Obv. FL IVL CONSTANTIVS NOB
Rev. GLOR-IA EXERC-ITVS
Ex. RFT. Mint of Rome, AD 330–5
LRBC vol 1, 534
CAT 319 AE3/4 (17mm) Good
Obv. FL IVL CONSTANTIVS NOB
Rev. SCONS[T]. Mint of Arles, AD 330–5
LRBC vol 1, 375. Confirmed at B.M.

Constantius II (as Augustus, AD 337–61)
CAT 1380 AE4 (16mm) Worn and broken. Legends indistinct
Obv. Probably CONSTANTI-VS P F AVG
Rev. [VICTORIAE DD AVGGQ NN]
Ex. Illegible
Cf *LRBC* vol 1, 140 for Trier, AD 341–6

House of Constantine
CAT 1402 AE3/4 (14mm) Very worn
Rev. [GLOR-IA EXERC-ITVS]
AD 335–41
CAT 1372 AE3/4 (14mm) Very worn
Obv. Illegible
Rev. [GLORIA EXERCITVS]
AD 335–41
CAT 1374 AE3/4 (16mm) Worn
Rev. [GLOR-]IA EXER[C-ITVS]

Magnentius (AD 350–3)
CAT 326 *centenionalis* (20mm) Good. Irregular issue
Obv. [IMP CAE MAG]NENTIV-[S AVG]
Rev. [FELICITAS – REIPV]BLI[CE] | II (=A)
Ex. Illegible
Cf *LRBC* vol 2, 50–1 for Trier prototype. Minted AD 350–1

DECENTIUS (AD 350–3)
Cat 325 *centenionalis* (21mm) Good, but lacking outer flan
Obv. D N D[ECEN-TIVS NOB C]AES
Rev. [SALVS DD N]N AVG E[T CAES]
Ex. Missing. Mint of Lyons confirmed on style at B.M.
Cf *LRBC* vol 2, 239, etc. Sept AD 352–Aug 353

VALENS (AD 364–78)
CAT 327 AE3 (17mm) Good, with patina
Obv. D N VALEN-S [P F AVG]
Rev. SECVRITAS – REIPVBLICAE
Ex. [*?]SMAQP. Mint of Aquileia
LRBC vol 2, 995, 1106 with *. AD 364–7

GRATIAN (AD 367–83)
CAT 310 AE3 (18mm) Good
Obv. [D N GRATIA]NVS AVGG AVG
Rev. GLORIA NO-VI SAECVLI OF | I
Ex. [CON]. Mint of Arles
LRBC vol 2, 517. AD 367–75

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Bibliography

Aitken, G, and Aitken, N, 1982. Excavations on the Library site, Colliton Park, Dorchester, 1961–3, *Dorset Natur Hist Archaeol Soc Proc,* **104**, 93–126

Allen, C, and Hopkins, D, 2000. Bronze Age accessory cups from Lincolnshire, *Proc Prehist Soc,* **66**, 297–317

Anderson, A S, Wacher, J S, and Fitzpatrick, A P, 2001. *The Romano-British small town at Wanborough, Wiltshire; excavations 1966–1976,* Britannia Monogr, **19**, London

Ashbee, P, 1996. Halangy Down, St Mary's, Isles of Scilly, excavations 1964–1977, *Cornish Archaeol,* **35**, 2–201

Askew, G, 1951. *The coinage of Roman Britain*, London

Atkinson, D, 1916. *The Romano-British site on Lowbury Hill,* Reading

Barber, B, Bowsher, D, and Whittaker, K, 1990. Recent excavations of a cemetery of Londinium, *Britannia,* **21**, 1–12
Bayley, J, 1985. Interim report on some clay moulds and associated finds from Compton Dando, Somerset, Ancient Monuments Laboratory Report, No 4639
Bayley, J, and Butcher, S A, 2004. *Roman brooches in Britain: a technological and typological study based on the Richborough collection,* Soc Antiq London Res Reps, **68**, London
Bennett, J, 1980. *A Romano-British settlement at Cattybrook*, *Almondsbury, Avon,* Comm Rescue Arch Avon Glos Som [CRAAGS], Occ Pap, **5**, Bristol
Besly, E, and Bland, R, 1983. *The Cunetio treasure: Roman coinage of the third century AD,* London
BMC: Coins of the Roman Empire in the British Museum, 6 vols, London, 1923–76
Böhme, A, 1972. *Die fibeln der kastelle Saalburg und Zugmantel, Saalburg Jahrbuch,* **29**, 5–112
Bushe-Fox , J P, 1914. *Second report on the excavations . . . at Wroxeter 1913,* Rep Res Comm Soc Antiq London, **2**, Oxford
Butcher, S A, 1977. Enamels from Roman Britain, in *Ancient Monuments and their interpretation* (eds M R Apted, R Gilyard Beer, and A D Saunders), 40–70, London
Butcher, S A, 1978. Excavations at Nornour, Isles of Scilly, 1969–73: the pre-Roman settlement, *Cornish Archaeol,* **17**, 29–112
Carlyon, P M, 1982. A Romano-British site at Kilhallon, Tywardreath; excavations in 1975, *Cornish Archaeol,* **21**, 155–70
Carlyon, P M, 1987. Finds from the earthwork at Carvossa, Probus, *Cornish Archaeol,* **26**, 103–141
Casey, P J, and Davies, J L, 1993. *Excavations at Segontium (Caernarfon) Roman fort, 1975–79*, CBA Res Rep, **90**, London
Crummy, N, 1983. *The Roman small finds from excavations in Colchester, 1971–9,* Colchester Archaeol Rep, **2**, Colchester
Cunliffe, B, 1987. *Hengistbury Head, Dorset, Vol I: The prehistoric and Roman settlement 3500 BC – AD 500,* Oxford Univ Comm Archaeol monogr, **13**, Oxford
Cunliffe, B, 2001. *Facing the Ocean; the Atlantic and its peoples 8000 BC – AD 1500*, Oxford
Cunnington, M E, and Goddard, E H, 1934. *Catalogue of antiquities in the museum of the Wiltshire Archaeological and Natural History Society at Devizes, Part II,* Devizes
Darwin, C, 1860. *Journal of researches into the natural history and geology of the various countries visited during the voyage of HMS Beagle*, new ed, Folio Soc, London 2003
Dollfus, M A, 1975. *Catalogue des fibules de bronze Gallo-Romaines de Haute-Normandie, Mem Acad Inscriptions et Belles-lettres de L'Institut de France,* **16,** Paris
Down, A, 1981. *Chichester Excavations, 5,* Chichester Excavations Committee, Chichester
Dudley, D, 1968. Excavations on Nor'nour in the Isles of Scilly, 1962–6, *Archaeol J,* **124**, 1–64
Exner, K, 1939. *Die provinzialrömischen emailfibeln der Rheinlände, Bericht der Römisch-Germanischen Kommission,* **29**, 31–121
Fauduet, I, and Pommeret, C, 1985. *Les fibules du sanctuaire des Bolards à Nuits-Saint-Georges, Rév Archéol de l'Est et du Centre-Est,* **139–40**, 61–116
Feugère, M, 1985. *Les fibules en Gaule meridionale, Rév Archéol de Narbonnaise, supp* **12**, Paris
France, N E, and Gobel, B M, 1985. *The Romano-British temple at Harlow, Essex,* Gloucester
Frere, S S, 1984. *Verulamium excavations, 3*, Oxford Univ Comm Archaeol monogr, **1**, Oxford
Fulford, M, 1989. A Roman shipwreck off Nornour, Isles of Scilly, *Britannia,* **20**, 245–9
Green, M, 1976. *The religions of civilian Roman Britain,* BAR Brit Ser, **24**, Oxford
Green, M, 1978. *Small cult objects from the military areas of Roman Britain,* BAR Brit Ser, **52**, Oxford
Green, M, 1986. *The gods of the Celts,* Gloucester
Green, M, 1989. *Symbol and image in Celtic religious art,* London
Green, M, 1993. The pipeclay figurines, in A Taylor, A Roman lead coffin with pipeclay figurines from Arrington, Cambridgeshire, *Britannia,* **24**, 194–201
Guido, M, 1978. *The glass beads of the prehistoric and Roman periods in Britain and Ireland,* Rep Res Comm Soc Antiq London, **35**, London
Harl, K W, 1996. *Coinage in the Roman economy, 300 BC to AD 700,* London
Hattatt, R, 1985. *Iron Age and Roman brooches*, Oxford
Henig, M, 1974. *A corpus of Roman engraved gemstones from British sites,* BAR Brit Ser, **8,** 2 vols, Oxford
Holbrook, N, and Bidwell, P T, 1991. *Roman finds from Exeter,* Exeter Archaeol Rep, **4**, Exeter

Hull, M R, 1968. The Nor'nour brooches, in Dudley 1968, 28–64
Hull, M R, forthcoming. *Brooches in pre-Roman and Roman Britain,* eds G M Simpson, N Crummy and B Blance
Hunter, A G, and Kirk, J R, 1954. Excavations at Campsfield, Kidlington, 1949, *Oxoniensia,* **17–18**, 36–42
Jarrett, M G, and Wrathmell, S, 1981. *Whitton: an Iron Age and Roman farmstead in South Glamorgan*, Cardiff
Jenkins, F, 1958. The cult of the *Dea Nutrix* in Kent, *Archaeol Cantiana*, **71**, 38–46
Jenkins, F, 1959. The cult of the 'Pseudo-Venus' in Kent, *Archaeol Cantiana*, **72**, 60–76
Johns, C, and Tapper, B, 2003. *Rapid coastal zone assessment for the Isles of Scilly*, Historic Environment Service, Cornwall County Council, Truro
Leech, R H, 1982. *Excavations at Catsgore, 1970–1973,* Western Archaeol Trust monogr, **2**, Bristol
Leech, R H, 1986. The excavation of a Romano-Celtic temple and a later cemetery on Lamyatt Beacon, Somerset, *Britannia*, **17**, 259–328
LRBC: Late Roman Bronze Coinage, AD 324–498. *Part I, AD 324–346, Hill, P V, and Kent, J P C; Part II, AD 346–498, Carson, R A G and Kent, J P C, London 1978*
May, J, 1996. *Dragonby; report on excavations at an Iron Age and Romano-British settlement in north Lincolnshire,* Oxbow Monogr, **61**, Oxford
Neal, D S, 1974. *The excavation of the Roman villa in Gadebridge Park, Hemel Hempstead, 1963–68,* Rep Res Comm Soc Antiq London, **31**, London
Owoc, M A, Adovasio, J M, Illingworth, J, Greek, M, Manske, K, 2003. *Perishables and pots in later prehistory: unravelling a distinctive Scillonian cultural tradition*, paper presented to annual conference of the Society of American Archaeologists, Milwaukee, April 2003
Peacock, D P S, 1969a. Neolithic pottery production in Cornwall, *Antiquity,* **43**, 145–9
Peacock, D P S, 1969b. A contribution to the study of Glastonbury ware from south-western Britain, *Antiq J,* **49**, 41–61
Peacock, D P S, 1975. The grass-marked sherd, in C Platt and R Coleman-Smith, *Excavations in medieval Southampton 1953–1969,* 157, Leicester
Quinnell, H, 2004. *Excavations at Trethurgy Round, St Austell: community and status in Roman and post-Roman Cornwall,* Truro
Rahtz, P A, and Greenfield, E, 1978. *Excavations at Chew Valley Lake, Somerset,* Dep Envir Archaeol Reps, **8**, London
Ratcliffe, J, and Straker, V, 1996. *The early environment of Scilly: palaeoenvironmental assessment of cliff-face and inter-tidal deposits, 1989–1993*, Truro
Ratcliffe, J, and Straker, V, 1997. The changing landscape and coastline of the Isles of Scilly: recent research, *Cornish Archaeol*, **36**, 64–76
RIC: Roman Imperial Coinage, 10 vols, London, 1923–94
Rieckhof, S, 1975. *Munzen und fibeln aus dem vicus des kastells Hüfingen, Saalburg-Jahrbuch,* **32**, 6–104
Rouvier-Jeanlin, M, 1972. *Les figurines Gallo-Romaines en terre cuit au Musée des Antiquités Nationales, Gallia*, *supp,* **24,** Paris
Sellye, I G, 1939. *Les bronzes émaillés de la Pannonie Romaine, Dissertationes Pannonicae,* ser 2, **8**, Budapest
Soffe, G, forthcoming. Excavations at Hayling Island, Hampshire
Spitaels, P, 1969. *De provinciaal-romeinse emailfibula*, unpublished doctoral thesis, Univ Ghent
Stead, I M, and Rigby, V, 1989. *Verulamium: the King Harry Lane site,* English Heritage Archaeol Rep, **12**, London
Thill, G, 1969. *Fibeln vom Titelburg aus den bestanden des Luxemburger Museums, Trierer Zeitschrift,* **32**, 133–171
Thomas, C, 1985. *Exploration of a drowned landscape: archaeology and history of the Isles of Scilly,* London
Watts, L, and Leach, P, 1996. *Henley Wood, temples and cemetery, excavations 1962–69 by the late Ernest Greenfield*, CBA Res Rep, **99**, York
Wedlake, W J, 1958. *Excavations at Camerton, Somerset,* Bath
Wedlake, W J, 1982. *The excavation of the shrine of Apollo at Nettleton, Wiltshire*, Rep Res Comm Soc Antiq London, **40**, London
Williams, D F, 1976. Petrology of the pottery, in J Schweiso, Excavations at Threemilestone Round, Kenwyn, Truro, *Cornish Archaeol,* **15**, 63–4
Williams, D F, 1978. Ceramic petrology, in Butcher 1978, 73
Woodward, A, 1992. *Shrines and Sacrifice*, London
Woodward, A, and Leach, P, 1993. *The Uley shrines,* English Heritage Archaeol Rep, **17**, London
Woodward, P J, Davies, S M, and Graham, A H, 1993. *Excavations at the Old Methodist chapel and Greyhound Yard, Dorchester, 1981–1984,* Dorset Natur Hist Archaeol Soc monogr, **12**, Dorchester

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The excavation of a multi-period site at Stencoose, Cornwall

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Summary

During the summer of 1996 archaeological investigations were carried out along a South West Water pipeline between Sevenmilestone and North Country. A geophysical survey at Stencoose resulted in the rescue excavation of an unusual early medieval structure dated to the fifth to seventh centuries AD. The building was situated within a modified terraced area, and was surrounded by a number of enigmatic pit features and a field system of later prehistoric and Romano-British date. A Neolithic flint scatter was recorded along with sherds of Bronze Age pottery which indicate that the area had been occupied for several millennia prior to the construction of the building. The Structure was composed of two short lengths of earth and stone walling which joined together to form a simple open-ended building. No actual occupation evidence was gathered from the interior of the Structure. It could only be dated by the material which was sampled for radiocarbon dating. The excavation at Stencoose was important because it has provided important information about the long term changes to a small piece of the Cornish landscape, situated on the margins of the 'Anciently Enclosed Land'.

Introduction

Background to the project

In the spring of 1996 the Cornwall Archaeological Unit (CAU, part of Cornwall County Council) was commissioned by South West Water Services Limited to conduct an archaeological assessment in advance of the last section in the Cornwall Spine Main water pipeline between the settlements of Sevenmilestone and North Country. The initial archaeological assessment of the area (Thomas 1996) led to the recommendation for a geophysical survey at Stencoose.

This area (SW 712455) was chosen for archaeological investigation because of its proximity to the medieval farming settlement of Stencoose (first recorded in 1327, Gover 1948). Although the pipeline did not impinge upon the existing farm buildings, it was conceivable that the settlement could have contracted or moved slightly over time. The route of the pipeline could therefore have affected concealed archaeological features belonging to earlier settlement activity at Stencoose. Geophysical survey did indeed reveal the traces of linear ditches and other features underlying the existing field system, but in the archaeological excavations which followed these were found to belong to prehistoric, Romano-British and early medieval episodes of activity.

Topography

Stencoose is located 11 kilometres west of Truro, in St Agnes Parish (Fig 1). It is situated inside the upper fringes of a zone of 'Anciently Enclosed Land', whose field boundaries fossilise the pattern of the medieval strip field system (Cornwall County Council 1996, 141). Uphill to the east and across the valley to the west, the field patterns can be characterised as 'Recently Enclosed Land', enclosed from the traditional downland or heathland in the eighteenth or nineteenth centuries. The site is overlooked by Carn Brea to the south-west.

The area of the main excavation was sited upon a partially artificial terrace set into the side of a valley, approximately half way down the slope (approximately 87m OD). The site had good views over the valley bottom below and also along the valley which ran roughly south-east to north-west, where it drained into the sea.

Underlying geology of the area comprises slates and sandstones of the Mylor Series affected by igneous intrusions and mineral lodes, which have been exploited over the years by mining activity (Thomas 1996).

Soil on the hillside was a loamy clay brown earth, which had a moderately high stone content including slates, quartz and other stones. It varied in thickness, averaging 0.2 to 0.3m at the top of the field and over 0.5m at the bottom.

Tree cover is mainly confined to field boundaries and to the valley bottoms; valley sides are open to the elements and are fairly windswept. The modern landscape is characterised by a mosaic of small farms and their associated field systems, which are predominantly under grass. The place-name Stencoose includes the Cornish elements *Stum* and *Cos* which combine together to mean the 'bend in the wood' (Padel 1985, 213, 66). It suggests that during the medieval period the environment was more wooded (perhaps along the sinuous valley to the south of the farm).

Methodology

Excavations took place over three weeks, in May and June 1996. The CAU team was assisted by volunteers from St Austell and Truro colleges' A-level archaeology classes, the Cornwall Archaeological Society, and the Caradon Archaeological Group. Topsoil was stripped by a mechanical swing shovel under the close supervision of CAU.

After topsoil stripping the excavation area was cleaned, and planned at 1:200. Subsequent plans were made at 1:50 and sections were drawn at 1:10 or 1:20. A photographic record was made; notes were taken concerning the archaeological features and the soils that filled them. Each archaeological deposit was given a unique context number. Soil samples were taken from those features and layers which were considered to have the greatest potential for radiocarbon dating and palaeo-environmental analysis.

A metal detector survey of the excavated area, the spoil heaps and the adjacent fields carried out by Mike Compton did not recover any stratified finds. All metal detector finds were from the topsoil and of post-medieval date.

The results from the excavation, the watching brief, which was carried out along the entire pipeline corridor, and the project archive, are documented in two CAU archive reports (Jones 1997a and 1997b).

Geophysical surveys

Introduction

Two geophysical surveys were carried out. The first was during the assessment stage, before the width of pipeline corridor had been finalised. The second was a large scale survey, conducted after the excavations had finished.

Fig 1 Site location plan showing location of excavation and areas of geophysical surveys. 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 LA076538 (2002)

Geophysical surveys

Assessment of the pipeline route led to CAU recommending geophysical surveys at four locations (Thomas 1996). South West Water funded magnetometer survey by *Geophysical Surveys of Bradford* (GSB 1995) at each location.

One survey was located on the east side of the known medieval settlement of Stencoose (Fig 1). Areas of medieval settlements and their fields are frequently situated where later prehistoric activity can be expected; therefore any anomalies detected by the survey had the potential to be prehistoric or Romano-British features.

Results were affected by background noise or subsoil disturbance probably caused by ploughing. Responses from archaeological features were comparatively weak and some smaller features, subsequently discovered by excavation, were not detected. Geophysical survey did detect a large number of anomalies. There were several linear, ditch type features, three of which appeared to form an enclosure. Only one, a ditch running north to south appeared to relate to the medieval strip field system. The rest seemed to be part of an underlying earlier field pattern on a completely different layout. The survey also revealed some pit type anomalies. The enclosure shown by the survey was revealed during the machine stripping as a U-shaped structure defined by large stones, with ditches running off each of the open ends.

A second geophysical survey at Stencoose was conducted after the pipeline had been completed. CAU had highlighted the need for additional survey work to establish the extent of the excavated field system (Jones 1997a) and to put it into context. The *Archaeometry Branch* of the Ancient Monuments Laboratory carried out the survey of a large area either side of the excavated site at Stencoose in July 1997. Results from the survey revealed a large number of linear ditches (on varying alignments), pits and a tentative oval anomaly at the southern end of the survey area (Fig 2), which may represent a prehistoric or Romano-British dwelling (Linford 1998, 3).

Stratigraphic summary of excavated features

Introduction

The stripped area was 140m long and 11m to 12m wide. Attention was focused upon an irregular soil mark partially defined by a perimeter of stony rubble, situated on a terrace in the middle of the pipeline corridor (Figs 3 and 4). This position had produced several sherds of later prehistoric and Romano-British pottery during topsoil stripping, so the feature had the potential to be a prehistoric or Romano-British structure.

On excavation this feature was found to be a U-shaped structure (Structure 60). It soon became evident that the Structure and surrounding archaeological features were fairly well preserved despite the impact of many centuries of agriculture. The Structure was excavated in four quadrants, with all walling eventually dismantled and the baulks removed. All pits and linear features were partly or totally excavated.

Results from the excavation

The excavation revealed several phases of activity that both pre-dated and post-dated Structure 60. Initial phasing was complicated by the lack of clear stratigraphical relationships and by the relatively large quantities of residual finds. However, a clearer understanding of the development of the site has emerged through analysis of the artefacts, and from radiocarbon dates.

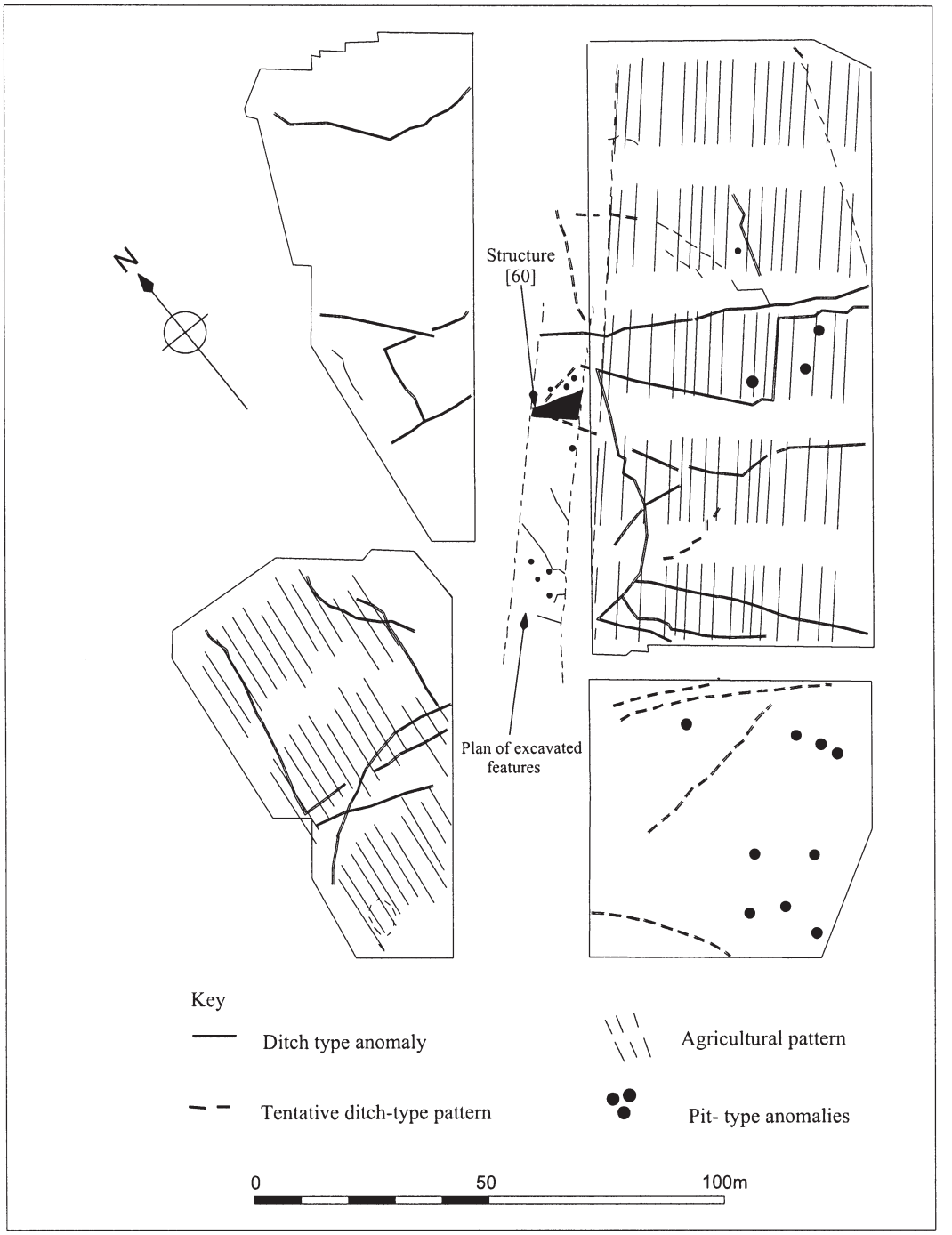

Fig 2 Plan showing significant geophysical anomalies and their relationship to the excavated area

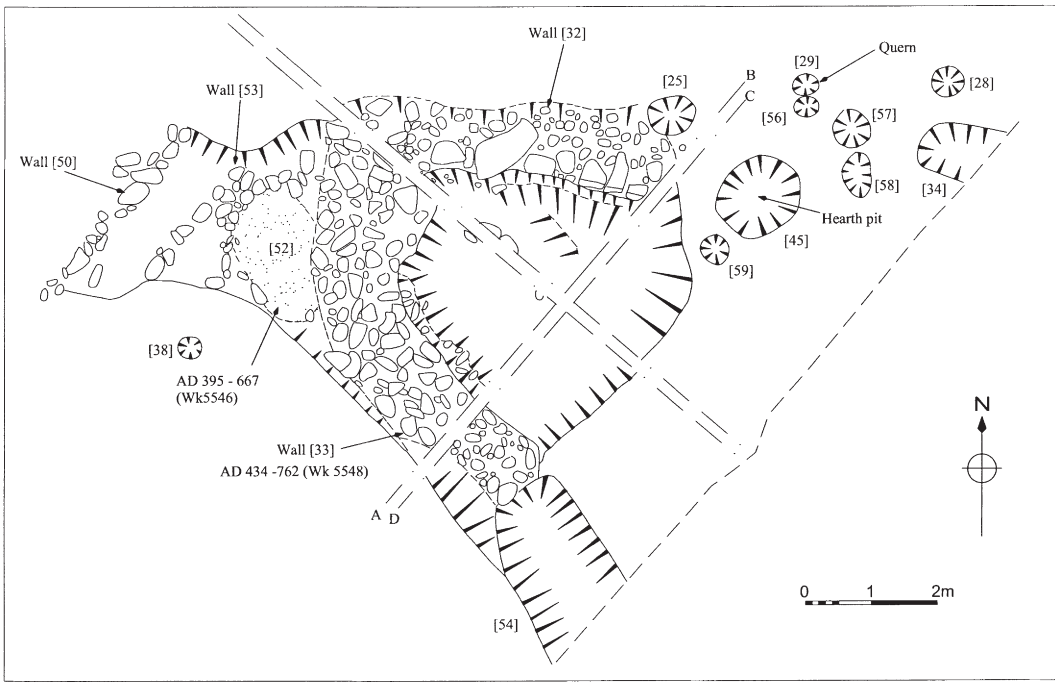

Fig 3 Plan of Structure [60] showing walling and external features

Four major phases of activity are now identified at Stencoose although further excavation would probably increase this.

Phase 1 Activity predating the field system.

Phase 2 Field system and a few pit features.

Phase 3 Construction and utilisation of the Structure and the pit features. Most pit features are probably of an earlier medieval date, though postdating the use of the Structure.

Phase 4 Medieval and post-medieval reorganisations of the landscape and the creation of the present field system.

Phase 1 Pre-field system activity

No identifiable archaeological features pre-dated laying out the field system, unless the levelling of terrace [61] preceded it and this was reused by the builders of Structure [60]. A large number of residual flints (later Mesolithic and Neolithic) were found in and around the Structure and the terraced area. This concentration of lithic material was far denser than in adjacent areas, which were field-walked before and after the excavation (Jones 1997a).

In addition to the flint scatter, residual Bronze Age and Iron Age pottery was recovered from features on the site. At least fourteen sherds of Middle Bronze Age pottery were found, mostly to the north in ditches [6] and [8], but one sherd was to the south in pit [2]. This evidence suggests that the area had been cleared and settled by groups of people for several millennia prior to the main period of the field system's use or the construction of Structure [60]. It would also suggest that settlements dating to Bronze and Iron Ages are located in the vicinity of the excavated area.

Phase 2 Field system and associated features

Field system

The field system was located both above to the north- east and below to the south-west of the terrace. Its layout bore no relation to the later medieval field pattern and it appears to have become disused during the earlier medieval period as the latest finds within the ditches were of Romano-British date (Figs 3 and 4).

Features [6], [7] and [8] were situated above the terrace and orientated north-west to south-east. Ditch [6] was a shallow narrow gully, which terminated in the middle of the pipeline corridor. The cut measured 5.50m long, was 0.70m wide at the western end (just 0.40m wide at the eastern end), and was 0.15m deep. It had a U-shaped profile and was filled by layer [20], a middle brown, clay loam deposit. Ditch [6] was located beneath bank [7] (Fig 5). The bank was, however mostly ploughed down, so it may have become spread over the top of the ditch cut and the ditch might therefore have been contemporary. The ditches terminal contained a large amount of Roman gabbroic jars, possibly third century AD, as well as some residual prehistoric material.

Bank [7] crossed the width of the pipeline corridor. It measured 11.30m long, 6m wide and was up to 0.20m high. Bank material was yellowish brown, silty clay that had large blocks of stone within it. It contained both prehistoric and Romano-British pottery, including fresh sherds possibly of the second century AD. Phasing this feature is problematic. It could have been a Romano-British bank, marking the upper edge of the field system. This idea is attractive as there were no archaeological features above the bank within the excavated area and only tentative ones in the geophysical survey area. This may indicate that it was a stock-proof perimeter boundary. Alternatively the bank may have belonged to a later post-medieval field system. However, the bank did not contain any medieval or post-medieval pottery, and followed the same alignment as ditch [6].

Ditch [8] was located under bank [7]. It was wide and shallow, 11.30m long, 0.80m wide and 0.11m deep. The cut was well defined on its uphill side, but downhill merged into the hill slope (Fig 5). A yellowish brown silty clay probably derived from bank [7], filled the ditch cut. It is probable that the ditch and bank were contemporary. Ditch [8] contained a few sherds of abraded prehistoric and Romano-British pottery.

The rest of the ditches were located below the terrace. With the exception of ditch [42], all the ditches within this group shared the same north-south alignment.

Ditch [30] measured 9m long, 0.75m wide, and was 0.14m deep. Its sides were shallow and sloping and the base was uneven. The terminal tapered to a point. The ditch was filled by layer [31], a yellowish brown, clay loam deposit. Finds included one sherd of prehistoric pottery and flint.

Ditch [35] was shallow and had a U-shaped profile, measuring 13.80m long, 0.88m wide and 0.14m deep. It was filled by layer [36], a dark brown, loamy clay deposit. It was possibly cut by pit [41]. The ditch cut contained some residual well-abraded Romano-British pottery (see Table 2) and flint.

Ditch [39] had steep sides and its base was flat and the terminal was rounded. It measured 5.50m long, 0.80m wide and 0.28m deep. The ditch was filled by layer [40], a dark brown, clay loam deposit. The ditch contained a later Iron Age sherd (**P10**) and some flint and gave a calibrated radiocarbon determination of Wk-5547, 162 BC–AD 218.

Ditch [42] was L-shaped in plan. Both lengths were 3.20m long, and where excavated the cut was 1.1m wide and 0.46m deep. It had steep sides and a flat base and was filled by layer [49], a dark brown loamy clay deposit. Ditch [42] contained a few sherds of abraded, residual prehistoric and Romano-British pottery and flint. The ditch had a small, circular shallow posthole [43] in its southern end, 0.30m in diameter and just 0.15m deep, filled by a mid brown silty loam deposit. There were no finds within the posthole cut.

The ditches below the terrace can be seen to be part of the same field system for a number of reasons. They all share the same alignment (across the slope), are spaced at regular intervals (roughly 15m apart), and were filled with similar deposits which produced prehistoric or Romano-British

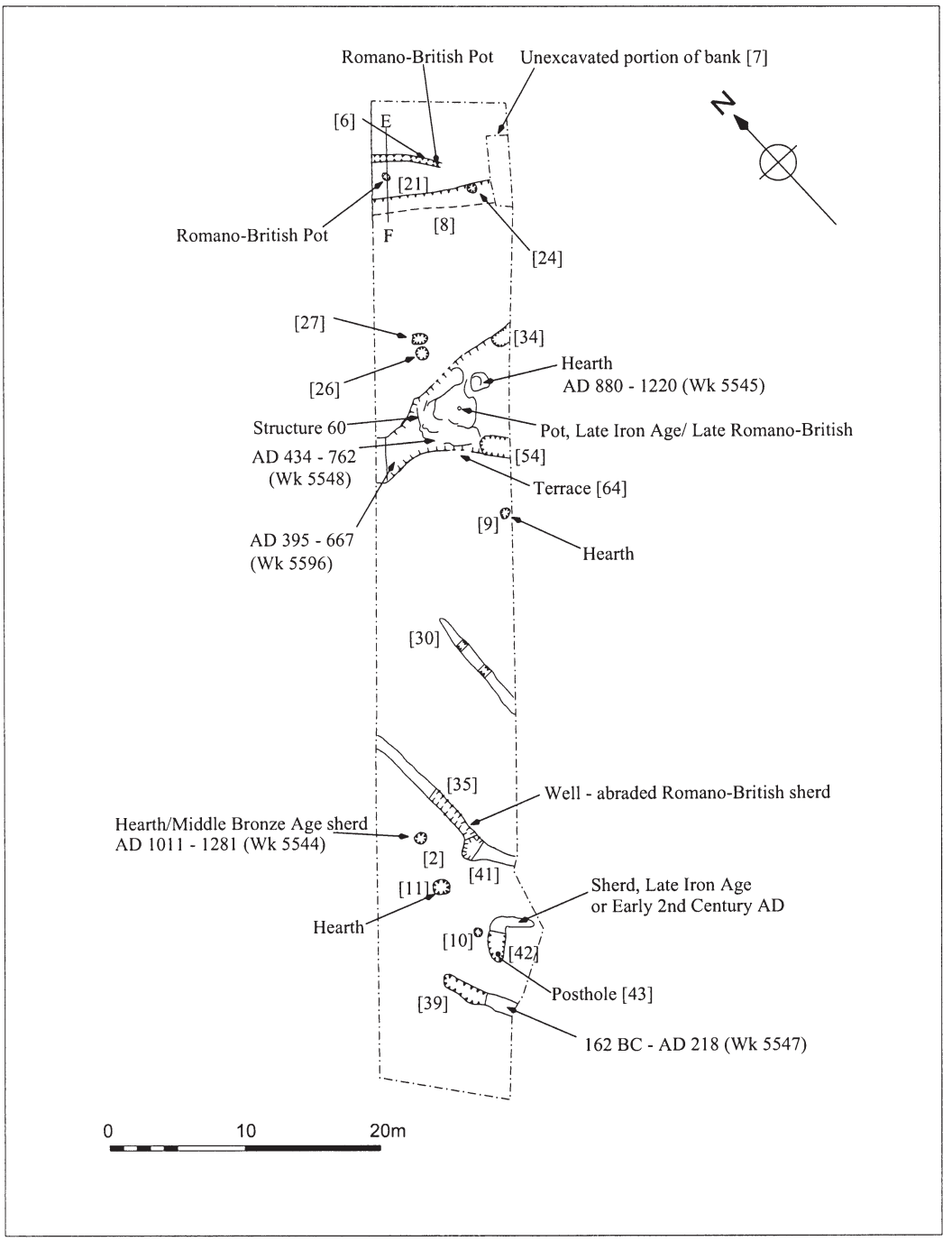

Fig 4 Plan showing field system and pit groups

artefacts. None of the ditches produced medieval or post-medieval finds despite their ubiquity in the overlying ploughsoil. In addition an Iron Age/Romano-British radiocarbon determination was obtained from the middle of ditch [39]. This is again consistent with the ceramic evidence

Associated features

A large number of pits were uncovered, which can be divided into three groups; those located above the terrace, a group located around the terrace, and a southern group (Fig 3). However, not all of the pits were contemporary with the field system

Two pits located above the terrace were both Romano-British in origin as they contained datable finds and were sealed beneath a later feature.

Pit [21] was circular, located beneath bank [7]. It measured 0.60m in diameter, was 0.28m deep and had steep sides and a slightly uneven stony base. It had been deliberately backfilled with two deposits. The upper fill [18] was dark yellowish brown, silty loamy clay, containing a large amount of probably third century Romano-British pottery (including **P9**, Fig 7), burnt stones, sections of a broken shillet object and some amorphous iron fragments (Fig.10). In contrast the lower layer [19] was a dark grey brown, silty clay loam, rich in charcoal. The charcoal had not been burnt *in situ,* so must have been deposited into the cut from elsewhere.

Pit [24] was also sealed by bank [7]. Unfortunately its southern side had been removed by ditch [8]. The remaining pit was 0.70m in diameter and 0.40m deep. Sides were sheer and the base uneven. The pit was filled by a mid brown silty clay loam. Unlike the other pit in this group, it only contained one sherd of Romano-British pottery.

The middle group consisted of eleven pits. At least one of these was of an earlier medieval date. The pits in this group will be discussed below in relation to Structure [60].

The southern group consisted of four pits. At least one of these pits was medieval in date and was therefore not contemporary with the field system. These pits will also be discussed below in relation to Structure [60].

Phase 3 Structure [60] and the earlier medieval activity

Structure [60] and associated features on terrace [61]

Structure 60 was built upon an artificial terraced area [61] cut into the middle of a fairly steep hill-slope, creating a level area up to 10.50m wide. It is not certain by how long the terrace predated construction of the building. Structure [60] was composed of two lengths of walling [32] and [33] (Figs 3 and 4), which joined at the north-western end. Wall [32] ran for 5m along the inside edge of the terrace; 1.50m wide, it survived to a height of 0.20m. It was built of large blocks of piled stone, in a silty clay loam matrix. Wall [33] ran close to the outer, downhill side, of the terrace for approximately 6m. At 1.50m wide, it survived to 0.15m high and consisted of smaller blocks of stone in a silty clay loam matrix. Wall [33] bent round to merge with wall [32]. The walls appeared to be of a single build. The two walls formed a structure 5.80m long and 5.60m wide at the entrance. A gentle slope in from the entrance created a slightly sunken floor, which was fairly even and worn. The Structure did not contain any occupation deposits or internal features. After it fell into disuse the Structure appears to have been left to decay and silt up naturally. The three infill layers [1], [22] and [23] were all grey brown silty clay loams which differed slightly in their stone and silt content. They suggest that the building had gradually decayed and become naturally infilled over a period of time (Fig 5). There were no finds from the occupation period to date the building. The infill layers contained residual flints, Iron Age and Romano-British pottery, and a rotary quern fragment. A radiocarbon determination was obtained from charcoal within the matrix of wall [33], Wk-5545, AD 434–762.

The few features which stratigraphically appeared to be most likely to be associated with the Structure, were walls [50] and [53], and possibly ditches [34] and [54] (Figs 3 and 4). Wall [53] was attached to the west of the Structure. L-shaped in plan and 2.20m long, it consisted of a single course

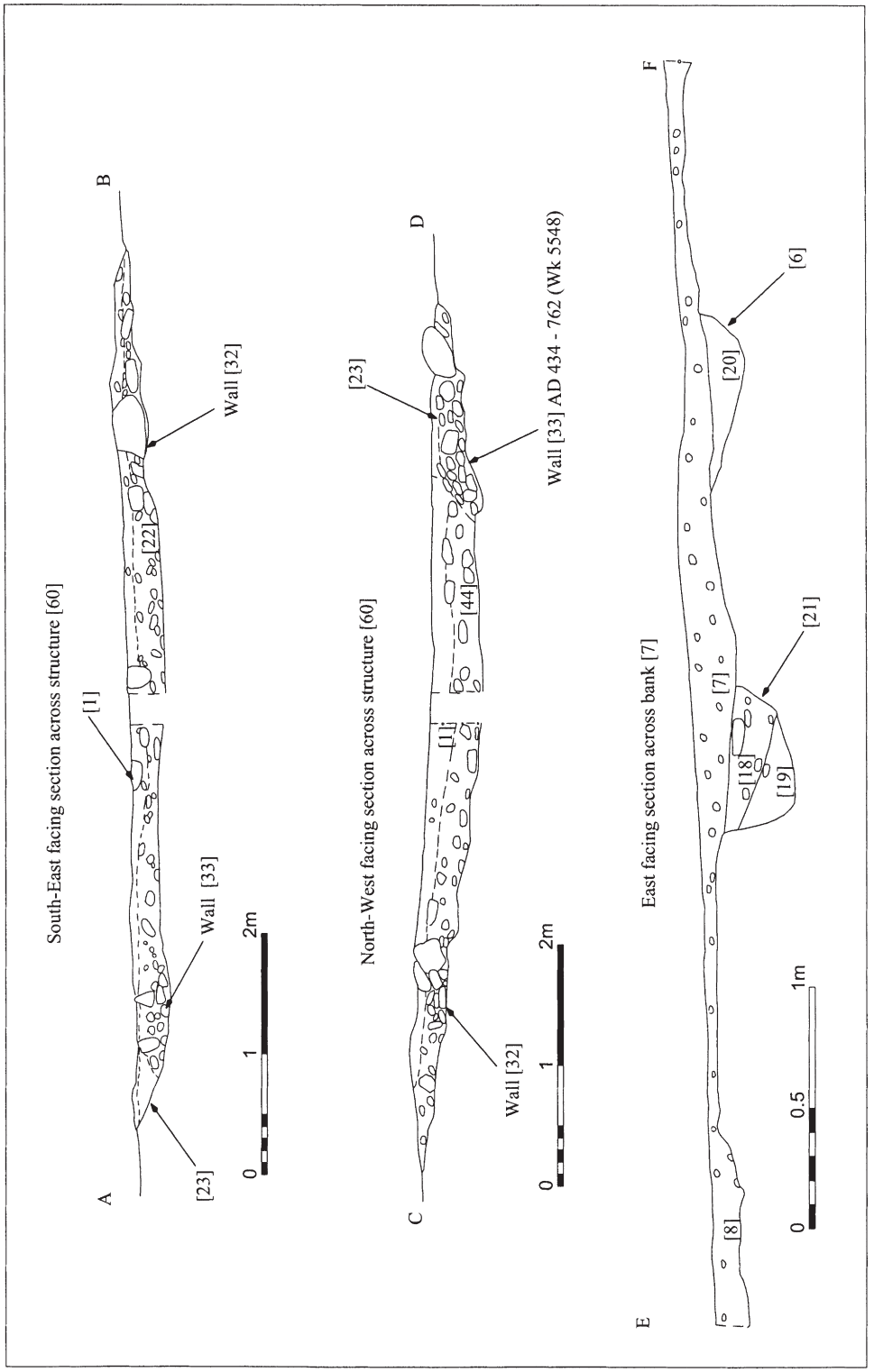

Fig 5 Sections through Structure [60] and across bank [7]

of stones that was 0.10m–0.15m wide and was up to 0.20m high. It enclosed an area measuring approximately 1m square behind Structure [60]. This area was filled by layer [52], a deposit of loamy clay and charcoal (Fig 2), not burnt *in situ*. Wall [53] appears to have been built to contain ashes. Layer [52] contained no finds but a radiocarbon determination Wk-5546, AD 395–667 indicates probable contemporaneity with the use of the Structure (Section 6).

Wall [50] was aligned north-east to south-west, and ran across the western end of the terrace. It measured 3.30m long and was 0.30m high and was made of laid stone blocks in a silty clay loam matrix. Unlike walls [32] and [33] it was set into a wall trench [51]. Wall [50] did not contain any stratified finds, although pottery and flint were recovered from material on its top. The function of the wall was not determined as most of it lay outside the excavated area.

Ditches [34] and [54] also appeared to be associated with Structure [60], as ditch [54] ran up to, but did not appear to cut, the eastern end of wall [33]. Ditch [34] was a wide (1.50m), shallow (0.20m deep) cut, with sloping sides and an uneven base, located 3.50m beyond the east end of wall [32]. It appeared to follow the same alignment as the wall. Ditch [54], on the south side of the terrace, was very similar to ditch [34]. It measured 1.60m wide and 0.20m deep; its sides were sloping and its base flat. Both ditches were filled by dark, silty clay loam.

The fact that [34] and [54] did not go under the structure argues that the two ditches were contemporary with the Structure. Structure 60 may have been sited on the terrace in order to re-utilise part of an abandoned or deteriorating field system. Alternatively it may have been located there purely because the terrace offered level relatively sheltered ground and so was in no way associated with the field system.

Pits

Some of the pits were either possibly linked with the use of Structure [60] or their creation and use were influenced by its surviving remains. Eleven pits were located around the terrace, close to Structure [60]. None of them was associated with any artefacts except for pit [29] which contained quern **S5**. Most probably postdated the use of the Structure but predated the later medieval strip field system.

Pit [9] (Fig 6) was oval, 0.78m long, 0.69m wide and 0.21m deep. Sides were sloping and the base concave. The upper layer [12] was a compact dark brown, silty loam but a lower fill [13] was a grey ashy layer with a high charcoal content. The base of the pit was scorched, indicating that burning had taken place within it.

Pit [25] cut the northern edge of Structure [60]. It measured 0.60m in diameter and was 0.16m deep. The sides were steep, the base concave and it was filled by a grey brown, silty clay loam.

Pit [26] measured 0.75m in diameter, and was 0.26m deep. Its sides were steep and the base was uneven. A grey brown silty clay loam and stones filled it.

Pit [28] measured 0.70m in diameter and was 0.30m deep. It had steep sides and a flat base and was filled by a middle brown clay loam and a large unworked stone.

Pit [29] measured 0.50m in diameter and was 0.20m deep. The sides were steep and the base uneven. It was filled by a mid yellowish brown, silty clay loam. However most of the space within the pit was taken up by the lower stone of a rotary quern **S5**. The quern could be Romano-British (eg Appleton-Fox 1992) or early medieval in date.

Pit [38] measured 0.65m in diameter and was 0.30m deep. The sides were steep and the base flat. A middle brown silty clay loam filled it.

Pit [45] (Fig 6) measured 1.20m in diameter, and was 0.26m deep. An upper layer [46] was a dark brown, clay loam with burnt stone and charcoal inclusions. Middle layer [47] was a reddish brown

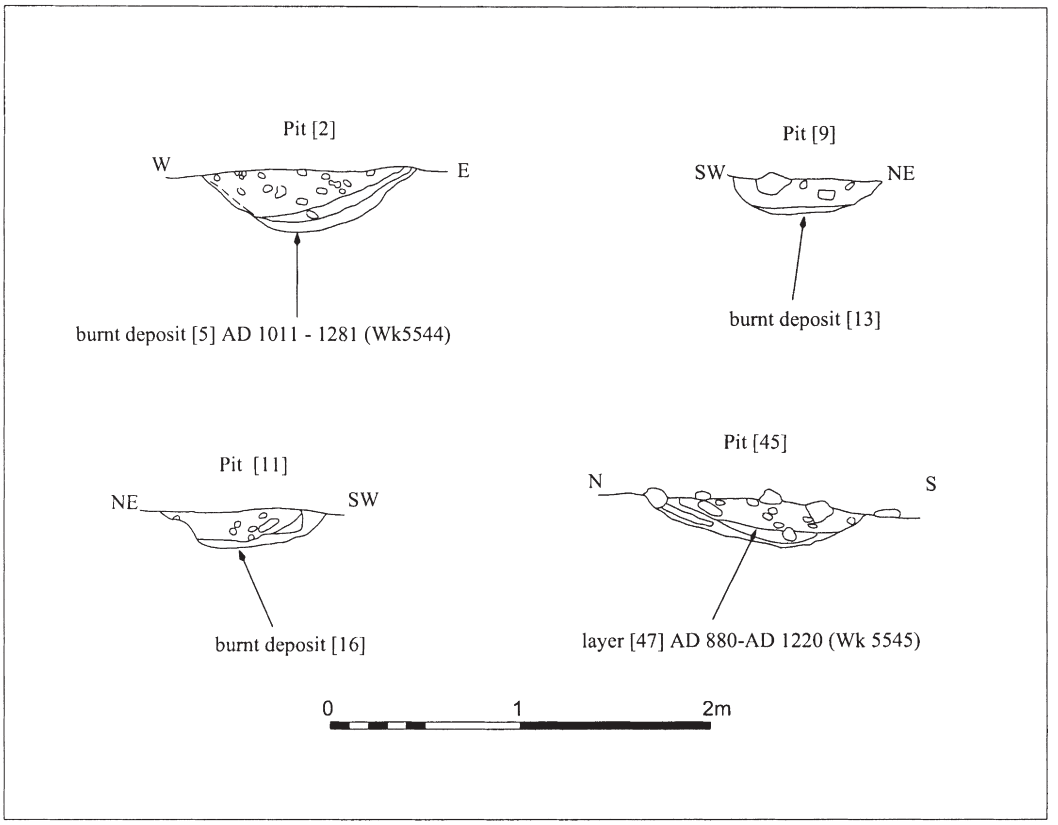

Fig 6 Sections through pits [2], [9], [11] and [45]

ashy layer. The lowest layer [48] was black in colour and was composed of *in situ* charcoal and ashes. The sides and base of the cut were reddened from burning. Pit [45] did not contain any finds but a radiocarbon determination from its middle fill gave a date of Wk-5545, AD 880–1220. The positioning of a fire pit just outside the entrance to Structure [60] might indicate that they are contemporary in date though the radiocarbon determination suggests that it may have been positioned in relation to the ruins of the Structure.

Pit [56] measured 0.51m long, 0.40m wide and was 0.20m deep. The sides were sloping and the base rounded. It was filled by a mid yellowish brown, silty clay loam.

Pit [57] was almost circular with sloping sides and a concave base. It measured 0.75m long, 0.63m wide and 0.14m deep and was filled by a mid yellowish brown, silty clay loam.

Pit [58] was almost circular the sides were steep and the base flat. The pit was 0.73m long, 0.50m wide and was 0.22m deep.

Pit [59] measured 0.50m long, 0.45m wide and was 0.20m deep. The sides of the cut were sloping and the base was rounded. The pit was filled by a mid brown silty clay loam.

The remaining pits were located to the south of the structure and probably postdate its use

Pit [2] (Fig 6) was almost circular, measuring 1.20m long by 1.10m wide, and was 0.34m deep. The sides were concave and the base rounded. It had three distinctive fills. The upper [3], was a dark

brown, silty clay loam with a high charcoal content and contained a single abraded sherd of residual Middle Bronze Age pottery. The middle fill [4], was a reddish brown ashy deposit. The lowest fill [5] was a black, charcoal and ash layer, which was associated with burning inside the pit. The sides and base of the pit were reddened from burning. A radiocarbon date from fill [5] gave a medieval determination of Wk-5544, AD 1011–1281.

Pit [10] was almost circular, with shallow sides and a flat bottom. It measured 0.60m long, 0.57m wide and was 0.09m deep. The pit was filled by layer [17], a dark brown, silty clay loam, with charcoal flecking.

Pit [11] (Fig 5) was an almost circular pit with concave sides and a flat base and measured 0.88m long, 0.84m wide, and 0.19m deep. The pit had three distinctive fills. The upper fill [14] was a dark brown, silty clay loam with charcoal flecks. The middle layer [15], was a dark grey, silty ashy layer. The bottom layer [16] was a black deposit of charcoal. The bottom and sides of the pit were reddened through burning.

Pit [41] was only possibly associated with the other pits within the lower group. It was a large shallow pit which was possibly cut ditch [35]; the relationship was not certain. The cut measured 1.15m in diameter and was 0.18m deep. Its sides were vertical and base was flat. A dark brown, loamy clay material filled the cut.

Some of the pits formed an alignment to the north-east of Structure [60] ([25], [56], [57], [58] and [59]). This suggests that they could have been postholes, rather than pits, which could have held fence or gate posts etc (see Section 7).

Later medieval and post-medieval phases

The latest stratified pottery from the field system probably dates to the third or fourth centuries AD, though it is possible that some of the later ceramic forms continued to be manufactured into the fifth and sixth centuries. The radiocarbon dates suggest a fifth to seventh century date for Structure [60] (Wk-5548 AD, 434–762) and a date between the ninth to the thirteenth centuries for hearth pits [2] and [45] (Wk-5544, AD 1011–1281 and Wk-5545, AD 880–1220).

The next recorded phase of activity occurred when a new settlement and strip field system were founded. Stencoose is first mentioned in 1327 (Gover 1948); the unstratified pottery recovered from the ploughsoil dates from around this period onwards.

The medieval settlement could nevertheless predate this reference, potentially by hundreds of years, but the presence of the two hearth pits within what were to become the strip fields of Stencoose would suggest a definite change in land use here, either at the end of the early medieval period (tenth or eleventh century) or at the beginning of the later medieval period (twelfth or thirteenth century).

The only excavated feature to date from the later medieval or post medieval phase of activity was pit [27], near the northern side of Structure [60]. It was very different in character from the other pits; square cut, 1.15m long, 1.10m wide, and 0.85m deep, with sheer sides and flat base. It was filled with a dark grey, silty loam, containing a sherd of later medieval pottery. The most likely interpretation of this feature is as an infilled prospecting pit. Stencoose is situated on the edge of an area which has been extensively mined. The pit probably represents an opportunistic attempt to try and find mineral lodes beyond the downland, within the ‘Anciently Enclosed Land’.

Artefacts

by Henrietta Quinnell with Carl Thorpe and petrological comment by Roger Taylor

Prehistoric and Roman pottery

The assemblage consisted of 398 sherds weighing 3750g. Of these the majority were Roman period gabbroic forms, with a small amount from varying later prehistoric dates. A distinctive feature of the assemblage was the large proportion of sherds which were abraded and presumably redeposited. Because of this, no attempt has been made to assess minimum vessel numbers.

Fabrics – general description and development

Gabbroic clays, presumed to derive from the Lizard, were used for pottery from the Neolithic until the medieval period. The fabric contains quantities of white angular grits (feldspars) and other minerals such as amphibole and black tourmaline (for a full petrological description see Williams D F, in Carlyon 1987). No distinctive chronological variations have yet been identified in petrological analyses, and it is often impossible to provide a date for gabbroic sherds which lack formal or decorative characteristics. Experience accumulated through the handling of large collections of differing dates suggests some indicators.

Middle Bronze Age gabbroic fabrics do not appear to have distinctive features, but some clays were mixed with added rock temper and are described as gabbroic admixtures (Parker-Pearson 1990; Quinnell in Jones 1998/9). The rock temper gives the fabric a characteristic appearance. Admixture fabric has so far only been identified in Trevisker wares which current data suggest were not produced during the Late Bronze Age in the first millennium BC.

Cornish ceramics of the first millennium BC are not well understood until the emergence of the South West Decorated tradition (Glastonbury ware), perhaps in the fourth century BC (Quinnell 1986, 113). This is because good stratified collections are rare and none has become available for study since Peacock's identification of gabbroic wares in the late 1960s. The present author (HQ) considers that much of first millennium BC gabbroic ware is either manufactured in a way which presents a 'dirty' appearance compared for example to gabbroic wares of the Neolithic or of the Roman period, or still contains non-standard, perhaps added, inclusions. This variation may relate to the source of gabbroic clays used. This subjective 'dirty' appearance has been used to characterise prehistoric fabrics in Table 1 and has been to some extent supported by microscopic examination. Some abraded sherds, initially included in this category, have been shown on closer examination, to belong to a range of fabrics with components deriving from granitic sources (see below). The establishment of the South West Decorated tradition coincides with the predominance of gabbroic fabrics (Quinnell 1986, 114). The presence of non-gabbroic fabrics is suggestive of some activity at Stencoose predating this predominance, perhaps to be assigned to the second century BC.

Recent initial studies of gabbroic wares from work on the A30 at Indian Queens (H Quinnell in Nowakowski 1998) have suggested that some Iron Age fabrics may be distinguished by more inclusions of dark minerals than at other periods; this fabric was labeled, for the Indian Queens Project and only provisionally, as 'gabbroic, early variant' (EV). It may be that this variant is part of prehistoric tradition suggested by the 'dirty' appearance of sherds from Stencoose.

A gabbroic fabric characterised by a well mixed matrix, burnished exterior and tendency to hardness has been distinguished at Trethurgy (Quinnell 2004), Reawla (H Quinnell in Appleton-Fox, 1992) and elsewhere as characteristic of later South Western Decorated wares, Cordoned wares and fabrics manufactured into the early second century AD. This fabric is simply described as 'well-made'; it appears closely related to the possible petrological variant identified at Indian Queens. There is a tendency for this fabric to be reduced, or when oxidised to have a buff tint.

By contrast fabrics produced from the second century AD tend to be more open and to be generally oxidised (Quinnell in Appleton-Fox, 1992). Work on the Indian Queens Project suggests that, perhaps by the late third century AD, a 'late variant' (LV) has developed, with a very open, poorly made, body and the addition of a variable amount of non-gabbroic temper, notably rounded quartzite particles. The 'late variant' may well continue in production as long as forms derived from Roman styles were current, perhaps into the sixth century. Indeed this variant may develop into the generally thick, coarse tempered, reduced fabrics used for grass-marked wares from the sixth and seventh centuries onwards.

It is expected that, as current projects move to conclusion, a clearer understanding of the changes in gabbroic fabrics will be established. This brief summary presents the state of research in 1998.

Fabrics – microscopic examination by Roger Taylor

All prehistoric sherds, except admixture, were examined under a ¥20 binocular microscope, and compared with a sample of Roman period vessels, in order to establish whether there were any petrological differences which would support the macroscopic fabric analysis. A full description is lodged with the archive. Two differences became apparent. Ilmenite/magnetite and hornblende/pyroxene components were more abundant in the prehistoric than in the Roman material. The temper however in the latter tended to be finer and more uniform than in the prehistoric sherds; this might indicate that that the temper had been processed in some way, possibly by crushing and screening, and then added to a relatively smooth primary clay.

The prehistoric sherds were found to include about 20 which were not gabbroic. The majority of these contained inclusions weathered from granite but likely to occur in clays deposited at some distance from a granite source; they may conveniently be described as 'granitic derived'. A few had indeterminate characteristics. Clearer identification might be possible if larger samples of similar fabrics were examined by thin-section.

Abrasion

An attempt has been made to grade the abrasion on sherds (Table 1) to assist with problems of redeposition. This follows the recent scheme devised by Sorenson (1996) for the study of Bronze Age midden material at Runnymede. Grade 1 is low abrasion. The sherd has fresh breaks as indicated by the 'freshness' of the colour of the core, the unaltered surface, sharp corners and edges, and by the presence of pieces of temper which constituted obvious obtrusions' (*ibid,* 67). Grade 2 is medium abrasion. 'Some abrasion indicated by the absence of fresh breaks and patinated core colour, but sharp corners are still present'. Grade 3 is high abrasion. 'High abrasion is indicated by rounded corners and edges, the outline of the sherd is rounded, and its surface may be eroded'. Sorenson explains that the scheme provides only a generalised guide, and that the processes which lead to different grades of abrasion may differ in different circumstances, but at Runnymede low abrasion is generally linked to rapid, undisturbed, midden accumulation.

The scheme is easily usable for the material from Stencoose. Where sherds are given as 2/3 they are judged to be part-way between the medium and high abrasion as defined by Sorenson. Where sherds are shown as 2+3, both degrees of abrasion occur on material from the context. It is of course at present entirely unclear how far natural hydrological and biological processes of soil formation in acid soil will produce abrasion. The fact that **P6** and **P9**, the vessels with the largest portions present, were graded 1/2 however suggests that collections of recently broken sherds had suffered little from

natural soil formation processes. Overall the presentation of abrasion helps in the interpretation of most of the material at Stencoose as redeposited, an interpretation which is very necessary to the understanding of the site.

Details of enumerated vessels and contexts with ceramic finds

CONTEXTS CONNECTED WITH FIELD BANKS UPHILL OF STRUCTURE [60]

P1 (Fig 7). Rimsherds from bowl with small out-turned, upward pointing rim, diameter c160mm. Oxidised throughout yellowish red 5YR 5/8. Exterior surface smoothed. Probably two similar vessels represented, both abrasion grade 2. Carlyon (1995) Group 33 suggested third century AD, which accommodates parallel at Goldherring (Guthrie 1969, fig 13 no. 23) although that at Castle Gotha (Saunders and Harris 1982, fig 12 no. 10) is more likely to be second century. *Context [18] in fill of pit [21].*

P2 (Fig 7). Rimsherd from bowl/jar with slight neck and out-turned rim, diameter *c*140mm. Oxidised throughout yellowish red 5YR 5/8. Exterior surface smoothed. Abrasion grade 2. Carlyon (1995) ?Group 26 assigned to the third/early fourth century; parallels from Kilhallon (Carlyon 1982, fig 3 no. 31) of mid third century date but again example from Castle Gotha (Saunders and Harris 1982, fig 12 no. 10 may be second century. *Context [18].*

P3 (not illustrated). Rimsherd, from bowl as **P1** in all respects except rim is less pronounced. Abrasion grade 3. *Context [18].*

P4 (not illustrated). Everted rimsherd from jar as **P6**, diameter *c*190mm. Reduced dark reddish brown 5YR 3/2. Abrasion grade 2. Carlyon Group 3. Long date span from second to fourth centuries. *Context [18].*

P5 (not illustrated) 109 sherds including base angles from lower part of large storage jar, base diameter *c*220mm. Oxidised reddish yellow 5YR 6/6. Abrasion grade 2. Compact fabric for large vessel, but some large inclusions < 10mm of sedimentary rock; surface smoothed. May not be gabbroic (see R Taylor's archive report). Large 'storage jars' are found throughout the Roman period in Cornwall. *Context [18].*

P6 (Fig 8). Jar with slack profiled, everted rim, diameter *c*150mm, about 1/3 present. Reddish brown interior 5YR 4/3 but exterior very dark grey 3/1 with traces of burnishing on upper part. Abrasion between grades 1 and 2, possibly condition of sherds deposited freshly broken and subject to water percolation and insect/small animal activity within the soil. Carlyon Group 3 extensively found from the late second century onward to the end of Roman style pottery. The proportion of the rim to the girth suggests an earlier date than the fourth century when rims tend to be wider. *Context [6] ditch fill.*

P7 (Fig 7). Rimsherd from large jar with slightly everted rim. Very dark grey 5YR 3/1 with thinly oxidised exterior reddish brown 5YR 5/4. Generally similar to, but from a vessel larger than, **P6**. *Context [6] ditch fill.*

P8 (not illustrated). Simple rounded rimsherd, base angle and body sherd in gabbroic admixture fabric. Patchy colouring from very dark grey 5YR 3/1 to reddish grey 5YR 5/2. Abrasion grade 3. From surviving sherds vessel would seem to have a very simple form which would be appropriate for the probable Middle Bronze Age date of the fabric, see assemblage from Trethellan Farm (Nowakowski 1991). *Context [8] ditch fill*.

P 9 (Fig 7). Bowl with flat out-turned rim and sharp carination on side, diameter *c*230mm. Oxidised reddish brown 5YR 5/3 with very dark grey (3/1) patches on exterior. Sooting on exterior and inner angle of rim noticeably worn. Abrasion between grades 1 and 2. The general form of flat out-turned rim suggests second century with the only possible parallels for carination from Carvossa (Carlyon 1987, fig 4 Nos.126 and 129). *Context [7] bank.*

COMMENT

It is suggested (below) that infill layer [18] in pit [21] may represent deliberate deposition. The artefacts may certainly be regarded as a closed group. Some 25 sherds, abraded grade 3, were present in addition to the five or so vessels enumerated; these, with this degree of abrasion, may represent material which had been broken and subject to erosion processes sometime before the pit was filled. The fact that upper fill [18] contain abraded sherds and lower fill [19] none at all suggests careful selection of source material for pit infill. The enumerated vessels were not freshly broken and were incomplete. From all except large jar **P5** only single rim sherds may have been selected. The jar **P4** is reduced but the other vessels including **P5** are very similar in the colour of their even oxidisation; this even oxidisation is rare with Roman gabbroic fabrics. It may also be noted that there is no indication that any of these vessels had been used for cooking, as they lacked sooting or patches of reduction. This suggests that they, as a group, may represent some practise, such as the storage and drinking of milk, which would not involve heating. Any precision for dating is difficult but the general style of the forms and the fabrics best accommodates the first half of the third century.

The fresh condition of **P6** may indicate deliberate deposition, or at least deposition soon after breakage in ditch [6]. The only pieces with form, **P6, P7** and a small sherd from another similar vessel suggest a possible third century date. Other sherds (see Table 1) with various degrees of abrasion range in date from the Middle Bronze Age to the Roman period and should probably be distinguished from the jar sherds as present in the soil with which the ditch was infilled.

Ditch [8] has one sherd which indicates infill during the Roman period, but without precision. The Bronze Age sherds from **P8** had become very abraded before deposition and can only provide indication of early activity in the area, not of the date of the ditch.

Bank [7], whether as originally deposited or spread, has fresh sherds of possible second century **P9** as well as a range of more abraded small sherds of prehistoric and Roman date. **P9** is likely from its condition to have been deposited soon after breakage. Bank [7] seals the pit with fill [18] for which a date in the earlier third century is suggested. Given the imprecision of our knowledge of the Cornish ceramic sequence, the dates are not incompatible. The presence of **P9** might tend to pull the deposit in the pit back somewhat, maybe even into the late second century. A third century date has been suggested for the ceramics in ditch [6]; there is even here some latitude in dating. **P6** and **P7** could be as early as the second century, or, if it is maintained that the ditch is structurally related to the bank, their deposition at a date in the third century could indicate that the ditch was maintained for a while before infill. Ditch [8] can only be said to belong to the Roman period.

CONTEXTS CONNECTED WITH FIELD BANKS DOWNHILL OF STRUCTURE [60]

P10 (Fig 7). Bodysherd decorated with two wavy lines incised when clay was wet. Fabric of general prehistoric type. Interior very dark grey 5YR 3/1, exterior oxidised reddish brown 5YR 5/4. Abrasion graded 2. The decoration is not standard South Western Decorated/Glastonbury, which is incised on leather-hard vessels. It has some similarities with the wavy line decoration around the girths of cooking pots of the Roman period, for example, but these are usually single and more sharply defined (eg Nos 48, 59 from Trethurgy, Quinnell 2004). Probably best regarded as Iron Age, and within the range of South Western Decorated wares but atypical. This would be consistent with the radiocarbon date Wk-5546, which calibrates to 162 BC – AD 218 at two sigma. *Context [40] fill of ditch [39].*

COMMENT

P10 and the accompanying radiocarbon date suggest that ditch [39] became infilled during the Later Iron Age or the early Roman period. No other contexts produced sherds with formal or decorative traits. The only ditch to run right across the trench, [35], produced a well-abraded sherd of Roman type from its fill. The small sherds from other contexts were much abraded. The ‘well-made’ sherd

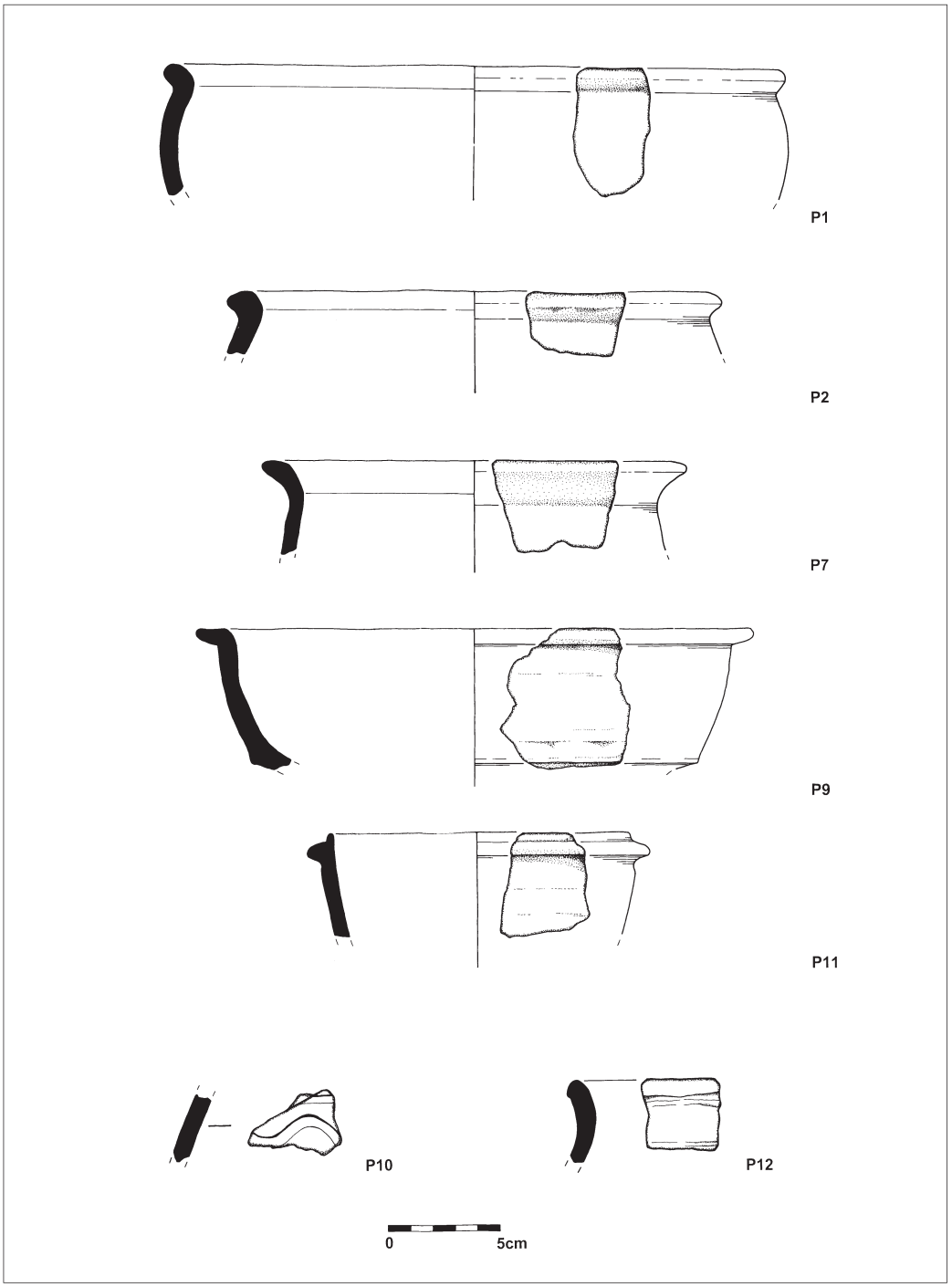

Fig 7 Pottery from the excavations. Scale 1:3

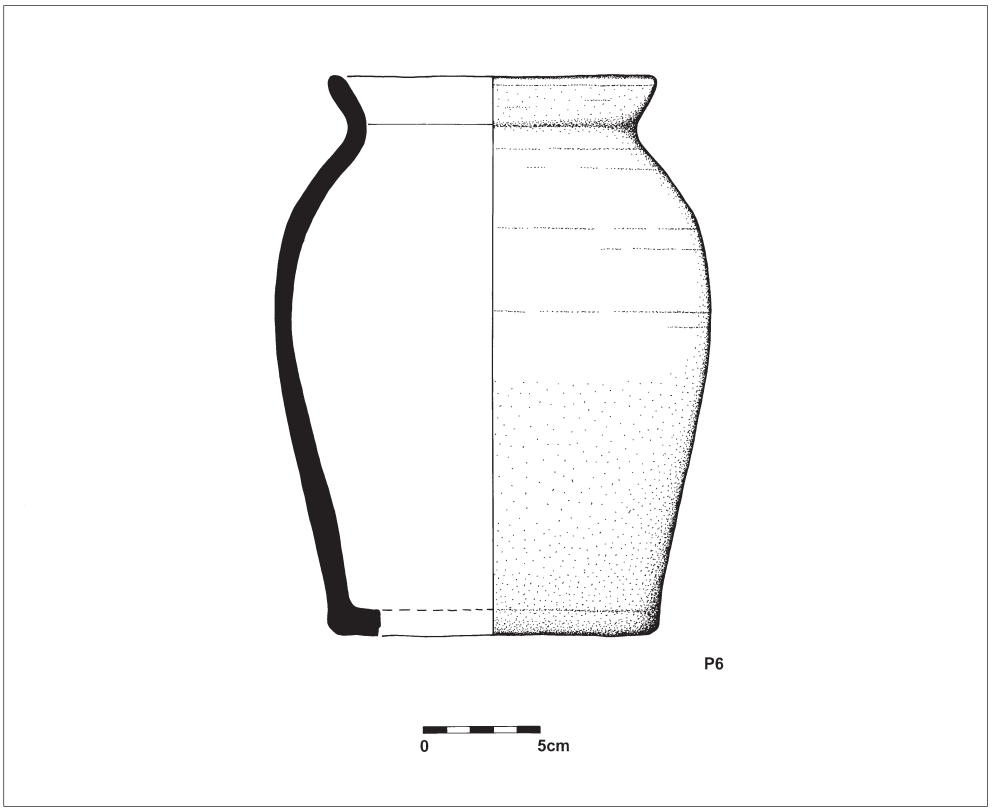

Fig 8 Pottery from the excavations. Scale 1:3

(whose lack of abrasion may be due to its hardness) from [49] in cut [42] is likely to be Later Iron Age or first/early second centuries AD. The suggested Middle Bronze Age gabbroic admixture sherd came from [3] in the fill of pit [2]. In so far as any chronological conclusions can be drawn from these ceramics, the area may have been occupied intermittently from the Middle Bronze Age onward. Given the small amount of pottery it is possible that it is all residual and that the ditches relate to a period either contemporary with the uphill group already discussed or with Structure [60] (see below). If the ditches are of one broad period and their infill relates to the ceramics this activity belongs to the Later Iron Age and the early Roman period.

Contexts associated with Structure [60]

P11 (Fig 7). Rimsherd from Cornish flanged bowl diameter 130mm. Poorly made fabric possibly cognate with the 'Late Variant' recognised at Penhale; oxidised yellowish red 5YR 5/6 with reduced exterior and traces of black coating surviving although abrasion graded 3. This is Carlyon's (1995) Group 39. It is generally accepted as starting in the late third century, copying the conical flanged bowls in Black-burnished ware which become current around AD 270 (Holbrook and Bidwell 1991, 98). Full discussion of this dating, and of the possibility that this form might be manufactured as late as the fifth or even the sixth centuries is contained in the author's report on Trethurgy (Quinnell 2004). *Context [44] lower infill of Structure.*

P12 (Fig 7). Rimsherd from large necked jar, diameter greater than 140mm. Fabric compact with fine matrix, with similarities to 'well-made' Iron Age types. Oxidised light reddish brown 5YR 6/4

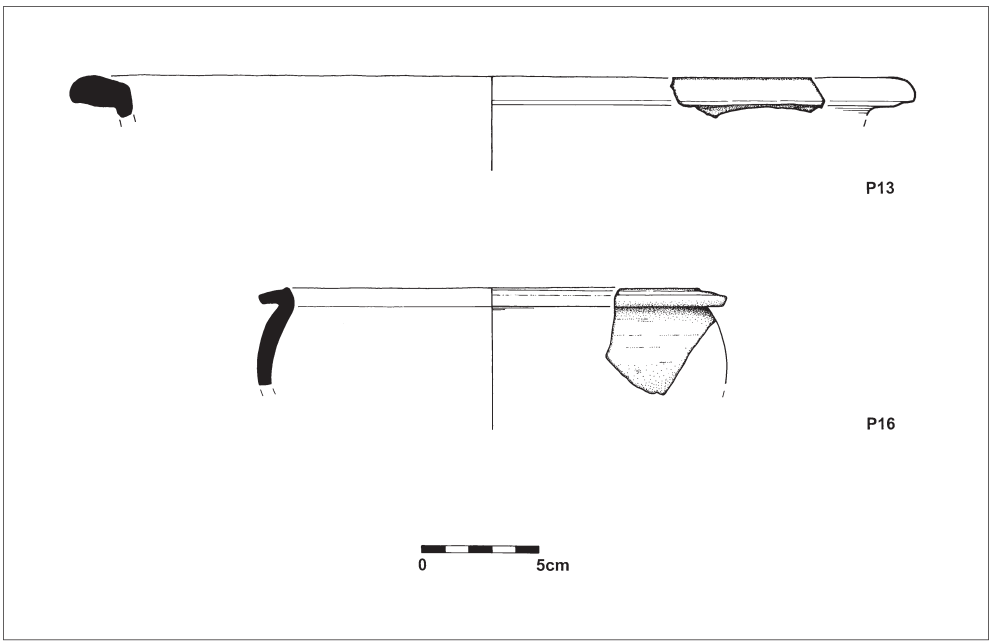

Fig 9 Pottery from the excavations. Scale 1:3

with very dark grey 3/1 reduced exterior. Burnish survives despite grade 3 abrasion, with a groove below the rim and two on the neck. Definitely a form of the Later Iron Age. *Context [1] upper infill of Structure.*

P13 (Fig 9). Rimsherds from bowl with broad, flat-topped out-turned rim, diameter greater than 320mm. Generally oxidised yellowish red 5YR 5/6 but with exterior partly reduced very dark grey 5YR 3/1 with traces of burnish surviving. Abrasion graded 2. Carlyon (1995) suggests that such bowls are third century AD but finds from sites such as Castle Gotha (Saunders and Harris 1982, fig 15, no. 63) suggests the form was present from the second century. For how long such bowl forms were manufactured and/or used in the fourth and indeed the fifth/sixth centuries is still unclear (Quinnell 2004). *Context [1] upper infill of Structure.*

P14. Scrap from bowl rim with shallow groove, diameter greater than 200mm. Reduced very dark grey 5YR 3/1. Abrasion graded 2. Carlyon's (1995) Group 38, probably third century; see Trethurgy No114 (Quinnell 2004). *Context [1] upper infill of Structure.*

COMMENT

The numbered vessels and other sherds from Structure [60] range in date from Later Iron Age to late in the Roman period; the smaller sherds are generally abraded grade 3, the larger grade 2. The larger sherds, the enumerated vessels, come from contexts in which material was being dumped, suggesting that they may have been redeposited with the dumped infill. They are not sufficiently fresh to represent recently broken vessels. Given the radiocarbon determinations from other deposits in the infill, Wk-5546 AD, 395–667 and Wk-5548, AD 434–762 at two sigma, the pottery is likely to have been broken before the infill layers were deposited. (These dates do however allow the possibility that vessels such as **P11** may have been in use during the fifth century before the use of the Structure in its present form). The presence of **P12** and of small prehistoric sherds suggests the use of the terrace for a considerable period before the Structure was built. There are however no sherds from the two

Table 1: Summary of pottery fabric types by context

	standard (Roman) gabbroic			Bronze Age/Iron Age gabbroic			granitic derived/indeterminate Iron Age		
Context	**sherds**	**weight**	**abrasion**	**sherds**	**weight**	**abrasion**	**sherds**	**weight**	**abrasion**
Contexts connected with field banks uphill of Structure [60]									
Pit fill [18]	**P1** 3	67g	2						
	P2 1	19g	2						
	P3 1	17g	3						
	P4 1	7g	2						
	P5 109 (?non-gabbro)	1864g	2						
	+25	86g	2 / 3						
Ditch [6]	**P6** 41	703g	1 / 2	10 (admixture)	43g	3			
	P7 1	29g	2	2 (well-made)	10g	2			
	+8	16g	2						
Ditch [8]	1	5g	2	**P8** 3 (admixture)	33g	3			
Bank [7]	**P9** 3	89g	1 / 2	5	22g	3			
	+48	215g	3	3 (well-made)	12g	2			
Contexts connected with field banks downhill of Structure [60]									
Gully [30]				1	1g	3			
[36] in ditch [35]	5	2g	2 / 3						
[3] in pit [2]				1 (admixture)	6g	3			
[49] in cut [42]	3	8g	3				8	10g	3
				1 (well-made)	1g	1 / 2			
[40] in ditch [39]				**P10** 1	10g	2			
				+4	2g	3			

Table 1: Summary of pottery fabric types by context *(continued)*

	standard (Roman) gabbroic			Bronze Age/Iron Age gabbroic			granitic derived/indeterminate Iron Age		
Context	**sherds**	**weight**	**abrasion**	**sherds**	**weight**	**abrasion**	**sherds**	**weight**	**abrasion**
				Contexts associated with Structure [60]					
Wall [50]							2	3g	3
Wall [32]				3	3g	3			
[44] inside	**P11** 1	20g	2 / 3						
	+3	5g	2						
[22] inside				1	5g	1	4	9g	3
[23] inside				1	2g	3			
[1] inside				**P12** 1	16g	3			
	P13 2	31g	2						
	P14 1	3g	2						
	+12	27g	2 / 3	7	26g	3	7	27g	3
[52] behind				1	5g	2			
[34] ditch	1	1g	3						
[55] in ditch				2	2g	3			
[54]									
Unstratified	**P15** 1 (Oxford)	2g	2						
	P16 1	28g	2						
	+48	206g	2 + 3	4 (well-made)	25g	2			
				6	47g	3			
Totals	320	3450g		57	271g		21	49g	

contexts, pit 2 and pit 45, which indicate activity around the Structure from the ninth to the thirteenth centuries. The most remarkable aspect of the assemblage associated with the Structure is that it does not contain the grass-marked wares which are generally current in Cornwall, at least west of Bodmin Moor, during the post-Roman centuries. It may be presumed that the absence of grass-marked ceramics, that is of ceramics contemporary with the Structure, relates to the activities which took place within it.

UNSTRATIFIED

P15. Small rim sherd, Oxford ware (identified in the Archive report as samian). Buff fabric with traces of red slip on exterior. Abrasion graded 2. Slightly rounded small beaded rim from bowl of form C45 (Young 1977, fig 58) Oxford. Oxford ware sherds have a wide distribution in the fourth century and tend to occur on Cornish sites with dates ranges extending into the fifth century, Gwithian, Tintagel and Porthmeor (Young 1977, 306) and Trethurgy (Quinnell 2004). (I am grateful to Professor C Thomas for comments on this sherd.)

P16 (Fig 9). Rim of bowl, slightly down-turned with groove, diameter 220mm. Yellowish red 5YR 5/6 with reduced, sooted, exterior very dark grey 3/1. Abrasion graded 2. Carlyon's (1995) Group 38 as **P14** and possibly third century. Compare No 68 from Reawla (H Quinnell in Appleton-Fox 1992, fig 18) from a context with a suggested date of around AD 300.

Apart from the enumerated vessels, the unstratified pottery includes small fragments from Iron Age and Roman forms represented by stratified material.

Ironwork

Seven small corroded fragments from layer [18] in pit [21] comprised the only iron found; the largest piece was in corroded form only 35mm long. These were X-rayed by Margaret Brooks, English Heritage Contract Conservator, at the Wiltshire County Council Conservation Centre in Salisbury. Margaret Brooks identified part of a strip and of a bar, the largest piece, from the X-rays and partly airabraded these with alumina. The bar fragment has a rectangular cross section 20mm by 15mm; the strip is *c*12mm wide and 4mm thick with a curve which would be appropriate for a joiner's dog. Ms Brooks further commented that the corrosion on these pieces suggested that the pit fill had contained organic rubbish and charcoal.

Stone artefacts

by Henrietta Quinnell and Carl Thorpe with comments on lithology by Roger Taylor

Rubbing stones

S1 (Fig 10). A thin, irregular, pebble, maximum length 157mm, 53mm wide, 13mm thick. One flat surface and the straighter edge have been worn smooth, producing almost rounded facets, possibly from use as a lapstone for leather working. There is a small worn facet on one end of the other face, produced by percussive activity, and some slight chips around the remainder of the edge, possibly accidental, possibly from use from hammering. The worn end facet has its best comparanda in the bevelled pebbles of the Later Mesolithic (Berridge and Roberts 1986, 20 and fig 6), although the smoothed rubbed wear is not a regular characteristic of these; preliminary examination of the bevelled facets indicates percussive activity rather than rubbing or grinding (*ibid*, 20). Bevelled pebbles generally have two opposed facets but single facets are not unknown eg at Poldowrian (Smith and Harris 1982, 45). The

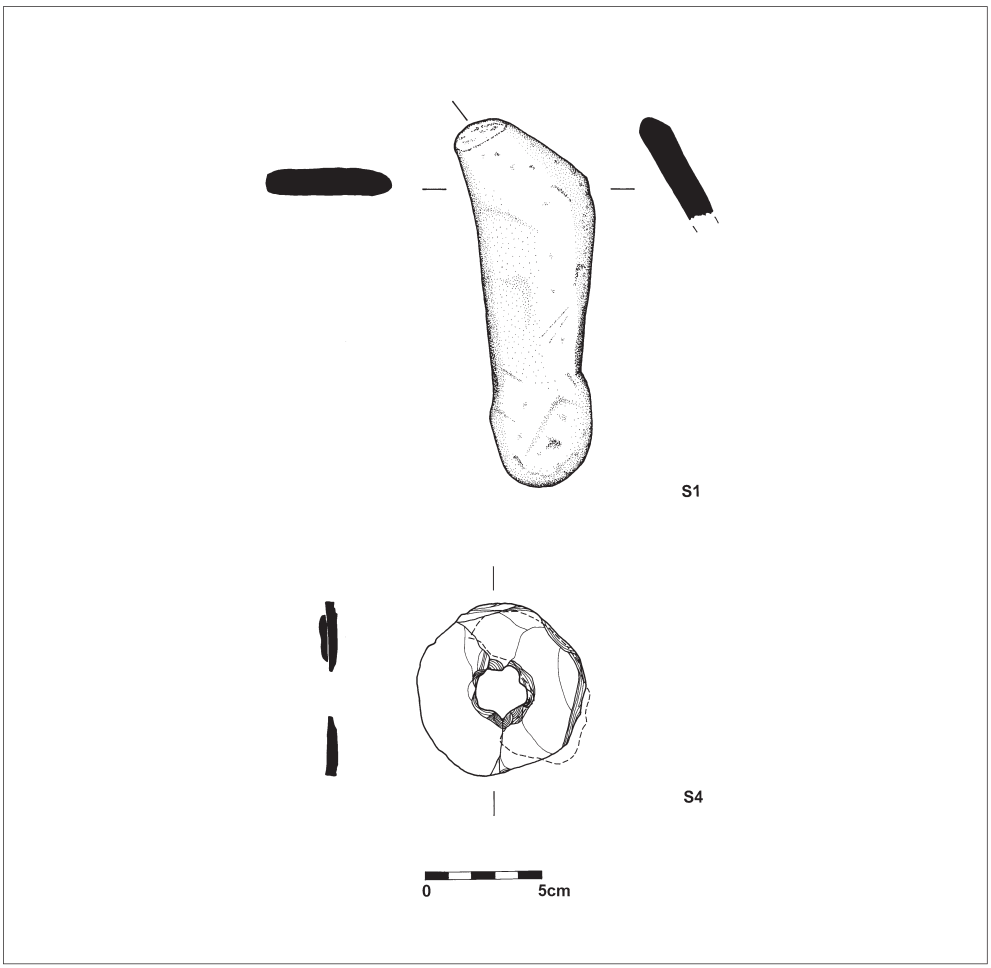

*Fig 10 Stone artefacts **S1** and **S4**. Scale 1:3*

sandstone lithology of **S1** is comparable to the sandstones of the Porthtowan Formation which is local to the area. It has a weakly developed cleavage, parallel to the length and the flat surface, causing the long bladed form. This form is too weak to survive in a beach environment and it is likely that this is a river pebble. *From [55], fill of ditch [54] possibly associated with Structure [60].*

S2 (Not illustrated). A thin, evenly shaped pebble, maximum length 119mm, 35mm wide, 15mm thick. It has a long straight edge, and a long convex edge with rounded ends. There are slight signs of wear along all the edges, with most at the ends, but no distinct facets; this wear, considered dubious by Roger Taylor, together with the shape of the stone, suggests possible use as a lapstone for leather working. There are two small scars which may indicate brief use as a hammerstone but could be accidental. Lapstones have been identified in the South West from sites from the Middle Bronze Age onward, notably at Trethellan (Nowakowski 1991, 148); they do not appear to been recorded from sites of earlier date. They subsequently occur sparsely on Cornish sites of all periods, though reports do not clearly distinguish them from the other elongated stone tool form, the whetstone (for clear discussion of the differences see Alcock 1987, 134–8). Comments on the lithology as **S1**. *From unstratified, machined material.*

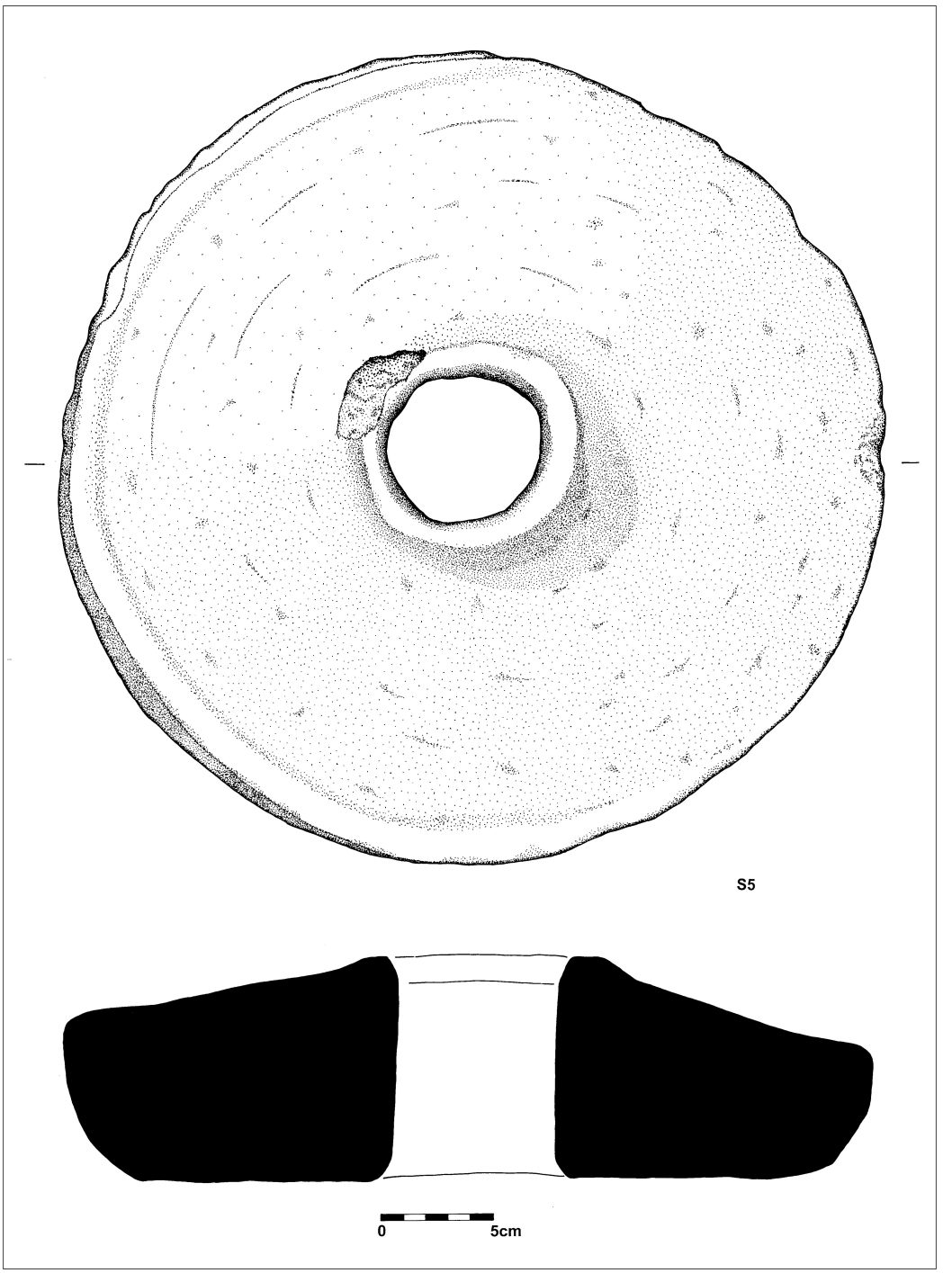

Fig 11 Rotary quern ***S5.*** *Scale 1:3*

S1 and **S2**, possibly used as lapstones, are slender water worn pebbles which may have been obtained from the stream flowing down to Porthtowan about 500m north of the site. As in the case of the quartz pebble artefacts, neither is directly datable in itself, nor by its context. If **S1** is a bevelled pebble it could relate to the Late Mesolithic element of the flint scatter. **S2** could be associated with the Middle Bronze Age pottery or with any subsequent period of activity.

S3 (Not illustrated). Lump of granite, maximum length 140mm, width 80mm, thickness 50mm, slightly waterworn, with traces of possible shaping and of use as a rubbing stone. Its lithology is comparable with that of the central parts of the Carnmenellis Granite. *From [18] in Roman period pit [21], at north end of site.*

Perforated disc

S4 (Fig 10). Four curvilinear pieces of worked slate from the local Mylor Series, forming a near circular shillet disc, with a central perforation. Three of the four pieces join together, but the fourth is less well fitting because it is incomplete, indicating damage after breakage but before deposition. Outer diameter varies between 87mm and 89mm; central perforation oval in shape, 38mm long by 32mm wide. Thickness varies between 5 and 13mm. The disc was shaped from a naturally split thin killas slab, by first snapping off large pieces, followed by more controlled removal of smaller pieces, possibly by hammering. The central perforation was hammered out, possibly with the use of a punch. There was no sign of any finer finishing or of use. **S4** may have broken prior to completion. *From pit [21], at north end of site.*

The interpretation of **S4** is uncertain. The central hole is large in proportion to the size of the disc, and much larger than the holes in killas 'pot lids' which generally come in this size range (see discussion on Trethurgy examples in Quinnell 2004). It may have been a small loomweight, though identifications of loomweights of this material in Cornwall are generally speculative. Its deposition in pit [21] provides a date in the Roman period.

The querns

The two rotary querns, one fragmentary and one complete, are of granite brought to the site. The pair initially appeared to be Romano-British in date with comparisons from other Cornish sites such as Trevisker (ApSimon and Greenfield 1972), Carvossa (M M Irwin in Carlyon 1987), Carn Euny (Christie 1978), and Castle Gotha (Saunders and Harris 1982). However the close relationship of the findspots with early medieval Structure [60] opens the possibility that either or both of the group may be of this date. This increases their importance as at present comparanda from Cornwall are less common for this later period.

S5 (Fig 11). Complete lower stone of granite rotary quern, diameter 370mm, 105mm thick at eye which is 60mm across and a complete perforation. Sides neatly pecked, bottom rough, considerable wear on grinding surface, with upper stone turning in a clockwise direction. This appears to be the only complete lower rotary quern from Cornwall with a complete perforation. Such perforations may have enabled a spindle to have been fixed to a lever set beneath the stone which would enable the space between upper and lower stones to be adjusted (Alcock 1987, 139). It is recorded as taking up most of the pit in which it was found, set in 'yellowish brown silty clay loam'. Granite texture, composition and alteration are all very characteristic of parts of the Tregonning Granite. *Pit [29] possibly associated with Structure [60].*

S6. Near perfect sector of a disc 340–350mm in diameter with a bevelled edge led to initial identification as a broken quern roughout. However the edges and angles of the suggested quern surfaces are abraded and rounded and the fracture appears to be along a smooth surfaced joint. The object is a slightly weathered elvan boulder which happens to have the shape of a broken rotary quern. Quartz, feldspar porphyritic elvan with kaolinised feldspars etched out and some greenish colouring suggesting chloritisation. There are elvan dykes mapped within a kilometre north and south

of the site, with many more dykes further South. Dykes seldom crop out along their length, fragments more likely to be found crossing river valleys. *Wall [32] of Structure [60].*

S7. Broken upper stone of granite rotary quern, diameter approximately 450mm, eye 50mm across, maximum thickness 80mm; exterior circumference of quern has a possible string groove running around it. Grinding surface rough and uneven and shows no signs of use. Its condition suggests that the quern was broken during the final stages of, or soon after, manufacture, perhaps because of the very weak state of the rock. The suggested string groove appears partly to relate to a plane of weakness in the rock. String grooves are sometimes found on Cornish querns which are assumed to be of Roman date, eg at Carn Euny (Christie 1978, fig 49 nos.1 and 2) and Trevisker (ApSimon and Greenfield 1972, fig 26b no.3). Coarse weathered, friable granite with small feldspar megacrysts 10–20mm long, abundant black tourmaline needles and a little muscovite. This lithology is comparable with that of the central parts of the Carnmenellis Granite. *Layer [44] in infill of Structure [60].*

S8. Part of a saddle quern on a granite slab of an even thickness c90mm; the surviving fragment, 200mm long, suggests the original had parallel sides and pointed ends; these have apparently been worked by pecking. Minimal wear on one face. Fine-grained biotite granite with very sparse feldspar megacrysts 7–12mm long, very much weathered. The rock is comparable with the fine-grained granite (Gh) forming the two small circular outcrops at Gernick and Boswyn on the north-west side of the Carnmenellis Granite. The edge which is unfractured has the appearance of pecked working but, because of the weathered state of the granite, its anthropogenic origin can not be certain. Saddle querns are found on later Iron Age and Roman period sites in Cornwall (Quinnell 1986, 117), and were probably in use in the early post-Roman centuries (at Trethurgy, Quinnell 2004) as was the case in Wales (see Dinas Powys, Alcock 1987, 138). *Context* [7]

The querns as a group are acceptable as of the Roman period; Roman period assemblages produce numerous comparanda except, apparently, for the complete perforation of a lower stone as in **S5.** The radiocarbon determinations for Structure [60] however means that a post-Roman date may be appropriate for the rotary querns. There are fewer post-Roman sites in Cornwall with rotary querns; this may be due to the comparatively small amount of investigation of such sites compared to those of the Roman period. At Trethurgy rotary querns should continue in use until at least the sixth century AD, a similar date to the find of a rotary quern at Dinas Powys in South Wales (Alcock 1987, fig 8.3). The rotary quern from Carngoon Bank may also, from its context, belong in the fifth or sixth centuries (McAvoy 1980, 59). Example(s) are recorded from Gwithian (Thomas 1958b, 60) and an upper stone is now known from Tintagel (Thomas 1993, fig 44); these appear to be around sixth century in date. Parts of 15 rotary querns have been published from the settlement at Mawgan Porth (Bruce-Mitford 1997, 129–35) and these include C14, a lower stone with a complete perforation. The Mawgan Porth settlement is dated AD 850–1050 which means that **S5** is to date the earliest completely perforated lower stone recorded from Cornwall.

In Wales the regular use of rotary querns up to the full medieval period is famously recorded in the Laws (Jones 1972, 354) and the Dinas Powys example demonstrates the presence of perforated lower stones from the fifth or sixth centuries. In Ireland the presence of horizontal watermills has been established through dendrochronology for the seventh century onward (Edwards 1990, 64). For Cornwall the whole question of the development of milling through the post-Roman centuries and into the full medieval period, together with a study of quern stones involved, is obviously a subject for future research. However if **S5** from Stencoose is regarded as contemporary with Structure [60], then it together with C14 from Mawgan Porth suggest that perforated lower stones may not have been introduced until some date in the post-Roman period; this would mean that the refinement of adjusting the spacing between the stones was a post-Roman introduction. In this connection the setting of **S5** in pit [29] may be relevant. It is possible that the silty clay pit fill supported the timber structure for leverage and adjustment between the stones; if **S5** were used in situ, it would have been set within a timber frame to allow collection of flour, and the pit below could have provided housing for the leverage arrangement below the level at which corn was ground.

The presence of querns on non-arable farming sites is a matter for discussion. If the Stencoose querns are associated with a transhumance shelter, rather than residual from the earlier field system and Roman period settlement, they suggest the transport of grain to support the inhabitants. This pattern may be indicated by the quern referenced above from Carngoon Bank on the Lizard (McAvoy 1980, 59). There is also the completely perforated lower stone found in Shaugh Moor Enclosure 15 on Dartmoor (Wainwright and Smith 1980, 104) which is usually assumed to be Iron Age and to relate to some post-Bronze Age transhumance use of the site (Quinnell 1994, 78; note the Shaugh Moor quern is here referred to incorrectly as an upper stone). If the suggestion made above that adjustable rotary querns were a post-Roman introduction in Cornwall proves also to be correct for rural Devon, the date of the Shaugh Moor quern would be far later and the artefact could no longer be considered Iron Age.

Worked flint

by Anna Lawson Jones

Introduction

The Stencoose excavation produced a total of fifty-one pieces of worked flint, two pieces of worked chert, and eleven water-worn pebbles; one of flint and ten of quartz.

Thirty-one of the worked flints and one of the chert pieces were found in unstratified deposits, in the machine stripped topsoil and in the upper subsoils that had been dumped along the sides of the pipeline corridor. The flint pebble and one of the whetstones were also recovered from unstratified contexts.

All of the flint was derived from beach pebble sources. The quartz pebbles and the whetstones may have either a riverine or a coastal source. The variety in flint colour and quality reflects the variety in the source of the raw material. Bipolar flaking techniques tend to dominate the assemblage. This is not a datable attribute, but it is typical of many West-country (Cornish) flint assemblages (Edmonds 1995). There is also a bias towards the use of the soft hammer technique; but again this is not datable.

The number of diagnostically datable pieces is limited, but the available evidence indicates that the assemblage ranges from the later Mesolithic through to the later Neolithic. There are no definite Bronze Age pieces.

Each of the artefacts within the assemblage has been catalogued and selected pieces have been illustrated (Fig 12).

The unstratified assemblage

The unstratified flint assemblage consists of thirty-one worked flints, one chert piece, four quartz pebbles, and one flint pebble.

The four quartz pebbles would perhaps under different circumstances have been dismissed as being post medieval in date. During the medieval and post-medieval periods beach sand was spread on soil in order to improve its quality. However, at Stencoose more than twice as many (seven) similar pebbles were found within stratified deposits, that were pre-medieval in date. The water worn nature of the flint and quartz pebbles at Stencoose implies that they had been deliberately selected and introduced to the site. This inference is further supported by the fact that all of the quartz stones were under 2.5 centimetres across. The function of the quartz pebbles is uncertain. The flint pebbles were obviously being brought onto the site as cores. The quartz stones could have been brought onto the site during the Iron Age as sling shot, or they may pre-date the Iron Age usage of the site and may instead be contemporary with the Neolithic flint scatter.

The unstratified flint and chert include a number of distinct forms: five cores, a scraper, three burins, an arrow head, two points, seven serrated flakes/blades and at least ten retouched pieces (some pieces exhibit traits which are characteristic of more than one of the above forms).

Of the five cores one is a single platformed bladelet core of later Mesolithic or earlier Neolithic date (Fig 12). The four remaining cores are multi-platformed. They are broadly Neolithic in date. Some of the cores appear to exhibit signs of having dual functions. One of them had been reused as a point, another seems to have been reused as a scraper (Fig 12).

The single definite scraper is an end scraper, and is probably Neolithic in date. The bulbar end of the scraper had been shaped into a burin (see Fig 12).

The arrowhead is a transverse form of later Neolithic date (Fig 12). It exhibits partial pressure flaking across its ventral surface (see Pierpoint 1981; Bamford 1985).

The points, awls, burins and the retouching that are found in the rest of the unstratified flints from Stencoose are all typical of the later Mesolithic and Neolithic period (Lynch 1993; Saville 1981). Saville's (1981) 'cutting' flakes account for a significant amount of the otherwise undiagnostic worked pieces. The points and the notched pieces found at the site are frequently found in Neolithic contexts (Pierpoint 1985). However very few of the Stencoose examples are sufficiently distinctive to give a precise date. Most of the coarsely serrated flints are probably Neolithic in date, although the few finer pieces may be of a later Mesolithic date (eg Lynch 1993). Due to the poor quality and limited quantity of available flint in Cornwall, working techniques were automatically restricted and as such it is extremely difficult to accurately date many of the pieces (Peter Berridge, pers comm).

The stratified assemblage

The stratified assemblage consists of twenty-one flints and one piece of chert. The diagnostic forms include a core, two scrapers, a microlith, a point and three serrated flakes. In addition there were seven quartz pebbles. All the artefacts were found in contexts which date to the Iron Age, Romano-British, or earlier medieval periods. Therefore they are all residual and presumably entered these contexts by chance.

The seven quartz pebbles could have been associated with the Iron Age settlement (for example they could have been sling shot). Alternatively they could have been contemporary with the later Mesolithic or earlier Neolithic flints.

The core is a poor quality multi-platformed artefact. There are a number of faults and weaknesses in the flint. It is not a diagnostic form and could date from the Mesolithic onwards.

The two scrapers are both diagnostic forms. The first is a side scraper (Fig 12) which has steep broad retouch. This type of scraper is usually assigned a later Neolithic date (Edmonds 1995). The second is an end and side scraper manufactured from a secondary flake which may originally have been used as a partial core. This scraper is also probably Neolithic in date.

The single microlith (Fig 12) is very finely retouched around the bulbar end, and the retouching extends down either side towards the distal end. The distal end has been obliquely snapped off. It probably dates to the later part of the Mesolithic period.

The remaining pieces are not particularly diagnostic in terms of form or date. However the point and the snapped/serrated flakes would not be out of place within a broadly Neolithic assemblage. Mark Edmonds (1995) considers serrated blades as being one of the commonest forms in earlier Neolithic flint assemblages.

Discussion

In general the assemblage reflects adaptation to a relatively abundant but fairly poor quality flint source; a source which consists of small irregularly shaped pebbles collected from the beach. The

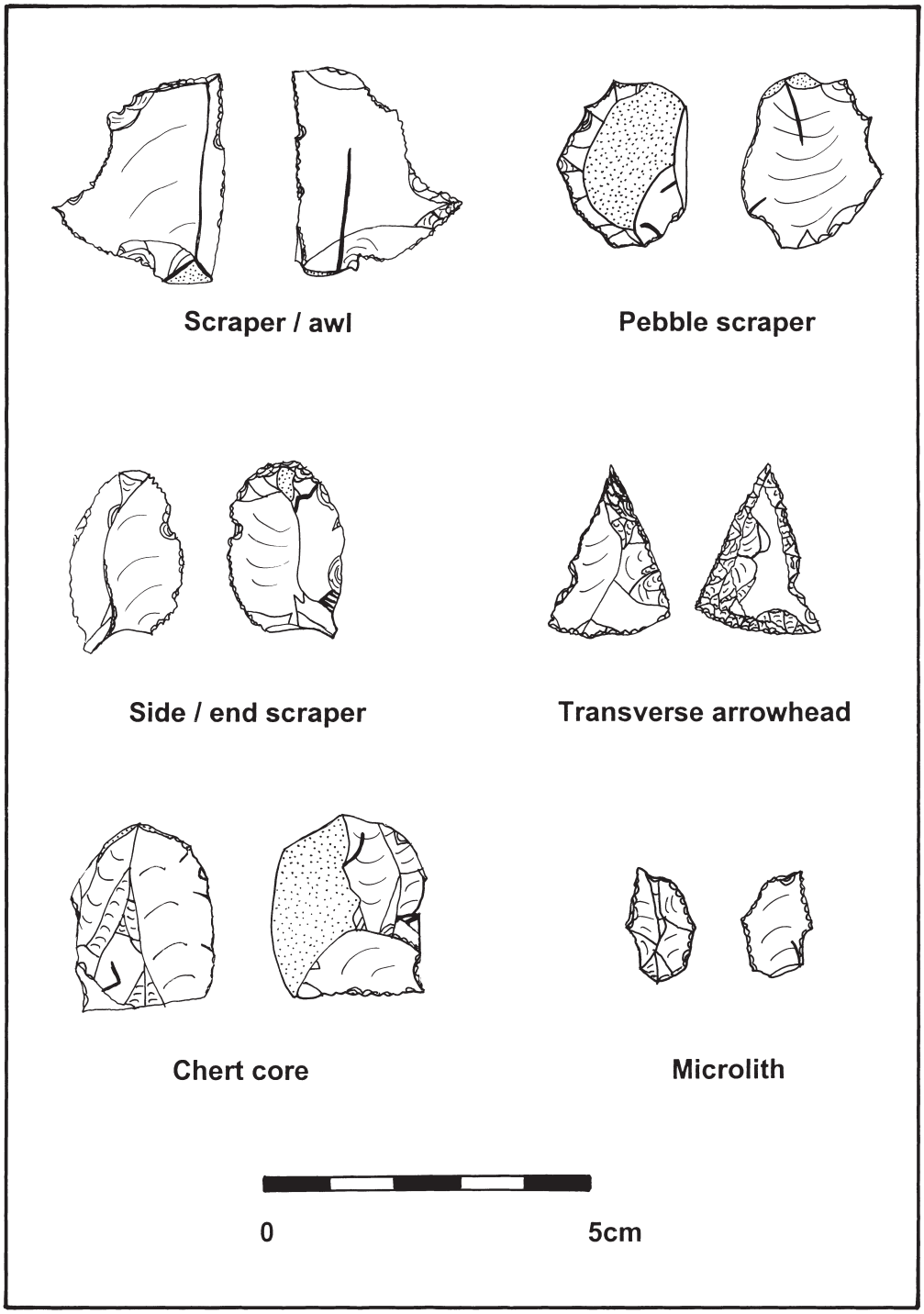

Fig 12 Selection of flints: scraper/awl, pebble scraper, side and end scraper, transverse arrowhead, chert core and microlith

assemblage has much in common with other areas in Britain which have similar resources, for example north-west Britain (Edmonds 1995). The bi-polar flaking technique (with the use of an anvil) is evident throughout much of the assemblage. Many of the pieces show scalar damage at their distal end, which is indicative of such flaking techniques (Pierpoint 1981).

The assemblage as a whole contains twenty primary or cortical flakes, eight secondary flakes, seventeen tertiary flakes and five cores. The high proportion of primary flakes to secondary and tertiary flakes would, in areas where flint occurs naturally, indicate a quarry/reduction site. However, in an area such as Cornwall, where the availability of large or nodular flint is restricted, their presence is more a reflection of the small size of the available raw material.

Restrictions imposed by the available flint resources are also likely to have influenced the high number of primary flakes that were modified for use, primarily as serrated cutting flakes. It is unusual for so many primary flakes to have been selected for usage (Bamford 1985). When utilised primary flakes occur in large numbers it usually means that the accompanying cores are exhausted. The Stencoose cores however were not exhausted.

Twenty per cent of the flint and chert assemblage shows signs of burning. The burnt forms are quite varied and include waste flakes and a core. The presence of burnt flint is often interpreted as being indicative of prolonged activity in an area. Burnt flint can be indicative of permanent, temporary, or seasonal settlement (Tim Gent, pers comm).

The scrapers, points and cores are also suggestive of 'domestic' activities. This group of artefacts makes up nearly twenty per cent of the assemblage. The presence of the arrowhead and the microlith may well imply that the use of the area was fairly mobile and was based around foraging and hunting (the lack of contemporary features would support with this).

The quartz pebbles were of interest as most of them were recovered from stratified archaeological contexts; this means that the majority of them cannot be seen as recent introductions to the site. However the date of their introduction to the site is uncertain as quartz pebbles are known from Mesolithic, Neolithic, Bronze Age, Iron Age and early medieval contexts. It is tempting to link the quartz stones with the flint scatter as many of the quartz pebbles were recovered from contexts in and around the terrace. A recent review of the occurrence of quartz pebbles on archaeological sites, noted that they have been found on a number of Neolithic sites around the Irish Sea (Darvill 1996, 37). It was also noted that in some cultures quartz pebbles are considered to be the equipment of magicians, whereas in others they were used as counters (Darvill 1996, 37). In Cornwall, quartz stones and pebbles may have become associated with activity around funerary monuments. A number of Bronze Age barrows have been found to contain quartz settings, for example the Trelowthas barrow cist had a floor made from rounded quartz pebbles (Nowakowski, forthcoming). Quartz pebbles have also been found in early medieval contexts at Tintagel and St Michael's Mount (Peter Herring, pers comm).

The large but low density lithic scatter found at Stencoose presents a picture of short term occasional occupation. Groups of people may have dwelt at the site during routine seasonal movements. Although most Neolithic settlements were still fairly mobile, a longer term occupation site would probably have left a higher density of flints in a more restricted area (Schofield 1994).

Assessment of charred plant macrofossils from bulk samples

by Vanessa Straker

Plant macrofossils

Following a site visit to Stencoose, a sampling strategy was discussed for the recovery of charred plant macrofossils from pit fills, ditch fills and layers. Animal bone did not appear to survive in the

acid soils developed over shillet. Bulk samples were taken from 26 contexts by the excavation team and processed by flotation in the Soils Laboratory, Department of Geography, University of Bristol. Floats were retained on a 250 micron sieve and residues on a 1mm mesh. The residues were scanned for finds and charred remains. A detailed assessment of the floats was carried out and the results are presented in Table 1. Nomenclature follows Stace (1991).

Charcoal

Charcoal was present in all the samples and abundant (over 200 fragments) in eleven contexts. Although much appears to be fragments of mature oak, occasional twigs were noted in contexts [3], [5], [40], [44], [46], [47] and [52].

About 75% of the contexts sampled preserved the charred remains of cereal crops (grain and chaff) and weeds. However, as numbers of macrofossils were low, it was possible to count and identify most of them during the assessment. Despite the range of contexts sampled, the assemblages were broadly similar, the main exceptions being pit fills [13], [14], and [16] which only contained a large amount of charcoal and no other plant macrofossils.

Crops

Charred grains of wheat, barley and oats were present. The barley was poorly preserved and could have been either the naked or the hulled type, and either 2 or 6 row. The oats were represented only by occasional grains but no chaff, which means that they could represent either a wild (weed) species such as Avena fatua or a domesticated species such as A. sativa. Two species of hulled wheat were present identified by glume bases of both emmer and spelt wheats.

Wild plants

The fruits and seeds of wild plants include crop weeds such as field madder, knotgrass, black bindweed and vetches. These are accompanied by medick, ribwort plantain, sorrel and heath grass which could have grown as arable weeds or on grassy heath developed on the acidic soils. The hawthorn could have been part of the heathland flora.

Discussion

Overall, the assemblage suggests that crops were being cultivated in the local area and at least partly processed at the site. Given the small size of the assemblage it would be unwise to speculate further on the arable regime, or on whether all the stages of crop processing were carried out at the settlement. However, the finding of mainly small seed arable weeds which are typical waste of the final stages of crop cleaning, and a quern suggests that grain was being prepared for consumption at Stencoose.

Barley, emmer and spelt are all typical Iron Age assemblages, but there is, as yet, very little other published material from Cornwall. The round at Reawla (Straker 1992) also provided evidence for the cultivation of barley and emmer and spelt wheat. Despite the small size of the assemblage at Stencoose it is a useful addition to the crop history record from Cornwall.

Table 2: Stencoose 1996, Cornwall: Assessment of Bulk samples
(charcoal fragments, number >2mm: 0–50 = + 50–200 = ++, >200 = +++)

Sample	Context number	Bulk volume (L)	Float volume (ml)	Crops	Seeds	Chaff	Indeterminate charred frags	Tubers (t) Buds (b)	Charcoal >2mm
502	[3] pit fill	5	35		1 *Fallopia convolvulus* (black bindweed)				+++ incl. 2 twigs
501	[5] pit fill	2	175	2 cereal sp.	2 Poaceae (grasses)		5 incl. 1 frag bracken pinnule	1t, 3b	+++ incl. 4 twigs
515	[10] pit fill	4	60	5 cereal frags	10 incl. 6 *Polygonum aviculare* 1 Poaceae	2 *Triticum* p.- spikelets forks 1 *Triticum* sp.- glume base			+++
520	[12] pit fill	6	20	2 *Triticum* sp. 1 cereal sp.	3 incl. *Rumex* sp.				++
521	[13] pit fill	4	200					15b	+++
523	[14] pit fill	4	125						+++
524	[16] pit fill	8	250					1b	+++
518	[18] pit fill	8	45	1 *Hordeum* sp. 1 cereal frag	3 *Bromus* sp.	1 *Triticum dicoccum* glume base (emmer)		1t, 1b	++
519	[20] ditch fill	18	30	2 *Triticum* sp.; 3 *T. cf. dicoccum* (cf. emmer) 1 *Avena* sp. 3 cereal sp., indet frags	7 incl. 2 *Raphanus raphanistrum* pod segments (charlock) 1 *Sherardia avensis* (field madder) 1 Polygonaceae (dock family) 1 Poaceae				++
511	[22] pit layer	24	40	1 *Triticum* sp.			5		+ inc. 1 twig
504	[25] pit fill	6	150	2 *Hordeum* sp.	1 *Rumex* sp. (sorrel)				+++
503	[26] pit fill	6	3	1 *cf. Hordeum* sp. (barley)					+
514	[28] pit fill	12	5	1 cereal sp.	1 Poaceae				+

Continued overleaf

Table 2: Stencoose 1996, Cornwall: Assessment of Bulk samples (*Continued*)
(charcoal fragments, number >2mm: 0–50 = + 50–200 = ++, >200 = +++)

Sample	Context number	Bulk volume (L)	Float volume (ml)	Crops	Seeds	Chaff	Indeterminate charred frags	Tubers (t) Buds (b)	Charcoal >2mm
517	[31] ditch fill	21	35	1 *Triticum* sp. 1 *Avena* sp.	3 incl. 1 Erica/Calluna (heather/heath)		1		+
527	[32] wall matrix	21	15	1 *Triticum* sp. 1 *Hordeum* sp.				2t	+
526	[33] wall matrix	24 24	40 40	2 *Hordeum* sp 2 *Hordeum* sp.	6 inc. *Rumex* sp. *Trifolium/Medicago*		5	1t, 1b	++
516	[36] ditch fill	21	15	1 *Hordeum* sp. 1 cereal sp.	6 incl. 1 Poaceae *Trifolium/Medicago* (clover/medick)		6		+
505	[38] pit fill	18	50	1 *Avena* sp. (oats) 1 *Triticum* sp. (wheat)	7 incl. Poaceae *Danthonia decumbens* (*heath* grass) *Plantago lanceolota* (ribwort plantain)	1 Triticum *spelta* glume base (spelt)	3		++
525	[40] ditch fill	9	3		4 incl. 1 Poaceae 1 *Sherardia avensis*				+ incl. 1 twig
506	[44] layer	43	80		1 *Cretaegus* sp. (hawthorn)		1	2t	+
507	[44] layer	51	90		5 incl. Brassicaceae 1 *Danthonia decumbens*				+ incl. 1 twig
509	[46] pit fill	6	70	1 *Triticum* sp. 1 cereal frag	1 *Plantago* lanceolota		4	1b	+++
510	[46] pit fill	4	120	2 *Avena* sp.	1 indet				+++ incl. 1 twig
508	[48] pit fill	11	950	1 *Avena* sp.	1 Poaceae		1		+++
522	[49] ditch fill	19	5		1 Fabaceae (pea, bean, clover family) 1 indet		2	1b	+
512	[52] layer	20	350	1 cereal sp.	1 *Polygonum aviculare* 1 *Chenopodium* sp. (fat hen)		2	1t, 1b	+++ incl. 5 twigs
513	[52] layer	0.25	175						+++
528	[56] pit/ posthole fill	6	2	1 *Triticum cf. dicoccum*	1 Poaceae				+

Roots and tubers

by Dominique de Moulins

Introduction

Vanessa Straker sent several samples from the rescue excavation carried out at Stencoose to the author for examination and identification following the assessment of the environmental samples. The samples were believed to be whole organs or fragments of roots or tubers. The presence of the tubers was significant because they have not often been recovered from excavated sites in Cornwall and since they represent the below ground part of the plant they can provide additional information on crop processing and turf burning, etc. The tuber analysis was therefore carried out to shed further light on the environmental history of Stencoose. Most of charred pieces to be identified had been taken from pit fills, layers, ditch fills and one wall matrix. The other plant remains found on the site were sparse; they included a few grains of barley, hulled wheat and oats, a number of weed seeds from arable fields and a few which could have come from a grassy heath. The assemblage was thought to indicate local production, processing and consumption.

Well preserved charred unfragmented tubers were examined from several contexts: [5], [18], [44], and fragments from [33], [32], [52] and [49]. The unfragmented tubers were small: the largest measured 6 ¥ 3mm, another, heart shaped, 4mm at the widest point and 1mm at the narrowest and the smallest 2 ¥ 2.5mm. The two fragments from [33] appeared to be from two different organs and represented about half of them; their outline shape was still visible. The two fragments from [32] were from the same tuber. [52] and [49] were small rounded objects.

The tubers were examined in a Scanning Electron Microscope (SEM). The unfragmented tubers were first photographed under low magnification without gold coating to record their shape and they were then split up to study their cellular pattern. All the fragments were mounted on stubs and gold coated before examination in the SEM at high magnification from ¥27 to *c*3000.

Discussion

Six out of the seven samples examined belonged to some form of underground plant organ. Two of the samples were root and one was thought to be *Ranunculus ficaria* (Lesser Celandine) while the other one was very similar but did not have enough features left to secure identification. The remaining four samples were thought to be stem; two of them matched some of the criteria for *Arrhenatherum elatius var. bulbosus* (Bulbous Oat Grass) but again many characters were missing which would have allowed a secure identification to be made. The other two specimens could not be identified further. The better preserved organs were probably dry or nearly so at the time of charring whilst the damage shown on the worst preserved fragments indicate a fairly high water content before charring. The seventh sample was not plant material and may have been tar formed in ash. Due to the limited nature of the evidence the interpretation of the results from the tuber analysis is tentative. However the presence of Lesser Celandine and Bulbous Oat Grass may suggest that during the earlier medieval period the environment may have been open damp grassland and that turf may have been cut and burnt in the hearth pits.

Radiocarbon dating

Introduction

The complicated nature of the site meant that the phasing and chronology of the area were largely dependent on a good series of radiocarbon dates, taken from key features and layers: obtaining these informed the basis of the dating strategy.

Dating strategy

Sixteen charcoal samples were taken from a range of features, with the purpose of getting radiocarbon determinations. Unfortunately most proved inappropriate for radiocarbon dating, as they were derived from mature oak wood.

Five samples were finally selected. Of these, four produced enough non-oak charcoal and a fifth was sent for sampling being derived from oak wood. The five samples were representative of the different types of features found on the site.

Due to the small quantity of material suitable for dating and because of the need for precise dating, the four non-oak samples were sent to the University of Waikato in New Zealand for accelerator mass spectrometry (AMS) dating. The fifth sample was also sent to the University of Waikato, but as it was an oak-derived sample and would therefore give a less precise result, it was dated by conventional radiocarbon dating methods.

Results

Table 3: Radiocarbon dates

Context	Lab. No	Age BP years	Calendrical years 95%	Calendrical years 65%
[5]	Wk 5544	900 ± 69 BP	AD 1011 – AD 1281	AD 1033 – AD 1226
[47]	Wk 5545	1000 ± 80 BP	AD 880 – AD 1220	AD 970 – AD 1160
[52]	Wk 5546	1520 ± 81 BP	AD 395 – AD 667	AD 438 – AD 636
[40]	Wk 5547	1982 ± 72 BP	162 BC – AD 218	42 BC – AD 116
[33]	Wk 5548	1445 ± 80 BP	AD 434 – AD 762	AD 550 – AD 665

Discussion

The radiocarbon determinations went some way to resolving the chronological sequence at Stencoose but revealed that this sequence was much longer than had been anticipated. Perhaps more surprisingly they demonstrated that Structure [60] was of an early medieval date and that it post-dated the occupation of the field system.

The earliest radiocarbon date (Wk-5547) was obtained from layer [40], the fill of ditch [39]: 162 BC–AD 218. The sample was taken from the middle of the fill and therefore represents the period when the ditch was becoming infilled rather than when it was excavated. The date from the ditch suggests that the field system, or this part of it, was in use by the later Iron Age or the earlier Romano-British period, although its origins may have preceded this date.

The earlier medieval period is represented by four dates in two distinct groups. The earliest of these was from layer [52], the ashy deposit from behind the Structure: Wk-5546, AD 395–667. The second date was from wall [33], which formed the southern side of Structure 60: Wk-5548, AD 434–762. This date obviously overlaps with the ash heap date. The third date was from the upper

layer of burning within pit [45]: Wk-5545, AD 880–1220. It was perhaps later than expected, given its location in the entranceway to the Structure. The latest radiocarbon date was obtained from layer [5]; the lowest fill in pit [2]: Wk-5544, AD 1011–1281. The date range overlaps with that from pit [45] and may suggest a phase of activity consisting of hearth pits postdating the use of the Structure. The four dates provide an almost overlapping sequence from the end of the Roman period through to the construction of the medieval farming settlement, though it is unlikely that Structure 60 was in use in the thirteenth century. The overlap in the determinations from layer [33] and [52] may indicate that the Structure was in use during the fifth to seventh centuries AD.

Conclusions: contexts and interpretations

Introduction

The investigations at Stencoose were significant because they provided an opportunity to look at the changes to and development of a small parcel of land on the fringes of the 'Anciently Enclosed Land'. The excavations uncovered a long sequence which demonstrated that the area around Stencoose had been occupied and utilised throughout prehistory through to the present day. They also revealed that the character of this use was diverse and changed through time. Although no settlements were uncovered, the artefactual evidence strongly suggests that there must been Middle Bronze Age, Iron Age and Romano-British settlement in the close vicinity.

Mesolithic–Neolithic activity (*c* 6000–2500 BC)

No earlier prehistoric features were recorded at Stencoose, though a number of Mesolithic and Neolithic flints were recovered from the area of the terrace. It is possible that the terrace was modified during this period, to create a platform with good views over the valley below, and of Carn Brea in the distance. Such a terrace would have parallels in other parts of Britain, for example substantial later Mesolithic structures have recently been recorded in Wiltshire overlooking the Vale of Pewsey (Anon 1997, 4). A number of writers (Tilley 1995; Darvill 1996, 48–49, Cummings 2000, 87, 96) have noted that during the later Mesolithic period significance may have been attached to specific places in the landscape; especially to hills, trees and rocks etc.

It is possible that earlier occupation of the site may have influenced the siting of both the later field system and Structure [60]. These episodes of activity may have been deliberately sited within an area that had been used by groups of people throughout the prehistoric period.

This would be consistent with evidence from other locales in Cornwall. Some places were persistently reoccupied by groups of people throughout prehistory into historic times. Excavations have demonstrated that some sites have been the focus of activity for considerable periods of time, for example the area around Penhale Round (Nowakowski 1994), Trevisker (Apsimon and Greenfield 1972), or Callestick (Jones 1998/9).

The fact that the site had already been cleared and levelled by previous generations of people may have made it a convenient place to construct a settlement. Under these conditions the use of the area may have been in the form of discontinuous periodic settlement whose phases were more or less unrelated to each other. Alternatively the site at Stencoose may have had associations, stories and memories attached to it which could have made it a focal point in the landscape. These associations could have attracted people back to the same area over the course of time (eg Bradley 1993; Tilley 1994). However even under these circumstances the episodes of occupation at Stencoose need not have been continuous in nature, rather the memory of the place could have attracted people back there periodically, seasonally, or for differing activities over the centuries.

Middle Bronze Age (*c* 1500–1000 BC)

Middle Bronze Age activity is indicated by fourteen sherds of pottery. Although no settlement features could be attributed to this period it is probable that round houses existed nearby. The earliest evidence for fixed settlement in the form of round houses and field systems in Cornwall is currently of this period and it is probable that settlements in preceding periods were much less sedentary than is often suggested (see Brück 1999). Extensive surveys (eg Johnson and Rose 1994) and excavations of Bronze Age round houses (Smith and Harris 1982; Jones 1998–9; Nowakowski 1991) have demonstrated that there was a large diversity of settlement types ranging from nucleated settlements to isolated round houses. These studies have also demonstrated the density of settlement activity, which was spread across the lowland and upland regions of Cornwall.

Field system (*c* 300 BC–AD 300)

Although the first activity on the site was associated with the later Mesolithic and Neolithic flint scatter and possibly with the levelling of the terrace, the later prehistoric and Romano-British field system represents the first recognisable alteration to the landscape at Stencoose.

Analogies and origins

The radiocarbon date (Wk-5547, 162 BC–AD 218) and finds from the ditches at Stencoose imply that the area was enclosed before the Romano-British period. At a general level the Bronze Age pottery is suggestive of an earlier settlement in the vicinity and the ceramic sequence suggests that it remained in use throughout the Roman era. However the Bronze Age pottery from the ditches (eg **P8**) can only be used to show activity in the area and cannot be used to date the field system. The ceramics and the radiocarbon date from the ditches indicate a broad phase of use of the field system ranging from the later Iron Age into the Roman period (eg **P10** and **P6**). The artefactual evidence (eg **P6** and **P7**) suggests that the ditches were probably starting to infill during the second or third centuries AD. The pottery recovered from bank [7] (**P9**) also supports this dating of the field system.

This is consistent with the evidence from other sites in the south-west, where Roman pottery is merely the last material to be deposited into far earlier field systems (eg Gallant *et al* 1985).

The field system was defined by a series of ditches, which presumably originally would have had earthen, perhaps hedge topped, banks running alongside them. The ditches formed a roughly north to south oriented field pattern. The system crosses the contours of the topography, but is on a different alignment from the medieval field system. The upper edge of the field system, at least in its later stages, may have been demarcated by a bank and ditches; features [7], [8] and possibly [6]. The subsequent geophysical survey of the area either side of the corridor (Linford 1998) has revealed that the field system extends along the side of the valley, and that it appears to consist of further irregular possibly rectangular enclosures.

Morphologically the fields at Stencoose appear unlike the regular rectangular 'brickwork' pattern of fields that are found in other parts of Britain, which date to the Roman period (Fowler 1983, 143). They also appear to lack the ordered regularity of the rectangular Romano-British field system at Trebarveth (Peacock 1969), though this may be of Bronze Age date (Johns and Herring 1996, 83). Instead the field pattern appears to more closely resemble field systems which probably date to the first or second millennia BC, that have been identified in West Cornwall at Chysauster and on Bodmin Moor at Watergate (Smith 1996; Johnson and Rose 1994).

The fields at Stencoose also seem to have an irregular, 'accreted' look to them. The ceramic and radiocarbon dating evidence suggest that they may have been used and modified over a long period of time. This would be compatible with the opinion that there was a great deal of continuity between the field systems of the first millennium BC and those of the Roman period (Feacham 1973, 347).

Excavated evidence from field ditches that surround round sites in Cornwall (eg Nowakowski 1994) and from field systems in Devon (eg Silvester 1981a), has demonstrated a deep chronological development.

The results from the second geophysical survey (Linford 1988; Fig 2) could also indicate that there were several phases or modifications to the field system, as some features appear to be intercutting. Alterations to the field system would not be unexpected if the field system had its origins in the pre-Roman period. Changing cultural perceptions towards the landscape (Taylor 1997), improvements in farming techniques, or changes in land ownership or management would have led to modifications to the field system (Smith 1996, 216).

The available evidence at Stencoose would suggest that the size of the areas enclosed by the ditches was quite variable. In parts of the excavated site some of the ditches were not very far apart (as little as 10m to 15m apart), but the results from the second survey appear to show larger blocks of enclosed land opening up to the east of the excavated area. Therefore the field system could have formed a mixed mosaic of fairly small scale cultivation plots, as well as more extensive fields. Alternatively there could have been a series of paddocks for animals, surrounded by larger areas of enclosed grazing. The environmental evidence would imply that at least some crops were being cultivated in the immediate vicinity of the excavated site. Evidence for a mixed economy in later prehistoric and Roman field systems has been identified at a number of locations in the south-west region, as well as in Cornwall (Quinnell 1986, 117). Recent excavations and surveys have revealed evidence for cultivation, or for crop processing at Reawla (in the form of querns, Appleton-Fox 1992), Chysauster (Smith 1996) and perhaps on Bodmin Moor (Johnson and Rose 1994, 64).

Alterations to the field system could indicate that there was an expansion or reorganisation of the settlement during the Roman period. An intensification or expansion of the enclosed land would be plausible as it is generally accepted that population levels rose during this period (eg Salway 1981, 554), especially in the extreme south-west, where Todd (1987, 227) has suggested that the population may have been higher than it is today. However some reservation needs to be expressed as it is probable that the process of Romanisation only had a limited impact on much of the existing landscape in the south-west (Todd 1987, 205, 215).

Contemporary settlement

Most of the known Iron Age and Romano-British settlements are enclosed 'rounds' (Thomas 1966; Quinnell 1986). The nearest recorded round to Stencoose is at Coosewartha. There is no evidence to suggest the presence of a round at Stencoose, which implies that any associated settlement may have been unenclosed.

The full number of unenclosed settlement sites and their field systems, dating to the later prehistoric or Romano-British periods is uncertain (Rose and Preston-Jones 1995). Most courtyard house sites are unenclosed; they may give a clue to the large number of 'open' settlements existing alongside rounds. It is probable that more unenclosed settlements remain to be identified in a variety of locations, as excavations at Carngoon Bank and Duckpool have demonstrated (McAvoy 1980; Ratcliffe 1995).

Neither the excavation nor the initial geophysical survey revealed any identifiable traces of an associated settlement. However the second geophysical survey did identify at least one possible small structure (Linford 1998, 3). Although this possible structure is undated, it may indicate a dispersed pattern of settlement similar to that found in the later prehistoric field systems on Bodmin Moor, for example at Carne Downs, where structures appear to be distributed throughout the fields (Johnson and Rose 1994, 62). Surveys of Romano-British settlements and the field systems in west Cornwall (eg Zennor and Mulfra Hill) have revealed a pattern of fields that vary in shape and size. The evidence indicates that small arable fields or paddocks were often located around the edges of the settlement and the larger blocks of subrectangular fields were situated further away, although at Maen small fields are distant from settlement areas (Herring 1994). The survey evidence from West Cornwall might imply

that the small sized fields at Stencoose were located close to a contemporary, probably unenclosed settlement. This extrapolation does however need to be treated with caution as the field systems of West Cornwall may not be representative of settlement organisation in the rest of Cornwall.

The artefactual assemblage from the ditches may indicate that settlement activity was fairly close by, in particular the large amount pottery recovered near to the terminal of ditch [6]. The pottery may have been introduced into the fields as part of a manuring regime to improve the quality of the soil. However it is unlikely that broken sherds of pottery would be carried very far from a settlement site. Recent ethnographic studies have revealed that waste deposits can be deposited as little as 15m from the actual dwellings (eg Moore 1982; 1988).

The Romano-British pits

Only two of the pits can definitely be argued to be earlier than Structure [60]: pits [21] and [24]. These features were sealed beneath bank [7] and contained datable Romano-British artefacts. Both pits would ordinarily be considered to be refuse pits, but the contents of pit [21] in particular, may suggest evidence for structured deposition.

Evidence for structured deposition of artefacts at Stencoose

The practice of the deliberate placing of artefacts and other materials within ditches, postholes and pits is well documented and widely accepted in conjunction with prehistoric contexts, especially those associated with Neolithic or early Bronze Age monuments (eg Thomas 1991; Pollard 1992). It is however only comparatively recently that evidence for Iron Age and especially Roman structured deposition, and its symbolism, has been considered (Hill 1995; Richardson 1997).

Studies of deposits within Roman period ditches and pits within other parts of Britain and Europe have demonstrated evidence for structured deposition on Roman sites and have indicated the persistence of native practices throughout the Roman period (Clarke 1997, 80; Richardson 1997, 88). Consideration of the deposits within Romano-British pits and ditches may prove particularly fruitful in Cornwall because of the less direct Roman influence within the region (Quinnell 1986).

The excavations at Stencoose revealed two clear instances which may be considered to be structured deposition. The first was the large amount of pottery, including a large part of a single vessel, which had been deposited close to the terminal of ditch [6]. The second was within pit [21], where a collection of pottery, iron and a broken shillet object was deposited.

Both examples were situated towards the top edge of the site and both of them later became sealed beneath bank [7], which was the only major boundary feature on the site. No archaeological features were recorded from the area above the bank and no certain features were identified by the geophysical survey, which may suggest that these deposits may have been marking the upper perimeter boundary of the field system. This argument is further strengthened by the alignment of these features. Ditch [6] clearly shared the same alignment as bank [7]. Additionally, if pit [21] is considered to be part of a larger group of pits, which includes pit [24], then there may have been a pit group marking the same alignment as ditch [6] and bank [7]. Their large diameters and relatively shallow depths would suggest that they had not held posts.

The pottery deposit close to the terminal of ditch [6] provided the only evidence for structured deposition within any of the field ditches at Stencoose. However, only two of the three ditch terminals were excavated. In addition organic depositions, such as bones or skulls, etc, which are often recovered from sites with non acidic soils, would not have survived the soil conditions at Stencoose. Fifty sherds of Romano-British pottery were recovered from the terminal of ditch [6]. The majority of the sherds belonged to just two vessels and the breaks on **P6** appeared to be fresh. This would suggest that the terminal of the ditch [6] was the focus for the deliberate deposition of ceramics.

Deposits of bones and pots have been recorded from Iron Age and Roman boundary ditches on a number of sites (Merrifield 1987, 37–40; Richardson 1997). Fitzpatrick (1997, 78–79) has suggested that materials derived from feasting activities could have been deliberately placed into boundary

ditches, and may have been accompanied by ceremonial activity. The incorporation of these artefacts within open ditches is likely to have been part of a larger system of routines and rituals which was designed to give meaning and structure to the lives of the individuals who inhabited the area (Fitzpatrick 1997; Hill 1995).

Pits are a common feature of sites of the Iron Age and Roman periods. They are found on most types of site and are widely believed to have been utilised for ritual depositions (eg Green 1986), as well as for seemingly more mundane purposes, such as grain storage (eg Cunliffe 1983). However it is probable that even pits which were dug for functional purposes, for example wells, could when finished with, have been infilled under rules governed by 'rituals of termination' (Clarke 1997, 80). Given the limited number of pits which definitely predated Structure [60] their interpretation is speculative.

Only two of the pits at Stencoose can be conclusively argued to have been Romano-British in origin: pits [21] and [24]. Pit [24] was badly truncated by ditch [8] and contained only a single sherd of pottery. Pit [21] was not truncated and contained what appeared to be a structured deposition. The lower fill was a dark charcoal-rich deposit, which had been placed into the pit after it had cooled. The upper fill contained a strange assemblage, which consisted of pottery, iron, iron slag, a broken granite rubbing stone and a broken perforated shillet object. The corrosion on the metalwork suggested that this upper layer may have also have had a high organic content. The high organic content is interesting in itself. Recent work in Wessex has indicated that Iron Age pits were frequently covered by organic material which may have been derived from middens. Fitzpatrick (1997, 79) has suggested that refuse may have been used to cover pits containing special deposits, because it was a material with 'liminal' qualities, a material which decomposed, but also had life-giving qualities.

The two Romano-British pits at Stencoose are, quite evidently, too small a sample from which any meaningful conclusions about the treatment and categorisation of rubbish can be drawn. However, given the intriguing assemblage of artefacts in pit [21], it is worth briefly considering the cultural processes which may have been involved with its formation.

Recent studies of Iron Age and Roman pits in Britain (eg Clarke 1997) have revealed patterns associated with and perhaps governing the disposal of rubbish. It appears that the infilling of pits may have been a highly selective process controlled by cultural mechanisms. The filling of rubbish pits may have had a ritualised aspect to it which involved the placing of selected objects into the open pit. The digging and infilling of these pits may have been very much a part of the routines of the people who created them. It has been argued that it is through such, often subconscious, routines that individuals learn their cultural knowledge of the world (Bourdieu 1979; Gosden 1994). Apart from marking specific places, for example boundaries, the sorting and separation of various deposits, for example pottery or grain, may have expressed oppositions and correspondences between different elements of the social system.

A contextual study of pits of the later prehistoric and Romano-British periods is probably long overdue and could provide valuable insights into the cultural practices of Cornwall's Iron Age and Romano-British inhabitants.

Desertion of the field system (*c* AD 300–400)

The date of desertion of the field system is problematic. The latest pottery sherds deposited within the ditches date to the second to third centuries AD. However, it is possible that the field system continued in use beyond this period and was associated with an aceramic phase of occupation and Structure [60]. What is certain is that when the land was re-enclosed during the medieval period the strip field system's layout owed little or nothing to the earlier contour following field system. The reason for the desertion of some upland settlements may lie with the ending of the Roman period in Britain. When this system collapsed in the early fifth century, repercussions were probably felt beyond the fringes of Romanized Britain. It has been argued that the majority of lower-lying Romano-

British settlements may have continued sometimes into the fifth or sixth centuries (Quinnell 1993, 39), or shifted location slightly after the end of the Roman period. However, this was probably not the case for settlements in the more marginal areas, such as Stencoose, where there is evidence for a contraction in the number of settlements (Rose and Preston-Jones 1995, 66).

A similar pattern of desertion is found in other parts of Cornwall, for example at Trenithan Bennett, where the succeeding medieval fields bear absolutely no relation to the underlying pattern of the preceding later prehistoric ones (Rose and Preston-Jones 1995, 57).

Structure [60] (*c* AD 400–650)

Results from radiocarbon dating overturned the original proposed sequence of events, which had suggested that the field system post-dated Structure [60] (Jones 1997a, 50). Dating (Wk-5548, AD 434–762) revealed that Structure [60] was in fact an early medieval building, situated in the corner of an enclosure, whose construction dated between the fifth to mid eighth centuries AD. The Structure may have been associated with the lower half of a rotary quern **S5**, which is itself possibly fifth to sixth century AD in date.

Architecture

Only a few early medieval structures have been excavated in Cornwall. The majority have been discovered during the excavations of rounds, for example Grambla (Saunders 1972, 50–52). These boat shaped structures are unlike that at Stencoose and represent a continuation of Romano-British building styles (Preston-Jones and Rose 1986, 146). The few unenclosed structures dating to this period are diverse in nature and may not be typical of the range of buildings which existed within unenclosed settlements. Indeed much of the known succeeding early medieval settlement activity is quite ephemeral in comparison with the preceding Romano-British period (eg Duckpool, Ratcliffe 1995). Even higher status sites such as Bantham in Devon (Silvester 1981b) or Tintagel in Cornwall (Thomas 1993) seem to have been occupied on a seasonal basis, which in the case of Bantham has left few structural traces. The stones in the walls may only have formed the footings for walls which could have been mostly made from turf. Stone-footed turf walls dating to the fifth to eighth centuries AD were uncovered at Tintagel (Thomas 1993) and at Gwithian (Thomas 1958a).

There were no internal or external postholes to support the weight of a roof of the Stencoose structure. However, due to the small size of the building, the framework of the roof could have rested on top of the walls, and may not have required extra support. If the building is viewed as a seasonally occupied dwelling, then it is possible that the roof could have been quickly renewed on a seasonal basis (eg Thomas 1993, 91–92; Harry and Morris 1997, 121). Other small excavated buildings which date to this period, including those at Gwithian and Tintagel, also lack internal roof supports and are of a simple design (Thomas 1993, 91).

The closest architectural parallels to Structure [60] do not lie with the handful of excavated residential structures of the period (eg Tintagel, Thomas 1993) which are boat shaped, rectangular or subrectangular in plan, or with the longhouses of the later part of the early medieval period (Preston-Jones and Rose 1986, 146; Bruce-Mitford 1997). Instead the nearest analogous buildings are either the basic sub-circular huts revealed at Gwithian (Thomas 1958a), or more especially with the very simple single-celled transhumance huts on Bodmin Moor (Johnson and Rose 1994). However none of these buildings is open sided, which means that the function of Structure [60] requires further discussion.

Function

The remains of Structure [60] yielded few hints as to its purpose. None of the artefacts with the probable exception of quern <1> were obviously associated with the early medieval occupation of

Stencoose. Artefactually there is a vacuum on the site which starts during the fourth to sixth centuries AD and finishes sometime during the thirteenth or fourteenth centuries AD.

This lack of basic information has meant that Structure [60] can be interpreted in several different ways: a non domestic building, associated with an aceramic phase of the field system; an animal shelter, or sheepfold; or a transhumance shelter. All of these theories are valid, although it is possibly the last which is most likely.

Non domestic buildings

A simple building located in the corner of a field or enclosure may have served a number of purposes: a tool hut, a cart shed, an animal byre, a workshop, etc.

The nearest possible parallels, in Cornwall, could lie with the three sixth to eighth century huts which were identified at Gwithian (Thomas 1958a, 20). These were sub-circular and consisted of low stone walls which acted as footings for turf walls (Todd 1987, 265). Two of the huts were conjoining whilst a third was located to the north-east. The two adjoining huts were very regular in appearance, contained internal hearths, and had an internal diameter of around 4m (Thomas 1958a, 20; Todd 1987, 265). The third hut possibly provides the closest comparison with the Stencoose Structure. It was more rectangular in plan and had a wide western facing entrance; however, this hut was only 3m square and was therefore smaller than Structure [60]. The three huts at Gwithian were surrounded by rubbish pits containing shells, pottery, ashes and bones, and produced evidence of iron working (Thomas 1958a, 20–21). Initially the huts were interpreted as dwellings, but more recently they have been re-interpreted as being workshops, or as subsidiary structures to an as yet unidentified building (Preston-Jones and Rose 1986, 146).

If Structure [60] were an agricultural building associated with a post-Roman use of the field system then it may suggest that there was a degree of continuity in the landscape at Stencoose. It indicates that the field system or at least parts of it continued in use after the Romano-British period. Continuity of settlement activity is not unknown in Cornwall. It has been identified on several round sites, for example Trethurgy (Quinnell 2004), and possibly at the unenclosed site at Duckpool (Ratcliffe 1995).

However, there is the lack of identifiable early medieval pottery including grass-marked ware. Other settlements dating to this period, including the Gwithian site, Trethurgy, Tintagel and Duckpool have produced ceramics, for example grass-marked pottery which appeared in the sixth or seventh centuries AD (Preston-Jones and Rose 1986, 175). However, the lack of early medieval ceramics could be due to a lack of residential settlement activity within the immediate vicinity of Structure [60].

In addition, none of the ditches showed signs of being recut, and many of the ditches produced sherds of Roman pottery or later prehistoric pottery. This would imply that they had become infilled by the end of the Romano-British period. The later Iron Age or early Romano-British period radiocarbon date (Wk-5547, 162 BC–AD 218), which came from the middle of ditch [39], also indicates this. However it is arguable that the ditches relate to the initial layout of the field system and were not recut after hedged boundaries were established.

Animal shelters / livestock processing area

Another interpretation of Structure 60 is that it was used as an animal shelter or a livestock processing area. Sheep shelters are known from the uplands of Britain, where they are extremely simple in design. The excavation of one at Brenig in Wales revealed a simple structure which consisted of two short stretches of walling that formed a V shape (Lynch 1993, 180, 182). It was built from a mixture of large and small stones, and some turf. It was not roofed and merely acted as a windbreak.

The problem with this analogy is that, despite a superficial similarity in appearance, most of the sheep shelters in upland Wales are associated with an expansion in sheep farming which occurred in the post-medieval period (Lynch 1993, 182), though the simple plan of these structures means that they could belong to any period (including the early medieval). Additionally the excavation of the Brenig sheep shelter did not reveal any of the hearths or other associated features which were found at Stencoose.

Some animal pens, however, are slightly more elaborate and are sometimes partially roofed. In the mountains of Snowdonia it was customary to build fairly sophisticated structures to separate young goats from their mothers. Gwenno Caffell (1995, 385–386) has described how young kid goats were kept in small pens within larger enclosures as a way of controlling the nanny goats' movements and to obtain substantial amounts of milk for human consumption. In terms of layout, it is possible that Structure [60] may have been used in a similar way. It could have formed a small pen, located at the western end of a larger enclosure, defined by ditches [34] and [54]. The pits on the northern side of Structure [60] between ditch [34] and wall [32] may have held posts, which could have been part of a gated area associated with movement of animals in and out of a pen/livestock processing area.

As with the example of the Brenig sheepfold, any comparison between the appearance of the goat enclosure and Structure [60] is likely to be only a superficial one. The Welsh enclosures could belong to any period and are associated with a specific form of stock management, which may only have been appropriate to the Welsh mountains.

Summer grazing

Perhaps the closest comparable buildings to Structure [60] are the Bodmin Moor transhumance shelters. Transhumance has probably been part of western European traditions for several millennia (Lynch 1993, 179). The origins of stock-breeding and transhumance; the seasonal migration of people with their animals (Herring 1996, 35), in Britain could date back to at least the second millennium BC (Bradley 1972; Fleming 1972). The evidence for later prehistoric pastoralism in the uplands of south-west Britain has been recognised for some time (Fox 1964), and is still a generally accepted model today (Fleming 1996, 68). Within Cornwall, Herring (1986) has argued that transhumance had been established on Bodmin Moor by the Early Bronze Age. A number of the moorland enclosures, which date to the earlier Bronze Age, are quite small in size (80m–120m) and would have been suitable for pastoral rather than arable agriculture. However the widespread seasonal use of the upland moors and the heathlands probably began in earnest during the later Bronze and Iron Ages (Herring 1986; 1996, 37). This intensification of use can be demonstrated by the reuse of earlier Bronze Age structures and by the construction of animal pounds (Herring 1986).

Evidence for early medieval transhumance in Cornwall is strong and comes in two forms, place-names and surviving structures, such as those on Bodmin Moor.

Studies of place-names from Bodmin Moor and other smaller Cornish uplands (Padel 1985; Herring 1996, 35; Preston-Jones and Rose 1986, 144) have revealed two key Cornish elements associated with transhumance settlements. The first element, *havos*, 'summer dwelling', is not common as it only normally survives if the transhumance settlement later became a permanent residence (Herring 1996, 35). *Hendre*, literally 'old farm' (winter or home settlement) is more commonplace; it appears in both the Welsh and Cornish languages, and may predate the separation of Wales and Cornwall by the kingdom of Wessex in the seventh century. Place-name evidence from Cornwall may indicate that most farming communities, or sections of them, would have been able to practice transhumance during the earlier medieval period (Herring 1996, 35–37).

The closest parallels to Structure [60] are the subrectangular and ovoid huts of Bodmin Moor (Johnson and Rose 1994, 80–83; Herring 1986). These are poorly dated and none has been excavated, but what little evidence there is indicates that they most closely resemble Roman period and early medieval structures which have been recorded in lowland Cornwall (Herring 1996, 37). Where these structures have become incorporated within medieval strip field systems (eg Brown Willy) they quite clearly pre-date the later medieval field systems (Herring 1986; 1996, 37).

The Bodmin Moor transhumance hut generally consist of low stony walls up to 0.40m high, which enclose an interior space of between 3.2 and 22 square metres (Johnson and Rose 1994, 81). The complexity of the internal arrangements of these structures can vary from simple undivided U-shaped structures to more complex, two and three celled dwellings. The size of these dwellings would

suggest that they were occupied by small groups of people or a single person. The average hut would have only accommodated a bed, a fire and some space for storage (Herring 1996, 39).

With an internal measurement of approximately 16 square metres, Structure [60] could have comfortably held one or two people. Though probably later in date, the hearth pit in the entrance could have provided cooking facilities, to process milk into cream and butter, as well as warmth for the occupiers of the Structure. The arc of stones behind Structure [60] which contained the ash deposit could also have been associated with this occupation. Ashes from hearth [45] could have been periodically cleaned out and placed behind the Structure, where they could have been used for slow cooking, or stored until the end of the summer when they were taken downhill to be spread on the fields. Ditches [34] and [54] may have formed a small attached enclosure or pen, where animals could have been corralled overnight. Small enclosures or pens used for the management of stock are known from several regions, for example the Isle of Man, where an early medieval date has been suggested for their use (Quine 1996, 49–52).

The main argument against the transhumance interpretation is that Structure [60] was situated beyond those regions which are known to have been used for transhumance during the medieval period (eg Bodmin Moor; Johnson and Rose 1994).

However *havos* names are found throughout Cornwall and Stencoose was located in a perfectly good place for it (Peter Herring, pers comm). It was located on the edge of downlands, which were important expanses of rough grassland. The downs would have provided a valuable resource; good summer grazing for sheep and cattle (Herring, forthcoming). Additionally, seasonal movement of animals would have kept them away from cultivated fertile areas (Herring 1996, 39).

The position of Structure [60] may have been perfect for transhumance because it was situated at the junction between the 'Anciently Enclosed Land' and the downlands. Indeed it was located on the edge of what in the medieval period would have been a large expanse of heathland which stretched 2km to the south and 4km to the east between Truro and St.Agnes (Cornwall County Council 1996). A location at the edge of the rough grazing would have been a suitable place for a transhumance hut (Peter Herring, pers comm). Rose and Preston-Jones (1995, 57, 60), have recently noted that there may have been a retraction in the number of upland settlements during the fifth and sixth centuries AD. The process may have led to some marginal areas becoming depopulated until later on in the medieval period when they were re-colonised. Depopulation would of course have allowed for the seasonal movement of animals.

Abandonment of Structure [60] (*c* AD 600–1000)

The exact period of the abandonment of Structure [60] is uncertain. A radiocarbon determination from the associated ash layer [52] (Wk-5546, AD 395–AD 667) indicates that it may have been used until the seventh century. A second determination was obtained from the adjacent hearth pit [45] (Wk-5545, AD 880–1220) suggests possible later use. However, although transhumance in Cornwall is likely to have continued to around AD 1000 (Peter Herring, pers comm), Structure [60] is unlikely to have remained in use in the thirteenth century.

There was no evidence of a formal clean up; the site appears to have been left after its final occupation to decay and infill naturally. Its position on the terrace halfway up the hillside probably protected it from some of the ravages of time, since it may have quite quickly become buried by soils from higher up the slope.

The establishment of the farming settlement and strip field system by the middle of the medieval period (Gover 1948, 365), and the later medieval pottery recovered from the ploughsoil suggest that Structure [60] had become abandoned long before the thirteenth or fourteenth centuries.

This theory would be in accordance with evidence from other areas of rough grazing, for example Bodmin Moor. On Bodmin Moor the settlement evidence indicates that there was a process of

colonisation of the previously unenclosed rough grazing during the twelfth to thirteenth centuries. Many new settlements were established along the valleys, into areas which had not been enclosed since the Bronze Age. Evidence for this process can be seen at places like Garrow Tor or Brown Willy, where earlier field systems and transhumance huts have become incorporated within, or overlain by, medieval strip fields (Johnson and Rose 1994).

It is possible that a similar process occurred at Stencoose, where a new permanent settlement may have been founded at a relatively sheltered place on the valley side. By the time the strip field system was organised, there may have been few remaining traces of the earlier field system, and even Structure [60] was probably ruined.

Pit groups (*c* AD 800–1300)

A total of seventeen pits were recorded at Stencoose. Originally, due to the absence of artefacts, the majority were identified as probably prehistoric or Romano-British. However, radiocarbon dating revealed that they dated to at least three phases and had a variety of purposes. They can be divided into several categories: rubbish pits (contemporary with the use of the field system), hearth pits, and other pits, the majority of which post-dated use of Structure [60], and a prospecting pit dating to the later medieval or early post-medieval period.

Pit [29] contained the complete bottom half of a rotary quern **S5**. Henrietta Quinnell suggests that the pit may have in fact been dug to house the quern. This quern could be either Romano-British or early medieval, but as it was recovered from a pit next to Structure 60, it seems more likely to have been associated with early medieval activity, and Structure [60], rather than with the Romano-British period.

All but one of the remaining pits were probably associated with the several hundred years between the abandonment of the earlier field system in around AD 400 and the later medieval strip field system. These pits were in two concentrations, one around Structure [60] and a lower, possibly later, group near the bottom of the site.

The majority of pits were immediately to the east of Structure [60], between its northern wall [32] and the terminal of ditch [34]. All but one were devoid of artefacts and only one, pit [45], contained any evidence of burning. Pit [45] was initially considered contemporary with the final use of Structure [60]; the location of a hearth pit, near the structure's entrance, suggested they were associated. Modern transhumance structures often have hearths outside entrances for cooking and to drive away wild animals (Peter Herring, pers comm). However, the radiocarbon determination (Wk-5545, AD 880–1220) from the pit means that the association is unlikely. It is doubtful that Structure [60] was in use during the ninth to twelfth centuries and it is more probable that unless the pit had been regularly cleared out, it was sited in the more sheltered ruins of the structure. None of the other remaining pits in this group can be proved to be associated with the use of Structure [60]. The alignment of pits around the north-eastern end ([25], [56], [57], [58] and [59]), suggests that they could have been large post sockets, rather than pits, which supported a windbreak arrangement around hearth pit [45]. Alternatively they could have held fence or gate posts which continued the alignment between the end of ditch [34] and wall [32] of the Structure.

All but one of the lower group of four or possibly five pits, located below the terrace produced unequivocal evidence of burning. Only pit [2] was sampled for radiocarbon dating and produced the determination Wk-5544, AD 1011–1281. These pits could have been hearth pits or the sites of short-lived camp fires, postdating use of Structure [60].

The remaining pit [27] was the only later medieval or post-medieval feature encountered at Stencoose and seems to have been an infilled prospecting pit; the site is located on the periphery of an extensively mined region.

Later medieval and post-medieval (*c* AD 1300–1900)

The final phase involved the foundation of a new settlement and strip field system. Stencoose is first mentioned in 1327 (Gover 1948), though the settlement may predate this reference. Several settlements around Stencoose, including Menagissey, Mawla and Coosewartha, were first recorded between 1298 and 1327 (Thomas 1996). Stencoose was located at the highest end of the valley, and appears to have been established on the edges of fields belonging to Mawla (first recorded 1316; Gover 1948, 364).

The strip field boundaries, which were associated with this phase of activity, were not in any way influenced by the preceding field system. It is thought that during the medieval period the field system would have consisted of large enclosures bounded by substantial stock-proof boundaries and subdivided by low, stony banks into long narrow strips. In contrast to the perimeter boundaries which were designed to keep animals either in or out of the fields, these banks were not intended to be stock-proof. During the late medieval and post-medieval periods strip fields were enclosed. In some areas this led to a massive reorganisation in the layout of the field system (as at nearby Coosewartha). In others, as at Stencoose, the majority of strip boundaries were combined with others and then enclosed.

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Bibliography

Alcock, L, 1987. *Economy, Society and Warfare among the Britons and Saxons*, Cardiff

Appleton-Fox, N, 1992. Excavations at a Romano-British round: Reawla, Gwinear, Cornwall, *Cornish Archaeol,* **31**, 69–123

ApSimon, AM and Greenfield, E, 1972. The Excavation of the Bronze Age and Iron Age settlement at Trevisker Round, St Eval, Cornwall, *Proc Prehist Soc,* **38**, 302–81

Anon, 1997. Three Mesolithic houses discovered near Avebury, *British Archaeology*, **28**, 4

Bamford, H, 1985. *Briar Hill Excavations*, Northampton

Berridge, P, and Roberts, A, 1986. The Mesolithic Period in Cornwall, *Cornish Archaeol*, **25**, 7–34

Bourdieu, P, 1979. *Outline of a Theory of Practice,* Cambridge

Bradley, R, 1972. Prehistorians and pastoralists in Neolithic and Bronze Age Britain, *World Archaeol*, **15**, 192–204

Bradley, R, 1993. *Altering the Earth*, Edinburgh
Bruce-Mitford, R, 1997. *Mawgan Porth, A settlement of the late Saxon period on the North Cornish coast*, English Heritage Archaeological Report, **13**, London
Brück, J, 1999. What's in a settlement? Domestic practice and residential mobility in Early Bronze Age southern England, in Brück, J, and Goodman, M (eds), *Making Places in the Prehistoric World*, London, 52–75
Caffell, G, 1995. Pen up your Kids!, *Current Archaeology*, **142**, 385–386
Carlyon, PM, 1982. A Romano-British site at Kilhallon, Tywardreath: Excavation in 1975, *Cornish Archaeol*, **21**, 155–170
Carlyon, PM, 1987. Finds from the earthwork at Carvossa, Probus, *Cornish Archaeol*, **26**, 103–141
Carlyon, PM, 1995. *Romano British Gabbroic Pottery*, private desktop publication, lodged at the Cornwall Archaeological Unit and the Royal Institution of Cornwall
Christie, PML, 1978. The excavation of an Iron Age souterrain and settlement at Carn Euny, Sancreed, Cornwall, *Proc Prehist Soc,* **44**, 309–433
Clarke, S, 1997. Abandonment, Rubbish Disposal and 'Special' Deposits at Newstead, in Meadows, K, Lemke, C, and Heron, J (eds), *TRAC 96, Proceedings of the Sixth Annual Theoretical Roman Archaeology Conference, Sheffield 1996*, Oxford, 73–81
Cornwall County Council, 1996. *Cornwall Landscape Assessment 1994,* Report Prepared by Cornwall Archaeological Unit and Landscape Design Associates, Cornwall County Council, Truro
Cunliffe, BW, 1983. *Danebury: Anatomy of an Iron Age Hillfort*, London
Cummings, V, 2000. Myth, memory and metaphor: the significance of place, space and the landscape in Mesolithic Pembrokeshire, in Young, R (ed), *Mesolithic Lifeways: Current Research from Britain and Ireland*, Leicester, 87–96
Darvill, T, 1996. *Billown Neolithic Landscape Project, Isle of Man 1995*, Bournemouth University School of Conservation Sciences, Research Report **1**, Bournemouth
Edmonds, M, 1995. *Stone Tools and Society: Working Stone in Neolithic and Bronze Age Britain,* London
Edwards, N, 1990. *The Archaeology of Early Medieval Ireland*, London
Feacham, RW, 1973. Ancient agriculture in the Highland of Britain, *Proc Prehist Soc,* **39**, 332–353
Fitzpatrick, AP, 1997. Everyday life in Iron Age Wessex, in Gwilt, A and Haselgrove, C (eds), *Reconstructing Iron Age Societies*, Oxbow Monograph **71**, Oxford, 73–86
Fleming, A, 1972. The genesis of pastoralism in European prehistory, *World Archaeol*, **15**, 179–191
Fleming, A, 1996. The Reaves Reviewed, *Proc Devon Archaeol Soc*, **51**, 63–74
Fowler, PJ, 1983. *The Farming of Prehistoric Britain*, Cambridge
Fox, A, 1964. *South West England,* London
Gallant L, Luxton, N, and Collman, M, 1985. Ancient Fields on the South Devon Limestone Plateau, *Proc Devon Archaeol Soc*, **43**, 23–38
GSB,1995. *Cornwall Spine Main, Sevenmilestone to North Country*, Report **96/40**, Geophysical Surveys of Bradford
Green, MJ, 1986. *The Gods of the Celts,* Gloucester
Gosden, C, 1994. *Social Being and Time,* Oxford
Gover, JEB, 1948. *The Place Names of Cornwall,* unpublished typescript, RIC
Guthrie, A, 1969. Excavation of a settlement at Goldherring, Sancreed 1958–1961, *Cornish Archaeol*, **8**, 5–39
Harry, R, and Morris, C, 1997. Excavations on the Lower Terrace, Site C, Tintagel Island 1990–1994, *Antiquaries Jnl*, **77**, 1–153
Herring, PC, 1986. *An Exercise in Landscape History. Pre-Norman and Medieval Brown Willy and Bodmin Moor, Cornwall,* unpublished MPhil thesis, University of Sheffield
Herring, P, 1996. Transhumance in medieval Cornwall, in HSA Fox (ed), *Seasonal Settlement,* Leicester, 35–44
Herring, P, 1994. The cliff castles and hillforts of West Penwith in the light of recent work at Maen Castle and Treryn Dinas, *Cornish Archaeol*, **33**, 40–56
Herring, P, forthcoming. Traditional uses of heathland: Its role in farming practices
Hill, JD, 1995. *Ritual and rubbish in the Iron Age of Wessex,* BAR British Series, **242**, Oxford
Holbrook, N, and Bidwell, PT, 1991. *Roman Finds From Exeter*, Exeter Archaeological Reports **4**, Exeter
Johns, C, and Herring, P, 1996. *St. Keverne Historic Landscape Assessment*, Cornwall Archaeological Unit, Truro

Johnson, N and Rose, P, 1994. *Bodmin Moor: An Archaeological Survey Volume 1: The Human Landscape to c1800,* English Heritage and RCHME, London
Jones, A, 1997a. *An Archaeological Investigation at Stencoose, Cornwall 199*6, Cornwall Archaeological Unit, Truro
Jones, A, 1997b. *The Results of a Watching Brief along the Sevenmilestone to North Country Water Main*, Cornwall Archaeological Unit, Truro
Jones, AM, 1998/9. The Excavation of a Later Bronze Age Structure at Callestick, *Cornish Archaeol*, **37–8**, 5–55
Jones, GRJ, 1972. Post-Roman Wales, in HPR Finberg (ed), *The Agrarian History of England and Wales,* **I. II**, Cambridge, 283–382
Linford, N, 1998. Stencoose Farm, Cornwall. Report on Geophysical Survey. Ancient Monuments Laboratory Report No 6/98, English Heritage
Lynch, F, 1993. *Excavations in the Brenig Valley*, Cambrian Archaeological Monograph, **5**, Cardiff
McAvoy, F, 1980. The Excavation of a multi-period site at Carngoon Bank, Lizard, Cornwall, 1979, *Cornish Archaeol*, **8**, 47–65
Merrifield, R, 1987. *The Archaeology of Ritual and Magic*, London
Moore, H, 1982. The interpretation of spatial patterning in settlement residues, in I Hodder (ed), *Symbolic and Structural Archaeology*, Cambridge, 74–79
Moore, H, 1988. *Space, Text and Gender,* Cambridge
Nowakowski, J, 1991. Trethellan Farm, Newquay: the excavation of a lowland Bronze Age settlement and Iron Age cemetery, *Cornish Archaeol*, **30**, 5–252
Nowakowski, J, 1994. *Bypassing Indian Queens,* Cornwall Archaeological Unit, Truro
Nowakowski, J, 1998. *The A30 Project, Cornwall – Archaeological Investigation along the Route of the Indian Queens Bypass 1992–1994: Assessment and Updated Project Design,* Cornwall Archaeological Unit, Truro
Nowakowski, J, forthcoming. *Excavations along the Probus Bypass, Cornwall 1995 – A Late Neolithic Enclosure at Trevora Cott and a Bronze Age Barrow at Trelowthas Manor Farm*
Padel, OJ, 1985, *Cornish Place-name Elements*, English Place Names Society, Nottingham
Parker-Pearson, M, 1990. The production and distribution of Bronze Age pottery, *Cornish Archaeol*, **29**, 5–32
Peacock, DPS, 1969. A Romano-British salt working site at Trebarveth, St.Keverne, *Cornish Archaeol*, **8**, 47–65
Pierpoint, S, 1981. *Prehistoric Flintwork in Britain*, Highworth
Pollard, J, 1992. The Sanctuary, Overton Hill, Wiltshire: a re-examination, *Proc Prehist Soc,* **58**, 213–236
Preston-Jones, A, and Rose, P, 1986. Medieval Cornwall, *Cornish Archaeol*, **25**, 135–185
Quine, G, 1996. Medieval Shielings on the Isle of Man: Fact or Fiction?, in HSA Fox (ed), *Seasonal Settlement,* Leicester, 35–44
Quinnell, H, 1986. Cornwall during the Iron Age and Roman periods*, Cornish Archaeol*, **25**, 111–134
Quinnell, H, 1993. A sense of identity: distinctive Cornish stone artefacts in the Roman and Post Roman periods*, Cornish Archaeol*, **32**, 29–46
Quinnell, H, 1994. Becoming Marginal? Dartmoor in Later Prehistory, *Proc Devon Archaeol Soc*, **51**, 75–84
Quinnell, H, 2004. *Trethurgy. Excavations at Trethurgy Round, St Austell: community and status in Roman and post-Roman Cornwall,* Truro
Quinnell, H, 1998–9. The Bronze Age Pottery, in Jones, AM, 1998/9
Ratcliffe, J, 1995. Duckpool, Morwenstow: A Romano-British and early medieval industrial site and harbour, Morwenstow, Cornwall, *Cornish Archaeol*, **34**, 81–171
Richardson, JE, 1997. Economy and Ritual: The use of animal bone in the interpretation of the Iron Age to Roman cultural transition, in Meadows, K, Lemke, C, and Heron J (eds), *TRAC 96, Proceedings of the Sixth Annual Theoretical Roman Archaeology Conference, Sheffield 1996*, Oxford, 73–81
Rose, P, and Preston-Jones, A, 1995. Changes in the Cornish Countryside AD 400–1100, in Hooke, D, and Burnell, S (eds), *Landscape and settlement in Britain AD 400–1066,* Exeter, 51–68
Salway, P, 1981. *Roman Britain*, Oxford
Saunders, A, and Harris, D, 1982. Excavation at Castle Gotha, St Austell, *Cornish Archaeol*, **21**, 109–153
Saunders, C, 1972. The Excavations at Grambla, Wendron, 1972: Interim Report, *Cornish Archaeol*, **11**, 50–52
Saville, A, 1981. The flint and chert artefacts, in Mercer, R, Excavations at Carn Brea – a Neolithic Fortified Complex of the Third Millennium bc, *Cornish Archaeol*, **20**, 101–152

Schofield, J, 1994. Looking back with regret; looking forward with optimism: making more of lithic scatters, in Ashton, N, and David, A (eds), *Stories in Stone*, Lithic Studies Society Occ Paper **4**, 90–98
Silvester, RJ, 1981a. Excavations at Honeydiches Roman Villa, Seaton in 1978, *Proc Devon Archaeol Soc*, **39**, 37–88
Silvester, RJ, 1981b. An Excavation on the Post-Roman site at Bantham, South Devon, *Proc Devon Archaeol Soc*, **39**, 89–118
Smith, G, 1996. Archaeology and Environment of a Bronze Age Cairn and Prehistoric and Romano-British field system at Chysauster, *Proc Prehist Soc,* **62**, 167–220
Smith, G, and Harris, D, 1982. The Excavation of Mesolithic, Neolithic and Bronze Age settlements at Poldowrian, St. Keverne, 1980, *Cornish Archaeol*, **21**, 23–66
Sorenson, MLS, 1996. Sherds and pot groups as keys to site formation process, in Needham, S, and Spence, T (eds), *Refuse and Disposal at Area 16 East, Runnymede*, Runnymede Bridge Research Excavations **2**, London, 61–74
Stace, C, 1991. *New Flora of the British Isles,* Cambridge
Straker, V, 1992. Charred plant macrofossils, in N Appleton-Fox, 1992**,** 89–92
Taylor, J, 1997. Space and place: some thoughts on Iron Age and Romano-British Landscapes, in Gwilt, A, and Haselgrove, C (eds), *Reconstructing Iron Age Societies*, Oxbow Monograph **71**, Oxford, 192–204
Thomas, C, 1958a. *Gwithian: Ten Years Work (1949–1958),* Zennor
Thomas, C, 1958b. Cornwall in the Dark Ages, *Proc West Cornwall Field Club*, **2:2**, 59–72
Thomas, C, 1966. The character and origins of Roman Dumnonia, in Thomas, C (ed), *Rural Settlement in Roman Britain*, CBA Research Report, **7**, London, 74–98
Thomas, C, 1993. *Tintagel, Arthur and Archaeology*, London
Thomas, J, 1991. *Rethinking the Neolithic*, Cambridge
Thomas, N, 1996. *An Archaeological Assessment of the Sevenmilestone to North Country Water Main*, Cornwall Archaeological Unit, Truro
Tilley, C, 1995. *A Phenomenology of Landscape,* Oxford
Tilley, C, 1995. Rocks as resources: landscapes and power, *Cornish Archaeol*, **34**, 5–57
Todd, M, 1987. *The South-West to AD 1000*, London
Wainwright, GJ, and Smith, K, 1980. The Shaugh Moor project: second report – the Enclosure, *Proc Prehist Soc,* **46**, 65–122
Young, CJ, 1977. *Oxfordshire Roman Pottery*, British Archaeological Reports British Series, **43**, Oxford

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Shadows in the imagination: encounters with caves in Cornwall

Peter Rose

'On the rugged mountain… on the beetling cliff… on rocks and in caverns… here does the giant dwell!' (Hunt 1881, 37)

At all times and throughout the world people have made use of caves wherever they have found them, as habitations and temporary shelters, as stores, hiding places and refuges, as places of burial, worship, offering and cult practice, as mysterious places to visit, explore and weave into stories or simply as venues for picnics or lovers' meetings. Their mix of practical convenience, mystery and sense of enchantment has had a magnetic effect on the human psyche (Bonsall and Tolan-Smith 1997, vii). The purpose of this paper is to explore the human experience of caves in Cornwall. What evidence is there for how caves may have been used in Cornwall, and how did people perceive them? This is not strictly an archaeological study, looking at the visible, physical impact that people have had on their environment, and what this can tell us. Instead it is looking at our sense of place, at the nature of our associations with particular types of locality, and how people have responded to their environment. The landscape 'is built up as much from strata of memory as from layers of rock' (Schama 1995, 6–7). Places may be valued through an appreciation and awareness of their associations as well as through what may be seen from their physical form. Knowledge of a place's associations shapes and transforms how we perceive it. This paper is also intended therefore as a study of our relationship with wilderness and the natural world, as epitomised in the cave.

Cornwall's caves are overwhelmingly sea caves, which have taken their present form since the end of the last glaciation, as the sea has cut back and eroded the Pleistocene cliffs, working on points of weakness, faults, fractures and softer rock to create caverns and clefts (Bird 1998, 221–225). They are found around the coast in their uncounted hundreds; some are dry except at the highest tide, others never, though a beach in the darker recesses might offer a haven and breeding ground for seals (Westcott 1997). Where the inner cave roof has collapsed a 'blow hole' or larger 'round hole' or funnel may be left, often awesome and dangerous, eg Tol-Pedn Penwith, St Levan (blow hole), the Devil's Frying Pan, south of Cadgwith, the Lion's Den in Housel Bay, and the Round Holes at Trevose Head and Trevone (Bird 1998, 49).

Away from the shoreline natural caves are very rare but do exist, notably at Minster (Little 1991). More common by far are the overhangs, crevices and cave-like formations to be found amongst the joints of granite carns and tors, particularly on Bodmin Moor and in West Penwith.

Artificial caves are also a feature of Cornwall: Iron Age fogous (Cooke 1993), post-medieval 'hulls', used for the storage of dairy produce and root crops (Tangye 1973) and of course miles of underground mine workings sometimes put to other purposes. As this paper is looking at how people have made use of and responded to an aspect of the natural world, artificial caves are not the prime concern here, but are of course informative about the uses put to underground chambers and cavities and will slip into the discussion here and there.

I have organised the discussion into four themes: practical uses of caves (eg as shelters and stores); visitors and their experience of caves; caves in folklore; caves as cult sites.

Fig 1 Cornwall's sea caves, though natural places, are often overlain with cultural associations. Chapel Porth, St Agnes, has its stories of St Agnes and the Giant Bolster.

Practical caves

Habitations and shelters

Elsewhere in Britain caves have been used as habitations from the Upper Palaeolithic through to recent times; the closest caves to Cornwall with evidence for long sequences of occupation are the limestone caves of south Devon (Todd 1987, 34–55).

The nature of the geological origins of most Cornish caves means that we cannot expect to find evidence of early activity in them; the sea caves have developed since the last glaciation as the result of wave action and if any on the post-glacial shoreline do survive from earlier shorelines, then they have been well scoured over the last 8000 years. This is not to say that in special circumstances a cave with early deposits intact may not yet be discovered. A potential candidate inland is that at Minster, discovered by Roger Irving Little (Little 1991). In slate bedrock just 250m due north of the church, the cave opens north-west into a steep-sided valley. It is 8m across, 1m high and 4m deep. As a sealed site with no signs of modern disturbance such a site might have high archaeological potential.

Occupation of caves in Cornwall is likely to have been rare or exceptional, but it is not unknown. Cornwall's best known cave-dweller is surely Daniel Gumb but the 'Downderry cave-dwellers' are arguably the best documented, being recorded in contemporary photographs, post-cards and descriptions as well as in handed-down memories. For example, a post-card sent in 1904 (Williams 1999) shows a small cave or overhang in slate bedrock at Downderry, apparently at the top of a shingle beach. The three occupants are seated, a woman to either side of a middle-aged man, unshaven and wearing a bowler hat. The woman to our left has no shoes. The woman to the right is

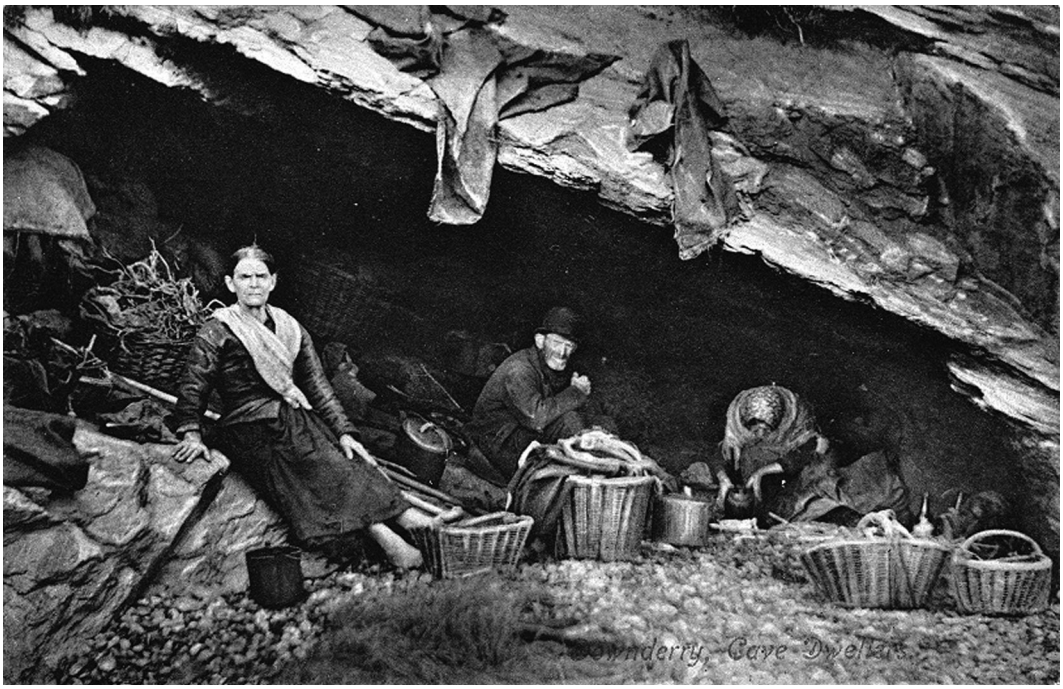

Fig 2 The 'Downderry cavedwellers' captured in a c *1900 postcard (courtesy of the Royal Institution of Cornwall)*

leaning over a small lidded pot. Seven baskets can be seen, one containing what appears to be kindling, another containing or covered by blankets or sacks. Four large iron pots are scattered about, three bottles and various pieces of sacking including two draped above the mouth of the overhang, presumably to dry. With all their clutter they look settled for at least a temporary stay. We learn more about the Downderry cave-dwellers in a first hand account by 'A.B.' in the *Cornish Magazine* for 1898, which accompanies a photograph clearly taken at the same time as the postcard. The women are Irish widows who for thirty years have kept themselves out of the workhouse by gathering limpets to sell in Plymouth. The author remarks on their strength of character and wonders how anyone can exist in this uninviting hovel, this small, smoke-blackened cave, with no possibility of comfort at any time. Sometimes a winter gale from the south-east forces their retreat to a disused pigsty. Another photograph shows two women on another occasion, possibly in a different cave, and possibly even different women. They are described as limpet pickers: 'how contented the old limpet-women appear, sheltered in their cave' (Betjeman and Rowse 1974). They have less equipment about them than in the first picture: three large lidded metal containers and beside them a handled basket each, presumably for their lunches and other bits and pieces. In this case, it looks as if the cave is no more than a shelter and a base for operations, and that the women will be returning home at the end of the day. This impression is reinforced by local tradition which relates that occupation was seasonal and temporary: the woman only used the caves when the tides were low and only lived in them for short periods whilst harvesting the shell fish; they boiled the limpets and winkles before selling them at Plymouth Market, first walking the six miles to St Germans railway station (*Cornish Times* 03.01.2003). This account places the cave-dwellers not at Downderry but at Keveral Beach, Seaton. The pair are shown again in a later post-card, sent in July 1908 (*Cornish Times* 27.12.2002).

Cave-dwelling in Scotland continued to the beginning of the twentieth century (Tolan-Smith 1999; Leitch and Tolan-Smith 1997). Caves were used regularly but intermittently by travelling people,

packmen and peddlers and itinerant craftsmen. In 1866 the Tinker's Cave at Wick had 24 residents comprising four families and their 'numerous and vicious dogs' (Leitch and Tolan-Smith 1997, 123). This was a cave on the shore; extreme high tides drove the occupants to higher ground at the rear. The Downderry cave-dwellers belong to a somewhat similar context, the women taking practical advantage of a convenient and free natural shelter, but photographed because of the striking and primitive image this presented to respectable society; set in a cave even simple practical use becomes perceived by many as part of the strange and exotic. 'Very nice no doubt but looks a little damp', is the comment of the 1904 post-card's sender.

Though this is a unique record, so far as I know, it does demonstrate one way in which Cornish caves have been used in the modern period and raises the possibility that this practice occurred more generally than we know. A few other examples are known of caves or overhangs being used as temporary shelters. At Mount Edgcumbe a cave above Penlee Point, later reworked as Queen Adelaide's Grotto, was used as a watch house by fishermen and the navy (Gaskell Brown 2000, 24). Another example at Porthcurno, built for Rowena Cade of the Minack Theatre, is not exactly a cave dwelling; here a narrow two storey house was squeezed into a crevice of the granite cliffs at the top of the beach (illustrated in Hoskins and Berry, nd).

Just south of Helman Tor is a site interpreted by Peter Herring as a quarrymen's shelter. The projecting slab of a granite outcrop forms a natural roof; it has been improved by the cutting of a groove along the edge of the slab to prevent rainwater pouring into the shelter. Gaps in the natural walling are infilled in two places with built walling. It measures 3m by 2m internally (CAU survey, 1990, plans GRH 28, GRE 30). The thickness of the drill splitting holes on some stones would suggest a date around 1800.

A similar but larger example at Carkees on Bodmin Moor may have been a shelter for tin streamers, judging by its low-lying location (Cole 1997, 87–88).

Fig 3 At Carkees, Blisland, a natural rock overhang has been enhanced as a shelter with the addition of some walling. From its location it could have been a shelter for tin streamers.

Perhaps Daniel Gumb's moorland cave-dwelling was rather like Helman Tor or Carkees, and drawing on a similar tradition, but on a grander scale. It is so unfortunate that his cave was destroyed in the late nineteenth century with the expansion of the Cheesewring Quarry. Daniel Gumb, stone-cutter and surveyor, 'Mountain Philosopher' (Hitchins and Drew 1824, 421–2) and 'Cave-Man Mathematician' (Paynter 1946), was born in 1703 in Stoke Climsland; he married three times in 1732, 1735 and 1743 and died in 1766 (*ibid*). There seems to be no contemporary account of his life other than his appearance in parish registers and the like, and his legacy as estate surveyor and cartographer for the local gentry, for example a survey of Coldrenick in 1756 and of Castick and Bowda in 1763 (Sneyd 2002, 14–15). The main early account is by Hitchins and Drew (1824, 421–2) who refer to the *West Briton* of 1814.

According to Hitchins and Drew, in early life he had a great love of reading and is supposed to have acquired a stock of mathematical and astronomical knowledge. He is said to have been influenced by his friendship with William Cookworthy, the Quaker and porcelain maker. He decided to live more cheaply on the Moor, without rent or parochial assessments. 'Near the Cheesewring, he found an immense block of granite, whose upper surface was an inclined plane, and excavated beneath it until he had a habitation of sufficient size. He lined the sides with stone, cemented with lime, and made a chimney by perforating the earth on one side of the roof. A primitive dwelling of rocky cells and sleeping rooms adjoining of very narrow dimensions. A little walled garden on the south side is said to have completed the picture'.

The historian Davies Gilbert visited in the 1830s and described the stone-cutter's home as an artificial cavern, about 12 feet deep and not quite as broad, with the roof slab supported by natural rock on one side and by pillars of small stones on the other. Two stones survive, the roof slab with its proof of the Pythagorean Theorem carved upon it and set close by, a stone with the date 1735 and the inscription 'D Gumb'.

Fig 4 Daniel Gumb's cave-dwelling, demolished in the nineteenth century, is commemorated in this modern structure which incorporates a carved roof slab and, to the right, a date stone

Caves and hunters

Cornish caves may only occasionally have been used as habitations by people, but the sea caves have always provided shelter for grey seals, particularly in autumn and winter. Most pups are born in August and September; then, from late November to the end of March, some of the most remote sea-caves see gatherings of large assemblies of seals (Westcott 1997, 16).

Caves were a haven for seals but a hunting ground for people. Carew, writing at the end of the 16th century, tells us that seals 'also come on land and lie sleeping in holes in the cliff, but are now and then waked with the deadly greeting of a bullet in their sides' (Halliday 1953, 120). In the Tintagel area seals 'were culled in the nineteenth century to reduce their numbers and for their oil and skins. Fishermen entered the caves at low tide with torches to club the dazzled creatures to death' (Le Messurier 1987a, 8). One can imagine this encounter repeating since prehistory, as soon as seals used caves and people knew of it. Bones of grey seal appear more commonly on sites on Scilly than in Cornwall, where they are very rare, and in both cases they are rarer in medieval contexts than on Romano-British sites (Turk 1970, 125). With major coastal assemblages such as those at The Rumps (Iron Age; Chaplin and Coy 1964) and Duckpool (Romano-British and early medieval; Ratcliffe 1995) having no seal bones, it appears that only limited use was made of this potential resource. In the twentieth century culling was promoted by the Cornwall Sea Facilities Committee and the Ministry of Agriculture, Fishing and Food; 744 seals were culled from 1934 to 1951 (Westcott 1997, 78). More recently caves have been explored specifically to study the seals (*ibid*) but in the past, unexpected encounters have no doubt bolstered perceptions of sea caverns as wild and mysterious places.

Caves and miners

Sometimes natural caves link in with mine workings and may have been used for access and in the first instance to help with the business of prospecting. A classic example is the Towan Wrath, St Agnes, where a honeycomb of workings is suspended above a sea cave. West of Porthtowan a very large cave a little west of Tobbin linked to underground workings of West Towan Tin Mine; 'the old miners kept a rowing boat in the cave, pulling it up out of the way of the tide by means of a pulley fastened to a crook' (Landry 1978, 10–11). There were similar arrangements at Wheal Coates and Trevellas, St Agnes (Roger Radcliffe, pers. comm.).

Smugglers' caves and hiding places

Caves have, by tradition, been put to good use by smugglers and others taking advantage of them as hiding places and hideouts. According to Baring-Gould, for example (1899, 264) smugglers ran their goods into coves and 'stowed away their goods in caves.' Here again actual and practical use becomes inextricably mixed with tradition and folklore. Smith has suggested that 'the use of caves and secret tunnels is somewhat of a myth. The smugglers generally preferred to move goods in the open giving them a greater chance of escape,' and the priority was to move goods inland, away from the more closely watched coast; according to Customs reports, most hiding places were in the open country or in woods (Smith 1989, 7–8). However, the use of caves by smugglers is documented, and the tradition is strong. At Lantic Bay, Lanteglos-by-Fowey, a cargo was landed in 1835 by the *David and William* and the casks temporarily hidden in a cave, no tubmen having arrived to shift the cargo inland; this is consistent with Smith's description, above, of the preferred working methods. Next day, as a hundred men carried off the casks, there ensued a violent struggle with the coastguards; 484 gallons of brandy were seized, five men were sent for trial, but the jury found them not guilty (Waugh 1991, 108–110).

According to another record James Delbridge was fined £75 for 'putting a quantity of smuggled spirits in a cave at Pentire' (*ibid*, 159).

The tour of the coast which follows owes more to tradition and folklore than to primary documentation and should be read in that light. More often than not the traditional smugglers' caves are supposed to be linked to tunnels; this may be entirely fanciful. On Looe Island, a major depot for smuggling, a cave was found beneath a cow shed, with access direct from the sea (Waugh 1991, 98). South of St Austell, one cave was used by smugglers near Lower Silvermine, and another at Lower Porthpean (Conjuie Beach); this according to Mr Hewett, a gardener at Penrice in 1836 (*ibid,* 106). Near Truro, goods were hidden in woods and caves above Sunset Creek at Penpol Farm, opposite Malpas (Hippesley Coxe 1984, 95). A small cave in Ethy Woods, St Winnow, may be an actual example of a smugglers' store in just such a location, on the side of a secluded wooded creek. This is a semi-natural cave formed by cutting into and revetting the rock to expand a natural cavity and placing a capstone over its entrance, creating an outer and inner chamber. These are irregular in plan, up to 2.4m and 2.1m across and up to 1.3m high with rough sloping floors. Outside the present entrance low revetments to either side may have formed a concealed entrance. The structure is said locally to be a smugglers' cache, connected by a tunnel to Ethy House. As a smugglers' store it would presumably have been in use before the late 18th century when drives and rides were constructed close by (Herring *et al* 1998, 250–251).

At Wells Beach, Falmouth, there were two caves and a tunnel, now blocked (Hippesley Coxe 1984, 95). On the Lizard, Johns was told by the coastguard men that a number of kegs of contraband spirit were once found in Ravens' Hugo (Johns 1848, 144–5).

Mullion Cove was notorious for its smugglers. According to Hippesley Coxe, the smugglers Bobo George and John Munday used Torchlight Cave for storage, and a tunnel led up to a clifftop farm (1984, 94). Gunwalloe Fishing Cove also supposedly had its tunnel, from a cave on the beach to the belfry tower; and other caves were used for storage (*ibid*). Porthleven too has a reputed tunnel, supposed to have led from caves west of the harbour up to Methleigh Manor, with storage under the kitchen floor (*ibid*).

The smuggling activities of the Carter family are well documented, based on the three coves of Piskies Cove, Bessy's Cove and King's Cove or Prussia Cove. According to Waugh (1991, 134–145) John Carter built a substantial house around 1771 above a large cave; he cut a harbour and roadway and adapted the caves for storage. In Bessy's Cove a cave at the back of the beach had a secret passage which led to Bessy's alehouse.

On Scilly, Piper's Hole at the north end of Tresco was supposedly a major storage place and there were others on Samson (*ibid*, 23).

Back on the mainland, just west of Portreath, Ralph's Cupboard was said to have been a hiding place for contraband (*ibid*, 167) whilst at Smuggler's Cottage, to the west of Portreath beach, a tunnel led from behind a fireplace to a cave below (Thomas 1990, 17). Inland to the south, some of the artificial caves or 'hulls' of west Cornwall are thought to have been used by smugglers (Tangye 1973, 38–40).

According to Captain William Roberts, writing in 1939, his grandfather reported that the *Cherbourg* would be met by small rowing boats and the cargo landed at Cligga Porth, west of Perranporth, or in a double cavern in the cliffs from which the goods were drawn up to the clifftop by derrick, and carried off on muleback (Waugh 1991, 159). Piper's Hole on the beach at Crantock was reputedly another storage cave, with a passage said to lead to the smugglers' hole under the kitchen floor of the farmhouse at Treago (Teague Husband 1923, 32). At Newquay, the Tea Caverns took their name from the contraband stored there. This was a double cave. The two caves were separated by a chasm which the smugglers bridged by a plank. According to local tradition this could be turned to precipitate an inquisitive preventive officer into the sea. The inner cave was curved in plan, preventing shots from being fired into it (Waugh 1991, 155). S Teague Husband writes that tea was unloaded, carried into the cavern and drawn up into the tea hole (1923, 32).

A cave at Porthcothan may have been purpose-built as a smugglers' store. This was not on the shore but about one mile inland, opening into a small valley. Baring-Gould describes it as 50 feet long, with a side passage going off to the right, 7 feet from the entrance. Though only 3 feet 6 inches high at the mouth, it opens to 8 feet 3 inches wide and 7 feet 6 inches to 8 feet 6 inches high. Pick marks indicate that it is man-made and the date 1747 is cut at the end. Supposedly, the side passage ran to Trevethan or Trevemedar and then to Porth Mear, sweeping round for some 3500 feet, with holes at intervals for light and air. An old woman told Baring-Gould that her father 'minded well the time when the vouggha was filled wi' casks of rum spirit right chuck-full' (Baring-Gould 1899, 278–281; Waugh 1991, 150–151).

Finally on this tour, and firmly in the realms of folklore, the legendary smuggler 'Cruel Coppinger', had caves and caches in north-east Cornwall: a cave six miles south of Hartland Point at Gull Rock, Marsland Cliff, 'as big as Kilkhampton Church' (Hippesley Coxe 1984, 75); another at Steeple Point, Morwenstow, reached by rope ladder from above and containing kegs of brandy, hollands, chests of tea, and iron-bound sea-chests (Harper 1909, 99); and another near Port Isaac, with Pentire Glaze his headquarters (Hippesley Coxe (1984, 77). Yet another is pictured on an early 20th century post-card: 'Cruel Coppinger's Cave at Com Beach, Pentire' (CRO AD 500/10).

The Sheepstealers' Cave, or Home, about half-way between Kynance and the Rill, though supposedly 'an old smuggling cave' (Folliott-Stokes 1928, 264), evidently takes its name from 'a gang of depradators of desperate character', run to ground in 1829 following the theft of four rams. A search was made of cliffs and caves on the shore in pursuit of James Jose and William Harris, who then plunged into the sea at Gue Graze near Kynance Cove where they drowned (Barton 1970, 181–2; Johns 1848, 125–8). Supposedly the gang had taken the fleeces and meat to Sheepstealers Cave and from there shipped them to Falmouth (Pryor 1996a, 33). Johns was taken to the cave by the lieutenant of Cadgwith coastguard who had previously discovered it, finding inside a sheep-skin and scraps of leather. The cave was almost inaccessible, with an entrance just two feet in diameter; though he often visited the spot Johns could never discover the cave again (1848, 108–110).

Captain's Cave, near St Agnes Head (actually a mine adit) takes its name from its use as a hiding place during World War One, when two work horses, Captain and Albert, were kept concealed for two weeks to preserve them against being rounded up for the war (story from John Sawle via Roger Radcliffe).

Caves for the visitor

The special character of caves has long made them the focus of visitors, whether tourist, romantic, explorer, or antiquarian, the geologist inspecting the rock formation or the naturalist studying the habitat of seals and other wildlife (Westcott 1997; Spalding and Sargeant 2000, 10, 45). Studies of seal caves in the 1930s were the prelude to official culls, but later expeditions in the 1960s, 1970s and 1980s were driven by research and conservation, culminating with Stephen Westcott's outstanding labour of love in the 1990s (Westcott 1997). Many have been drawn by the elemental awesomeness of caves, their beauty and other-worldliness, the sense of risk and danger, as well as their associated traditions and folklore. They are a source of inspiration for poet, musician and artist and form the subject for any number of pictures and engravings (for example, *Western Morning News*, 24 March 2000: 'Merlin's Cave was an inspiration to composer John'; 'Cave Sale' – artist buys three-roomed cave in Severn Valley, *Western Morning News* 22 August 2000; Paul Broadhurst is also inspired by Merlin's cave; 1992, 148–152). Caves provide a subject for writers and feature regularly in nineteenth and early twentieth century accounts, but in earlier descriptions too. John Leland writes in *c*1540 of a 'certeyn cave' in the cliffs between Black Head and Tywardreath Bay in which 'apperith Thinges lyke Images giltid. And also in the same Cliffes

be vaynis of Metalles as Coper and other' (Pearse Chope 1918, 40). A little later Carew describes a visit to what later became known as Merlin's Cave at Tintagel: 'under the island runs a cave through which you may row at full sea, but not without a kind of horror at the uncouthness of the place' (Halliday 1953, 192).

Part of the fascination of caves lies in the dangers they hold for the visitor: 'His walk is an adventure and his departure an escape' (Dr Johnson writing in 1774 on a sequence of artificial caves in an ornamental landscape at Hawkstone, Shropshire; Thacker 1994, 213). Firstly, they must be reached. Blight describes a visit to the cave at Mousehole: 'It is a very difficult scramble down the face of the cliff to get to the cavern' (1876, 40). Caverns near Land's End are 'difficult and dangerous to be got at by persons not acquainted with the locality….' (*ibid*, 96), whilst access to Tol-Pedn-Penwith is 'a difficult task' (*ibid*, 106). Folliott Stokes tells us that at Tol-Pedn-Penwith 'a good climber can get down on to the beach and enter the funnel, but it takes a deal of doing' (1928, 193). Then there may be fear of the unknown: how far does the cave go, and what dangers await there? Carew describes a cave west of St Ives: 'the sea floweth into a large cave further up than any man durst yet adventure to discover' (Halliday 1953, 231); and more recently, 'Those picturesque sea caves become something more daunting when you approach them closely…… I must say that sometimes, my own fear defeats my will to proceed. Not so much the darkness of the cave, but the shadows in my imagination' (Westcott 1999). As well as the dark there may be confined spaces. 'Some are narrow and dark. Now we crawl into them on hands and knees; now we wriggle forward a few feet, serpent-like, flat on our bellies; now, we are suddenly able to stand upright in pitch darkness, hearing faint moanings of pent-up winds, when we are silent, and long reverberations of our own voices when we speak' (Collins 1851, 78).

AK Hamilton Jenkin gives a fascinating account of a visit to a seal cave in 1933 (preserved in the Cornish Studies Library as the typescript for a radio talk given to BBC Children's Hour). He and his companion went in by a mine adit which crossed the roof of the cavern; after crossing a dark chasm by a narrow ledge they lowered themselves into the cave down a 60ft precipice, hand over hand by rope; and then had to haul themselves out the same way. As the *Western Morning News* said at the time, this was 'only for those with nerves and a grip of steel' (Hamilton Jenkin 1933).

Then there is the danger of being caught by the incoming tide. Paul Broadhurst relates how a couple were trapped at Merlin's cave, Tintagel (1992, 148–152) and Blight describes a dramatic escape at Tol-Pedn-Penwith (1876, 109–110), when a visitor had to be lifted up the funnel by a rope. The *West Briton* of 23 May 1823 describes how 50 years earlier Captain Thomas Stephens nearly lost his life whilst exploring the Great Seal Hole at St Agnes. When the sea rose above the entrance one of his companions who had been waiting outside dived in with a rope and brought the captain back 'through the waves which were roaring over the entrance' (Barton 1970, 130–131).

The power of the sea is particularly focused where it crashes into a sea cave. Wilkie Collins describes 'The Devil's Throat' at Kynance, 'a black, gaping hole into the bottom of which the sea is driven through some unknown subterranean channel, roaring and thundering with a fearful noise… If ever the ghastly image of Dante's terrible "Vision" was realised on earth, it was realised here' (Collins 1851, 75–6). In September 1998 Nick Leeds and his son James (11) were swept into a cave at Bossiney and trapped there for five hours after Mr Leeds had plunged into the sea to rescue his son. Trapped with them were the two lifeboatmen sent to rescue them, Kevin Dingle and Mike Edkins, all clinging to rocks near the roof of the cave as the waves piled in (*Western Morning News* 7 Sept 1998, 9 Sept 1998; and *Western Morning News* 12 August 2002 for a similar occurrence at Droskyn Point, Perranporth).

Writers typically describe the wildness of caves; the contrast between the cave and the world outside, and the framing effect that the cave mouth has on the views beyond; the textures, colours and sounds of the cave, its glistening surfaces, sometimes strangely coloured by mineral staining, the dripping water, the ferns, the purity of the sand and the clarity of the water. Here are some examples. Blight, describing caves near Land's End: 'One feels as if he were treading on ground

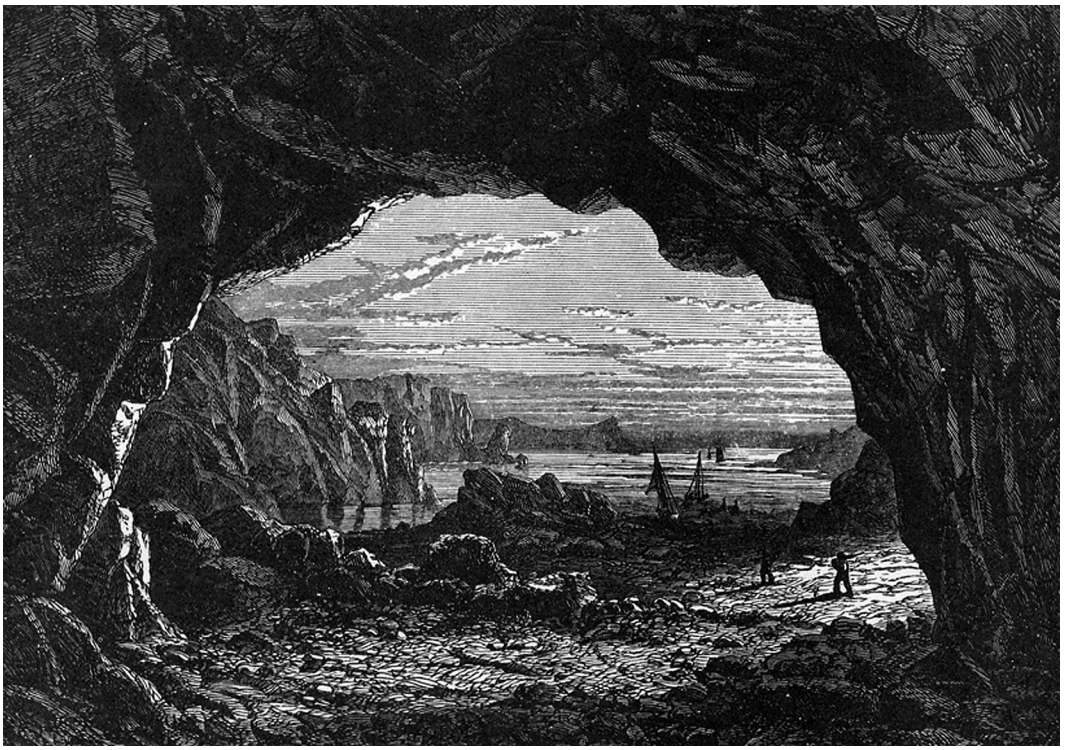

Fig 5 A nineteenth-century view from a cave at Mullion captures the romantic image of a picturesque scene of wild beauty (from Harvey 1875)

which is not under man's dominion – but the sole territory of the wild waves, and the haunt of screaming sea-birds' (1876, 96). 'The Funnel….[at Tol-Pedn-Penwith] is an awfully strange place. The walls are damp with trickling moisture; bright emerald mosses are sparkling in dark crevices, and graceful ferns festoon the numerous rents and fissures….' (*ibid*, 109). And at Treryn Cove 'The caverns, splendidly arched and open to the beach, are floored with beautiful shell sand: on entering them and looking seaward they have a most romantic aspect, and one almost expects to meet at the next turn some of the nereids, such as Frost has painted' (*ibid* 126). Folliott-Stokes writes of Merlin's Cave, Tintagel: 'To look from the subdued light of this subterranean passage at the brilliant, sun-kissed aquamarine waves, to watch them hurl themselves against the polished sides of the entrance with a noise like thunder and to see clouds of spray, …. with miniature rainbows, fly like a gauze veil across the cavern's mouth, is a sight not easily forgotten. We feel that here, at any rate, our faith in Merlin and his occult powers is not only possible but imperative' (1928, 67). Folliott-Stokes was an acolyte of Nature: 'You are alone with Nature and can drink your fill from her jewelled chalice' (*ibid*, 196).

Daw's Hugo, beneath the Lion's Den, was visited by Wilkie Collins. 'The effect of the two streams of light…. is supernaturally striking and grand' (1851, 70–2). Johns describes the cave at Mullion Cove: 'Richly dark walls, so polished as to reflect the light with a splendour scarcely to be endured – the blue sea, with its curled edging of snow-white lace – St Michael's Mount, the fabled "tower in the sea", in the distance' (1848, 187). Not only the 19th century romantic is affected by the magic of caves: 'When I…illuminate the cavern into which I have trespassed, the experience is never less than extraordinary. Never is that more so than when the seals are singing. Then, their haunting moans,

the rude choral song of wilderness, are as evocative of wild and lonely places as the curlew's lonely call' (Westcott 1999).

Certainly, in the 19th century caves were firmly on the itinerary of any tourist in search of Nature and the picturesque. Tennyson, for example, in the 1850s, visited the sea-tunnel-cavern at Tintagel, a cave at Perranzabuloe ('Rembrandt-like light through the opening'), caves at Asparagus Island, Kynance ('sat watching wave-rainbows'), and at Polpeor, the Lizard 'bathed, run in and out of cave'; he rowed into Pigeonthugo and heard the 'dismal wailing of mews' (Hutchings 1983).

In this early tourist industry guides were on hand to lead the way and tell the old tales. Visitors to Tol-Pedn could be helped by guides with ropes (Blight 1876, 110), the Land's End Hole or Vau-Laz 'can be got at at low water, under the direction of a guide' (*ibid*, 74). Folliott-Stokes had an 'ancient mariner' row him to caves on the Lizard, the Devil's Frying Pan and Dolor Hugo Cave (1928, 278–9). The latter was considered by Johns (1848, 146–9) to have 'the most perfect air of mysteriousness and solemnity .... when tourists venture in hither, which is not very often the case, a favourite practical joke of the boatmen is to secrete a loaded pistol, and without giving previous intimation, to fire it off. The effect is terrific, the noise seeming to come from the inmost recesses of the cave, from its sides and roof all at once, and exaggerated a thousand-fold by the reverberation.' Harvey visited the cave at Mullion Cove guided by an old fisherman, Sam Hitchens, who lit up the inner recesses with a bundle of furze and tar-dipped torch: 'But Sam is lighting up; let us go in. Eh! what does he look like behind the smoke, and the flames flickering and dancing about him and on the polished sides of this huge cleft?' (Harvey 1875, 9). Wilkie Collins' guide around Kynance told of shipwrecks, smugglers and drownings and led him through the caves and around all the other sights (Collins 1851, 74–78). One wonders whether some of the names of caves were coined to satisfy this market, most obviously Merlin's Cave at Tintagel, perhaps others such as the contrived sounding Dining Room and Drawing Room Caves at Kynance, visited by Kilvert in 1870 (Maker and Tregonning 1989, 47; Johns has them as the Parlour and the Drawing-room; 1848, 89).

The 'tall, mournful cave draped in ferns' (Luck 1995, 14) which gives its name to Mousehole, was another popular attraction, with, on the approach, a convenient level area for visitors to rest, buy soft drinks, and find a guide; hand rails helped the visitor to the cave, but now there are just two iron handholds (*ibid*, 14–15).

Caves were also incorporated into the ornamental landscapes of the gentry, as is the case with 'St Michael's Cave' a 'delightful grotto' on St Michael's Mount (Herring 1993, 41, 125). Located a little to the west of the castle, a natural shelter formed by an overhanging block of granite was provided with a wooden seat and was reached by a short flight of steps. There are views to Penzance and Castle-an-Dinas. The cave is shown sheltering a lady and child in a photograph of *c*1900, an interesting contrast to the near-contemporary view of the Downderry cave. At Mount Edgcumbe a cave overlooking the sea at Penlee Point, formerly used as a watchhouse by fishermen and the navy, was embellished in 1827 with a gothic style building, Queen Adelaide's Grotto, to provide a sheltered viewpoint (Gaskell Brown 1998, 40; 2000, 24).

Other parks and gardens were enhanced with entirely artificial cave-like structures or grottoes, for want of the real thing, but reflecting the romantic light in which caves were perceived. Twenty or so are recorded in Cornwall (Pett 1998), eg Menabilly, Pencarrow, Pendarves, Penjerrick, Prideaux Place, Tremough (*c*1943 grotto like Lourdes). Grottoes could be places for contemplation, for inspiring melancholy or a sense of the sublime, for framing views, creating contrasts, displaying mineral collections or ferns and providing a shaded resting place (Thacker 1994). Much of this is epitomised in Sharrow Grot or Lugger's Cave on Sharrow Point in south east Cornwall. This appears to have been entirely cut out of rock, making a rectangular chamber 4.5m deep and 2m high, with benches left around the sides. It was on the site of Sharrow Palace, a fish cellar abandoned in the 18th century, which in 1784 became a place of retreat for Lugger, formerly a warrant officer in the Royal Navy. Lugger cut the grot into its present form and cut inscriptions and verses in classical style on its walls and roof and above its entrance, describing the setting, the 'fresh

Fig 6 'St Michael's Cave' is a natural shelter incorporated as a grotto in the ornamental landscape of St Michael's Mount (photo c *1900, courtesy of the Royal Institution of Cornwall)*

enlivening air', and meditating on the power of the Omnipotent, whom all the movements of nature must obey:

> Whenever thou dost enter this sequestered grott
> May every jarring passion be forgot
> Behold yon scenes, how vast, how grand,
> Proclaim the wonders of thy Maker's hand,
> Who gave thy soul its every thinking power
> And kindly shields thee every passing hour

And…

> But as thou walk'st, should sudden storm arise,
> Red Lightening flash or thunder shake the skies,
> To Sharrow's friendly grott in haste retreat,
> And find safe shelter and rocky seat;
> Then listen to the ocean's awful roar,
> And view the waves clash on its bounded shore.

Nearby is another seat with the inscription: 'Pro bono publico, 1785' (National Trust 1987, also quoting an extract entitled *Sharrow Grotto* from Plymouth Local History Library, ref. 971WB). Lugger's labours were philanthropic, creating a cave as a shelter for visitors and a retreat for peaceful contemplation on the splendour of nature and the works of God.

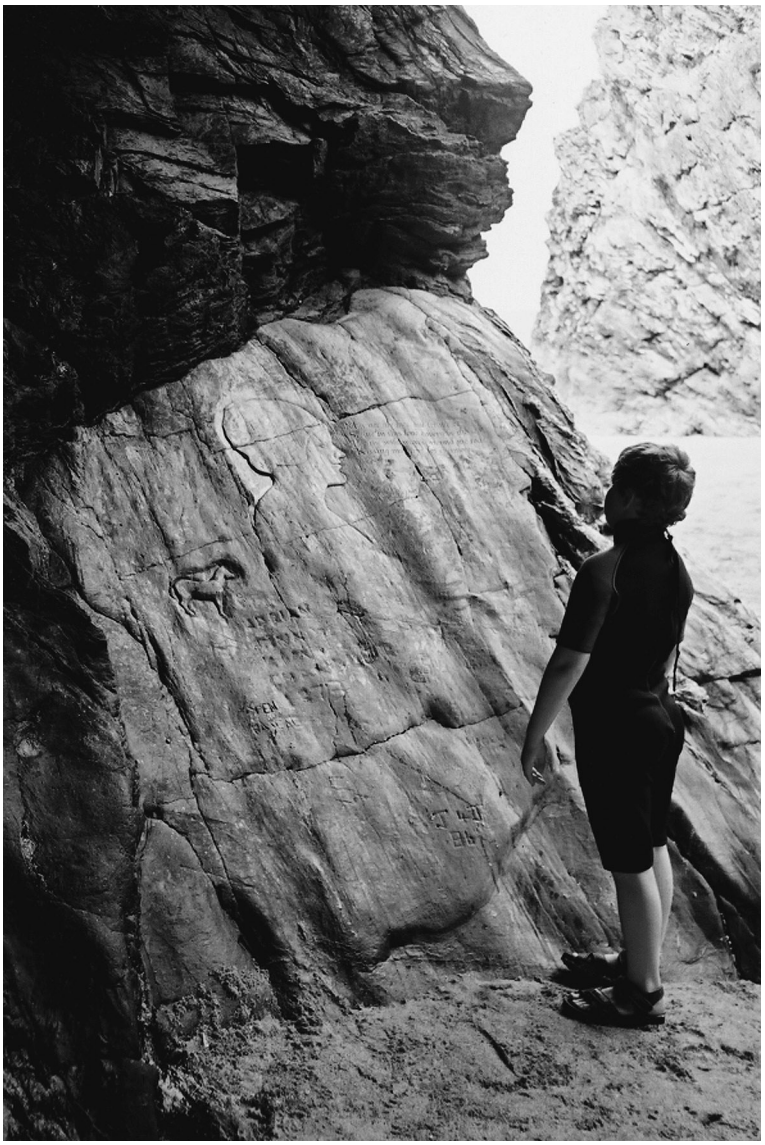

Fig 7 A slab at the entrance of a cave at Piper's Hole, Crantock, has been decorated with the carving of a woman's head, a small horse, and a short verse

It was presumably the romance of the place that inspired Joseph Prater to cut inscriptions on a flat slab in Piper's Hole on the beach at Crantock, in the first part of the twentieth century: a small horse, the outline of the upper part of a woman (with 1920s hairstyle) and a short verse (Le Messurier 1987b, 3; Gossip 2001, 41).

> Mar not my face but let me be
> Secure in this lone cavern by the sea
> Let the wild waves around me roar
> Kissing my lips for evermore

Newquay is another place with a collection of spectacular, named caves for the visitor: the Tea Caverns, Cathedral Cavern, Boulder Cavern, The Infernal Regions, Fern Cave, Mermaid's Cave (Oliver 1884; Goddard 1906; Acton 1990, 35; Bird 1998, 176) and, best known of all, the Banqueting Hall. This great cave, 60 metres long, 20 metres wide and nearly 20 metres high, with two entrances from the sea, and one from the roof, was used by the people of Newquay for annual summer concerts, complete with choir, harmonium and an audience of a thousand. The cave was declared unsafe for concerts, and then dynamited in 1987 (Tangye 1984, 32, 35; Bird 1998, 177; Folliott-Stokes 1928, 94; Acton 1990, 35). At the Banqueting Hall we see the extreme of the process in which the wild places are partially domesticated as tourist attractions; in this case by taking modern culture, in the form of the concerts, into the heart of the cavern.

Public concerts are now being planned for Carnglaze Caverns, St Neot, artificial caves created by slate quarrying between 1600 and 1903. The caves were opened as an attraction in the 1960s and include Cathedral Cavern, the Underground Lake and Rum Store; it was used in the Second World War to house the rum supplies of the Royal Navy (*Western Morning News* 26 January 2002).

Caves also act as unusual venues for more informal gatherings and performances. In May 1823 a party descended into the Seal Hole, St Agnes to partake of a breakfast, taking with them fuel for a large fire 'to display the gloomy horrors of the place in all their awful sublimeity'. While the melancholy booming of the sea gave 'undesirable sensations of admiration and awe' they 'passed three hours very agreeably in attempting several pieces of vocal and instrumental music appropriate to the scene' (*West Briton* May 1823, quoted in *St Agnes Museum Newsletter* **29**, November 1998, 3).

More recently an adventurous Newquay group have made use of the tides to give themselves seclusion in a cave at Lusty Glaze, camping overnight and practising fire juggling and the like; their use of the cave was thrown into the public arena under tragic circumstances when one of the group was swept off a rock by wild seas (*Western Morning News* 21, 22, 23, 24 January 2002).

Caves – places of folklore and myth

Caves attract and inspire tales in which they appear as exotic, mysterious and supernatural places. This can be seen too in their role in fiction, as in *A Passage to India* (the Marabar Caves), *Treasure Island* (Ben Gunn's cave – hideout and treasure store), *The Hobbit* (Smaug's treasure cave), and Arthur Ransome's *Swallowdale* (Peter Duck's cave). Because the actual uses of caves may be unusual or at the margins of society these uses too can become tangled with folklore. This is obviously the case with the smugglers' caves, the Sheepstealer's cave at Kynance, and Daniel Gumb. Most of the tales and folklore can be more or less slotted into four categories: hideaways and hideouts; the mysterious properties of caves; the supernatural; saints and caves. Fogous, artificially constructed 'caves' of Iron Age origin, figure in folklore in much the same ways as the natural caves; their folklore has been set out in detail by Cooke (1993, 217–223 and throughout).

Hideaways and hideouts

Elsewhere in Britain, caves have been seen as bolt-holes for fugitives and hideouts for criminal gangs, such as the Clovelly cannibals (Bhanji 1998), or in Scotland, Bruce, Wallace, Prince Charles Edward Stuart and fugitive Jacobites, as well as Sawney Bean and his family of cannibals (Leitch and Tolan Smith 1997, 122). Early in the eighteenth century Hals recorded that Boleigh fogou was used by Royalists as a hiding place during the Civil War (Cooke 1993, 82); it was also said to have been used by smugglers, as a store and for their carousing (Bottrell 1873, 27). According to 'A Legend of

Piper's-hole', Piper's Hole on Tresco was used as a refuge by William Edgcumb, a Royalist commander, after Scilly was taken by the Parliamentarians in 1651; and here he met Mildred Fleetwood, daughter of the Parliamentarian commander (Whitfeld 1852, 119–133). We have already seen how local people would have their tales of smugglers' caves, so that it is hard to know where truth leaves off and fancy begins; were there really tunnels leading from sea-cave to pub, cottage or farmhouse, or was this just a stock feature of local stories?

Caves also make an excellent setting for hidden treasure. Captain Avery, a celebrated buccaneer of the late seventeenth century, is said to have concealed twelve chests of gold and jewels either 'between three grey stones' at a cove believed to be Kennack, or else in a cave east of Lizard Point. The treasure was hunted for in the 18th and 19th centuries but awaits its discoverer (Johns 1999, 20, quoting A S Oates and Larn and Carpenter). In one of Bottrell's stories the crew of the privateer *Lovely Nell* bury a quantity of gold in 'some secret nookes of the cliff' at Goonwalla Cove (1873, 44) and in other, Tom kills the giant Denbras and finds tin and treasure in the castle caverns (1870, 9, 12). In the same story Tom and Jack the Tinkard dig a fogou near their home at Choon, 'to serve as a more secure place of shelter if required' (*ibid*, 20).

The mysterious properties of caves

In popular tales caves are often expected to be of great length. Charles Pugh writes (1999, *in litteris*) '…. there is a strong local anecdote that there is a Constantine Cave of immense length which runs from somewhere on Goongillings to some unspecified destination and for some unspecified purpose!' Another cave, north of Enys Head near Cadgwith, was said to communicate with the old manor house of Erisey (Johns 1848, 165); this would give it a length of two miles. In Penwith, Hunt reports the tradition that the Fugoe Hole (Boleigh) extends from the cliffs to beneath Trove; it was also associated with witches and the devil (Hunt 1881, 244). The fogou at Pendeen was supposed to go far under the sea and was 'the haunt of some terrible spirit' (Blight 1876, 165).

Piper's Hole at Peninnis, St Mary's, Scilly, was supposed to link with Piper's Hole on Tresco. There are tales of men going in and never returning, and of dogs going in and coming out in Tresco (Hunt 1881, 185). Willy Willcocks' Hole, Polperro, is said to lead into a maze of tunnels in which a fisherman, Willy Willcocks, became lost. His ghost still roams the passages, trying to escape (Westwood 1992, 46).

The supernatural

Folklore peoples these dark and untamed places with beings to match: malicious or dangerous supernatural beings, varying in their form to suit the age and the audience. The eighth century Life of St Samson tells us how he expelled from its cave a serpent that had been terrorising the neighbourhood (Taylor 1925; Olson 1989). A thousand years later another cave on the south coast, at Prada Cove, Veryan, is named 'Tregeagle's Hole' on the Ordnance Survey map of 1880s and was presumably one of the places where the cries of Tregeagle's tormented spirit could be heard (Deane and Shaw 1975, 113).

In a cave you might encounter a 'wrath'; this has a primary meaning of 'hag, old woman, witch' but this seems to have changed to 'giant' before the beginning of the eighteenth century (Cornish place-name element *gruah*, Padel 1985, 123–4); perhaps simply another way of conceiving or presenting a 'terrible spirit'. Hunt writes of the Giant Wrath or Ralph, a huge giant who lived in a cavern (Ralph's Cupboard) just west of Portreath; he is said to have waded out to sea and dragged boats back to his den. The roof of the cavern fell after the death of the giant, leaving just an open chasm (Hunt 1881, 76). Again according to Hunt, a young giant lived in a cave beneath Treryn Dinas

(Hunt 1881, 48), and there is a giant's cave at Lamorna, east of 'Cairn Kimyel' (Hunt 1881, 43; Blight 1876, 44). Near Land's End, the giant Trebiggan 'dined every day on little children, who were generally fried on a large flat rock which stood at a little distance from his cave' (Hunt 1881, 53). The giant Holiburn lived in the Giant's Cave, amongst rocks on Carn Galva, Zennor (*ibid*, 52), and the giant of St Michael's Mount also had a cave (Bottrell 1870, 32, 46). In a couple of cases, fogous are also associated with giants: Lower Boscaswell and Higher Bodinar are both 'giant's holts' (Cooke 1993, 114, 132).

The story of the 'famous Wrath or Giant' at St Agnes, the Giant Bolster, is told by Tonkin in the eighteenth century and by Hunt (Bizley 1955, 333–4; Hunt 1881, 73–75; Tonkin 1976). Having stopped (according to Hunt) to drink at St Agnes' Well, the giant lusted after the saint and so pestered her that eventually she devised a ruse to be rid of him. She promised to yield to him if he would fill a hole in the cliff with his blood. What had seemed such a little task proved the Giant's downfall; the hole opened into a sea cave. The rocks are still stained red from Bolster's blood. The Wrath's Hole, as described by Tonkin, can be equated with the Towanwroath, which gives its name to the Towanwroath shaft at Wheal Coates mine (*toll an gruah*, hole of the 'wrath', Padel 1985, 124). This hole, with its bright red rocks, opens half way up the cliff and links in with old mine workings. It is some 500 metres north of St Agnes' chapel. Just a few metres below the site of her holy well and chapel is another cave; water from the well drops through a hole in the cave's roof. This is an alternative location for the Wrath's Hole and is clearly regarded as such by Hunt.

Tonkin, who moved from St Agnes to Goran, recorded a very similar story there. A terrible giant living on the Dodman promontory fell ill. A brave doctor visited him and said he would be cured if he filled a hole in the cliff with his blood…. The spot on which he fell is the 'Giant's House' (Hunt 1881, 75–76).

A third, earlier story seems to be part of the same tradition. Writing in the seventeenth century Nicholas Roscarrock tells of St Minver's encounter with the devil – the 'Ghostlye Adversarie' – who was sent packing by St Minver when he came to molest her as she combed her hair beside her well (and chapel) at Tredrizzick; she flung her comb at him and he avoided her by making a deep hole at Topalundy down which he disappeared (Orme 1992, 90, 154). This is a round hole opening into a sea cave at Lundy Cove, three kilometres from Tredrizzick.

The strong similarities in the tales from St Agnes, Goran and St Minver suggest the existence of a widely prevalent folktale in the seventeenth and eighteenth centuries (and presumably earlier) which was attached to specific local landmarks. There are also similarities, though not necessarily a shared ancestry, in the story of the fate of Merlin. In Thomas Malory's *Le Morte D'Arthur* (1485), Merlin is infatuated with Nimue, a Lady of the Lake; she is afraid of him because he is a devil's son, and uses enchantment to imprison him beneath a great stone, in Cornwall (Hale *et al* 2000, 58). In other stories Merlin is a more willing cave-dweller; in Thomas Hogg's *The Fabulous History of Cornwall* (1827) the young Arthur goes down to Merlin's cave to sit at the feet of 'Tintagel's Prophet' (quoted in Hale *et al* 2000, 82).

Another female supernatural being – perhaps not unrelated to St Agnes and Nimue – is the 'Spirit of the Vow' at Pendeen fogou, seen at the entrance as a tall lady dressed in white with a red rose in her mouth, at all seasons of the year (Bottrell 1873, 167). In another account she is seen more specifically at dawn on Christmas morning, just within the entrance, and was a 'fair but not less fearful vision' as disaster would befall those who saw her (*ibid*, 28). Cooke suggests that this White Lady can be seen as the goddess, assuming human shape at one of the most magical moments of the solar year (1993, 312).

In Penwith, witches were in the habit of meeting the devil and holding their Sabbath in the Boleigh Fugoe Hole (Hunt 1881, 244; Bottrell 1873, 15). Boleigh also had a Bucca-boo (bucca-dhu – black spirit; *ibid*, 28). According to a seventeenth century story, Harry the Hermit was accused of witchcraft on the grounds that he raised storms between Scilly and Land's End, that he would spend all day perched on an inaccessible cliff, and that 'they had many times seen him come forth out of his cave

Fig 8 Water cascades through the roof of the cave at Chapel Porth, St Agnes, where according to legend, the life blood of the Giant Bolster drained into the sea

called Tollpedden Penwith, into the open ocean upon a bone of a shoulder of mutton....' (Hale *et al* 2000, 72 –3).

The devil is also associated with coastal caves, holes and fissures: the Devil's Frying Pan near Cadgwith, the Devil's Letter Box on Asparagus Island, Kynance Cove, and Devil's Hole cleft at Morwenstow (Bird 1998, 121, 128, 219); though these instances are not necessarily associated with any folklore. Here and there, there are other spirits. Higher Bodinar had spriggans guarding the fogou's treasure (Bottrell 1873, 28) and the Piskey's Hall fogou, Trewardreva, had its piskies (Cooke 1993, 108, 220). One sea cave is associated with small people; on moonlit

nights a troop of them would come out of a hole in the cliff onto the beach east of Mousehole and might carry children off to 'Dicky Danjy's holt' (Bottrell 1873, 245). In another of Bottrell's fairy tales, a farmer who is 'piskey-led' in Treville Cliffs (Sennen) passes through a cavern into the small people's domain, where he sees feasting and hurling; he returns to his own world through an opening in a carn near Nanjizel (1873, 102); perhaps the cave shown on the Ordnance Survey map at SW 357 237.

Not surprisingly, caverns occasionally feature in stories of mermaids, but usually only as a backdrop. In a story set on the Lizard, a mer family was in the habit of visiting a cavern in Kynance Cove, where they would rest and sleep. In another tale set in Perranzabuloe a beautiful mermaid is to be found sitting at the mouth of a cavern (Hunt 1881, 153, 165–7). Bottrell records that the dwellers in sea-side caves are either mermaids or Hoopers, 'beneficent spirits who warn fishermen from going to sea when there is an approaching tempest' (1873, 28). More surprising is an account in the *West Briton* of 6 July 1827 describing sightings of mermaids over three days in and around a cavern on the beach at Mawgan Porth (Barton 1970, 164). Hearing a screeching noise a young man entered a large cavern which communicated with the sea by another outlet. There he saw something in human shape with long hair hanging all about it; he ran off thinking he had seen the devil. Three mermaids were seen on rocks on the following day and five on the next. Once again, the cavern is just the place for an encounter with the dangerous supernatural.

Saints and caves

Medieval tales of the saints linked them, on occasion, to caves. A few examples of Welsh, Cornish and Breton stories are noted, in the order in which they appear.

St Samson. In the eighth century Life of St Samson we have already seen how the saint dealt with a vicious serpent living in a cave. Samson 'commanded his own men to found a monastery near the cave, yet he himself indeed in the meanwhile, led a heavenly life in the cave, ever giving himself to fasting and to prayer' (Taylor 1925, 51). When he prayed to the Lord because of his thirst, a shower of water fell from the lintel of the cave and near the cave over a rock. The 'stream has never ceased to flow either by day or by night' (ibid 52). This cave is understood to be in Cornwall. Previously, before crossing from Wales, Samson and three others had feasted in a spacious and lonely cave for seven days; here a miraculous spring quenched their thirst (ibid 42–3). Then, after Samson had sailed to Brittany, he dispatched another serpent from a cave near the Seine and set up a monastery near by (*ibid* 57). Olson (following Doble 1935, 95) notes that the Cornish cave is described in detail and may represent a real place, half a mile from the church of St Sampson, Golant, where there is a cave above the river Fowey, opposite Penpol Creek. This is some 40 metres long, the first 10 metres being a natural cave with uneven walls and water dripping from the roof; beyond this it has been cut artificially and has the characteristic shape of a miners' adit (Olson 1989, 13–14). (The cave is not publicly accessible, being on the Lostwithiel to Fowey railway line, but the narrow mouth of the cave can be seen from beyond the railway fence.)

Saint Illtud. In Wales, an early ninth century account (of the Wonders of the Island of Britain) tells us that Saint Illtud was praying in a sea cave at Llwynarth in Gower when 'a ship sailed to him from the sea, and two men sailed it, and the body of a holy man was with them in the ship, and an altar was above his face'. He buried the holy man and built a church around the grave and the altar which – and this was the wonder – remained perpetually suspended (Morris 1980, 41).

Saint Paul Aurelian. The writer of the late ninth century Breton Life of Saint Paul Aurelian, Wrmonoc, seems to borrow from the Life of Samson, and claimed to have seen with his own eyes a spacious cavern on the Île de Baz, then used for grain storage, which had been the 'gloomy den' of a 'huge, voracious serpent'; Paul Aurelian (patron of Paul in Cornwall) sent the serpent away (Doble 1941, 23–29).

Fig 9 A hole opens into the hillside above the shore at Golant, opposite Penpol Creek, perhaps the very cave mentioned in the Life of Samson – but a very wet, uncomfortable and cramped abode even for a saint

Saint Gwinear. The Life of Saint Gwinear, written *c*1300, is thought to draw upon thirteenth century folklore of the parish of Gwinear. It tells how Gwinear, when in Brittany, sought a cave among the rocks where he began to live as a hermit, his sole food being acorns (Doble 1926, 100–105).

Gulval. The Breton saint Gudwal or Gurval (Cornwall's Gulval) was another cave dweller. According to seventeenth century tradition in Saint Malo he retired to a cave by the seashore, where 'famous for signs and miracles, he rested in peace' (Doble 1933, 62–65).

Saints may have been associated with caves in these stories for various reasons. They can be shown taking the bright light of their holiness to dark, wild places, in some cases driving out the powers of darkness that resided there. Then their saintly credentials can be displayed through an eremetic life of hardship in the wilderness, away from mundane comfort, closer, perhaps, to God. Finally the stories may also be echoing actual cult use of caves by the Christian community.

We have already seen how St Agnes and St Minver were also associated with caves, though in a rather different way from those in the earlier lives, as, in the form the stories are presented, neither the saint nor the giant/devil lives in the cave; instead the demise of the giant/devil is associated with a hole in the roof of the cave.

Caves – places of cult

Worldwide, caves have been used for burials and as theatres for ritual, including cave art and votive deposits. Often they are just one of a range of natural features – trees and groves, springs, pools,

rocks and hilltops – imbued with a supernatural significance (Tolan-Smith and Bonsall 1997; Bahn 1978, 126); special features of the landscape where the sacred world manifests itself and where the barriers between different worlds – human, celestial, chthonic – are at their thinnest (Bradley 2000, 29–32). Caves, as we have seen, epitomise the wild rather than the safe or domestic. They are also places at the boundary or the edge, the transition from light to dark, from known to unknown, safe to dangerous, from air to earth and, by extension, a threshold or gateway between the physical and supernatural, the sacred and the profane. Cooke sums it up: 'In human culture the cave is traditionally a place where individuals can retire for initiation, purification and renewal; a place where wisdom can be gained; a place where the underworld can be entered by both the living and the dead; the birth place and abode of sun gods and goddesses' (Cooke 1993, 303). A few examples are set out below, international and national, before returning to Cornwall.

The link between different worlds made caves the place for the delivering of oracles, as in Greece at Delphi, Corinth and Delos (Kempe 1988); and sacred caves were used for votive offerings in many cultures, including Mayan, Minoan, classical Greece, and in more recent centuries in Finland and Northern Scandinavian (Store 1997, 202–204; Bradley 2000). Offerings were also made in caves in Latvia in the twelfth to early nineteenth centuries by a peasantry which, though officially Christian, still followed pagan traditions. Hundreds of natural features were used as pagan cult sites, including caves with names such as the Livs Offering Cave, the Holy spring Cave (some caves contained healing springs) the Holy Maidens' Cave, the Devil's Cave. Often, another natural cult site such as a tree, spring or boulder is nearby. It is recorded that people made offerings of money; ribbons, wool and food, and hundreds of coins from the fourteenth to nineteenth centuries were found in excavating the Livs Offering Cave. According to tradition, caves were inhabited by 'the little gods of the earth', who were pleased to accept offerings, and by 'holy maidens', servants of Mother Earth (Urtans 1997).

The idea of the cave as a portal to other worlds is taken up by Oosterbeck (1997) in discussing neolithic burials in caves and chambered tombs in Portugal. For Oosterbeck, the chamber or cave represents the 'uterus' of Mother Earth, an entrance or point of return to the earth and a link between life and death. It is suggested too that the megaliths were no more than artificial caves. Cooke and others have made the same points with regard to the British Isles (1993, 297).

The special properties of caves may also have played an important part in the performance of rituals. In Upper Palaeolithic Europe the caves' secrecy, acoustics, rock surfaces and rock forms, the use of darkness and light, are all thought to have been exploited in ritual, initiation and shamanic ceremonies, in which the famous cave paintings were an important component (Sieveking 1997; Bahn 1997).

In Britain, burials are the most obvious form of prehistoric ritual practice associated with caves. Examples are known from the Upper Palaeolithic through to the Roman period, though unusual in the late Bronze Age and especially the Iron Age (eg Darvill 1987, 37, 38, 43; Burgess 1980, 56, 226–7, 322; Branigan 1997, 114). Late Neolithic and Early Bronze Age sites include burials in stone chambers or cists built inside the cave (eg Burgess 1980, 56) and also burials under rock overhangs, for example a group of four cremations at Goats Crag, Northumberland (*ibid* 226, 322). Other types of ritual activity may be more difficult to detect, and are not often identified. A characteristic of the Later Bronze Age and Iron Age is the votive deposition of fine metalwork into pools, rivers and streams (Bradley 1990). Occasional collections of metalwork are found in caves, such as late second millennium examples from Wales at Monkton Cave, [Pembrokeshire] and Ogof-yr-esgyn, [Breconshire] (Burgess 1980, 227) and the late Bronze Age/Early Iron Age deposit from Heathery Burn, County Durham (Cunliffe 1974, 54, 133). Such deposits do not however seem to be an obvious or regular occurrence in caves.

Christian use of caves in the medieval period in Western and northern Britain is better documented. In Scotland, St Ninian's Cave near Whithorn contained stone pavements and floors and crosses inscribed on loose boulders and on walls, some of seventh to eleventh century date, cut perhaps by pilgrims to the site. The cave is just above the beach (Mackie 1975, 62–3). According to the eighth

century *Miracula Niniae Episcopi*, 'Ninian studied heavenly wisdom with a devoted mind in a cave of horrible blackness' (Yeoman 1999, 41). St Columba's Cave, South Knapdale, Argyll, contained burials post-dating Viking period iron-working and aligned on an altar (Webster and Cherry 1977). On the east coast, west of Edinburgh, St Baldred's cave was found in the nineteenth century to contain human burials and an altar (Yeoman 1999, 50). On the shore of Holy Island, Isle of Arran, St Molaise's cave has runic inscriptions of eleventh to thirteenth century date cut into the walls (Mackie 1975, 128). In Ireland, St Patrick's Purgatory, Lough Derg, was a famous place of pilgrimage from the twelfth century; those worthy to enter the cave were shut in to experience demonic visions of torment (Pennick 1996, 97).

Post-Roman use of south Welsh caves is indicated by finds of imported pottery. Davies has suggested that caves such as Radyr near Cardiff or Bacon Hole in Gower may have seen the sort of eremitical occupation described in the Life of Sampson (Davies 1982, 152).

In Cornwall we might expect prehistoric ritual use to be made of caves, clefts and overhangs, considering the way in which outcropping rock, tors and carns appear to be a focus for ritual and ceremonial sites in the Neolithic and Early Bronze Age (Tilley 1995). Early Neolithic enclosures are on rocky hills and incorporate outcrops in their circuits (eg Carn Brea, Helman Tor and probably Rough Tor and Stowe's Hill); stone circles are sited with reference to these sacred hills and tor cairns encircle and enhance natural outcrops, whether low boulders or great tors. Rock outcrops may have been seen as the focus and channel for the supernatural powers of the earth and the landscape. If so, how did people of the Neolithic and Early Bronze Age perceive and use the clefts, tunnels and cave-like formations that penetrated the rock? It is hard to believe that they did not have meaning. If not avoided as being too close to dark supernatural powers they may have been used as a route for mediation with that power and to seek a link with the spiritual world; perhaps they were used for the deposition of human remains, a natural version of the Neolithic chambered tombs. Excavation would not necessarily throw any light on this, if rituals did not include deposition of non-perishable materials. Sea caves are in an even more dramatically liminal setting; the shore marks the meeting of three different worlds – land, sea, sky – each with its own specific identity and associations (Bradley 2000, 133).

The most significant site identified so far is a small cave above the raised beach at Lowland Point on the Lizard Peninsula, in an outcrop of gabbro rock known as Crane Carrick Crag. In 1918 four pieces of pottery, late Neolithic Grooved Ware, were found at a depth of *c*0.6m in the cave or rock cleft. The cave is 5m deep, 1.2m wide and 1.5m high (Johns and Herring 1996, 187). Grooved Ware is very rare in Cornwall, and elsewhere is typically associated with henge monuments. This could be interpreted as part of a votive offering, though use as a shelter is also a possibility. When the site was reinvestigated in 1933 a flint core, flakes and pebbles were found, thought at the time to be Mesolithic.

Cavities, shafts and fissures in the granite outcrops of Penwith and Bodmin Moor would offer plenty of opportunities for deposition of similar offerings, though none has yet been investigated with the exception of a possible example at Garrow, St Breward: a rock outcrop and overhang towards the bottom of a south facing valley side. A roughly rectangular area or platform is defined by the natural outcrop on the north and west and by two or three upright slabs on the east and south. The rectangular area extends under a low rock overhang on the west and has an overall length of 4.5m and width of 1.5m. This might be an incomplete or ruinous shelter but might be a natural site that has been embellished for ritual use (Cornwall Archaeological Unit Survey 1985, Garrow context 446). The site was excavated in 1953 by Dorothy Dudley as part of her campaign on Garrow from 1951 to 1962, and interpreted as '? burial' site. Unfortunately the excavation is unpublished; the finds book refers to flints, burnt flint, charcoal and sherds (Dudley MSS at Royal Cornwall Museum, Truro, Photo Book 1, Finds Book 1).

A brief mention of a group of artificial caves, Cornwall's Iron Age fogous, may be appropriate here as they are commonly interpreted as ritual structures (Christie 1978, Cooke 1993); if this is

correct it may inform our expectations of how natural caves may have been regarded and used. The main alternative interpretation is as refuges, providing protection for the inhabitants against small-scale raiding (MacLean 1992). Few of the known fogous are well preserved and crucial details of entrances and exits, for example, have generally been disturbed. Excavation is needed of a well preserved example, abandoned since the time of its use. By and large fogous lack obvious design features or contexts that make them stand out as undoubted ritual structures. However, the round chamber at Carn Euny fogou, its earliest element, may be just such a feature; a recess in the wall opposite its entrance and possible human cremated bone from the construction trench and beneath the floor helped Christie to conclude that this fogou at least had 'a more than purely utilitarian function' (Christie 1978, 332). Significant too may be the deliberate and careful packing of the long passage (Cooke 1993, 66), which could be interpreted as a ritual closing of the monument, though like the placing of the possible human bone, rituals associated with construction and closure need not imply a primary ritual use. Cooke notes too that the northern ends of some long passages are aligned on the midsummer sunrise or sunset, and argues that this was intended to create a relationship between the sun deity and the earth goddess. Herring, whilst questioning aspects of the supposed alignments, follows Christie in noting the monumental character of fogous, drawing an analogy with the medieval church within a village of less substantial structures (Herring 1994).

If fogous were constructed primarily as refuges rather than as shrines it is nevertheless doubtful whether, in later prehistory, such a structure could have been regarded in a purely utilitarian light; more probably it would have been full of symbolic meaning to its builders, because of its special role and character, which might also have influenced aspects of design. Refuge and ritual should not be regarded as mutually exclusive interpretations.

The only site in Cornwall with well documented cult use of any period is Holy Well cave, Cubert.

Fig 10 Holy Well, Cubert; rock-cut steps on the left of the cave lead to water-filled rock basins and an inner chamber

From the seventeenth to nineteenth centuries, and presumably earlier, this was an important cult centre. Hals (*c*1690) calls it 'a famous and well-known spring of water called Holy Well'; people frequented it in 'incredible' numbers in summer, 'from countries far distant' and surrounding villages were 'quite forsaken' on the day of the anniversary. He tells us that 'the virtues of this water are, if taken inward, a noteable vomit' (Quiller-Couch 1894, 54; Polwhele 1803, 54). The location of this well is clear as a near-contemporary map, the 1694 Lanhydrock Atlas, labels the cliff here 'Holy Well'. William Wynne visited in 1755: 'It is thought to be antiscorbulick and good for rickety children, cripples and other ailing persons and is much frequented upon those occasions' (Edwards 1981, 341). Two reports in the nineteenth century give us a good idea of the practices at Holy Well. First, *The West Briton* of November 4, 1842:

'The ceremony of dipping children inflicted with various diseases, in a well in the parish of Cubert, and afterwards passing them through a hole in the cliff, near the spot, constitute a superstitious rite which actually takes place every Holy Thursday, at which time the waters of the well are supposed to possess more miraculous powers that at any other period. These rites are performed in the morning, and in the afternoon a fair is held, at which all the old Cornish exercises of wrestling, quoiting and single-stick are kept up with much spirit' (Barton 1971, 95).

By the end of the century the ceremonies were a memory: 'The legend respecting the well is, that in olden times mothers on Ascension Day brought their deformed or sickly children here, and dipped them in, at the same time passing them through the aperture connecting the two cisterns; and thus it is said, they became healed of their disease or deformity. It would seem that other classes also believed virtue to reside in its water; for it is said that the crippled were accustomed to leave their crutches in the hole at the head of the well' (Oliver 1884, 42).

In these accounts it is the well rather than the cavern which is the focus of the cult, though the setting and atmosphere of the cave is clearly a major aspect of the site; also, the healing ritual involved passing the child or invalid through the hole in the rock. Leggat refers to a similar ceremony in association with St Piran's Well, using a cleft in the rocks by the sea shore (Leggat 1987, 36); this might hint at wider and more common use of such coastal features.

After a long approach across the sands Holy Well cave is found at the northern end of the beach where it is submerged at mid tide. Only when rounding a projection in the cliff is the opening revealed, set at the foot of sheer overhanging dark cliffs at the back of a tiny rock-strewn cove which has almost the feel of a forecourt to the cave. Inside the cavern, rock-cut steps lead up on the left. The upper steps and parts of the walls are masked with green and red calcareous deposits which give the cave a strange and distinctive appearance. A rock basin in the middle of the upper steps, filled with fresh water dripping from the walls, is presumably the holy well; shallower pools also form on the other encrusted steps. At the top of the steps a rock façade is pierced by a narrow entrance; crouching though this one enters a small chamber with sloping roof, too low for an adult to stand upright. Leggat allows himself to wonder if this could have been used as a hermit's cell (1987, 35). A natural pillar of rock separates the entrance from a slit-like opening scarcely one foot high which drops from the chamber down to the right of the steps and basins. It was presumably through this aperture that sick children and invalids (thin invalids) would have been passed, down from the upper chamber into the arms of attendants below.

The approach, the hidden entrance and towering cliffs, the strange deposits and rock basins, the inner chamber and the pierced rock, and the threat of the incoming tide, all work together to create a magical place.

At St Agnes, too, the cave beneath St Agnes' Chapel at Chapel Porth is associated with healing waters. Water from the site of the holy well next to the chapel drips or cascades, according to the season, through a round hole and into the sea cave, as did the blood of Giant Bolster. In the nineteenth century visitors took the waters in the cave, though apparently for refreshment rather than their healing powers (Mattingly 1998, 8). Perhaps this fortuitously echoes earlier cult practice here; perhaps the holy well and chapel were established at an older, pagan cult site involving the water,

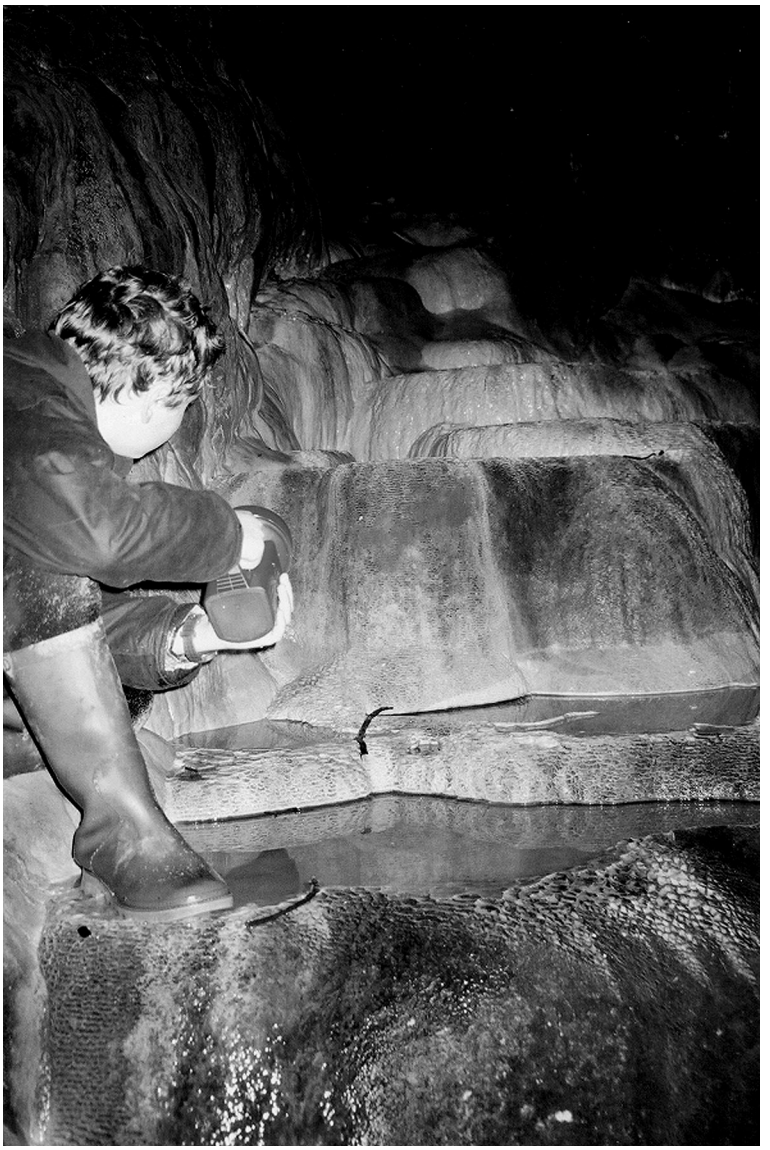

Fig 11 Holy Well cave is remarkable for the calcareous formations cloaking its walls and basins

the cave and a nearby stone, marked with St Agnes' (or the Giant's) footprint. Cheryl Straffon suggests that the legend of St Agnes and the Giant Bolster is a Christianised version of a more ancient tale or belief involving the sacrifice of the consort-lover of the Goddess of the Earth (Straffon 1993, 40). Alternatively, perhaps the demise of the Giant Bolster at the hands of St Agnes reflects the supplanting of pagan by Christian; the same could be said of Samson and the Serpent. Perhaps a similar trend may be detected at Holy Well, where a well house inland at Trevornick (Lane-Davies 1970, 82) might have been built as a more obviously Christian (and more convenient) alternative to the more blatantly pagan cave well.

To recap, in the historic period clear evidence for cult use of caves in Cornwall is restricted to use associated with the healing power of water and the healing rituals involved in passing children and others through holes in the rock. Folklore shows that during the historic period there was an understanding or expectation that, at least in stories, caves were dens for dark spirits and unwelcome magic and also, therefore places for demonstrating the power and holiness of a saint. Was this just for the embellishment of hearthside tales or did it somehow reflect actual beliefs in the supernatural? More imponderable still is whether practices in the historic period, together with the folklore, are in any way an echo of pre-Christian beliefs and practices; for example, that the caves were a channel or dwelling for supernatural power, which people could attempt to control, propitiate or mediate with. This could well be the case, but the evidence of Iron Age and Romano-British use of caves in Britain as a whole, which might provide a context for Cornwall, does not at present suggest that caves played as significant a role in later prehistoric religion as one might expect.

Conclusion

People's experience of caves in Cornwall has had a dual nature. Practical use includes exploitation of minerals and wildlife and their use for storage, as hiding places and hideouts and as shelters and lookouts. But equally they have evoked a response because of their special character as wild, undomesticated places, places on the edge, where elemental forces meet: air and earth, land and sea, light and dark; our world and the supernatural.

In a way, they can be seen to epitomise the human response to wilderness and the natural world. Perceived as liminal and marginal places they can be a channel for mediation with the supernatural world. As wild and mysterious places they become the appropriate setting for superstitious half-beliefs and tales of giants, magic and the supernatural, tales of smuggling and wrecking, activities at the edge of society and of the known. Their wild beauty, the sense of danger and enchantment, the stories and associations, have then drawn the romantic and the tourist; and close behind them, the geologist, naturalist and antiquarian. Here we can see, in simple outline, a spectrum from cult practice, to superstition and folklore, to romantic awe of nature, and to science. Even the wildest places are made firmly part of the human world through successive layers of cultural associations and meanings.

Gazetteer of caves

Caves have been included in this list where they have cultural associations and/or documented use: occupation; hiding-places and stores; focal points for visitors; places associated with folklore; cult sites. (For artificial caves – fogous and 'hulls' – see Cooke (1993) and Tangye (1973) respectively.)

Scilly

- Piper's Hole, St Mary's (SV 912 094). Hunt 1881, 185; folklore: said to link to Piper's Hole, Tresco.

- Piper's Hole, Tresco (SV 886 165). Hunt 1881, 185; folklore: said to link to Piper's Hole, St Mary's. Waugh 1991, 23; smuggling. Spalding and Sargeant 2000; natural history. Whitford 1852, 133; folklore/story: great length, evil reputation, refuge of Royalist.

Penwith

- 'St Michael's Cave', St Michael's Mount (SW 5138 2985). Herring 1993, 41; grotto, 'St Michael's Cave'. Bottrell 1870, 32, 46; folklore: giant has a cave on St Michael's Mount.
- Mousehole (east of village) (SW 478 267). Bottrell 1873, 245; folklore: small people.
- Mousehole (SW 468 257). Blight 1876, 35, 40–1; Luck 1995, 14–15; Folliott-Stokes 1928, 216; visitors. Westwood 1992, 42; folklore, 'Giant's Cave'.
- Giant's Cave, Lamorna (SW 46 24). Hunt 1881, 43; 'Giant's Cave' (folklore?). Blight 1876, 44; 'Giants Cave' east of Cairn Kimyel.
- Vow Cave, Castallack Carn, Paul (SW 4475 2523). Sites and Monuments Record, reference PRN 28852; rock shelter?
- Boleigh 'Fogou Hole' (SW 437 251). Hunt 1881, 244; folklore: impenetrable/long/witches. Bottrell 1873, 15, 27, 28; folklore: great length, refuge, witches and Devil, Bucca-boo, smugglers.
- Treryn Dinas (SW 397 219). Hunt 1881, 48; folklore: giant in cave beneath rocks. Blight 1876, 126; visitor (Treryn or Pedn-vounder cove).
- Porthcurno (SW 387 223). Hoskins and Berry, nd, 90; cottage in rock cleft.
- Tol-Pedn (SW 366 215). Blight 1876, 106–199; Folliott-Stokes 1928, 143; visitors. (Bird 1998, 146; brief description.) Hale *et al* 2000, 72–3; folklore/story: Harry the Hermit.
- Trevilley Cliff (SW 350 238 approx.). Bottrell 1873, 102; folklore: cavern leads to domain of fairy folk (with return through cave near Nanjizal, perhaps SW 357 237?).
- Trebiggan (SW 35 29). Hunt 1881, 53; folklore: a giant's cave near Land's End.
- Porth Nanven (SW 35 30). Folliott-Stokes 1928, 178; smugglers' caves in cliff side.
- Pendeen Vau (fogou) (SW 383 355). Blight 1876, 165; folklore: communicates with sea, and home of terrible spirit. Bottrell 1873, 28, 167; folklore: length of passages, fearful place, white lady, treasure.
- Carn Galva (SW 42 36). Hunt 1881, 52; folklore: Giants Cave, home of Holiburn, amongst rocks.
- Treveglos, Zennor (SW 4567 3843). Pool 1963; Herring 1987; artificial underground passage – smugglers' hiding place.

Kerrier North

- Godrevy Cove (SW 581 428). Hippesley Coxe 1984, 95; folklore: smugglers' cave.
- Ralph's Cupboard (SW 644 451). Bottrell 1870, 46–7; Hunt 1881, 76; folklore: giant. Hippesley Coxe 1984, 93; Waugh 1991, 167; smuggling. (Bird 1998, 163; mention.)
- Portreath (SW 650 453). Thomas 1990, 17; smuggling cave west of beach.

- Nance (SW 68 47). Halliday 1953, 231 (Carew); seals.
- Tobbin (SW 68 47). Landry 1978; seals; visitor.

Kerrier South/Lizard

- Prussia Cove (SW 556 278). Waugh 1991, 134,145; smuggling. Piskies Cove, SW 554 277; Bessy's Cove, SW 556 278; King's Cove, SW 558 378.
- Porthleven (SW 6237 2574?). Hippesley Coxe 1984, 94; Waugh 1991, 131; smuggling: cave and tunnel west of harbour. (Grid reference is for caves close to the Giant's Rock, Geraldine Jones, pers comm)
- Duff's Hole, Penrose (SW 65 26). Johns 1848, 221–2; folklore: mine adit used *c*1800 as shelter by Duff, 'a person of weak intellect'. Johns forthcoming; perhaps the adit in Oak Grove at SW 6520 2605.
- Mullion (SW 66 17). Johns 1848, 186–9; visitors. Harvey 1875, 9; visitors: Porthpyg, Mullion Cove (picture). Folliott-Stokes 1928, 258; visitor: 'famous but small cave'. Hippesley Coxe 1984, 49; Waugh 1991, 132; smuggling: Torchlight cave. Vivian 1989, 32; 'cave used by wreckers' (picture).
- Gunwalloe Fishing Cove (SW 653 222). Hippesley Coxe 1984, 94; Waugh 1991, 131; smuggling: cave and tunnel to belfry tower.
- Soapy Cove (SW 67 14?). K Gason, pers comm; sheep stealing: cave in cliffs, small opening with hinges; according to farmer, for taking sheep out secretly; said to link to round store house at farm.
- Sheep-Stealers' Cave (approx SW 679 134?). Barton 1970, 181–2; Johns 1848, 108–110, 125–9; Pryor 1996a, 33; sheep-stealers' cave. Folliott-Stokes 1928, 264; 'an old smuggling cave'.
- Kynance Cove (SW 6834 1328). Trewin 1948; Hutchings 1983, 40; Tennyson at caves of Asparagus Island. Johns 1848, 88–90, 125–129; Collins 1851, 74–78; visitor. Maker and Tregonning 1989, 47; Kilvert's visit; Dining Room and Drawing Room Caves. Hunt 1881, 153; cavern and mer family. Bird 1998, 128; Asparagus Island: Devil's Letter Box and The Bellows.
- Polpeor (SW 70 11). Johns 1848, 68–73; visitor. Trewin 1948, 195; Hutchings 1983, 40; Tennyson's visit.
- 'Cave East of Lizard Point' (same as Polpeor?) (SW 70 11?). Johns 1999, 20, quoting Oates 1951, 102; possible hiding place of Captain Avery's treasure.
- Lion's Den (SW 703 115). Johns 1848, 17–22; Bird 1998, 123; description. Folliott-Stokes 1928, 278; mention. Collins 1851, 70–2; visitor. Pryor 1996b, 68–9; collapsed 1847.
- Raven's Hugo (SW 7170 1376?). Johns 1848, 144–5; smugglers; visitors; dangers.
- Chough's Hugo (SW 720 138). Johns 1848, 145–149; mention (visitor).
- Dolor Hugo Cave (SW 721 139). Johns 1848, 145–149; visitor; tourists. Folliott-Stokes 1928, 280; visitor. Trewin 1948, 195; visitor (and verse); (and Tennyson at Pigeonthugo).

- Enys Head (SW 7282 1498). Johns 1848, 165; Johns 2001, 31; folklore: cave said to communicate with Erisey Manor house.

- Devil's Frying Pan (SW 721 142). Johns 1848, 149–153; Folliott-Stokes 1928, 278–9; Bird 1998, 121; visitors/description.

- Crane Carrick Crag, Lowland Point (SW 7975 1960). Johns and Herring 1996, 187; excavated cave – flints and Neolithic Grooved Ware pottery; cult site?

- Constantine Cave (SW 73 28?). Pugh *in litt*, 1999; folklore: alleged long cave.

Carrick North

- Chapel Porth and Towanwroath, St Agnes (SW 697 495 and SW 698 500). Tonkin 1976; Bizley 1955, 333–4; Hunt 1881, 73–5; Bottrell 1870, 47–8; folklore: Giant Bolster, St Agnes. Padel 1986, 124: place-name. Mattingley 1998: holy well and cave.

- Captain's Cave, St Agnes (SW 698 505). R. Radcliffe pers comm; hiding place: adit used to conceal two horses in World War One. Seal Hole, St Agnes (SW 71 51). Barton 1970, 130–1; visitor/exploration/danger (*c* 1770). *St Agnes Museum Newsletter* **29**, November 1998, 3; visiting party, 1823.

- Perranporth (various caves?) (SW 75 54). Hutchings 1983, 40; visitor (Tennyson). Hippesley Coxe 1984, 93; Waugh 1991, 159; smuggling: double cavern at Perranporth (Cligga Porth?). Hunt 1881, 145–7; folklore: mermaid at cave mouth. Leggatt 1987, 36; cult: children passed through cleft. *Western Morning News* 12 August 2002; Droskyn Point, surfers swept into tiny cave, rescued by St Agnes RNLI inshore lifeboat. *Western Morning News* 25 April 2003: Lifeboat crew honoured by the RNLI; cave known locally as the Pilchard Storing Place.

- Holy Well, Cubert (SW 766 600). Quiller Couch 1894, 54; Polwhele 1803, Barton 1971, 95; Leggatt 1987, 35, 36; Folliott-Stokes 1928, 100; Oliver 1884, 42; Edwards 1981, 341; cult: holy well in cave.

Carrick South

- Well Beach, Falmouth (SW 805 333). Hippesley Coxe 1984, 95; Waugh 1991, 118; smuggling: two caves and a tunnel.

- Penpol Farm/Sunset Creek (SW 81 39). Hippesley Coxe 1984, 95; Waugh 1991, 118; smuggling.

- Tregeagle's Hole (SW 915 376). Deane and Shaw 1975, 113; folklore: Tregeagle.

Restormel North

- Piper's Hole, Crantock (SW 7791 6073). Le Messurier 1987, 3; Gossip 2001, 41; visitors: carving and verse. Teague Husband 1923, 32; smuggling.

- Crantock Beach (SW 7817 6077). Field visit, July 2002; visitors: cave with graffiti (dates, names, small profile of a face).

- Tea Caverns, Newquay (SW 804 624). Hippesley Coxe 1984, 93; Waugh 1991, 155–6; Teague Husband 1923, 32; smuggling. Oliver 1884, 18–19; Goddard 1906, 15; descriptions.

- Lusty Glaze, Newquay (SW 823 626). *Western Morning News*, 21.1.02, 22.1.02, 23.1.02; cave used for parties; dangers: group caught by tide.

- 'Mermaid's Cave', Trevelgue (SW 824 630). Bird 1998, 176; mention (name); Oliver 1884, 23; Goddard 1906, 22, 'a smuggling cave'.

- Banqueting Hall, Trevelgue (SW 827 631). Folliott-Stokes 1928, 94; Acton 1990, 35; Bird 1998, 177; Oliver 1884, 24; Goddard 1906, 25; visitors: concerts.

- Cathedral Cavern, Trevelgue (SW 828 631). Bird 1998, 177 (mention); Oliver 1884, 25; Goddard 1906, 25; descriptions.

- Fern Cavern, Newquay (SW 832 634). Bird 1998,178 (mention); Oliver 1884, 26–7.

- Mawgan Porth (SW 847 673). Barton 1970, 164; folklore: mermaids. Folliott-Stokes 1928, 93; mention: fine cave on north side.

Restormel South

- Dodman (SX 00 39). Hunt 1881, 75–6; folklore: giant.

- Lower Silvermine (Ropehaven) (SX 03 49). Waugh 1991, 106; smuggling. Herring 1999, 5 quoting Pearse Chope; sixteenth century reference (Leland).

- Conjuie Beach (Lower Porthpean) (SX 03 49). Waugh 1991, 106; smuggling.

- Helman Tor (SX 0623 6144). Herring 1990, CAU Survey (GRH28, GRE30); overhang/shelter for stone splitter.

- Golant (SX 123 543). Doble 1935, 93, 95; Taylor 1925, 50–2; Olson 1989, 12, 14; folklore: Saint Samson and serpent.

North Cornwall

- Porthcothan (SW 8650 7139). Waugh 1991, 150–151; Baring-Gould 1899, 278–281; Sites and Monuments reference PRN 21806 (and references); smuggling (artificial cave). (Folliott-Stokes 1928, 90; sea arches and tunnels).

- Treyarnon Bay (SW 85 74). Waugh 1991, 157; smuggling: storage place cut in cliffs, with 2 entrances. Folliott-Stokes 1928, 90; seals in caverns at Treyarnon. Taylor 2003, 16; cave at SW 8547 7387, perhaps man-made.

- Round Hole, Trevone (SW 890 762). Bird 1998, 187; Folliott-Stokes 1928, 86–7; well-known round hole; dangers.

- Topalundy, St Minver (SW 956 798). Orme 1992, 96, 154; Deane and Shaw 1975, 156; folklore: Saint Minver and the devil. Bird 1998, 194; (mention).

- Merlin's Cave, Tintagel (SX 051 890). Halliday 1953, 192; Folliott-Stokes 1928, 67; Hutchings 1983, 40 (Tennyson); *Western Morning News* 24.3.00; Broadhurst 1992, 148–152; visitors, dangers, inspiration. (Hale *et al* 2000 58, 82, 84; Merlin story).

- Bossiney (SX 06 89). *Western Morning News* 7.9.98, 9.9.98; dangers, heroic rescue.

- Minster, Boscastle (SX 111 907). Irving Little 1991; natural cave, archaeological potential?

- St Illickswell Gug (SX 013 811). Ordnance Survey Map; coastal name, associated with holy well nearby?

- Com Beach, Pentire (SW 938 805). Postcard, CRO AD 590/10: folklore, smugglers' cave ('Cruel Coppinger's Cave').

- Port Isaac (area) (SW 9981?). Hippesley Coxe 1984, 77; folklore, smugglers' cave (Cruel Coppinger).

- Steeple Point, Morwenstow (SS 198 116). Harper 1909, 99; Hippesley Coxe 1984, 92; folklore, smugglers' cave (Cruel Coppinger).

- Gull Rock, Marsland Cliff, Morwenstow (SS 208 171). Hippesley Coxe 1984, 75; folklore, smugglers' cave (Cruel Coppinger).

- Garrow, St Breward (SX 1417 7753). *Dudley MSS* at Royal Cornwall Museum, Truro – *Photobook 1, Finds Book 1*; CAU survey 1985, context 446; rock shelter/cult site?

- Carnglaze Caverns, St Neot (SX 187 657). *Western Morning News* 26.1.02; artificial caverns formed by slate quarrying; visitor attraction; public concerts; Second World War Naval rum store.

- Pentire (?). Waugh 1991, 159: smuggling (documented). (Not clear which 'Pentire' this is).

- Carkees (SX 1326 7652). Cole 1997, 87–88; rock overhang: tinners' shelter.

Caradon

- Ethy Wood (SX 1314 5706). Herring *et al* 1998, 250–1; smuggling.

- Lantic Bay (SX 14 50). Waugh 1991, 100, 108–110; smuggling (documented).

- Willy Willcocks' Hole, Chapel Cliff, Polperro (SX 210 507). Westwood 1992, 46; folklore: haunted by ghost of fisherman lost in the cave.

- Looe Island (SX 25 51). Waugh 1991, 98; smuggling.

- Downderry (Keveral Beach) (SX 301 543). A.B. 1898; Williams 1999; Betjeman and Rowse 1974, fig 90; habitation ('Limpet Pickers').

- Sharrow Grot, Whitsand Bay (SX 3930 5211). National Trust 1987; romantic eighteenth century cave with inscriptions. Waugh 1991, 97; implies used for smuggling.

- Queen Adelaide's Grotto, Mount Edgcumbe (SX 4418 4888). Gaskell Brown 1998, 40; 2000, 24; lookout, grotto.

- Daniel Gumb's Cave (SX 2567 7228). Collins 1851, 33–35; Baring-Gould 1899, 108; Sharpe 1993, 197–8; Paynter 1946; Hitchins and Drew 1824, 421–2; habitation. (Grid reference is for rebuilt carved pieces; originally perhaps SX 2597 7136).

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Bibliography

'A B', 1898. 'Cornish Cave Dwellers', *Cornish Magazine,* **1**
Acton, RS, 1990. *Around Newquay*, Land Walks Books **5**, Truro
Bahn, PG, 1978. Water Mythology and the distribution of Palaeolithic Parietal Art, *Proc Prehist Soc* **44**, 125–134
Bahn, PG, 1997. Dancing in the Dark: Probing the Phenomenon of Pleistocene Cave Art, in Bonsall and Tolan-Smith, 1997, 35–37
Balmer, H, 2003. The Porthcothan 'Fogou'; *Meyn Mamvro* **51**, 22–24
Banji, S, 1998. The Clovelly Cannibals: Some Notes on the Parish Registers, *Devon and Cornwall Notes and Queries* **38**, **3**, 83–85
Baring-Gould, S. 1899. *A Book of the West; Cornwall*, London
Barton, RM (ed), 1970. *Life in Cornwall in the Early Nineteenth Century*, Truro
Barton, RN (ed), 1971. *Life in Cornwall in the Mid-Nineteenth Century,* Truro
Betjeman, J and Rowse, AL, 1974. *Victorian and Edwardian Cornwall from old photographs*, London
Bird, E, 1998. *The Coasts of Cornwall. Scenery and Geology with an Excursion Guide*, Fowey
Bizley, MH, 1955. *Friendly Retreat, The Story of a Parish*, reprinted 1994, by St Agnes Museum Trust
Blight, JT, 1876. *A Week at the Land's End*, Truro
Bonsall, C, and Tolan-Smith, C (eds), 1997. *The Human Use of Caves*, Brit Archaeol Reports, International Series **667**, Oxford
Bottrell, W, 1870. *Traditions and Hearthside Stories of West Cornwall, First Series*, reprinted 1996, Felinfach
Bottrell, W, 1873. *Traditions and Hearthside Stories of West Cornwall, Second Series*, reprinted 1996, Felinfach
Bradley, R, 1990. *The Passage of Arms. An Archaeological Analysis of Prehistoric Hoards and Votive Deposits*, Cambridge
Bradley, R, 2000. *An Archaeology of Natural Places*, London
Branigan, K. 1997. Working in the Dark? Caves as Workshops in Roman Britain, in Bonsall and Tolan-Smith, 1997, 114–121
Broadhurst, P, 1992. *Tintagel and the Arthurian Myths*, Cornwall
Brooks, RT, 1964. The Rumps, St Minver: Interim Report on the 1963 Excavations, *Cornish Archaeol* **3**, 26–34
Burgess, C, 1980. *The Age of Stonehenge*, London
Chaplin, R, and Coy, JP, 1964. Report on the Animal Bones, in Brooks 1964, 31–34
Christie, PML, 1978. The excavation of an Iron Age souterrain and settlement at Carn Euny, Sancreed, Cornwall, *Proc Prehist Soc* **44**, 309–433
Cole, R, 1997. *Ivey and Hawkstor Farms, An Archaeological Assessment*, Cornwall County Council, Truro, unpublished report
Collins, W, 1851. *Rambles Beyond Railways,* reprinted 1982, London
Cooke, IM, 1993. *Mother and Sun, the Cornish Fogou*, Penzance
Cunliffe, B, 1974. *Iron Age Communities in Britain*, London
Darvill, T, 1987. *Prehistoric Britain*, London
Davies, W, 1982. *Wales in the Early Middle Ages,* Leicester
Deane, T, and Shaw, T, 1975. *The Folklore of Cornwall*, London

Doble, GH, 1926. *Saint Gwinear, Patron of Gwinear,* Cornish Saints Series No 9, reprinted 1997 in *The Saints of Cornwall, Part One, Saints of the Land's End,* Felinfach
Doble, GH, 1933. *Saint Gudwal or Gwrval, Patron of Gulval*, Cornish Saints Series No 30, reprinted 1997 in *The Saints of Cornwall, Part One, Saints of the Land's End,* Felinfach
Doble, GH, 1935. *Saint Samson, Patron of Golant and Southill,* Cornish Saints Seies No 36, reprinted 1970 in *The Saints of Cornwall, Part Five, Saints of Mid-Cornwall,* Oxford
Doble, GH, 1941. *Saint Paul Aurelian, Patron of Paul*, Cornish Saints Series No 46, reprinted 1997 in *The Saints of Cornwall, Part One, Saints of the Land's End,* Felinfach
Edwards, C (ed), 1981. A Visit to Cornwall in 1755 by William Wynne, *Journ Roy Inst Cornwall*, **NS 8**, **4**, 338–349
Fells, R and Grevatt, T, 1989. *A Visitor's Guide to Underground Britain. Caves, Caverns, Mines, Tunnels, Grottoes*, London
Folliott-Stokes, AG, 1928. *The Cornish Coast and Moors*, London
Gaskell Brown, C, 1998. *Mount Edgcumbe House and Country Park,* Torpoint
Gaskell Brown, C, 2000. *Images of Mount Edgcumbe, Cornwall*, Torpoint
Goddard, F, 1906. *Newquay, Cornwall; the Vale of Lanherne and Perranzabuloe*, Newquay and London, Second Edition revised 1906
Gossip, J, 2001. *The Gannel Estuary, Cornwall Archaeological and Historic Assessment*, Cornwall County Council, Truro, unpublished report
Hale, A, Kent, AM, and Sanders, T, 2000. *Inside Merlin's Cave. A Cornish Reader 1000–2000,* London
Halliday, FE (ed), 1953. *Richard Carew of Antony*, London
Hamilton Jenkin, AK, 1933. V*isiting a seal cave (Cornwall Calling No 2),* typescript at Cornish Studies Library, Hamilton Jenkin Collection
Harper, CG, 1909. *The Smugglers. Picturesque Chapters in the Story of an Ancient Craft*, republished 1966, Newcastle
Harvey, EG, 1875. *Mullyon: its history, scenery and antiquities,* Truro
Herring, P, 1987. *Treveglos, Zennor, The National Trust West Penwith Archaeological Survey,* Cornwall Archaeological Unit / The National Trust, unpublished report
Herring, P, 1993. *An Archaeological Evaluation of St Michael's Mount*, Cornwall County Council, Truro
Herring, P, 1994. Review: 'Mother and Sun, the Cornish Fogou', by Ian M Cooke, *Cornish Archaeol* **33**, 245–47
Herring, P. with contributions by Parkes, C, Pring, S, Green, E, Howard, A, Roberts, N, Davey, S, Rose, F, and Spalding, A, 1998. *Ethy Park, St Winnow. Historic Landscape Survey*, Cornwall County Council, Truro, unpublished report
Hippesley Coxe, AD, 1984. *A Book About Smuggling in the West Country 1700–1850*, Padstow
Hitchins, F and Drew, S, 1824. *The History of Cornwall, Volume II*, Helston
Hoskins, WG and Berry, C, nd. *Devon and Cornwall in Pictures*, London
Hunt, R,1881. *Popular Romances of The West of England – the drolls, traditions and superstitions of old Cornwall*, third edition, reprinted 1993, Lampeter
Hutchings, RJ, 1983. *The King Arthur Illustrated Guide*, Truro
Jacobi, RM, 1979. Early Flandrian Hunters in the South West, *Devon Archaeol Soc Proceedings* **37**, 48–93
Johns, CA, 1848. *A Week at the Lizard*, reprinted 1992, Felinfach
Johns, C, 1999. *Kennack Sands, An Archaeological Assessment Survey,* Cornwall County Council, Truro, unpublished report
Johns, C, forthcoming. *Penrose and the Loe, Helston, Cornwall, rapid historic environment survey,* Cornwall Archaeological Unit and The National Trust, unpublished report
Johns, C, and Herring, P, 1996. *St Keverne Historic Landscape Assessment. An Archaeological and Historical Survey*, Cornwall County Council, Truro
Kempe, DRC, 1988. *Living underground: a history of cave and cliff dwelling*, London
Landry, E, 1978. *Memories of Nancekuke*, Truro (privately published)
Lane-Davies, A, 1970. *Holy Wells of Cornwall*, Boscovean
Leggat, PO and DV, 1987. *The Healing Wells – Cornish Cults and Customs,* Redruth
Leitch, R, and Tolan-Smith, C, 1997. 'Archaeology and the Ethnohistory of Cave Dwelling in Scotland', in Bonsall and Tolan-Smith, 1997, 122–126
Le Messurier, B, 1987a. *Tintagel*, The National Trust, Coast of Cornwall No 4
Le Messurier, B, 1987b. *Crantock to Holywell Bay*, The National Trust, Coast of Cornwall No 7

Little, RI, 1991. *Interim Report on an Un-recorded Inland Cave or Rock Shelter at Boscastle, North Cornwall,* unpublished note
Luck, L, 1995. *South Cornish Harbours*, Fowey
Mackie, EW, 1975. *Scotland: An Archaeological Guide from the earliest times to the 12th century AD*, London
MacLean, R, 1992. The Fogou: an investigation of function, *Cornish Archaeol* 31, 41–64
Maber, R, and Tregonning, A, 1989. *Kilvert's Cornish Diary, Journal No. 4, 1870, from July 19th to August 6th Cornwall*, Penzance
Mattingly, J, 1998. A well without water? The Rise and Fall of the Holy Well at Chapel Porth, St Agnes, *Journal of the St Agnes Museum Trust* **14**, 4–14
Morris, J (ed), 1980. *Nennius, British History and the Welsh Annals*, London and Chichester
The National Trust, 1987. *The National Trust Archaeological Survey, Whitesand Bay, Cornwall*, unpublished report
Oliver, JC, 1884. *Guide to Newquay and Neighbourhood*, Newquay
Olson, L, 1989. *Early Monasteries in Cornwall,* Wadebridge
Oosterbeck, L, 1997. Back Home! Neolithic Life and the Rituals of Death in the Portuguese Ribatejo, in Bonsall and Tolan-Smith, 1997, 70–78
Orme, N (ed), 1992. *Nicholas Roscarrock's Lives of the Saints: Cornwall and Devon,* Devon and Cornwall Record Society **NS**, **35**
Padel, OJ, 1985. *Cornish Place-Name Elements,* English Place-Name Society, Nottingham
Paynter, WH, 1946. *Daniel Gumb, The Cornish Cave-Man Mathematician*, Liskeard
Pearse Chope, R, 1918. *Early Tours in Devon and Cornwall*, reprinted 1967, Newton Abbot
Pennick, N, 1996. *Celtic Sacred Landscapes*, London
Pett, DE, 1998. *The Parks and Gardens of Cornwall*, Penzance
Polwhele, R, 1803. *The History of Cornwall* **Vol 1**, London
Pool, PAS, 1963. A Smuggler's Hiding Place at Zennor, *Old Cornwall* **6**, 127
Pryor, N, 1996a. Kynance Cove, in Lizard History Society, *The Lizard in Landewednack*, The Lizard, 32–35
Pryor, N, 1996b. A walk around the coast, in Lizard History Society, *The Lizard in Landewednack,* The Lizard, 68–9
Quiller-Couch, M and L, 1894. *Ancient and Holy Wells of Cornwall,* London
Ratcliffe, J, 1995. Duckpool, Morwenstow: A Romano-British and early medieval industrial site and harbour, *Cornish Archaeol* **34**, 80–175
Schama, S, 1995. *Landscape and Memory*, London
Sharpe, A, 1993. *The Minions Area, Archaeological Survey and Management,* Cornwall Archaeological Unit, Truro
Sieveking, A, 1997. Cave as Context in Palaeolithic Art, in Bonsall and Tolan-Smith, 1997, 25–34
Smith, G, 1989. *Smuggling in The Bristol Channel 1700–1850*, Newbury
Sneyd, H, 2002. Coldrenick. Glimpses of Changing Garden Fashions Seen in the Maps*, Journal of the Cornwall Gardens Trust*, **2002**, 13–18
Spalding, A, and Sargeant, P, 2000. *Scilly's Wildlife Heritage,* Truro
Store, A, 1997. Precolumbian Cave Utilization in the Maya Area, in Bonsall and Tolan-Smith, 1997, 201–206
Straffon, C, 1993. *Pagan Cornwall – Land of the Goddess*, St Just
Tangye, M, 1973. 'Hulls' in Cornwall: a survey and discussion, *Cornish Archaeol* **12**, 31–52
Tangye, N, 1984. *The Story of Glendorgal, a Personal View,* (third edition) Reduth
Taylor, S, 2003. *Booby's Bay, Constantine Island, Trethias Island, and Porthcothan, Cornwall,* Cornwall Archaeological Unit and The National Trust, unpublished report
Taylor, T, 1925. *The Life of St Samson of Dol,* reprinted 1991, Lampeter
Teague Husband, S, 1923. *Old Newquay*, Marlborough
Thacker, C, 1994. *The Genius of Gardening. The History of Gardens in Britain and Ireland*, London
Thomas, J, 1990. *Illogan, more than a village*, Redruth
Tilley, C, 1995. Rocks as resources: landscapes and power, *Cornish Archaeol* **34**, 5–57
Todd, M, 1987. *The South West to AD 1000,* London
Tolan-Smith, C, 1999. Turning a cave into home sweet home, *British Archaeology*, **44**, 10–11
Tonkin, T, 1976. The Parish of St Agnes*, Journ Roy Inst Cornwall*, **NS 7**, **3**, 197–210
Trewin, JC, 1948. *Up From the Lizard,* reprinted 1982, London

Turk, FA, 1970. Notes on Cornish Mammals in Prehistoric and Historic Times, 3, *Cornish Archaeol* **9**, 121–127
Urtans, Y, 1997. Cult Caves of Latvia, in Bonsall and Tolan-Smith, 1997, 90–100
Vivian, J, 1989. *Tales of the Cornish Wreckers,* Redruth
Waugh, M, 1991. *Smuggling in Devon and Cornwall 1700 –1850,* Newbury
Webster, LE, and Cherry, J, 1977. Medieval Britain in 1976, *Medieval Archaeol* **21**, 204–262
Westcott, S, 1997. *The Grey Seals of the Westcountry and their Neighbours*, Truro
Westcott, S, 1999. The Turquoise Cave, *Cornwall Life*, **I**
Westwood, J, 1992. *Gothick Cornwall*, Princes Risborough
Whitfeld, HJ, 1852. *Scilly and its Legends*, reprinted 1992, Felinfach
Williams, M, 1999. Cornwall seen through old picture postcards, *Cornwall Today,* **November 1999**, 54–57
Yeoman, P, 1999. *Pilgrimage in Medieval Scotland*, London

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Time Team at Boleigh fogou, St Buryan

ANDREW YOUNG, with contributions by HENRIETTA QUINNELL

Summary

During March 1995 Time Team carried out a programme of archaeological investigations of the well-known fogou, set within an enclosure, at Boleigh, St Buryan. The investigations took the form of topographical and geophysical survey and small-scale excavation. The surveys identified at least two ramparts and excavation revealed that the innermost had been constructed as a free-standing wall. Structural evidence for occupation of the enclosure consisted of two further walls, interpreted as forming a house built against the enclosure wall and containing an interior partition. Pottery recovered from the site suggests that the settlement was first occupied in the Early Iron Age and continued to be occupied through the Late Iron Age and maybe beyond. No extension to the fogou's creep passage was located and the investigations enabled the scheduled area around the fogou to be more clearly defined.

Background

The fogou

Boleigh fogou is a small, well-preserved example of a Cornish souterrain, situated in Lamorna valley in the parish of St Buryan, West Penwith (SW 437 252). It is a Scheduled Monument and lies within the private grounds of Rosemerryn House, on the crest of a natural slope overlooking the Lamorna river to the north (Fig 1). The local geology is West Penwith granite, which supports light, relatively shallow soils giving onto weathered bedrock or 'rab', characteristic of Cornwall's granitic areas. A detailed descriptive and historical survey of the fogou is presented in Cooke (1993, 81–89). The interior was excavated by Clark and Ford in 1945 and several sherds of South Western Decorated pottery were recorded.

The fogou was built in a trench, the walls lined with horizontally laid stones, battered inwards to reduce the span of the roofing lintels. The passage entrance, roofed with granite lintels, is 1.4m high, 1.5m wide, and is approached by a sloping, roofless gallery. There is evidence that the structure was left unfinished, with a possible exit planned for its northern end apparently never completed. Two air vents built into the roof of the fogou are clearly later than the structure itself and may date from the reputed use of the site as a refuge during the Civil War (Borlase 1868, 163).

The fogou was first recorded by William Borlase in 1769 and has been noted by various writers since. The plan published by Clark, following the 1945 excavations (1961, 53), is very similar to those of previous commentators, in particular that of Blight (1885). In these, the fogou consists of a main passage, 10.6 metres long, running on a north-east to south-west alignment, with an L-shaped creep passage, 5.5 metres long, leading off from its western side (Fig 2). The short creep passage terminates at a blocked entranceway in the south.

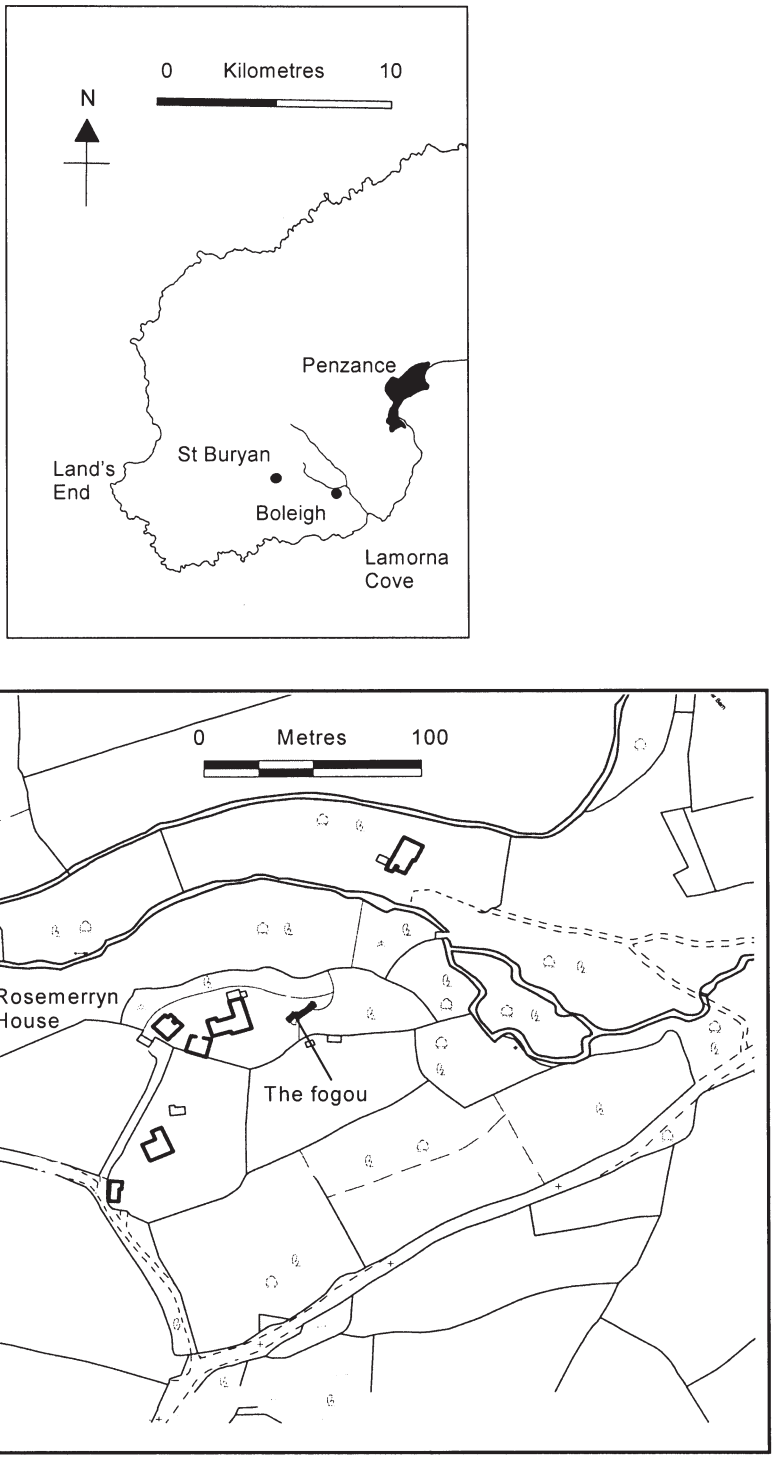

Fig 1 Location of Boleigh and of the fogou at Boleigh

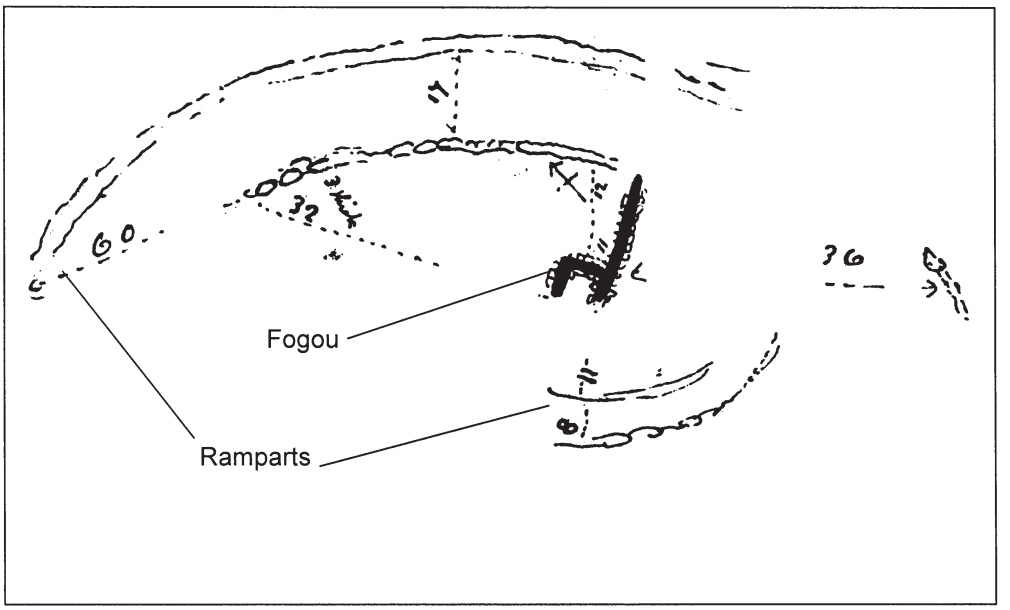

Fig 2 JT Blight's plan of the fogou and enclosure (after Blight 1885)

In her excavation report (1961, 51–53), Clark notes a discrepancy in previously published plans of the fogou, in that the second edition Ordnance Survey 25-inch map of 1908 (Fig 3) appears to show the creep passage curving away to the south for more than 24m. Clark concludes that this is either a misinterpretation in the field or a misprint on the map, observing that the steeply rising ground level at the creep's southern end precludes any continuation of the passage. She adds, however, somewhat ambiguously, that, 'the walls…. suggest a continuation of the passage'. This has led the owner of Rosemerryn house, Jo May (among others), to suggest that the creep passage might extend beyond its present known extent.

Clark and Ford claimed to have found a carving of a small figure on the large upright stone on the western side of the fogou entrance. Although the existence of this figure has been questioned by some commentators, there are several detailed descriptions of it. Weatherhill, for instance, describes it as a hooded figure, 'noticeably Celtic' and 'possibly a godlet' (Weatherhill 1986, 7).

The enclosure

Most observers note that the fogou was contained within a settlement enclosure, described either as a 'fort' or 'round', but as to the nature of the enclosure, the accounts differ. Early writers suggest a multivallate enclosure: Borlase (1740, 21, 74) noted, 'slight traces of circular ramparts', Gilbert (1838, 1, 143) recorded, 'a triple entrenchment surrounding the fogou', and Blight's plan shows traces of three banks. In 1908, however, the OS depicted the enclosure as a single oval-shaped bank (Fig 3), yet in 1932 Hencken (1932, 293–4) noted two ramparts. More recently, OS fieldworkers in 1960 reported that no traces of enclosure banks could be found and they concluded that they had been destroyed by the construction of Rosemerryn House and gardens. (The house was built in 1912 and further alterations were carried out in 1922.) Eleven years later, however, Russell (1971, 41) identified traces of two, and possibly three, ramparts.

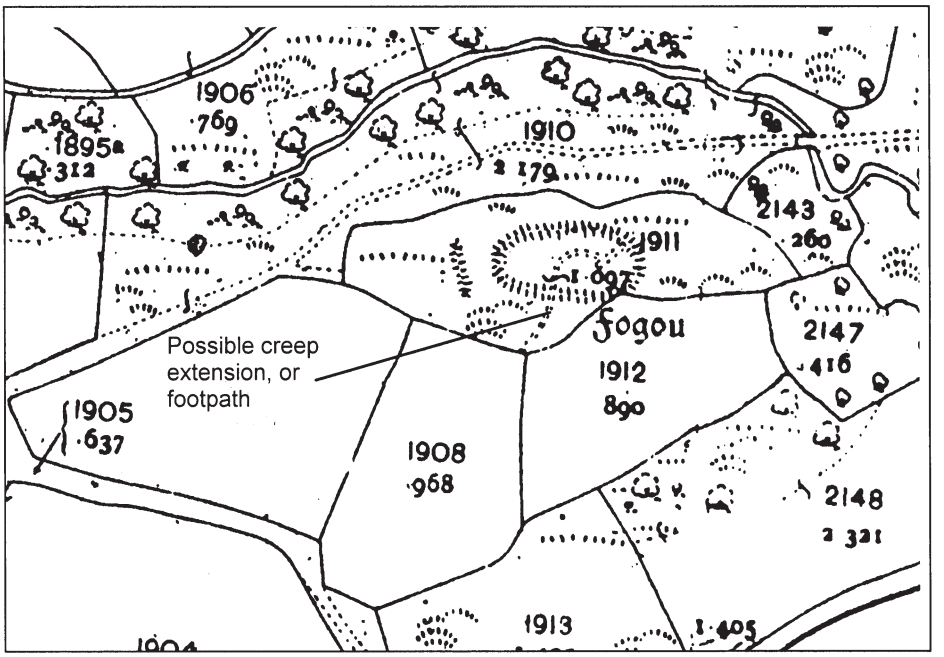

Fig 3 1908 Ordnance Survey map of the site showing the possible extension to the creep passage (sans serif label added by author)

The Time Team investigations

In an attempt to shed light on the nature of the Boleigh enclosure and the existence, or otherwise, of an extension or continuation of the creep passage, Time Team instigated a three day investigation of the site in March 1995 as part of its Channel 4 television series. There were three main aims of the investigation:

1. To see if the fogou extends beyond its present known extent.
2. To see if an enclosure survives around the fogou.
3. To record any occupation within the site.

To achieve these aims, topographical and geophysical surveys and dowsing were carried out and small-scale exploratory excavation (outside the scheduled area) was used to examine any anomalies revealed during survey.

Results

The geophysical and topographical surveys

Gradiometer and resistance surveys were carried out by Geophysical Surveys of Bradford on the lawn to the south of the house, an area thought likely to be within the enclosure and where there was potential for occupation features to produce anomalies (Fig 4). Both surveys showed a strong curvilinear response to the south-east of the house, suggesting a curving ditch beneath the lawn (Fig 5). No high resistance anomalies (suggesting building remains) were recorded.

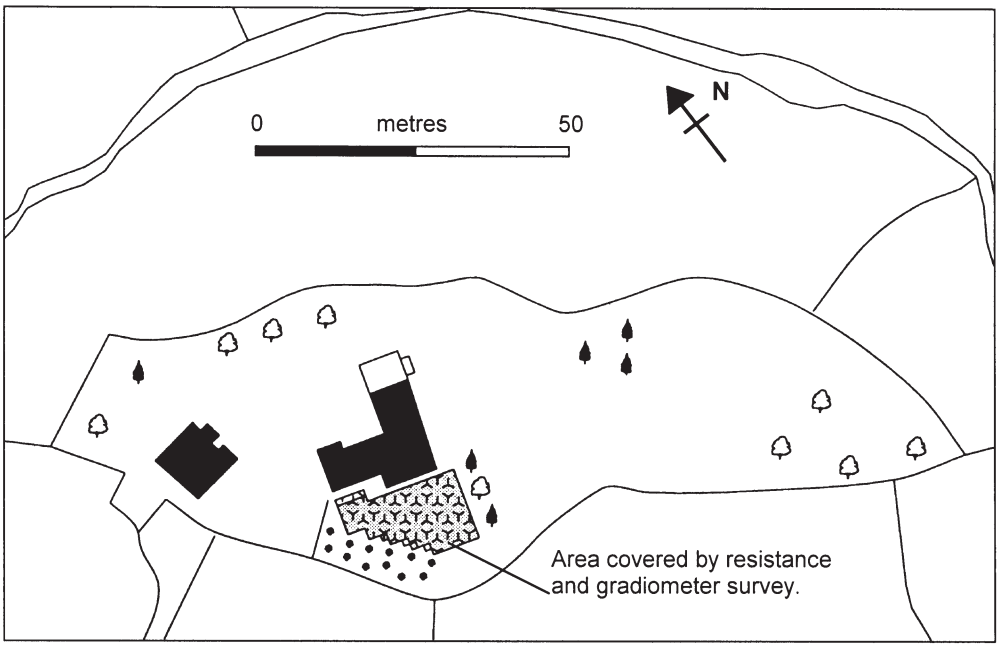

Fig 4 Location of the geophysical survey area at Rosemerryn House

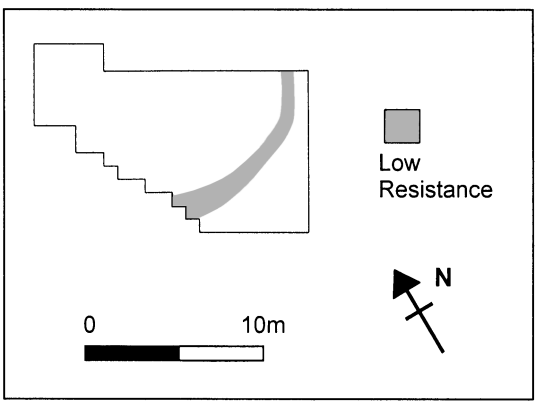

Fig 5 The anomaly below the lawn at Rosemerryn House

Local dowser, Hamish Miller, examined the lawn and detected a response, possibly building remains, due south of, and close to, the house.

The topographical survey, carried out by staff from the Royal Commission on the Historical Monuments of England (RCHME), using an EDM, revealed several low linear banks (Fig 6). The most substantial, that to the north and north-east of the house, follows the curving route of the garden path towards the north-eastern end of the fogou. This is approximately on the same line as the innermost of the three ramparts depicted by Blight (Fig 2) and was considered likely to be a surviving length of enclosure bank. To the south-east of the fogou is a short length of bank which again could

correspond to one of Blight's ramparts, in this case the second bank, which Blight records as being eight feet (2.4m) beyond the first. Further down the natural slope to the north of the house are slight traces of a possible third bank. The survey also revealed an intriguing L-shaped bank running parallel to the fogou and connecting with the inner enclosure bank mentioned above. The relationship of this feature with the fogou and the inner enclosure bank could not be tested by excavation as it is situated within the scheduled area.

The excavations

Trenches 1–3

Trenches 1–3 were positioned on the lawn in order to investigate the anomalies produced by the geophysical surveys and dowsing (Fig 6). The soil horizon beneath the lawn consisted of homogenous dark grey-brown garden loam giving onto decayed rab at a depth of between 0.35 and 0.5m. Apart from a handful of waste pebble flint flakes, no artefacts were found in these trenches.

Neither of the anomalies was caused by archaeological remains. In trenches 2 and 3 the negative feature detected by geophysical survey turned out to be a disused metal water pipe traversing the lawn, and in trench 1 a concentration of naturally occurring granite boulders is likely to have produced the response to dowsing.

At the extreme southern end of trench 2, where the lawn begins to slope away, the characteristic garden loam overlies a single-course remnant of walling [17] at a depth of 0.3 to 0.4m. The wall, 1.65m wide and cut into rab, runs on a north-east to south-west alignment and consists of granite blocks, up to 0.75 ¥ 0.35m, set in a reddish brown clay loam matrix.

Wall [17] is thought to be part of one of the enclosing ramparts noted by antiquarians. No attempt to excavate it was made and no artefacts were found in the two metre length exposed.

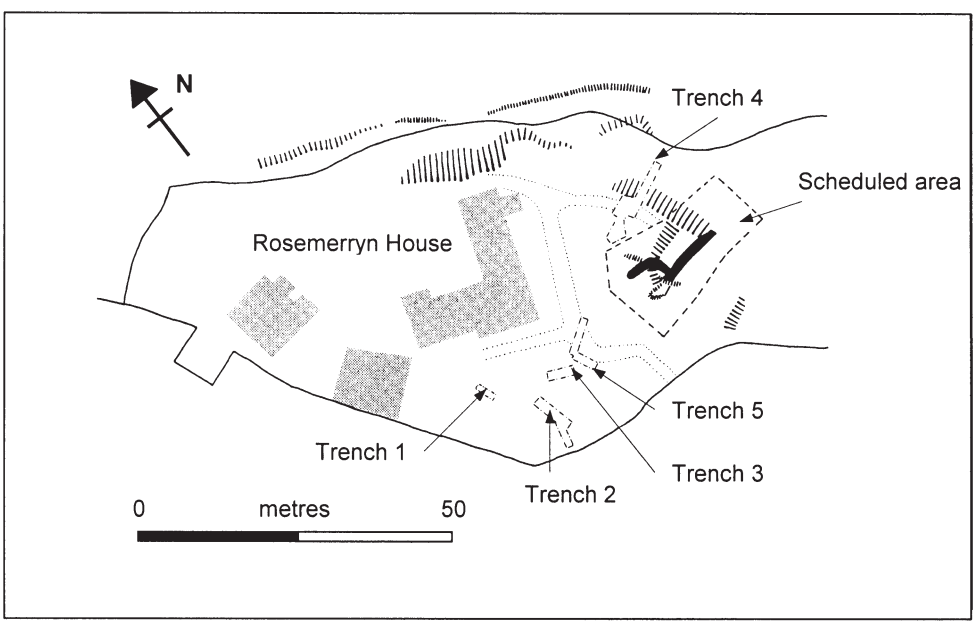

Fig 6 Scarps plotted in the topographical survey (shown hachured) and the location of the excavation trenches. The Scheduled area is shown with a broken line and garden paths with dotted lines

Trench 4

Trench 4 was sited to the north-east of Rosemerryn house, in an area of semi-wild garden to the north west of the fogou (Fig 6). Initially a narrow trench, 5.6m ¥ 1m, was cut at a right angle to the most substantial of the linear banks revealed by topographical survey in order to test the suggestion that it was part of an enclosure bank.

A considerable amount of tree root disturbance was encountered and a modern rubbish dump, consisting of ash, clinker and plant pot sherds, intruded in the mid section of the trench. At the south-western end of the trench, further disturbance was caused by an electric cable and alkathene water pipe leading to the house. Nonetheless, traces of the bank survive beneath a 5cm layer of leafmould and topsoil. These consist of rounded granite cobbles, typically 20 ¥ 10cm, and an associated reddish brown clay loam similar to the soil matrix of wall [17]. The cobbles spread and tumble down the natural slope to the north-east for a distance of 5 metres.

In an attempt to try to define the bank and to follow its line the trench was extended by opening up a 3 metre square area to the south-west, digging up part of the garden path. A mass of stones of various sizes was uncovered close to the existing ground surface and excavation revealed these to be a complex of walls.

WALL [21]. ENCLOSURE WALL

Wall [21] runs along the expected line of the enclosure bank (Fig 7). It is cut into rab and survives to three courses high. It consists of undressed granite boulders, up to 0.75 ¥ 0.4m, set in characteristic reddish brown clay loam. The granite cobbles and clay loam found in the initial slot of trench 4, and which had been disturbed by the laying of service cables, may originally have formed part of this wall.

The inner face of the wall was situated against the extreme northern side of the trench. Its width could not be established with certainty because in section the modern disturbance noted above had eroded its outer face (a possible outer edge was suggested by a basal stone in the initially excavated slot, giving a width of 1.2 metres, but the question of whether this stone was *in situ* or had slumped into a fortuitous position could not be resolved). The section suggests, however, that its width is unlikely to exceed 2 metres. Wall [17] in trench 2, given its similar materials and construction, might serve as a likely model; its width is 1.65 m.

It was suggested that wall [21] is post-medieval in date. Certainly it appears to form the foundation for a dry stone wall running on the same alignment a few metres to the west of trench 4. Presumably this is the wall, mentioned by Clark, built around the gardens of Rosemerryn house in 1922 using stone from the enclosure ramparts. On the other hand it would not be unusual for masons to use the remains of an existing wall as their foundation, and the relationship of [21] with adjacent features (notably wall [23] and feature [4], see below) suggests that it is prehistoric in origin.

WALL [23]. BUILDING [30]

Wall [23] curves away from [21] in a southerly direction (Fig 7). It consists of large granite boulders (0.7 ¥ 0.4m) with no clay loam matrix, surviving only as a single course set onto, rather than cut into, rab. The short length exposed during the excavations describes a sinuous arc. It appears to be forming one side of a curvilinear building [30], possibly a house, built against the inner face of enclosing wall [21]. The other sides of this building were not located during the excavation, due to the small size of the area opened up.

The gap between the two walls was treated during the excavation as a separate feature (context [4]). It was filled by loosely packed granite cobbles and boulders, and reddish brown clay loam [2] and [7]. Layers [2] and [7] are very similar. In effect [7] specifically represents the lowest 10 cm of fill between the two walls. Layer [2], on the other hand, covers an extensive area, being associated not only with [4], but also with wall [21] and the boulders and cobbles spilling down the slope at the north eastern end of the trench (Fig 7).

WALL [25]. INTERNAL PARTITION

Trench 4 was extended to the south-west in an attempt to uncover more of wall [23]. The line of [23] was visible as a low bank and could be seen extending into the scheduled area at the southern edge of the trench. Close to the southern edge [23] is bisected by a third wall [25]. This wall is of a different construction, being comprised of small stones typically 0.2 ¥ 0.15m (Fig 7). On either side of it two large granite slabs, 0.6 ¥ 0.5m, were found. These would originally have stood upright and formed crude facing for the wall. Wall [25] can be tentatively interpreted as a partitioning wall within building [30]. The fact that it is made up of small stones, without the reddish brown clay loam matrix

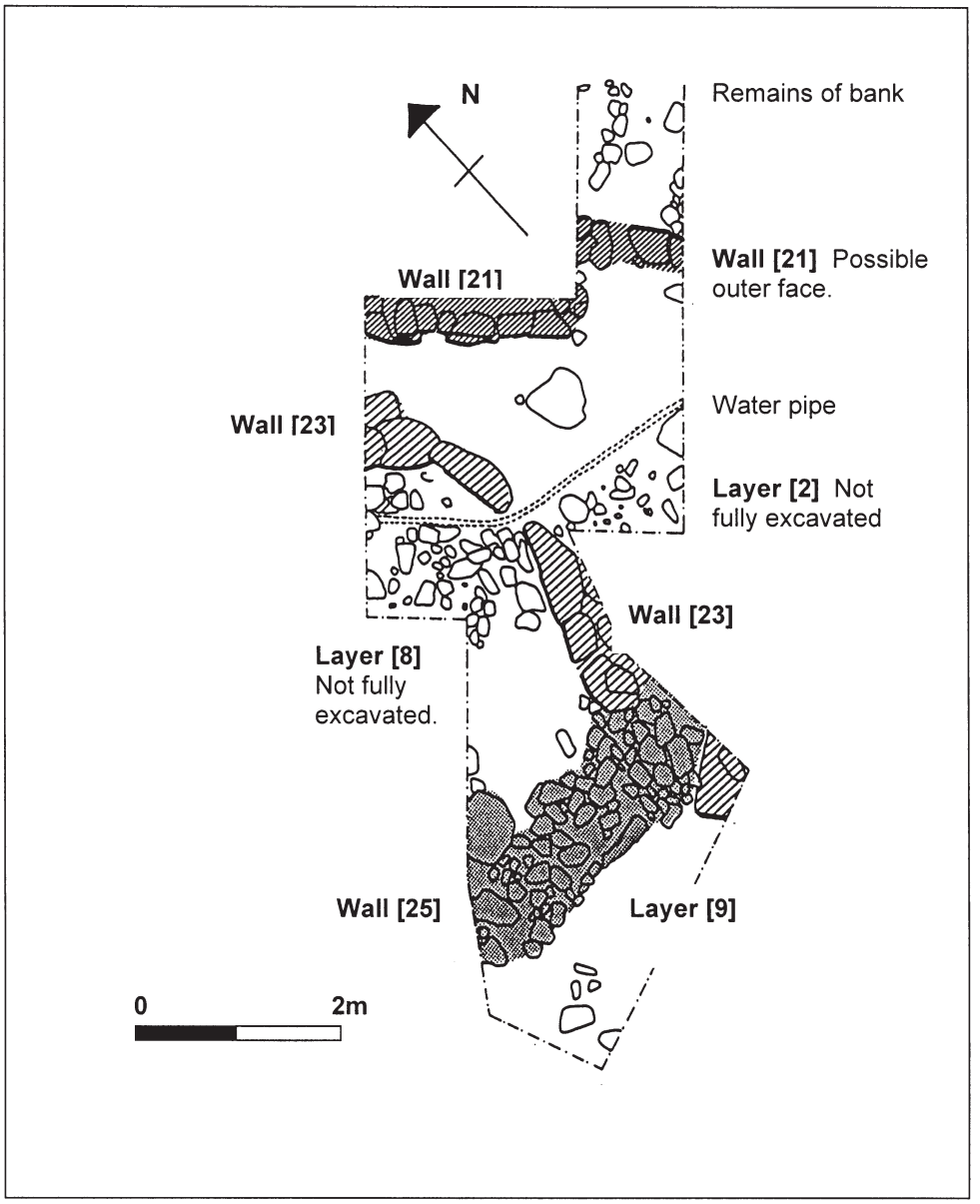

Fig 7 Trench 4 after completion of excavation

characteristic elsewhere on the site, suggests that it may derive from a different phase of activity; possibly a later addition to the building.

Stratigraphy in Trench 4

Potentially the earliest feature in Trench 4 is the enclosure wall [21]. Feature [4] (the area between walls [21] and [23]) was completely excavated. Below its clay loam and cobble fill [7] was a compacted gritty clay [10] resembling rab which was interpreted as being a ground surface contemporary with occupation of the enclosure. The notion that wall [21] might be part of the 1922 garden landscaping can be discounted here because the fills of feature [4] are clearly butting the wall. Having said that, it is impossible to define the precise chronological relationship between walls [21] and [23]. There is, however, some degree of contemporaneity: the fact that no soil build-up had taken place after either or both of the walls fell into disuse and before the deposition of layers [7] and [2] suggests that these layers are the result of a single and deliberate episode. This seems to preclude any interpretation of feature [4] as representing tumble from either or both walls. A more likely explanation is that the cobbles and clay loam [2] and [7] are rubble infilling of a double-skinned wall. This wall-building technique is a not unusual feature of prehistoric settlements in West Penwith. The hut circles at Bodrifty, for example, are double-skinned with a rubble core (Dudley 1956).

In this scenario wall [23] is, in the west, built up against the enclosure wall. In the east it had its own outer face, which has since been destroyed by modern disturbance mentioned above. Layer [2], which extends up to the south-eastern edge of the trench, comprises a few large stones (originally forming part of the outer face of wall [23]) and numerous smaller stones and reddish clay (forming part of the wall's rubble core). Thus Layer [2], despite being spread widely by disturbance throughout the north-eastern half of Trench 4, can be associated with some degree of confidence to the construction phase of wall [23].

Wall [23] forms building [30]. Within this building the most notable feature is partition wall [25]. Given the short time available, it was not possible to fully excavate the interior of building [30]. The soil layers which were excavated, [5] overlying [9] to the south of wall [25], and [3] overlying [8] to the north, are loams containing a considerable quantity of root material and are clearly soils accumulated after the building had fallen out of use. Fourteen sherds of Iron Age pottery, represented by granitic-derived, granitic, and gabbroic fabrics, were retrieved from these post-settlement layers. For the most part these are consistent with the early Iron Age date suggested by the overall assemblage, although they include a jar with the standard rim form found in the South Western Decorated tradition.

Significantly, the bulk of the pottery found in trench 4 came from layers [2], [7], and [10] and may be contemporary with the construction of wall [23]. This pottery is mainly of granitic and granitic-derived fabric, with only one sherd of gabbroic. The date range suggested by Henrietta Quinnell is earlier Iron Age, possibly the sixth or fifth centuries BC.

Trench 5

Trench 5 was positioned to the south-east of Rosemerryn house (Fig 6), at right angles to the path running along the east side of the house, in order to locate the possible extension of the fogou's creep passage (Fig 3). Although the trench was excavated down to natural, no traces of any structure were found.

Below the path, and truncated by it, was a remnant of dark brown silty loam [15], surviving to a depth of only 5cm. This soil, containing flecks and streaks of charcoal, was interpreted as representing an occupation phase within the settlement. It produced two granitic pottery sherds, one of which is again earlier Iron Age (see Fig 8).

Other than the pieces of flint and chert from Trenches 1 to 3, all the stone artefacts recovered during the excavations came from Trench 5. However, their provenance should be regarded

as dubious as they were found in the interface between layer [15] and the gravel make-up layer for the path and it is likely that they have been introduced to the site amongst the make up material.

The carved figure

As part of the Time Team investigations an impression was made of the alleged carving on the stone forming the western side of the fogou entrance. This was carried out by Rosemary Robertson, an archaeological illustrator, using the 'squeeze' technique – wrapping the stone in dampened paper, which hardens to form a mask-like impression of its surface. This technique has proved particularly effective in showing areas of relief and is widely used, for example to enhance visible detail in inscriptions. In this instance, however, the illustrator could not identify any definite signs of a carving (Robertson, pers comm).

Discussion

Excavations at Boleigh show that a large area to the south of Rosemerryn house has been landscaped during the creation of the lawn and gardens. This area has been levelled and 0.5m of loam deposited to form a bed for the lawn. Consequently, only towards the wall forming the southern boundary of the garden are any archaeological features likely to survive.

To the north and east of the house levels of disturbance (mainly in the form of encroaching tree roots) are much less, and the excavations have shown that here good survival of features can be expected.

Although topographical survey demonstrated that short lengths of bank occur to the immediate west of the fogou, suggesting that the structure may be more complex than hitherto recorded, the Time Team investigations have shown that the extended creep passage depicted on the 1908 OS map does not exist. No trace of it was found in trench 5, which was deliberately positioned along its supposed route. Clark was right to doubt the veracity of the map, and, judging by the similarity of conventions used to describe the fogou with those describing footpaths, it is probable that the feature identified as an extended creep is, in fact, a footpath. This is especially so when one considers that the feature begins in the corner of a field, a likely position for a gate.

Topographical survey suggested the line of two, possibly three, enclosure banks. Excavation confirmed the innermost of these and revealed traces of settlement. As far as the evidence suggests, the site was enclosed by a free-standing wall on top of a natural slope rather than by a bank. Although the outer face of this wall could not be defined with certainty, it appears that it is less than 2m in width. There are other examples of walled enclosures in West Penwith, for instance, Porthmeor (Hirst, 1936) and Bodrifty (Dudley, 1956). As the investigations were focussed to the east and north of Rosemerryn house it is not known whether the settlement is enclosed in this way in the south-west, where there is no comparable slope; it is possible that here a more substantial bank was constructed.

Against the inner face of the wall was built a curvilinear stone building, probably with a double-skinned wall with a rubble and soil core. The small scale nature of the excavations and the constraints on time meant it was only possible to gain a keyhole view of the settlement remains and the precise form and function of the building are unclear. Initially it was thought that it might be an oval-shaped round house but the sinuous line of the wall appears to preclude this. Clearly the complex of walls represents something other than a simple round house.

Pottery found in the rubble infill of the wall and on top of the ground surface below it suggest a construction date for this building of no earlier than the sixth or fifth centuries BC. This is

considerably earlier than the generally accepted date of the fourth century BC for the beginning of the tradition of 'round' building in Cornwall (eg Quinnell 1986, 115). In fact the Early Iron Age date suggested by the pottery would make the Boleigh enclosure the earliest known in Cornwall, although at Halligye, the only other excavated fogou within an enclosed settlement, occupation also started in the Early Iron Age (Elsdon and Quinnell, forthcoming). Of course, this does not necessarily mean that the fogou is contemporary with the enclosure, something that the excavations did not establish.

Finds from the interior of the building, deposited after it had fallen out of use are also Iron Age, which is consistent with most other settlements containing fogous (later fogous are found in some courtyard house settlements such as Bosullow Trehyllys). Although the pottery assemblage points to an early Iron Age date it should be borne in mind that it is a small sample and to what extent it is representative is unclear. A handful of gabbroic sherds, which may be of later date than the bulk of the assemblage, were found. Pottery previously found at Boleigh, by Clark and Ford, is South Western Decorated ware from the later Iron Age (Clark 1961, 55). In fact occupation at Boleigh may have continued into the Roman period – a single unstratified sherd of Oxfordshire Ware was found, indicating some activity in the fourth century AD. If this is the case, then one possible analogy is the settlement at Porthmeor. Here the open settlement of the Iron Age was superseded by courtyard houses enclosed by a wall (Hirst 1936). The complexity of the structural remains at Boleigh are consistent with courtyard house settlements and many of the finds, particularly those derived from the upper loams in building [30], could be residual. Admittedly, the evidence for a later phase at Boleigh is circumstantial but such a scenario should not be discounted out of hand.

The Time Team investigation at Boleigh was successful in that the aims of the project were achieved. It established that the fogou does not extend beyond its present known extent. Evidence for an enclosure around the fogou was found. Topographical survey suggested the existence of more than one bank, consistent with antiquarian descriptions. Examination of one of these banks proved it to be a wall, as is the case with other enclosures in West Penwith. Evidence for occupation within the site was recorded in the form of a stone building and a small but useful pottery assemblage provided dating evidence suggesting that occupation began in the earlier Iron Age and hinting that it may have continued throughout the Iron Age and possibly beyond.

Finally, the original scheduling map of the site is at a scale of 1:10,560 and the boundary line did not clearly define the known area of the fogou. The opportunity was taken during the investigations to more clearly define the scheduled area and an appropriate boundary was marked on a revised scheduling map.

The pottery

Henrietta Quinnell

Fabrics

A total of 60 sherds weighed 579g. These included ten medieval sherds (37g) and one of Roman fine ware (2g). The remainder are of Later Iron Age date and of three broad fabric groups: *gabbroic*, six sherds (65g); *granitic*, ten (119g); *granitic derived*, 33 (356g).

Gabbroic fabric matches that frequently found in West Cornwall, for which there are many published descriptions, eg Williams (1978), most probably from the Lizard.

Granitic fabric contains quartz, feldspar, tourmaline and mica in the same proportions as are present in granite; these inclusions are angular and not eroded; an inclusion may contain several minerals reflecting the structure of granite. Quantities tend to vary between moderate and abundant; inclusions

vary in size and can be up to 5mm but tend to be similar within individual sherds. Colour varies according to firing conditions, from reduced very dark grey 5 YR 3/1 to yellowish red 5 YR 5/6. The source could be anywhere on the Land's End granite; not all sherds need be from the same location.

Granitic derived fabric describes sherds which contain tourmaline, mica and quartz and occasionally feldspar in varying quantities, sizes and degrees of erosion, and always as single particles. These minerals derive from granite but not in the proportions usual in that rock. The quantity of inclusions is usually moderate with size up to 2mm but consistent in individual sherds. Colour varies according to firing conditions from dark grey 5 YR 4/1 to oxidised yellowish red 5 YR 5/6. The appearance of these sherds varies deceptively, as reduced sherds highlight white quartz inclusions and oxidised sherds those of dark tourmaline. Not all sherds need come from the same source. Any stream flowing off the granite could provide suitable material, or, more probably, deposits of mineral temper which could be mixed with smooth, locally-sourced, clays.

Analysis of sherds by context

Trench 4 [10] old land surface/base of wall [21][23] infill

Two *granitic derived* sherds (23g).

Neck sherd 10/2 (18g) in a distinctive version of *granitic* fabric; 7mm thick, moderate filler consists mainly of aggregate particles derived from kaolinised granite, which occurs at Bostraze (SW 393 310) and elsewhere in the Land's End area, and also crushed quartz up to 5mm; hard oxidised yellowish red 5 YR 5/6 with burnished exterior.

Gabbroic body sherd (6g) with some rounded quartz.

Trench 4 [7] lower part of wall [21][23] infill

P7/5 (Fig 8). Jar with short upright rim (100mm diameter) in dark grey *granitic derived* fabric (15g); exterior probably black coated; a further 11 *granitic derived* sherds (86g) may come from this vessel, although one, 12mm thick, might come from a larger pot. P7/5 is a type which occurs late in the Early Iron Age; cf that from Carn Euny (Elsdon 1978, fig 55, no. 22). Another *granitic derived* sherd (24g) is distinctive in containing a quantity of feldspar together with other granite derived minerals.

Trench 4 [2] upper part of wall [21][23] infill

P2/5 (Fig 8). Jar with short upright rim 110mm diameter (43g), irregular finger nail impressions on shoulder, *granitic derived* fabric; exterior very dark grey 5 YR 3/1 has some form of coating; a further three sherds (33g), and three (30g) recorded as [2] in [4], could come from this vessel. The form is fairly common in West Cornwall and relates to Elsdon's (1978) Po1A from Carn Euny where it generally occurs in early contexts, there dated fifth to fourth centuries BC (*ibid,* 400). It also occurs at Maen Castle (F M Patchett in Crofts 1955), the pottery from which as a group is considered generally 'Early Iron Age'. Finger nail decoration on such forms does not seem to be recorded.

Body sherds (9g, 7g) from two different *granitic* vessels; one 11 mm thick reddish brown 5 YR 5/3, the other 7 mm thick with a smoothed dark grey (5 YR 4/1) exterior.

Gabbroic body sherd (5g).

Two *medieval* sherds (16g), in fabric similar to those from topsoil [0], below.

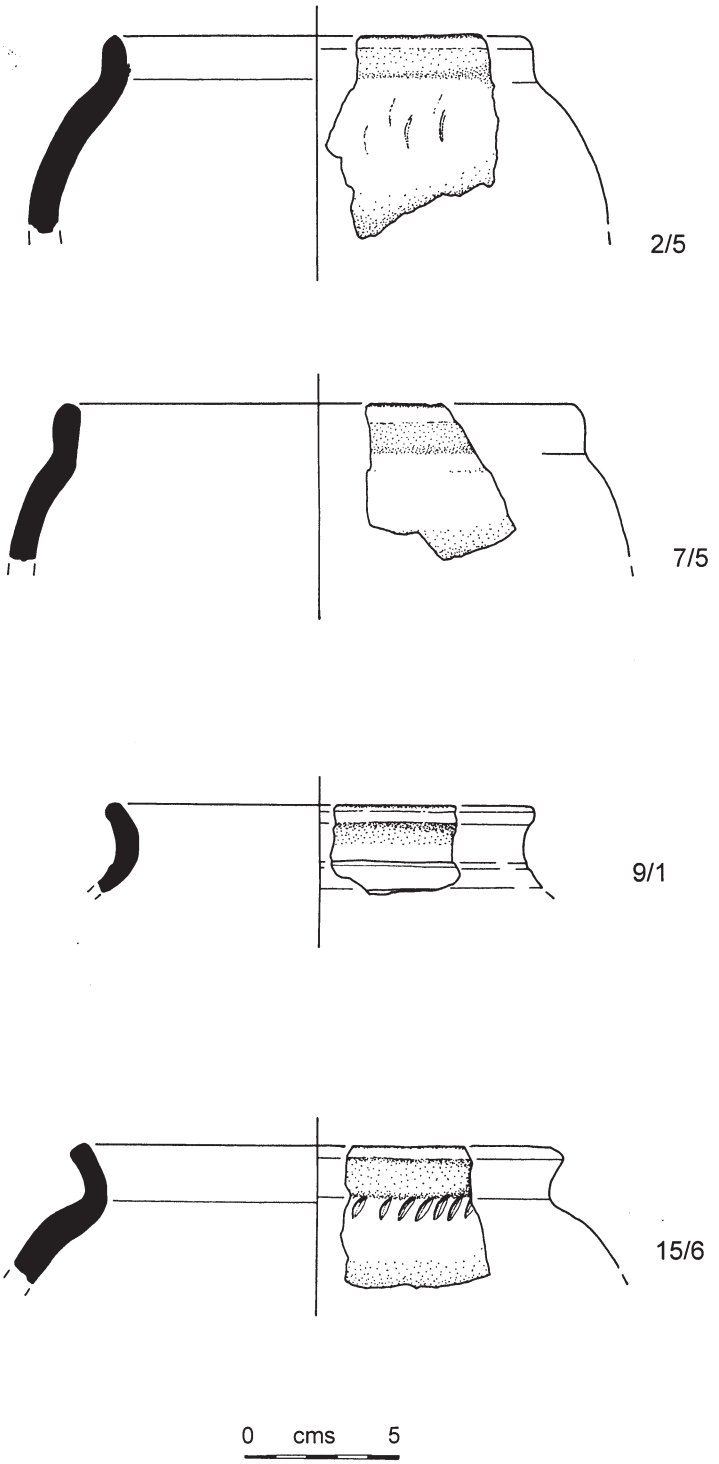

Fig 8 Pottery from Trenches 4 and 5

Trench 4 [9] material over structure [30]

Five *granitic derived* sherds (49g); two could come from vessels described above; one is distinguished by containing occasional rounded quartz pebbles up to 6mm; another is an angled sherd, the form of the vessel from which it derives not apparent; the third is distinguished by burnish, very dark grey 5 Yr 3/1, on both surfaces.

Two *granitic* sherds (7g) from the same thin walled (6mm) jar, with a rim of the same general type as P2/5. Base sherd with moderate inclusions (8g), possibly from P15/6 and a base angle sherd (14g) with common filler up to 5mm including feldspar still showing splits along natural cleavage planes.

P9/1 (Fig 8). *Gabbroic* jar rim (15g), upright with slight out-turn at top, both surfaces burnished with dark coating dark grey 5 Yr 4/1, exterior groove at base of neck. This is the standard rim form found in jars of the South Western Decorated tradition, and is found from at least the fourth century BC until the first century AD (Quinnell 1986, 113, 120). Also a *gabbroic* body sherd (13g).

Trench 4 [8] material over structure [30]

Four *granitic derived* sherds (48g) probably from two separate vessels; one has an upright flat topped rim 5mm thick, the other two are 8/9mm thick.

A single *granitic* sherd, 8/1, (4 g) contains composite inclusions up to 5mm; one surface smoothed, ?black coated, dark reddish grey 5 YR 4/2, eroded; this looks very different to the other granitic sherds because the inclusions are irregular and multi-coloured in appearance.

Gabbroic body sherd (3g) with some rounded quartz.

Trench 4 [3] material over structure [30]

Granitic derived body sherd (7g), probably from P2/5.

Granitic body sherd 7mm thick (7g) with abundant temper.

Gabbroic sherd 12mm thick (23g); unusual in containing crushed fragments of gabbro rock with pyroxene and feldspar.

Trench 4 [0] topsoil

Eroded *Roman* soft body sherd 4mm thick (2g), reddish yellow 5 YR 6/8, with no visible inclusions; almost certainly *Oxfordshire Ware* which appears in Cornwall to be generally of fourth century AD date (Young 1977, 239).

Eight *medieval* body sherds (21g), hard, with moderate inclusion of granite derived minerals; most probably from cooking pots but one with a partly glazed interior may come from a bowl; this group might date to the 15th century AD.

Trench 5 [15] occupation deposit within settlement

P15/6 (Fig 8) (40g). Upper part of *granitic* jar with out-turned rim and row of finger nail impressions in neck angle, groove on rim interior; very dark grey 5 YR 3/1 with oxidised yellowish red 5 YR 5/6 exterior and interior of rim; common inclusions which project through the surface finish on the shoulder. The best parallel for this sherd is No 28 from Bodrifty (Dudley 1956, fig 9, 26) which is described as ‘Iron Age A’.

Granitic body sherd (8g) 4mm thick, moderate temper generally less than 1 mm, exterior surface burnished, with some additional coating, to very dark grey 5 YR 3/1.

Discussion

This small collection has been commented upon in detail, as there have been few recent studies on Iron Age pottery from West Penwith. Only Carn Euny has a comprehensive, modern pottery report (Elsdon 1978) and the chronological framework used in this is based on work by M Avery *c*1970 (*ibid,* 403). Other sites which are frequently quoted, Bodrifty (Dudley 1956), Maen Castle (Crofts 1955), Chun (Leeds 1927) and Chysauster (Hencken 1933), were worked on before the advent of radiocarbon dating, while the use of terms such as 'Iron Age A' were still current, and before any systematic approach to sourcing, including thin-sectioning, had become standard. Reworking of these collections would yield considerable information. Since the first draft of this report was prepared in 1996, Lucy Harrad (forthcoming) has been studying the Bodrifty assemblage and her work is expected to make a substantial contribution to Iron Age ceramics and their sources in West Cornwall.

The material from the Trench 4 wall core contexts [7] and [2], together with [10] beneath these and occupation [15] in Trench 5, form a cohesive group on typology and fabrics. The illustrated sherds have their closest parallels in 'Iron Age A' or 'Early Iron Age' material from Maen Castle and Bodrifty, or from early contexts, perhaps fifth century, at Carn Euny. The Boleigh group, containing finger nail decoration not found at Carn Euny, may start earlier than Carn Euny, but overlap with its earlier stages, and a date within the sixth and fifth centuries BC would seem appropriate, based on (minimal) current knowledge. This would be consistent with the suggestion (Quinnell 1986, 113) of gradual reduction through the Later Iron Age of sources of production and with the absence, in an admittedly small collection, of any distinctive South Western Decorated ware.

The fabrics at Boleigh divide into three broad groups, *granitic derived* with perhaps eight vessels represented, *granitic*, with nine and *gabbroic* with four. The granitic derived fabrics had not previously been distinguished, but more recent work at St Michael's Mount (Quinnell 2000) has identified a visually identical fabric there in forms assigned to the eighth to fifth centuries BC and which precede South Western Decorated wares. Granitic derived fabrics are indicated by the descriptions of the Maen Castle assemblage (F M Patchett in Crofts 1955), some 300 sherds which do not include anything of the South Western Decorated tradition and are generally considered 'Early Iron Age'. There are very few sherds of granitic derived fabric at Bodrifty (Lucy Harrad, pers comm) and the fabric was not distinguished at Carn Euny (Williams 1978). The use of granitic derived fabrics at Boleigh currently appears appropriate for the suggested date for the forms, sixth to fifth centuries BC.

P9/1 is a gabbroic jar rim typical of those in the South Western Decorated tradition and occurs in levels over structure [30] to which the wall core group relates. South Western Decorated material was found in the excavation of the fogou by Clark (1961, 55) and there is no reason why occupation should not have continued on the site as a whole through the Iron Age and into the Roman periods. It is not possible to date undecorated gabbroic body sherds with any certainty, and some of these may belong to these later periods. The presence of a sherd of Oxfordshire Ware suggests some activity during the fourth century AD; this ware occurred at Porthmeor (Young 1977, 307), a West Penwith enclosure site with a fogou probably occupied through the Iron Age and Roman periods, possibly into the early post-Roman period.

It is also quite possible that sherds earlier than the Iron Age are present at Boleigh. Sherds 8/1 and 10/2 are very different in their appearance to all others from the site. This may simply be due to the small sample available. Alternatively these sherds may be of earlier date, perhaps early first millennium BC or just possibly Neolithic; they do not appear similar to Early or Middle Bronze Age fabrics so far recognised.

Lithics

Henrietta Quinnell

Seventeen pieces of flint and chert were recorded, from contexts [0], [2], [3], [7], [9], [15] and [16]. The material was pebble flint of variable quality, with one piece of greensand chert which also can occur as local beach pebbles. There were three end scrapers, one flake with retouch, three broken flakes/blades, five flakes and five chips. The techniques of manufacture suggest that most, if not all, of this small collection were of Mesolithic date. At least 20 sites with Mesolithic material are now known from West Penwith (Berridge and Roberts 1999), of which the closest to Boleigh, with important material, is at New Shop, St Buryan (Berridge and Roberts 1986, 24); the authors highlight the lack of serious study of the Mesolithic of the area, a situation, which a decade and a half later, still persists.

Stone artefacts

Henrietta Quinnell

Three broken granite artefacts were recorded from the top of [15] in Trench 5, of different varieties of granite which occur in the Land's End area.

S1 is part of a maul of fine-grained granite; it has been worked into cylindrical shape 70mm across, with a rounded end and survives 45mm long and 300g in weight.

S2 is part of an oval rubbing stone of coarse grained granite containing a high proportion of tourmaline, 135mm across, 70mm thick, surviving 125 mm in length and 1750g in weight; its working surface has been worn flat and its sides, to a height of 30mm, very smooth. It has been damaged by subsequent use as a maul.

Rubbing stones of distinctive oval shape and plano-convex cross-section, sometimes dressed into shape but with regularly worn sides, are frequently recorded from Middle Bronze Age sites in the South West, eg Trethellan, near Newquay (Nowakowski 1991, 141–145). These distinctive rubbing stones probably continue in use through the Late Bronze Age and Earlier Iron Ages but are not found in the Later Iron Age. Rotary querns were introduced during the currency of South Western Decorated pottery but saddle querns also continued in use (Quinnell 2004). It seems likely that the introduction of rotary querns affected the way in which cereals were prepared and in which saddle querns were used, and that the plano-convex oval rubbers belong to a phase before the introduction of rotary querns. Dr R T Taylor suggests that the distinctive wear along the sides of S2 could have been caused by use on a saddle quern set within a surrounding frame.

S3 is a broken corner of a rubbing stone in coarse, megacrystic, granite, 70mm thick and surviving 80 by 90mm and 850g in weight; one surface is worn flat.

Acknowledgements

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Bibliography

Berridge, P, and Roberts, A, 1986. The Mesolithic period in Cornwall, *Cornish Archaeol,* **25**, 7–32
Berridge, P and Roberts, A, 1999. The Mesolithic, in WD Ravenhill and R Kain (eds) *A Historical Atlas of South-West England,* Exeter, 47–50
Blight, JT, 1885. *Churches of West Cornwall with notes of antiquities of the district,* 2nd edn, Oxford
Borlase, W, 1740. *Parochial Memoranda*
Borlase, W, 1769. *Antiquities of Cornwall*, London
Borlase, WC, 1868. An account of the excavations and discoveries made in the subterranean chambers at Chapel Euny in the parish of Sancreed, Cornwall, between the years 1863 and 1867, *Proc Soc Antiq London,* 2nd ser, **4**, 161–70
Christie, PM, 1978. The excavation of an Iron Age souterrain and settlement at Carn Euny, Sancreed, Cornwall, *Proc Prehist Soc,* **44**, 309–434
Clark, EV, 1961. *Cornish fogous*, London
Cooke, IM, 1993. *Mother and Sun: the Cornish fogou*, Penzance
Crofts, CB, 1955. Maen Castle, Sennen; the excavation of an Early Iron Age Promontory Fort, *Proc West Cornwall Fld Club*, **1**, 98–115
Dudley, D, 1956. An excavation at Bodrifty, Mulfra Hill, near Penzance, Cornwall, *Archaeol J,* **113**, 1–32
Elsdon, SM, 1978. The pottery, in Christie 1978, 396–423
Elsdon, SM and Quinnell, H, forthcoming. The pottery from Halligye fogou
Gilbert, D, 1838. *Parochial History of Cornwall*, London
Harrad, L, forthcoming. *The Production and Trade of Prehistoric Ceramics in Cornwall*. PhD thesis presented to Oxford University 2002
Hencken, HO'N, 1932. *The Archaeology of Cornwall and Scilly*, London
Hencken, HO'N, 1933. An Excavation by HM Office of Works at Chysauster, Cornwall, 1931, *Archaeologia,* **83**, 237–84
Hirst, FC, 1936. Excavations at Porthmeor, Cornwall, *J Roy Inst Cornwall*, **24**, Appendix
Leeds, ET, 1927. Excavations at Chun Castle, in Penwith, Cornwall, *Archaeologia,* **76**, 205–40
Nowakowski, JA, 1991. Trethellan Farm, Newquay: the excavation of a lowland Bronze Age settlement and Iron Age cemetery, *Cornish Archaeol,* **30**, 5–242
Quinnell, H, 1986. Cornwall during the Iron Age and the Roman period, *Cornish Archaeol,* **25**, 111–34
Quinnell, H, 2000. First millennium BC and Roman period ceramics, in P Herring *St Michael's Mount: Archaeological Work, 1995–8*, Cornwall Archaeological Unit, Truro, 39–46
Quinnell, H, 2004. *Excavations at Trethurgy Round, St Austell: community and status in Roman and post-Roman Cornwall,* Truro
Russell, V, 1971. *West Penwith Survey*, Cornwall Archaeol Soc, Truro
Weatherhill, C, 1986. The riddle of the fogous, *Meyn Mamvro,* **1**
Williams, DF, 1978. Petrological analysis of the pottery, in Christie 1978, 405–6
Young, CJ, 1977. *Oxfordshire Roman pottery: the Roman pottery industry of the Oxford region*. Brit Arch Rep, Brit Ser **43**, Oxford

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Recording ancient environments at De Lank, St Breward, Cornwall

Andy M Jones and Heather M Tinsley

Summary

During the course of archaeological fieldwork along the De Lank water pipeline a number of boundaries of probable later prehistoric and medieval origin were recorded in section. However, the most significant discovery was the identification of a peat deposit on the northern side of the De Lank River below a field system which had been identified as having prehistoric origins and which had been used throughout the medieval period.

The study of the boundaries and the radiocarbon dating and analysis of the peat deposit fed into the key aims of the project which were to obtain information about changes to the landscape over the millennia and the impact of nearby prehistoric and medieval settlement on the immediate locale. A radiocarbon date of 1880–1630 cal BC was obtained from the base of the peat. The results from the pollen analysis indicate that although there was some evidence for limited cereal cultivation and tree coverage, grassland has been the dominant environment since the Bronze Age. It is therefore probable that primary pastoral agricultural practices, rather than cultivation, were associated with the Middle Bronze Age settlements which are found in the vicinity.

Project background

The Cornwall Archaeological Unit (CAU) was commissioned by Peter East of South West Water to undertake an archaeological watching brief during rehabilitation works along the route of a pipeline that ran for two kilometres between the De Lank Water Works (SX1191 7547) and Bradford (SX1320 7668).

The archaeological watching brief followed a desktop assessment undertaken by CAU, which made recommendations for archaeological recording (Tapper 2001). After consultation with Simon Thorpe (Senior Archaeologist, Planning Advice, Cornwall County Council) it was decided that the project should primarily consist of two elements, the sectioning and recording of boundaries where they were breached for vehicular access to the pipeline and the sampling of palaeoenvironmental deposits affected by the pipeline. The archaeological fieldwork was undertaken during the summer of 2002.

Aims and methodology

The aim of the project was to record the character and development of the historic landscape through which the pipeline passed. The area contains upstanding monuments in the form of prehistoric and

medieval settlement features and it was hoped that the archaeological recording would be able to identify when the major stages of enclosure took place and what impact they had on the landscape. The objectives were to be addressed by the recording of breached boundaries and the sampling of any potentially significant or informative deposits.

The methodology for each of the key objectives involved the following.

Recording of field boundaries

The ten boundaries affected by the scheme were photographed prior to being breached and were then recorded by measured section drawings, with descriptions of each context within the boundary, descriptions of vegetation and interpretative notes. The construction contractors worked closely with the site archaeologist and ensured that boundary sections were cleanly cut and exposed, and cleared down to the natural subsoil, enabling a record to be made of each full boundary profile.

Sampling of palaeoenvironmental deposits

The sampling for palaeoenvironmental analysis took place prior to the excavation of the areas where cross connecting pipes were to be laid. Initial prospecting with a gouge auger in the immediate vicinity of the pipeline revealed shallow organic deposits (maximum 0.4m deep) overlying either weathered gritty granite, or granite boulders. There were widespread signs of disturbance, due to the original pipeline excavations. However, on the northern side of the valley, close to one of the areas were a cross connection was to be inserted, there was a small peat mire covering an area about 100m by 40m. It occupied the site of an old meander, close to the junction of an unnamed tributary with the De Lank River (SX126764), between the later medieval settlements of Menadue and Ivey. Preliminary coring with the gouge auger revealed a maximum depth of 0.8m of peat above a layer of coarse grit; the site appeared undisturbed and two overlapping 0.5m cores were extracted for pollen analysis and dating using a Russian-style peat borer. The stratigraphy is shown in Table 1.

Table 1: Stratigraphy of the De Lank River mire site

0–270mm	Partly humified, mid-brown herbaceous peat. Occasional quartz grains. Some modern roots.
270–470mm	Very well-humified, black herbaceous peat, high water content. Occasional quartz grains.
470–480mm	Very well-humified, black herbaceous peat with frequent quartz grains and some larger grit particles.
480–800mm	Very well-humified, black herbaceous peat. Some small twiggy fragments from 770–800mm.
800mm +	Coarse grit (weathered granite).

Location and setting

The project area lies on the western side of Bodmin Moor approximately two kilometres to the east southeast of the settlement of St Breward (Fig 1). The pipeline ran along the bottom of the De Lank river valley dropping over its two kilometres length, from the northeast (approximately 240m OD) to the southwest (approximately 210m OD). The river valley is narrow and marshy at the bottom, with steeply sloping well drained sides, which are grass covered. There is very little tree cover and the landscape is characterised by a pattern of ancient small fields enclosed by substantial stone walls which give way to moorland on the higher ground (above 240m OD). The pipeline passed through an area which has been characterised as Anciently Enclosed Land (Cornwall County Council 1996). This is land which has been farmed and enclosed since at least the medieval period and which often

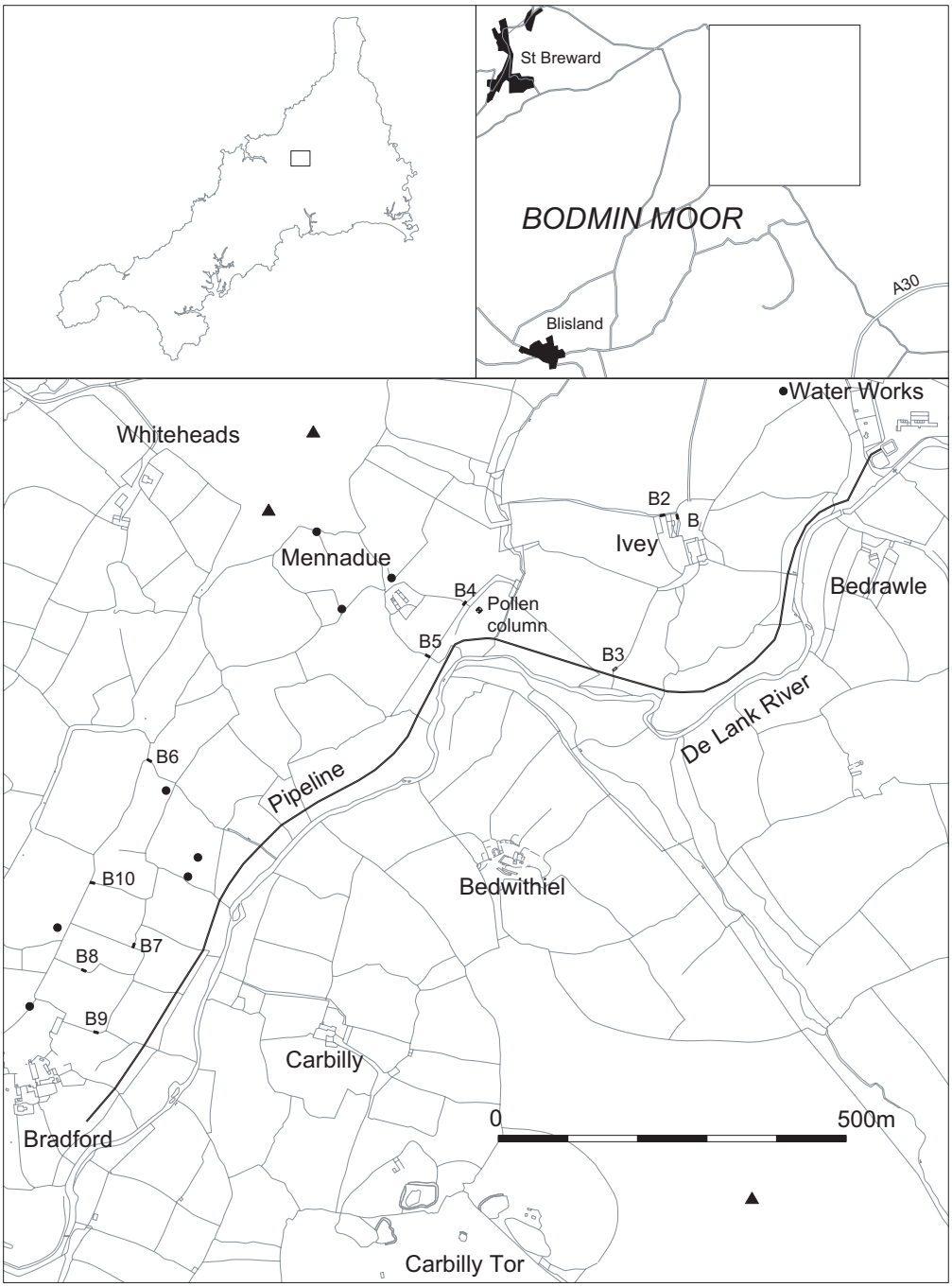

Fig 1 Plan showing the location of the pipeline, the recorded boundary sections and the pollen column. Dots indicate roundhouse sites and triangles denote cairns.

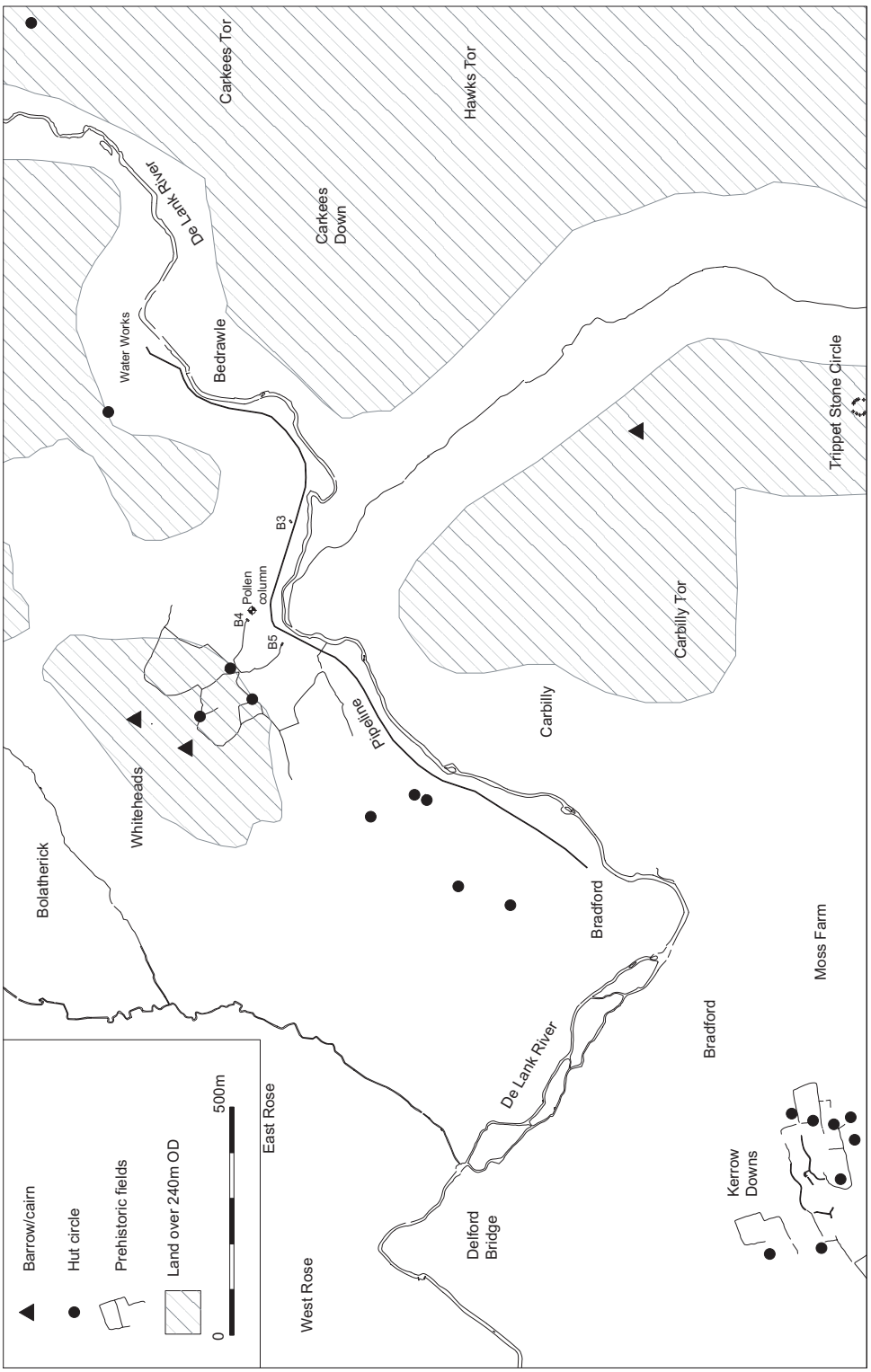

Fig 2 Location map showing prehistoric features in area of pipeline

contains dense concentrations of archaeological sites. Due to the impact of later agriculture, prehistoric features within this zone typically survive as ploughed out below-ground features, rather than as upstanding monuments. However, despite the effect of later medieval settlement and agricultural activity, prehistoric features, such as roundhouses, field systems and cairns survive. This is probably due to the fact that the project area is situated on the upper edges of the Anciently Enclosed Land. During the medieval and post-medieval periods the land may have primarily been used for the grazing of animals and earlier features were not necessarily cleared out of the way. In some cases the lines of prehistoric field boundaries may have been followed and maintained, for example at Menadue (Johnson and Rose 1994, map i).

A large number of sites were recorded by the archaeological assessment (Tapper 2001) which included settlements and field systems of prehistoric and medieval origin. Prehistoric field systems and roundhouses were found to survive along the entire length of the pipeline and were particularly well preserved along the northern side of the river between Ivey (SX1270 7644) and Bradford (SX1225 7559). The De Lank mire is situated below this string of roundhouses (Fig 2).

Based on evidence from other excavated prehistoric settlements, this activity is likely to date to the Middle Bronze Age (circa 1500–1000 BC) (eg Mercer 1970). On the higher lying ground beyond the margins of the prehistoric field systems, there is a scattering of Earlier Bronze Age cairns (circa 2000 to 1700 BC) which are distributed on both sides of the river.

Medieval settlements are fairly evenly spaced along either side of the river valley, they include Ivey, Menadue and possibly Bradford on the northern bank of the river and Carbilly, Bedwithiel and Bedrawle on the southern bank. These settlements were probably associated with a colonisation of the Moor from the twelfth century onwards, or perhaps earlier (Johnson and Rose 1994, 79); Bedwithiel and Bedrawle contain the Cornish place-name element *bod*, 'dwelling', which suggests a fifth to eleventh century origin (Padel 1985, 23–25). At least some colonisation along the valley may therefore have occurred during the early medieval period, or there may even have been continuity of settlement from later prehistory. The De Lank mire is located just 100m from the settlement of Menadue, first recorded in 1254. Like Bedrawle and Bedwithiel, Menadue is a deserted settlement; each appears to have continued into the post-medieval period before abandonment. This is reflected in the form of the settlements and of the field systems, which contain relict boundaries and others which continued to be maintained and developed.

Results

Field boundary recording

None of the ten investigated boundaries (see Fig 1) provided any evidence for being of prehistoric origin. In their current form the ten boundaries are typically 'Cornish hedges' (stone-faced earthen banks), 1.6m to 2.2m wide and around 1.2m high. Three are modern rebuilds (Boundaries 6, 7 and 10) but the rest are of two or three phases, showing evidence for rebuild and heightening and in some cases a change in form. Boundaries 5 and 7, for example, each have three similar phases: phase 1, a low earth bank; phase 2 a stone-faced earth bank; phase 3, further heightening and dumping of soil. The phases presumably represent medieval and post-medieval repair and attention.

The boundaries at Menadue had been considered potentially of prehistoric origin, because of their irregular form and their relationship to roundhouses. No evidence was found in Boundaries 4 and 5 to support this hypothesis, neither having the large stony cores which are typical of upland prehistoric boundaries in the Southwest (eg Fleming 1988; Jones 2001) or the large lynchets which are found beneath boundaries in West Penwith. However it is possible that although they have been rebuilt over time, they still fossilise the alignments of the prehistoric boundaries.

Radiocarbon dating

Some fragments of twig were removed from the base of the lower peat core from the De Lank mire (770–800mm), for dating by accelerator mass spectrometry (AMS) at the Waikato Radiocarbon Dating Laboratory, New Zealand. Subsequently, after construction of the pollen diagram, three further samples of plant macro-remains were submitted for AMS dating, from critical horizons higher up the profile, but two of these failed to yield results.

The results are set out in Table 2.

Table 2: Radiocarbon determinations from the De Lank River mire site

250–270mm	Wk-12347	Modern
770–800mm	Wk-11549	3444±39 BP, 1880–1630 cal BC

Pollen analysis

Samples for pollen analysis were extracted from the peat cores and prepared using standard techniques (Moore, Webb and Collinson 1991). Samples were counted at a magnification of ¥400 with ¥1000 magnification used for critical determinations. A total of >500 land pollen grains was counted at each of the 11 horizons sampled. True aquatic taxa were counted outside this total, as were fern spores. The results are presented in a pollen diagram (Figs 3a and 3b) drawn up using *Tilia* software (Grimm 1990). The pollen data is expressed as percentages of total land pollen (TLP), with all taxa included in the pollen sum shown as solid bars. The pollen types have been organised into ecological groups to aid in interpretation – trees, shrubs and climbers, anthropogenic herbs, herbs of acid grassland or heath, etc. The group 'herb taxa (various)' includes taxa with members which grow in a variety of habitats. The graph for microscopic charcoal concentration includes particles greater than 40μm in length. To aid description and interpretation, the pollen diagram has been divided into three local pollen assemblage zones, De Lank (DL) 1–3. These should not be considered as pollen assemblage zones *sensu stricta* (Birks 1986); the zone boundaries were determined on the basis of changes in the frequency of the tree pollen taxa, with zones DL1 and DL2 subdivided on the basis of changes in the frequency of anthropogenic herbs.

The principal features of the zones are summarised below.

De Lank River 1 (DL1a and b) 500–800mm. Date at 770–800mm 3444 ±39BP, 1880–1630 cal BC. Wk-11549

The zone is characterised by tree pollen values of around 40% total land pollen (TLP) principally *Corylus*-type (hazel), *Quercus* (oak) and *Alnus glutinosa* (alder). *Betula* (birch), *Fraxinus excelsior* (ash) and *Pinus* (pine) are present at <3% TLP. There are occasional pollen grains of *Ulmus* (elm), *Tilia* (lime), *Fagus sylvatica* (beech) and *Hedera helix* (ivy). The assemblage is dominated by herbaceous pollen, principally Poaceae (grasses) (45–49% TLP). In DL1a, the group of anthropogenic herbs forms 4–6% TLP; it includes *Plantago lanceolata* (ribwort plantain) and *Cirsium*-type (thistles), along with *Solidago virgaurea*-type (daisy and related Asteraceae), Lactuceae (dandelion and related Asteraceae), Chenopodiaceae (goosefoot family), *Rumex acetosella* (sheep's sorrel) and *Achillea*-type (chamomiles). In sub-zone DL1b these anthropogenic herbs increase to 9–11% TLP, principally due to a rise in *P. lanceolata* to <5% TLP and there is also a small peak in *Potentilla*-type (cinquefoils). Cereal-type pollen is present in both sub-zones at values of <1% TLP

De Lank River 2 (DL2a and b) 270–500mm

At the opening of this zone there is a marked fall in tree pollen which fluctuates between 15-23% TLP throughout the zone. The principal tree pollen taxon is *Corylus*-type at 7–11%TLP, both *Alnus* and

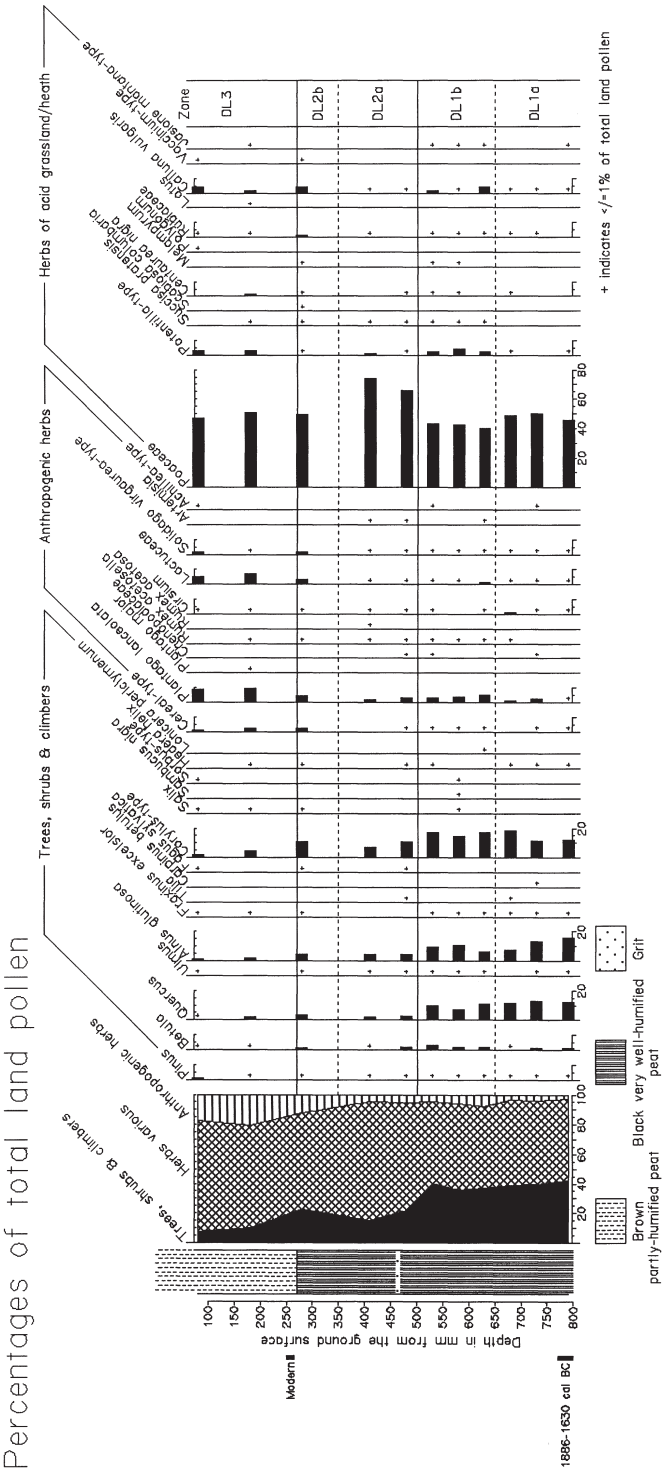

Fig 3a De Lank pollen diagram

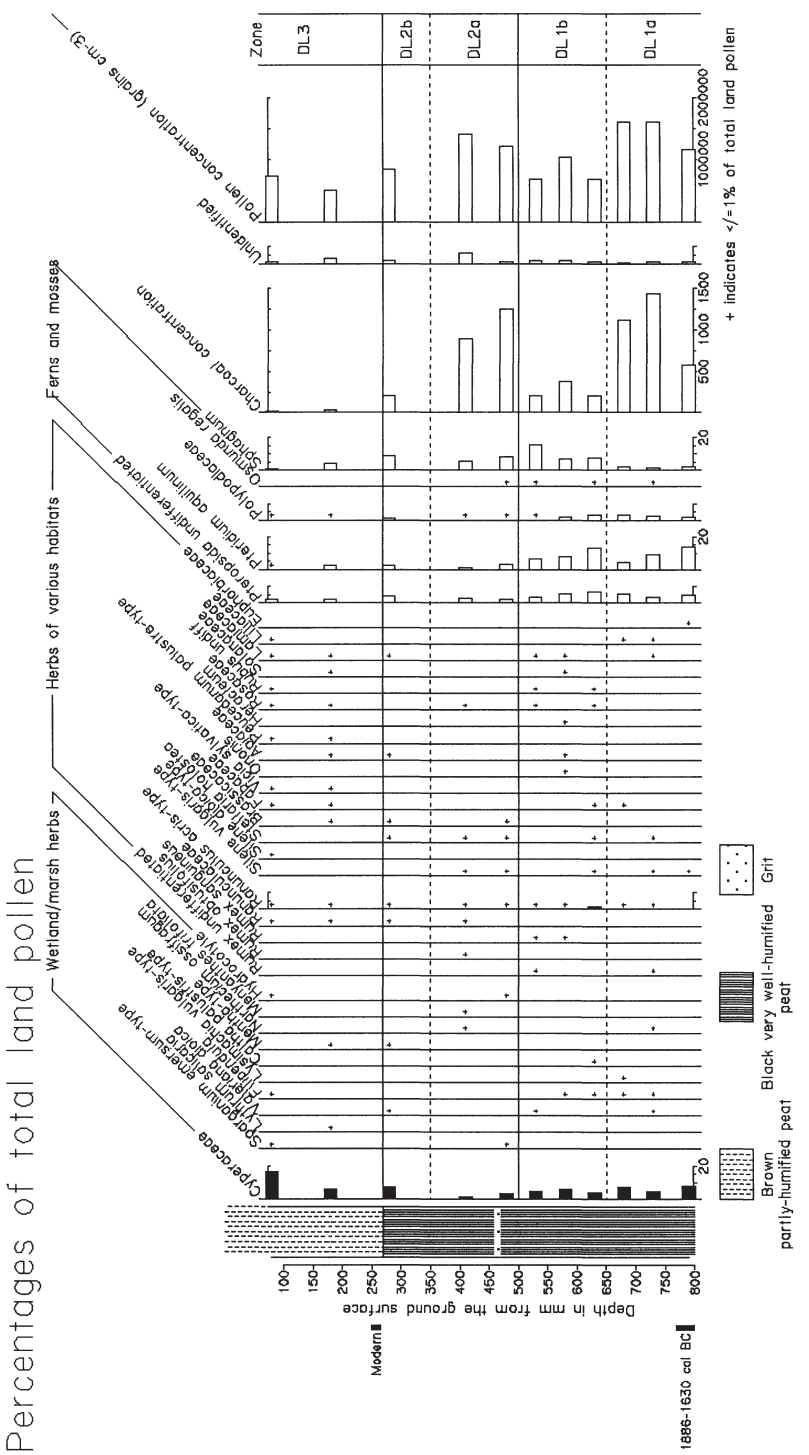

Fig 3b De Lank pollen diagram

Quercus are reduced to values of <4% TLP. Other tree taxa are represented by occasional grains. As a response to the fall in tree pollen, values for herbaceous pollen rise, with Poaceae forming 50–74% TLP. The range of anthropogenic herbs is similar to DL1, but the record for cereal-type pollen is not continuous in DL2a. In DL2b, above 350mm, the frequency of anthropogenic herbs rises again, in particular Lactuceae pollen rises to 3% TLP and the cereal-type pollen graph is re-established.

De Lank River 3 (DL3) 0–270mm. Date at 250–270mm – Modern Wk-12347

At the start of DL3 there is a further marked fall in tree pollen to <10% TLP. Poaceae remain at values similar to DL2b, around 50% TLP, but pollen of the anthropogenic herbs reaches a maximum with *P. lanceolata* forming 9% TLP and Lactuceae 5–7% TLP in this zone. Cereal-type pollen also reaches a maximum of 1–2% TLP. *Potentilla*-type once more increases.

Around 1800–1630 cal BC, when the peat in the abandoned meander by the De Lank River began to form (Zone DL1 of the pollen diagram), the environment of this upland valley was already largely open, with only limited woodland. Alder (*Alnus glutinosa*) was present, growing in the valley bottom, the dated fragments of twigs from the peat base testify to this, but there was no extensive carr woodland on, or around, the mire. The pollen evidence suggests that there was some oak (*Quercus*) and hazel (*Corylus*-type) on the better-drained valley slopes, probably in small copses, none of which was very close to the site. There was little birch *(Betula*), and the occasional pollen grains of elm (*Ulmus*), ash (*Fraxinus*) and lime *(Tilia*) must have either blown in from woods at lower altitudes, or been dispersed to the site by insects.

Herbaceous pollen is produced in smaller quantities than tree pollen and, as it is released close to the ground, it usually only travels a short distance from the plant before being deposited. It therefore tends to reflect the local environment of the site. The wetland and marsh taxa present in DL1 indicate that the valley mire itself supported a vegetation community of sedges, with occasional wetland herbs such as marsh valerian (*Valeriana dioica),* meadow sweet (*Filipendula*), bog asphodel (*Narthecium ossifragum*), and yellow loosestrife or creeping jenny (*Lysimachia vulgaris*-type). The royal fern (*Osmunda regalis*), which prefers damp sites and peaty soil, grew there along with other pteridophytes including the polypody fern (*Polypodium vulgare*), which may well have inhabited crevices between the granite boulders on the valley floor.

The valley sides were largely covered with an acid grassland community, with some bracken. Herbs associated with anthropogenic disturbance such as ribwort plantain (*Plantago lanceolata*), daisy (or related Asteraceae – pollen taxon *Solidago virgaurea*-type) and thistles (*Cirsium*-type) were present, indicating human use of the area. In sub-zone DL1b of the pollen diagram a marked increase in pollen of ribwort plantain and other disturbance herbs such as sheep's sorrel (*Rumex acetosella*) and Lactuceae (dandelion and related Asteraceae), is evidence that anthropogenic activity in the valley increased some time after 1800–1630 cal BC. The overall ratio of grassland to trees did not change at this point, so this represented an intensification of use of existing cleared land. This use was probably largely pastoral, though it is difficult to clearly separate pollen taxa associated with pastoralism from those of cultivation. Both activities involve disturbance of the ground allowing ruderals to establish, and reconstructions based on ratios of identified arable or pastoral indicators are likely to be imprecise (Edwards 1998). Work by Behre (1986) and other authors has linked *Plantago lanceolata* particularly with pastureland, but it also grows on the edges of pathways and trampled ground, and has in some situations been linked with arable activity (Groenman-van Waateringe 1986). Other herb taxa present in DL1b are largely ones which are today associated with acid upland grazing land, eg sheep's sorrel, common knapweed (*Centaurea nigra*), devil's-bit scabious (*Succisa pratensis*), and sheep's bit (*Jasione montana*). The small, but marked peak in *Potentilla*-type pollen in sub-zone DL1b is also likely to be associated with grazing activity; tormentil (*P. erecta*) is a common herb of acid grasslands which flowers more freely when grazing restricts ranker growth. However, there is also some limited evidence for arable activity in DL1: a few grains of cereal-type pollen occur, and these reach a maximum of 1% TLP at the start of sub-zone DL1b, before declining.

The interpretation of low frequencies of cereal-type pollen can be problematic. Even a few cereal-type pollen grains in a particular horizon may be significant in terms of nearby cultivation, because all the principal cereals grown in Britain are self-pollinating and disperse very limited amounts of pollen (Faegri and Iversen 1989). However, the task of distinguishing pollen of cereals from that of wild grasses is difficult (Edwards 1998). The distinction is made on the basis of the size of the pollen grain and the characteristics of the single pore which all grass pollen possesses. The cultivated grasses (the cereals) have substantially larger pollen grains than the majority of wild grasses and a larger pore that has a distinct raised ring around it (the annulus) (Moore, Webb and Collinson 1991). The separation of 'cereal-type' from wild grass pollen therefore requires careful measurement of individual grains. In this study, grass pollen grains greater than 4μm in diameter and with annulus size greater than 8μm were identified as 'cereal-type'. Within the 'cereal-type' taxon three subdivisions can be made (Bennett 1994). The first consists of *Secale cereale* (rye) which has a distinctive oval shape; it is not represented in the De Lank sediments. The second subdivision, the *Hordeum* (barley) group, includes some wild grasses. Most of these can be excluded from consideration on Bodmin Moor on ecological grounds, for example the coastal species *Spartina anglica* (common cord grass), *Ammophilia arenaria* (marram grass) and *Leymus arenarius* (lyme grass); however, *Elytrigia repens* (common couch), which grows on disturbed ground, or *Glyceria* spp. (sweet grasses), which grow in mud by water and occasionally in wet meadows, could have grown in the De Lank valley. The third subdivision of the 'cereal-type' taxon is the *Avena-Triticum* (oats-wheat) group, distinguished from the *Hordeum* group on the basis of a larger annulus and distinctive surface sculpturing (Andersen 1979; Dickson 1988). There is just one wild grass in this group, *Avena fatua* (wild oat), which is a common weed of arable crops. The distinction between the *Hordeum* and *Avena-Triticum* groups ideally requires well-preserved, uncrumpled specimens for accurate measurement (Dickson 1988). Unfortunately, in fossil material large grass grains are frequently partially collapsed. Additionally, when very few cereal-type grains are found, as is the case at the De Lank mire, it is not possible to measure a statistically sound sample on which to base conclusions. However, despite these concerns, careful observation suggests that the majority of the cereal grains from the De Lank mire sediments are of *Avena-Triticum* type. In a recent review of macrofossil evidence for crop husbandry in the south of England, Campbell and Straker (2003) reported few records for the cultivation of *Avena* (oats) before the Iron Age. It therefore seems likely that the cereal-type pollen found in the De Lank sediments in DL1 and DL2 is of wheat, but the reservations discussed above remain.

The phase of increased agricultural activity in sub-zone DL1b was of relatively short length compared with the time-span of DL1a, as deduced from the reduced pollen concentration between 650–500mm, which indicates much more rapid peat accumulation in DL1b. This is probably associated with a wetter phase on the mire surface; the increased frequencies of spores of bog moss (*Sphagnum*) in DL1b support this interpretation. The date at the base of the peat indicates that the mire began to grow towards the end of the Early Bronze Age, and it therefore seems likely that this short phase of more intensive agricultural activity reflects an expanding farming population associated with the settlement of the valley in the Middle Bronze Age. Johnson and Rose (1994) have identified a large block of Bronze Age fields some 200m square and at least eight round houses in the valley near the De Lank mire (Johnson and Rose 1994, map I). The farmers probably grazed animals within the valley itself and may also have used the moor beyond, where there are extensive blocks of fields, as an outfield. The pollen evidence suggests that any cultivation was on a limited scale, probably in small fields within the shelter of the valley. The increasing population may also be reflected in the rising charcoal concentrations seen after the peat began to accumulate in DL1a. The size of charcoal particles found in the pollen preparations, and their relative concentration, probably indicates domestic fires rather than widespread moorland burning. There is an apparent fall in charcoal concentration in DL1b, but this is merely a consequence of the more rapid rate of peat accumulation at this point in the profile; the charcoal graph fluctuates in parallel with that for pollen concentration and recovers completely in the slower forming peat of DL2.

The remaining valley woodlands were further reduced at the start of DL2, probably a consequence of the increased intensity of grazing during DL1b, with trees failing to regenerate in the valley copses. By the start of DL2 only a few trees remained in the valley – occasional alders which would have been close to the stream and some hazel with a little oak in isolated patches on the valley sides. The anthropogenic herbs continue to be represented at similar frequencies to DL1; this, and the record for charcoal concentration, suggests continuing occupation of the Bronze Age farms. There is evidence of some instability in the valley soils at this period, as a thin band of gritty mineral material occurs in the peat stratigraphy. However, the cereal-type pollen record is not continuous in DL2, which perhaps indicates that the valley was in a fairly marginal situation for cultivation.

In sub-zone DL2b (represented by only a single pollen sample) there are indications of change – the curve for pollen of anthropogenic herbs remains high – indeed it increases further, and cereal-type pollen is again represented, but charcoal frequencies fall markedly (a real fall in this case, not influenced by changing rates of sediment accumulation). Domestic hearths are only likely to deposit charcoal locally; Bennett *et al* (1990), using data from Clark (1988), suggested that a fire of around $1m^2$, would deposit charcoal mainly within a radius of 200m. It is therefore quite possible that, although agricultural use of the valley continued in DL2b, the focus of settlement may have moved further away from the De Lank mire.

Immediately above the single pollen sample representing sub-zone DL2b, at 270mm, there is a marked and sharp change in the peat stratigraphy, which is shown in the stratigraphic column to the left of the pollen diagram (Figs. 3a and 3b). The sediment changes to a paler, much less well-humified peat. The AMS date from just above this junction gave a result of 'modern', placing the conventional age within the last 200 years. This result suggests that the stratigraphic boundary represents a true hiatus in sediment accumulation, and this is most likely to be a consequence of peat having been cut from the bog surface; as a result the post-Bronze Age pollen record above 270mm has been lost. Peat cutting could well have occurred during the phase of medieval settlement in the valley when the need for fuel in a largely treeless environment would have made the bog a valuable resource. Evidence of past peat cutting is widespread on the moorlands of the south-west peninsula; in a paper reviewing the palaeoecological record from Dartmoor, Caseldine (1999) cites the removal of peats and valley sediments for fuel as one of the reasons for the lack of detailed knowledge about vegetation change on Dartmoor in recent prehistory, and the situation is likely to be similar on Bodmin Moor.

The pollen record in the 'modern' peat (sub-zone DL3) represents a vegetation community very like that which is present today in the De Lank valley – open, rather damp pasture, dominated by sedges and grasses and with a high degree of disturbance (currently pigs, sheep and cattle are all grazed on, and in the area around, the De Lank mire). The anthropogenic herbs – ribwort plantain, dandelions, daisies and related types reach much higher levels in DL3 than in the sediments below, reflecting modern stocking densities. The presence of cereal-type pollen in this 'modern' peat probably has a rather different origin from that found in the Bronze Age horizons; it is most likely to have reached the mire via the dung of grazing animals fed on straw and grain supplements (see discussion in Greig 1982). Charcoal concentrations are very greatly reduced in DL3, compared with the earlier zones, reflecting both the depopulation of the upland section of the valley, and also changes in fuel type in recent times; there is now only one occupied farmstead in the area, at Ivey.

Discussion

Introduction

The results from the intervention at De Lank, though small-scale, have produced a significant amount of new information which has contributed to a growing body of archaeological and

palaeoenvironmental information on the Moor. The recording of the boundaries resulted in the identification of multi-phased structures which may have had their origins in the Middle Bronze Age and which have been maintained and rebuilt until the present day. However the most significant results were obtained from the pollen analysis and dating of the peat core. The results are important for two reasons, firstly because they add to the growing body of environmental evidence from the Moor (eg Geary *et al* 2000a; 2001b) which stresses the complexity of landscape change associated with human activity, and secondly because the cores were extracted from an area which contains a large number of prehistoric and medieval settlements. The results from the project have therefore provided an opportunity to contrast the findings with other areas of the Moor and to consider the impact the prehistoric settlement activity had upon the immediate locale.

Unfortunately there were limitations to the evidence which was recovered from the mire. Firstly the upper part of the peat sequence had been truncated. Secondly there was a lack of dating evidence from within the sequence. We know when the sequence commenced but we do not know the dates of the various events that are recorded within the sequence.

The wider context

The project has produced a set of results which will contribute, albeit on a small scale, to regional models of land use and landscape change. Before discussing the results in terms of their local context, they merit a brief discussion that places them within the context of second millennium BC events and outlines models put forward to explain those events.

Prior to the middle of the second millennium BC, when the De Lank peat sequence commences, landscapes across the region had become dotted by larger gathering places such as henges and stone circles, but above all by large numbers of barrows and cairns (see Griffith and Quinnell 1999), which in the south-west region appear to have been used as ceremonial centres in their own right. During this period there is relatively little evidence for agricultural activity in the south-west region and there is a particular paucity in the evidence for cultigens prior to the Middle Bronze Age (circa 1500 BC) (see Campbell and Straker 2003, 18). Outside of the Earlier Neolithic enclosures, such as Carn Brea (Mercer 1981), which may not have been conventional domestic sites and a small number of buildings which have been interpreted as dwellings (see Darvill 1996), settlement evidence is generally restricted to flint scatters and stray artefact finds, which are perhaps more indicative of a less settled way of life which may have been associated with pastoralism. It is worth pointing out that there is likely to have been a great deal of variety in the beliefs, lifestyles and agricultural practices of the communities which populated the south-west.

However by the middle of the second millennium BC (at the start of the De Lank peat sequence), a new pattern emerges in the region's archaeological record, namely the widespread appearance of settlement-related activity in the form of roundhouses and field boundaries. This process occurred across the uplands and the lowlands of southern Britain (see Johnson and Rose 1994; Fleming 1988; Barrett *et al* 1990). All over the south-west region existing grasslands along with other areas which had not previously been settled became enclosed and constrained by reaves and boundaries (eg Charman *et al* 1998). For the first time communities formally divided themselves with an array of ditched, stone and probably hedged boundaries. The reasons for these changes are likely to have been complex. Some writers have linked this change to the emergence of new ideologies and with a fragmentation in the existing social order (Barrett 1994; Brück 2000, 293–4). Recently it has been suggested that the ties which bound communities together were at this stage principally situated within the setting of the domestic settlement. Ritual and communal activities associated with the agricultural season and life crises may have been performed within the setting of the settlement (Brück 1996).

The early stages of peat accumulation in the De Lank valley coincides with these wider changes which were taking place across southern Britain. The local context of the sequence in relation to Bodmin Moor can now be discussed.

Evidence from the Moor

The Bronze Age settlements of the De Lank valley, between the De Lank Waterworks and Bradford, are part of a widespread distribution of probable Bronze Age remains, which extends up onto the downlands of Bodmin Moor, beyond the present limit of improved land. The period of intensification of agricultural use post 1880–1630 cal BC which has been identified in the pollen record from the De Lank mire (DL1), fits into a pattern of Middle Bronze Age activity which has been established by palaeoecological work at a number of sites around the Moor. Geary's (1996) geographically wide ranging studies, of peat profiles from both the east and west sides of the Moor have provided a framework for understanding human impact on the vegetation of Bodmin Moor during the Holocene period. At one of Geary's sites, a peat profile from Rough Tor South, about three kilometres north of the De Lank mire, but some 50m higher, a phase of increased grass pollen with small peaks of ribwort plantain and Lactuceae has been dated to around 1690–1440 cal BC (Geary 1996). The suite of herbaceous pollen taxa was interpreted as representing an intensification of pastoral agriculture in the area; no cereal pollen was recorded (Geary 1996). There is a high concentration of roundhouses, and a system of enclosure boundaries near to the site. At a similar altitude to the Rough Tor South site, but a little further north at Stannon there are extensive Bronze Age remains of roundhouses, field systems and monuments. Dimbleby (in Mercer and Dimbleby 1978) examined a pollen sequence preserved in a so-called "cultivation soil" sealed beneath one of these roundhouses. The pre-monument landscape was interpreted as partly deforested, and an assemblage of herb pollen taxa was present which suggested pastoral land use. No cereal pollen was found and there was no other evidence of cultivation such as plough or spade marks in the soil (Mercer and Dimbleby 1978). A peat section from the Northern Downs at Stannon, showed a phase of pastoral activity, apparently similar to that at Rough Tor South, also dated to the Middle Bronze Age, 1517–1215 cal BC (Tinsley 2000). The pollen data from this site is currently at assessment level; more detailed work, and an extensive programme of dating, is to be undertaken at this site in the near future (Jones and Nowakowski 2000). Pollen analysis from a number of soils buried beneath Bronze Age barrows at Colliford (Maltby and Caseldine 1984) revealed that relatively open grassland was already in existence prior to barrow construction, again the herbaceous taxa present were found to be largely those associated with pastoralism, rather than cultivation.

From all these sites a similar picture emerges, of a pastoral economy on Bodmin Moor during the Bronze Age associated with the widespread settlements and monuments. At Stannon and Rough Tor South radiocarbon dating has established that this activity intensified in the Middle Bronze Age, as it appears to have done at the De Lank mire. To this extent then the pattern of land use in the De Lank valley in the Middle Bronze Age appears typical of the surrounding Moor. The suite of herbaceous types which are characteristic of the phase of increased agricultural activity in DL1b at the De Lank mire mirrors that seen at other Bronze Age sites around the Moor, typically comprising grasses along with ribwort plantain, dandelions and *Potentilla*-type (probably tormentil). The latter seems to have been a very consistent member of the grassland communities of Bodmin Moor in the Bronze Age, and it is found today as a constant species in the southwest moorlands (for example the *Agrostis curtisii* community (U3) and the *Festuca ovina- Agrostiscapillaris-Galium saxatile* community (U4) of the National Vegetation Classification (Rodwell 1992)). However, in one important aspect land use in the De Lank valley in the Middle Bronze Age appears to have differed from that of the surrounding uplands of the west of Bodmin Moor. At the De Lank mire site cereal-type pollen is present, albeit in very low frequencies, in the post 1880–1630 cal BC peats. Geary

(1996) found some evidence for crop cultivation in the Middle Bronze Age at another valley site close to the fragmentary remains of Bronze Age fields on the eastern side of Bodmin Moor, at Tresellern Marsh. Here an increase in grass pollen and herbs indicating pastoral activity was dated to 1705–1535 cal BC, and has associated with it occasional cereal-type pollen grains (Geary 1996). Tresellern Marsh is by the side of the Withey Brook and, like the De Lank mire, is at an altitude of around 230m, somewhat lower than the other moorland sites discussed above. The lower altitude and the valley locations of these two sites were probably more suitable for cultivation. The majority of other Bronze Age localities where palaeoecological work has (so far) yielded no evidence for crops are all higher and more exposed. The shelter afforded by the valleys of the Withey Brook and the De Lank River may well have been essential for arable agriculture in what were probably marginal locations. It would be valuable to test this hypothesis, if suitable peats could be found, in valleys near to the moorland limit, close to other Bronze Age settlements on Bodmin Moor.

Acknowledgements

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References

Andersen, ST, 1979. Identification of wild grass and cereal pollen, *Danmarks Geologiske Undersøgelse, Årbog 1978,* 69–92

Barrett, J, 1994. *Fragments from Antiquity*, Blackwell

Barrett, J, Bradley, R, and Green, M, 1991. *Landscape, Monuments and Society,* Cambridge University Press

Behre, K-E (ed), 1986. *Anthropogenic indicators in pollen diagrams,* Balkema, Rotterdam

Bennett, KD, 1994. *Annotated catalogue of pollen and pteridophyte spores of the British Isles,* Department of Plant Sciences, University of Cambridge

Bennett, KD, Simonson, WD, and Peglar, SM, 1990. Fire and man in post-glacial woodlands of eastern England, *Journal of Archaeological Science*, **17**, 635–642

Birks, HJB, 1986. Numerical zonation, comparison and correlation of Quaternary pollen-stratigraphical data, in B Berglund (ed), *Handbook of Holocene Palaeoecology and Palaeohydrology*, John Wiley, Chichester

Brück, J, 1996. A place for the dead: the role of human remains in Late Bronze Age Britain, *Proc Prehist Soc,* **61**, 245–278

Brück, J, 2000. Settlement, landcape and social identity: the Early-Middle Bronze Age transition in Wessex, Sussex and the Thames Valley *Oxford Journal of Archaeology*, **19**, **3**, 273–301

Campbell, G, and Straker, V, 2003. Prehistoric crop husbandry and plant use in southern England: development and regionality, in KA Robson Brown (ed), *Archaeological Sciences 1999. Proceedings of the Archaeological Sciences Conference, University of Bristol 1999,* BAR International Series, S1111, 14–30

Caseldine, CJ, 1999. Archaeological and environmental change on prehistoric Dartmoor – current understanding and future directions, *Quaternary Proceedings* **7**, 575–583

Charman, DJ, Geary, BR, and West, S, 1998. New Perspectives on the Prehistoric Human Impact On The Uplands of Devon and Cornwall, in Blacksell, M, Matthews, J and Sims, P, (eds) *Environment management and change in Plymouth and the South West*, Plymouth, 1–19

Clark, JS, 1988. Particle motion and the theory of charcoal analysis: source area, transport, deposition and sampling, *Quaternary Research* **30**, 67–80

Cornwall County Council, 1996, *Cornwall Landscape Assessment 1994,* report prepared by Cornwall Archaeological Unit and Landscape Design Associates, Cornwall County Council

Darvill, T, 1996. Neolithic Buildings in England, Wales and the Isle of man, in T Darvill, and J Thomas (eds), *Neolithic Houses in Northwest Europe and Beyond*, Oxbow Monograph **57**, Oxford, 77–112

Dickson, C, 1988. Distinguishing cereal from wild grass pollen: some limitations, *Circaea* **5**, 67–71

Edwards, K, 1998. Detection of human impact on the natural environment: palynological views, in J Bayley (ed), *Science in Archaeology*, English Heritage, London, 69–88

Faegri, K, and Iversen, J, 1989. *Textbook of pollen analysis* (fourth edition by K Faegri, PE Kaland and K Krzywinski) John Wiley, Chichester

Fleming, A, 1988. *The Dartmoor Reaves*, Batsford, London

Geary, BR, 1996. *Human–environment relations on Bodmin Moor during the Holocene*, unpublished PhD thesis, Department of Geographical Science, University of Plymouth

Geary, BR, Charman, DJ, and Kent, M, 2000a. Palaeocological Evidence for the Prehistoric Settlement of Bodmin Moor, Cornwall, Southwest England. Part I: The Status of Woodland and Early Human Impacts, *Journal of Archaeological Science* **27**, 423–438

Geary, BR, Charman, DJ, and Kent, M, 2000b. Palaeoecological Evidence for the Prehistoric Settlement of Bodmin Moor, Cornwall, Southwest England. Part II: Land Use Changes from the Neolithic to the Present, *Journal of Archaeological Science* **27**, 493–508

Greig J, 1982. The interpretation of pollen spectra from urban archaeological deposits, in AR Hall and HK Kenward (eds), *Environmental Archaeology in the urban context,* CBA Research Report **43**, London, 47–65

Griffith, FM, and Quinnell, H, 1999. Barrows and Ceremonial Sites in the Neolithic and Earlier Bronze Age, in R Kain and W Ravenhill (eds), *Historical Atlas of Southwest Britain,* University of Exeter Press, Exeter, 55–61

Grimm, E, 1990. *Tilia* and *Tilia*.graph: PC spreadsheet and graphics software for pollen data, *INQUA Commission: Holocene Working Groups on Data-handling Methods Newsletter* **4**, 5–7

Groenman-van Waateringe, W, 1986. Grazing possibilities in the Neolithic of the Netherlands based on palynological data, in K-E Behre (ed), *Anthropogenic indicators in pollen diagrams*, Balkema, Rotterdam, 187–202

Johnson, N, and Rose, P, 1994. *Bodmin Moor: An Archaeological Survey volume I: the human landscape to c1800*, English Heritage and The Royal Commission on the Historic Monuments of England, London

Jones, AM, 2001. *Stage 2 Archaeological Excavations at Stannon Down, Cornwall*, Cornwall Archaeological Unit Archive Report, Truro

Jones, AM, 2002. *Project Outline for Archaeological Work along De Lank Pipeline, Cornwall*, Cornwall Archaeological Unit, Truro

Jones, AM, and Nowakowski, J, 2000. *Archaeological Evaluations at Northern Downs, Stannon, St Breward, Cornwall,* Cornwall Archaeological Unit, Truro

Maltby, E, and Caseldine, CJ, 1984. Environmental reconstruction at Colliford, in Griffiths, F, Archaeological investigations at Colliford Reservoir, 1977–78, *Cornish Archaeol*, **23**, 92–116

Mercer, RJ, 1970. The Excavation of a Bronze Age Hut-Circle Settlement, Stannon Down, *Cornish Archaeol*, **9**, 17–46

Mercer, RJ, and Dimbleby, GW, 1978. Pollen analysis and the hut circle settlement at Stannon Down, St. Breward, *Cornish Archaeol*, **17**, 25–28

Mercer, R, 1981. Excavations at Carn Brea, Illogan Cornwall – a Neolithic Fortified Complex of the Third Millennium bc, *Cornish Archaeol*, **20**, 1–204

Moore, PD, Webb, JA, and Collinson, ME, 1991. *Pollen Analysis* (second edition), Blackwell Scientific Publications, Oxford

Padel, OJ 1985. *Cornish Place-Name Elements*, English Place-Name Society, Nottingham

Rodwell, JS, 1992. *British Plant Communities Volume 3: Grasslands and montane communities*, Cambridge University Press, Cambridge

Tapper, BT, 2001. *Pipeline rehabilitation, St Endellion-De Lank, China Down-Delabole and Lower Moor sections, Cornwall*, Cornwall Archaeological Unit, Truro

Tinsley, HM, 2000. Pollen assessment of samples from peat deposits on the edge of Northern Downs, Stannon Down, St Breward, in Jones and Nowakowski, 2000

Cornish Archaeology 39–40, 2000–1

Discoveries along the St Newlyn East to Mitchell pipeline

ANDY M JONES and SEAN TAYLOR

Introduction

During the summer of 2001 Cornwall Archaeological Unit (CAU) were commissioned by South West Water to carry out a programme of archaeological recording along their pipeline between Mitchell and St Newlyn East (Fig 1). The fieldwork had been preceded by an archaeological assessment and a geophysical survey that had identified several areas likely to contain features of archaeological interest. Chances to study later prehistoric lowland settlement in Cornwall have been limited so the project provided an important opportunity to investigate a little studied part of the Cornish landscape and recover information which could be compared with more intensively studied parts of the county.

The investigations proved to be rewarding. Three major prehistoric phases were identified including Middle Neolithic and Early Bronze Age activity around Metha, Middle Bronze Age settlement activity at Trevilson, and a Romano-British enclosure at Pollamounter. A fourth area investigated at Church Close produced no dating evidence.

Middle Neolithic to Early Bronze Age

Evidence for Neolithic occupation of the area came in the form of a small pit [370] (SW 8301 5689), at the western end of the pipeline. Unfortunately the pit was only spotted in section after the narrow pipe trench had been excavated so its exact shape in plan was not recorded, though four flint flakes were recovered from it. The primary fills contained substantial quantities of charcoal, which was submitted for radiocarbon dating, producing a Middle to Later Neolithic determination: Wk12676 4505±68BP (3400–2900 cal BC at 95% probability). The site is significant because it has added to a growing body of lowland Neolithic material that is associated with small-scale activity, perhaps shifting or seasonal settlement patterns.

Early Bronze Age activity was also identified near to the western end of the pipeline within an area where the geophysical survey recorded a number of anomalies. A shallow pit [282] (SW 8392 5707) was excavated and found to contain a large sherd from an Early Bronze Age Food Vessel and a flint flake, possibly a projectile point. The vessel is the only Cornish example not to have come from a barrow. Charcoal from the primary fill [283] was submitted for radiocarbon dating: Wk12674 3984±56 BP (2700–2300 cal BC 95% probability). This determination is important because it is one of the earliest dates associated with a Food Vessel in southern Britain.

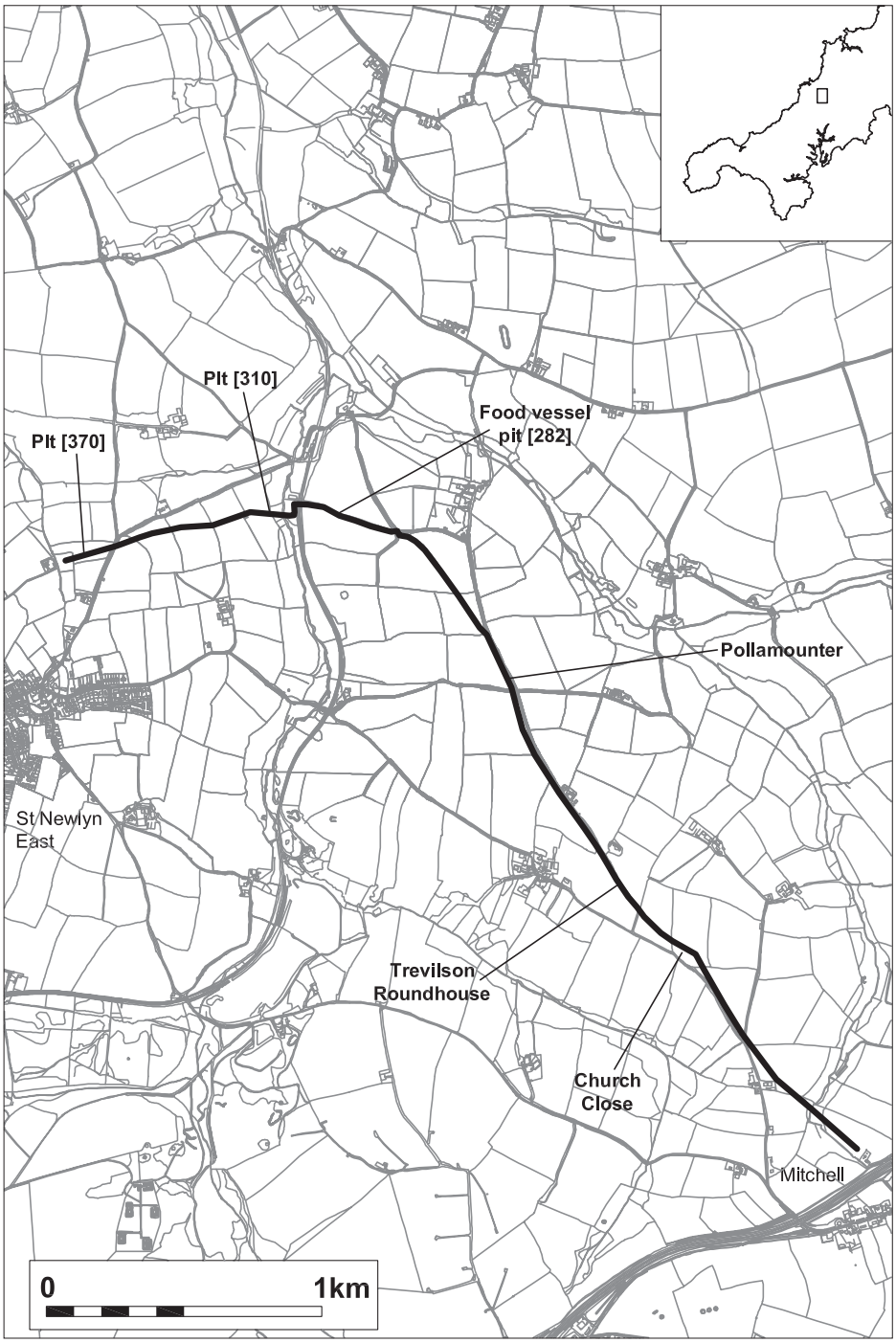

Fig 1 Location map showing sites along the St Newlyn East to Mitchell pipeline.

Middle Bronze Age

Evidence for Middle Bronze settlement activity came from two sites. The first, a large pit [310] (SW 8373 5700) at the western end of the pipeline near Metha (Fig 2), was devoid of artefacts though environmental analysis revealed that it appeared to contain cuttings from hedgerows. A sample from the pit was submitted for radiocarbon dating giving a determination of Wk12675 3258±53BP (1690–1410 cal BC at 95% probability). The particular value of this site was in the implication that during the Middle Bronze Age the lowlands might have been subdivided by hedgerows.

The second site was located at Trevilson (SW 8495 5571), where half of a sub-circular feature extended into the pipeline corridor; excavation revealed the base of a circular wall lining a hollow, 7m in diameter, cut into the bedrock (Fig 3). A gap 1.5m wide to the south-east was interpreted as an entrance. Within the building, three large postholes forming a concentric arc inside the wall, had been filled with deposits of quartz stones, baked clay objects and charcoal; the interior of the house had been buried beneath deposits of deliberate infilling (Fig 4). A total of thirty-two Bronze Age pottery sherds and fragments from baked clay objects including briquetage associated with salt production were recovered from infilling deposits within the roundhouse. Four radiocarbon determinations were obtained; they are important because they overlap and post-date the well-dated roundhouses at Trethellan and fall before the Callestick roundhouse (Nowakowski 1991; Jones 1998/9). The earliest date from the site Wk12680 3077±56BP (1450–1120 cal BC at 95% probability) was obtained from [536], the fill of cut [535], a shallow slot in the base of the roundhouse. This feature was probably associated with the construction of the roundhouse and as such provides the one date that is likely to relate to the building's occupation.

The other dates come from infilling episodes associated with the elaborate abandonment of the roundhouse. The earliest two are Wk12679 3004±56BP (1400–1040 cal BC at 95% probability),

Fig 2 Metha Middle Bronze Age pit [310] in section

Fig 3 The Trevilson roundhouse walling under excavation

obtained from a posthole's fill, and Wk12678 3008±56BP (1410–1050 cal BC at 95% probability), from material associated with a deposit of briquetage. The final date, Wk12677 2864±56BP (1220–890 cal BC at 95% probability), came from one of the major infill deposits. We can build up an outline chronological sequence that has construction of the roundhouse between the fifteenth and mid-twelfth centuries BC and infilling of the roundhouse between the thirteenth and ninth centuries

Fig 4 The excavated Trevilson roundhouse

BC. When overlaps between dates are considered together with the likely duration of the abandonment phase it can be suggested that the roundhouse was probably built during the thirteenth century BC and abandoned during the eleventh century BC.

The Trevilson roundhouse provided the earliest evidence for permanent settlement within the investigated area and is therefore important for our understanding of settlement activity, methods of building construction, and in particular the elaborate patterns of abandonment which accompanied the closure of Bronze Age roundhouses in Cornwall. Many features associated with closure of roundhouse sites (such as use of quartz and curation of artefacts) may well have been drawn from Early Bronze Age traditions associated with round barrow use and construction. The picture emerging from excavated evidence indicates that the Cornish Middle Bronze Age contained elements of continuity with the past, as well as those of change.

Romano-British

At Pollamounter (SW 8454 5645), located in the middle of the pipeline route, controlled topsoil stripping confirmed the findings of the assessment and geophysical survey which had indicated the presence of a substantial enclosure containing a series of anomalies. Excavation revealed the enclosure ditch and a scatter of dispersed features including a group of inter cutting ditches, pits and postholes.

Most of the investigated features dated to the Romano-British period and were associated with three broad periods of activity. An initial phase with ditched rectilinear features which may have belonged to a field system was followed by the laying out of two oval ring ditches that could have been gullies or wall trenches associated with two ‘boat’ shaped houses constructed end to end. This

second phase has been radiocarbon dated (Wk12672 1988±54BP, 120 cal BC–AD 130 at 95% probability). Finally a series of postholes excavated in this area may belong to a timber structure whose shape could not be determined.

A further group of dispersed features within the enclosure, more difficult to phase as they were not inter-cutting, were mostly associated with sherds of Romano-British pottery. Two linear ditches could have belonged to the primary rectilinear field system while a group of four pits could have been rubbish pits associated with the oval houses. Burnt bone and Romano-British pottery within one of these pits indicates settlement activity in the immediate vicinity. However, the radiocarbon date from the pit, Wk12673 1732±52BP (AD210–430 at 95% probability), post-dated the determination from one of the 'boat' shaped house by at least a century and may be associated with the third phase of settlement activity. The location of rubbish pits close to both enclosure and major boundary ditches is a feature of Romano-British settlements increasingly recognised in Cornwall and could have been associated with the 'ritualised' marking of settlement boundaries.

The results from the enclosure excavation are of interest because, in common with other excavated rounds in the region, they indicate that smaller non hillfort enclosures are very much a feature of the Romano-British landscape, rather than of the Iron Age. They also suggest that the site was abandoned after the end of the Romano-British period and that it did not continue to be occupied into the medieval period.

Discussion

The excavations provided a large amount of information about an under-explored part of lowland Cornwall and have raised important questions about the ways in which people interacted with the landscape over several millennia. The diversity of the evidence has also provided an opportunity to consider how people treated their artefacts, whether they decided to live in open or enclosed settlements, and how they finally abandoned homes. The full results from the project together with a more in-depth interpretation are contained within the forthcoming monograph *What Lies Beneath, St Newlyn East and Mitchell Archaeological Investigations 2001*, by Andy M Jones and Sean Taylor. It will be available from the Historic Environment Service, Kennall Building, Old County Hall, Truro and there will be a 10% discount for members of the Cornwall Archaeological Society.

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References

Jones, AM, 1998/9. The excavation of a Later Bronze Age Structure at Callestick, *Cornish Archaeol*, **37–8**, 5–55

Nowakowski, J, 1991. Trethellan Farm, Newquay: Excavations of a lowland Bronze Age Settlement and Iron Age Cemetery, *Cornish Archaeol*, **30**, 5–242

Cornish Archaeology 39–40, 2000–1

Flint finds from Clicker Tor, Menheniot

GF Walford

Summary

In 1994 the Cornwall Archaeological Society initiated a scheme for Practical Archaeological Skills Training (PAST), unfortunately a rather short-lived scheme, and field walking was selected to take place at three centres around the county. Clicker Tor in Menheniot parish was one of them.

Introduction

Clicker Tor, SX 286 613, is in the parish of Menheniot, three miles south-east of Liskeard in south-east Cornwall. The River Seaton flows around the eastern side on its journey from Bodmin Moor to the sea. Here it is non-tidal. The A38 trunk road forms a boundary on the south-west side. Geologically it is interesting and important as the Tor is an old volcano and the fields are full of volcanic 'bombs', lumps of augite-picrite (Bristow 1996, 46).

The former Great Western Railway recognised the rock's value and established a quarry from which railway ballast was obtained and transported over the whole network. In doing so the centre of the Tor was quarried away and it is now filled with water and protected as a Site of Special Scientific Interest for its geology. The summit of the hill is about 122 metres (400 feet) above sea level and four fields slope to the south. Clicker Tor and the surrounding area have an archaeological history.

1 In or about 1947 a broken Group IV stone axe from Clicker Tor was recorded as being in the collection of CK Croft-Andrew (Clough and Cummins, 1988, 146). Two find spots are quoted in the records but as they have probably been quarried away they are now lost. This axe has not so far been located by the author although enquiries continue.

2 In 1978, in advance of road improvements, flints were found by Jeff Berridge in Grid Square SX 28 61. This is not sufficiently precisely located to be certain they were found on Clicker Tor but it would have been near. The finds were described as 40 flakes and cores with no secondary working. They have not been located by the author (*CAS Newsletter* **27**, June 1978).

3 Other flint finds are recorded from the area by AG Creber, date unknown, but probably nineteenth century. The Royal Cornwall Museum in Truro states there were five large, rough pieces and one scraper from the west crest of Clicker Tor and others from Blacketon Rings, a hilltop enclosure nearby.

4 An Early/Middle Bronze Age urn with a cremation, was found in a cairn in the nineteenth century. Part is in the Plymouth Museum and part in the Royal Cornwall Museum in Truro. Records of the find spot are again unclear; the National Monuments Record (NMR) Report

435084 gives SX 28 63 whilst the Royal Cornwall Museum quotes Torr Farm on the northern slope of Clicker Tor. Dr. Keith Ray, in correspondence (1995), gives a date of 1800 BC. The NMR dates it to the Middle Bronze Age. It seems probable that the finds came from the Torr Farm area which included Clicker Tor.

5 Irrelevant perhaps, but worth noting, is that the parish was active with mining from at least medieval times. My attention was drawn by Janet Wright to the reference in Whetter 1995 to mining at Middle Clicker in 1473 when Henry Bodrugan and, 'riotous servants entered the mine of Thomas Nevill at Clicker, [and] robbed it of tin and other goods.' It is an interesting possibility that tin could have been found there in even earlier times. A collection of pottery sherds including Romano-British pieces has been found at Tregrill Vean, SX 285 632, and the puzzle is what they were doing there. Tregrill Vean is a medieval long house and the suggestion is that even in Romano-British times surface mining may have been going on nearby (Cynthia Gaskell Brown, pers comm).

Field walking

Casual walking had indicated there was flint in the four fields south of Clicker Tor Quarry, and with the kind permission of the farmers, Messrs Sneyd of Coldrenick, Menheniot, members of the CAS working as part of the Practical Archaeological Skills Training (PAST) programme, decided to set up a field walking project. The main purpose of the exercise was to give inexperienced members practice in field walking, which was achieved. (Finding a quantity of flint was a happy bonus.)

Initially it was decided to walk in parallel lines from the west but a considerable concentration of flint was soon apparent and plans were changed to a 30-metre square system. One walker, Mary Lovelock, had particularly sharp eyesight and was soon on her knees picking up small pieces. Field walking started on Sunday 27th November, 1994, but persistent heavy rain prevented further work until the Friday following. When it turned up then the group was horrified to see that farming plans had been changed and the fields were being rotavated in preparation for sowing cereals. Although the soil surface had completely changed it was decided to go ahead. More heavy rain followed causing rivulets to form but flint was visible and six members turned up for two more day's work.

Archaeologically, this was not a very successful exercise. Heavy rain, farming operations, work commitments and Christmas shopping all played a part in making the operation erratic. It was decided

Table 1: Numbers of flint and chert artefacts recovered by collection square

Phase 1, Dec 1994–Jan 1995						
Grid squares 30m × 30m laid out from north-west corner of western field						**Total**
170	50	47	33	5	10	**315**
50	21	33	24	17	14	**159**
0	0	6	16	22	1	**45**
0	0	1	2	11	4	**18**
						537
Phase 2, Oct 1995–Jan 1996						
Grid squares 20m × 20m laid out from north-west corner of western field						
39	83	34	34	5		**195**
4	30	19	41	47		**141**
4	10	12	25	0		**51**
4	4	5	8	0		**21**
						408

In addition there were 170 casual finds, giving a total of 1115.

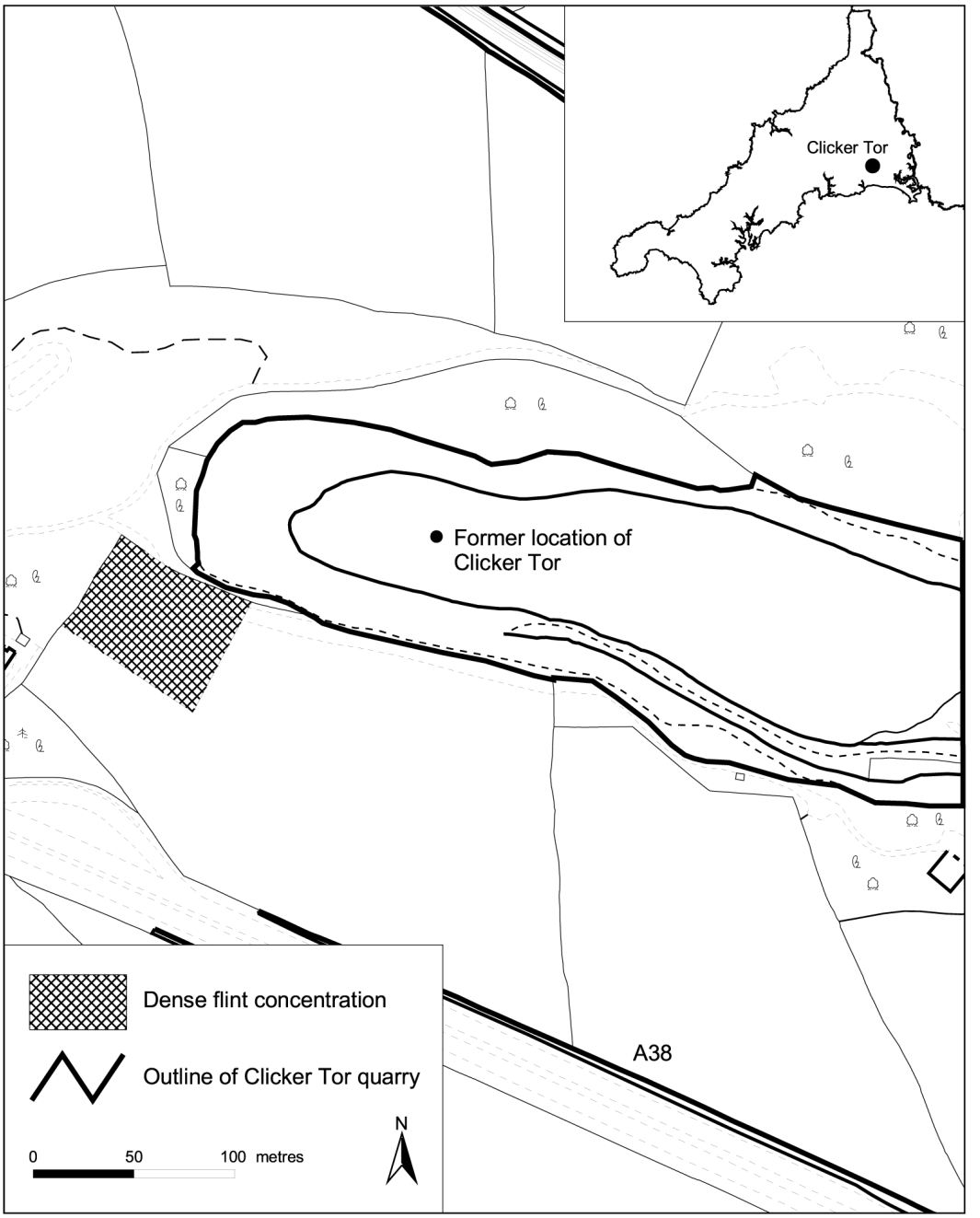

Fig 1 Location map (above) and (below) the position of a dense spread of worked flint in fields near the former site of Clicker Tor, now quarried away

to repeat the exercise later the following year (October 1995 to January 1996) but more carefully using smaller grid squares. Setting this up was itself a valuable exercise.

The grid was set out in relation to the track along the north-east boundary of the fields and the hedge on the north-west. Irregularities along these sides meant there were parts of squares; finds from these strips were added to the adjoining full squares. In no case were there many. This worked fairly well but unfortunately there were insufficient helpers to complete the planned project.

The finds

These were concentrated in the north-western field, and especially in the upper northern corner, between 20 and 40 metres from the west hedge and 0 to 20 metres from the edge of the track along the northern boundary at SX 2838 6134. The finds were a mixture of flint and chert, almost all from beach pebbles and with a large number of cores and debitage. With a track, and then quarries, on the western and northern sides, it could be that we were finding only the edge of a more extensive concentration. Well-made artefacts were rare, having perhaps been taken elsewhere. The indications were that this was a working site dating to the late Neolithic or Early Bronze Age. Non flint items included a whetstone or polisher and a piece of burnt bone. No prehistoric pottery from the period was observed. The finds have now been deposited in the Liskeard Museum.

Discussion

The working site was in an elevated position, with good views to the west and south. Without tree cover the views could have been much more extensive especially, if viewed from the now lost summit of Clicker Tor. One of the hills to the west-south-west would have been Bury Down (Lanreath) described in a recent paper by Dr Ray (2001) as a Neolithic causeway camp.

The site may have been a hunting camp or a station from which to monitor seasonal movements of humans or animals between Bodmin Moor and the coast, along the Seaton Valley. The moors would have been an attraction to early tribes as the evidence of its archaeological remains demonstrates. The River Seaton ensured a good supply of water for cattle. Flint pebbles were clearly carried some eight to ten km (five or six miles) from the coast (probably Seaton, where flint can still be found today) to be knapped. Rough-outs could have been prepared nearer the source, thus saving energy carrying material most of which was destined to become debitage. Prehistoric people would probably not have created particular tools from their large suite of tool types until they were required.

The possibility that they gathered and worked their flint at an early enclosure on Clicker Tor must be considered. Its dominant position in the local landscape, the presence of a distinctive tor, the quantities of flint, a stone axe, a possible Early Bronze Age burial site nearby and a good water supply are all pointers. The presence of metal ores in the parish may have been of interest, although there is no record that they could have been worked as early as the flint working. So far no enclosure has been located, but a programme of aerial photography, geophysical and detailed ground survey may yet reveal something.

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References

Bristow, C, 1996. *Cornwall's geology and scenery, an introduction*, Cornish Hillside Publications, St Austell

Clough, THMcK and Cummins, WA, 1988. *Stone Axe Studies, Volume II; The petrology of prehistoric stone implements from the British Isles,* CBA Res Rep **67**, London

Ray, K, 2001. Early enclosures in southeast Cornwall, in T Darvill and J Thomas (eds) *Neolithic Enclosures in Atlantic Northwest Europe*, Neolithic Studies Group Seminar Papers **6**, Oxford, pp 50–65

Whetter, J, 1995. *The Bodrugans: a study of a Cornish medieval knightly family*, Lyfrow Trelyspen, Gorran

Cornish Archaeology 39–40, 2000–1

Recent work by the Cornwall Archaeological Unit, 1998

Sites and Monuments Record

Steve Hartgroves

The year (1998) has been one of consolidation and review. Several factors have emerged which require a fundamental review of the SMR – both how it is organised but also what it should contain.

In previous annual reviews the progress of transferring the SMR from the old Superfile software to Access and the adoption of ArcView as the County Council's approved GIS software, has been explained. Since that time it has become clear that there are not enough resources to continue to develop this customised SMR software, nor to efficiently link to the GIS. A review has therefore been set in place that will take into account the following.

- The availability of a nationally approved SMR software package (Exegesis) that includes an Events record and other related databases.
- The need to meet approved National Data Standards – for example the adoption of the national Thesaurus of Monument Types.
- The need to address the issue of Best Value – for example the need to be able to demonstrate best practice in making the SMR as widely available as possible.
- The need to reduce the backlog of site data (*c*10,000 records) and to take measures to ensure that a backlog does not occur again.

This last point is important, since, for example, the projects undertaken by CAU all produce hundreds of records to be entered into the SMR. The vast majority of SMR information is derived from projects undertaken by the Unit as part of our core service delivery as well as archaeological contracts carried out by CAU on behalf of clients. It makes sense to explore whether monument data can be entered into the SMR at the point of generation (ie as part of a project) rather than as part of a backlog of data presented to the SMR Officer after the project has finished. The next few years are going to be crucial in the development of the Record.

National Mapping Programme

Andrew Young and Carolyn Dyer

Cornwall is fortunate to have been selected as a pilot area for the National Mapping Programme, funded by the Royal Commission on the Historical Monuments of England (RCHME). This involves systematic plotting of archaeological features from all available air photographs. With the project in its sixth year a considerable part of Cornwall has now been mapped; this year the emphasis has been on West Penwith and the Newquay to Truro area. The next priority is to cover the main industrial areas, to feed into the World Heritage Site bid for Cornish Mining. Progress on the project has been accelerated by additional staff, with Carolyn Dyer of the RCHME joining the project team. We have

also had confirmation that the project will be supported to completion by the RCHME (to be merged with English Heritage from April 1999).

Heritage management in the planning process

John Gould

This year for the first time a pre-planning evaluation has been required for a development on Tresco. An archaeological evaluation was carried out by a CAU field team before a final decision was made on the suitability of the site for a playing field. This brings the Isles of Scilly into line with other local authorities using the County Archaeologist's services and the SMR along the lines set out in Planning Policy Guidance Note 16 *Archaeology and Planning* which puts the emphasis on the need to preserve archaeological sites *in situ*, but also states that excavation should be considered as an option when this is not possible.

Small scale assessments and evaluations have been requested and in most cases carried out in many of the historic towns and settlements across Cornwall. In Penzance an opportunity to evaluate the archaeological resource near St Mary's Church at Seasports garage was taken, though no archaeological features were present. Assessments were required in advance of applications at three historic industrial sites in Hayle: Loggan's Mill, Harvey's Foundry and the Harbour area.

In Kerrier an assessment was required in advance of works in conjunction with the Lizard Eclipse Festival at Rosuic Common. At Wheal Harriet Shaft, Dolcoath, a late nineteenth century concrete winding engine platform was preserved *in situ* and again at West Bassett, a programme of shaft capping was carried out with minimum damage to adjacent features. In Carrick work at 4–5 Pydar St, Truro, revealed tenth or eleventh century pottery from a deep rubbish pit (see *Cornish Archaeology* **37–8**). Assessments were recommended for Penryn waterside sites and also for a housing development at Mitchell between medieval burgage plot boundaries.

In Charlestown large scale harbourside developments were appraised after commissioning a detailed historic assessment of the area. Proposals for development at the Red Lion Inn, St Columb were also recommended for a field evaluation. Other sites at the Cornish Arms, Bodmin and the Brunel Inn, Saltash were evaluated before planning decisions were made. In the former case the eighteenth century yard and adjacent structures were uncovered, and a condition for archaeological recording placed on the planning permission. At the latter site no features were located. In Liskeard another pre-planning evaluation at Parade Motors adjacent to the Webb's Hotel revealed the wall of a previous modern structure and pits full of re-deposited clay. Other assessments have been requested for sites in Bodmin, notably the flood alleviation schemes and extensions to Athelstan House near the medieval Priory of St Petroc. The former resulted in the discovery of an *in situ* medieval burial ground and has resulted in a re-design of the flood alleviation scheme. Development in Boscastle adjacent to the medieval castle and on the main medieval street has also been recommended for archaeological recording.

Mineral Planning and the review of mineral planning conditions have involved site visits and appraisal of historic landscapes which will be swallowed up in the expansion of quarries and clay pits and also of the actual quarrying heritage itself. In particular at Gwithian Sand Working we recommended a large area for assessment and evaluation around the important site of St Gothian's Chapel, a scheduled monument probably surrounded by a large cemetery.

Continuing work with parishes and churches of the Truro Diocese of the Church of England involved at least twelve Diocesan advisory meetings and 31 proposals for appraisal. Several briefs were prepared to help with archaeological recording in conjunction with the excavation of new drainage proposals needed as part of a thorough restoration of church buildings, in particular at Lanteglos-by-Fowey, Advent, South Hill and St Cleer. A watching brief was recommended for the floodlighting at Bodmin Church.

Recording work was requested in advance of residential development at the second stage Beazer Homes estate at Old Road, Liskeard and at Insworke, St Johns, Torpoint. Similarly assessments were recommended for sand dune sites at Holywell Bay and Trevose Golf Course in North Cornwall. Assessment and evaluation in advance of proposed windfarms have been requested and carried out at the Bears Down and Cold Northcott. Both sites were sited on high rough ground, adjacent to prehistoric funerary monuments.

Table 1: Archaeology and Planning, 1998–9

	Number of consultations		Number appraised		Archaeological implications	
	1997/8	1998/9	1997/8	1998/9	1997/8	1998/9
Pre-planning consultation	N/A	16	N/A	16	N/A	0
Isles of Scilly	15	15	11	15	10	6
Penwith	19	28	11	9	6	5
Kerrier	14	22	9	13	8	8
Carrick	96	80	17	20	3	15
Restormel	224	170	16	21	7	20
Caradon	34	39	15	16	9	9
North Cornwall	23	20	7	16	4	14
Hedgerows*	32	33 (150)	32	29 (150)	30	29 (120)
Forestry	40	31	6	6	1	6
CCC	90	70	40	29	15	29
CCC Planning	–	–		78	–	3
CCC Mineral Planning	–	–		12	–	12
CCC Highways	–	–		2		2
CCC Bridges, Structures	–	–		8		8
Utilities	9	9	9	7	8	7
Church of England	N/A	–	N/A	31	N/A	31
TOTAL	596	533	173	257	101	204

NB The numbers in brackets represent the number of hedgerows appraised for the Liskeard-Maudlin gas pipeline. This has been treated as one application.

The number of consultations reflects both the amount of development thought likely to be of archaeological significance, and the degree of confidence that planning authorities have in knowing what to consult CAU over.

Columns 2 and 3 give a clearer indication of how much detailed advice the Unit gives. The number of applications appraised indicates those that warrant further investigation. Column 3 records the number of applications where it was recommended that archaeological work was required. These 204 applications are a tiny percentage of the nearly 10,000 development proposals made in Cornwall during this year. However, most of them require detailed briefs and the workload is increasingly significantly year on year. The better the service – the greater the use is made of it.

Bridges

Peter Herring

In our hectic world, a pause as we walk across a river bridge can allow us to appreciate our surroundings: the moving mass of water and the historic masonry of the bridge itself. Many of

Cornwall's minor road bridges require strengthening and other repair works. The Transportation and Estates Department of the County Council has commissioned the Unit to prepare archaeological and historical assessments of several bridges in the last couple of years (Relubbus, Pentewan, St Mawgan-in-Pydar, Carnon Hill Old Bridge, Poley's). These assessments guide responses to the designed repair works which aim to reduce their impact on the historic fabric and character of the bridges.

The Monuments Protection Programme

Peter Rose and Cathy Parkes

English Heritage is continuing a major review of schedulings throughout Cornwall and England – the Monuments Protection Programme (MPP); the number of Cornish sites with statutory protection, as scheduled monuments, is expected to double over the next few years. Many classes of monument have previously been evaluated by CAU on behalf of English Heritage to guide the selection process, and we are also consulted on proposals for the scheduling of industrial sites. The scheduling documentation is compiled by English Heritage's MPP Archaeologist, Dave Hooley, who has been concentrating so far on Bodmin Moor and the Isles of Scilly. We are assisting this process by undertaking an 'Additional Scheduling Project' for English Heritage, initially preparing proposals for sites in Carrick District.

Agri-environment schemes

Peter Rose

Countryside Stewardship is a targeted scheme administered by the Farming and Rural Conservation Agency (FRCA) on behalf of the Ministry for Agriculture, Fisheries and Food, offering farmers and landowners incentives for managing the countryside for its wildlife, landscape and historic values. Some of Cornwall's most important sites and historic landscapes are now being looked after in this way. This year we were consulted by the FRCA on 88 applications; the application areas included a stone circle, numerous Bronze Age barrows, prehistoric settlements and a medieval castle, as well as historic landscape features such as Cornish hedges. CAU staff also contributed to a training session for countryside officers on the historic environment.

The Bodmin Moor Project, administered by Cornwall County Council in conjunction with FRCA, is one of two national upland pilot projects integrating Countryside Stewardship with rural development measures. An important new feature is the provision of Farm Environmental Surveys, funded by the Project, to identify the environmental value and needs of each farm. CAU has been involved in consultations during the development of the project. We have helped to develop guidelines for the environmental surveys and basic data has been provided from the SMR, via CCC Technical Services, to environmental consultants undertaking the surveys.

Pennare Barton

Richard Cole

This farm at Nare Point (SW 799 250) in St Keverne was assessed on behalf of the National Trust who had recently acquired it. First recorded in an Anglo-Saxon charter dating to AD 960, it contains archaeological remains ranging from field systems, to trackways, withy gardens and quarries. The

holding also included the later military remains of a Second World War bombing decoy, built to deceive enemy bombers away from nearby Falmouth, and an observation structure/control centre associated with the nearby torpedo testing range from the early 1950s. The Second World War decoy operated between 1940 and 1944, and the most significant intact feature is the concrete war shelter on the cliffs overlooking Falmouth.

Moorswater

Charles Johns

A survey of the Moorswater area near Liskeard was undertaken for Caradon District Council to inform proposals for improved public access and the provision of a cycle route.

Construction of the Liskeard and Looe Union Canal in 1828 transformed the previously pastoral setting of Moorswater into Liskeard's industrial heartland with limekilns, an iron foundry, stone yard and ancillary structures. The canal was superseded by a railway, built by the canal company in 1860, which provided an outlet for copper ore produced from burgeoning mines around Caradon Hill. The minerals were brought into Moorswater on the Liskeard and Caradon Railway, which had been constructed between 1844 and 1846, and thence to Looe. The Caradon mines had all but ceased production by 1884 and from the turn of the twentieth century the main rail freight was china clay, which was piped as slurry from Parsons Park to the dry at Moorswater, processed and shipped out via Looe or transported by main line railway from Liskeard. Brunel's 1859 viaduct at Moorswater was replaced by the present viaduct in 1881.

Wheal Martyn

John R Smith

In January 1999 CAU carried out an archaeological survey and assessment for the Wheal Martyn China Clay Museum at Carthew, near St Austell. The museum was established in 1974 on the site of two abandoned china-clay works and has conserved the then derelict processing area for public access. Wheal Martyn is administered by Trustees who include members of the china-clay industry. The site includes three pan-kilns, two water-wheels, and a wide range of other important features unique to the industry. Many of these are now Scheduled Monuments.

CAU was asked to contribute to a five-year development plan for the site, acting as part of a team of consultants. The assessment survey identified 75 structures and features, which were described and presented with management recommendations in a report to the Trustees.

Kilkhampton Castle Farm

Ann Reynolds

An archaeological assessment of Kilkhampton Castle Farm (SS 245 114) was carried out on behalf of the National Trust. The fieldwork involved identifying all significant archaeological and historical features to build up a picture of the historic environment and inform ongoing management of the site.

Dramatically set on top of a steep-sided spur, with fine views west to the sea at Duckpool and east up to the village of Kilkhampton, are well-preserved earthworks known as 'the Castles': an excellent

example of a small medieval castle with motte and two baileys. As Kilkhampton Castle (SS 243 116) is undocumented, its exact origin and date remain a mystery though it seems likely to have been constructed in the mid twelfth century, either by the Earl of Gloucester, who owned the manor of Kilkhampton during the wars of Stephen and Matilda, or by the Grenvilles, who acquired it soon after.

The field system of Kilkhampton Castle Farm is clearly derived from an early medieval subdivided or strip system which would possibly have originally linked to Kilkhampton village. In a number of places, former tree lined boundaries which were visible on the 1880 Ordnance Survey map survive, with former management practices of coppicing and laying resulting in semi natural growth in their present form.

Liskeard to Maudlin pipeline

Richard Cole

During the installation of a natural gas pipeline from Liskeard to the hamlet of Maudlin, near Lostwithiel, the CAU were commissioned by Transco to carry out an archaeological watching brief. Field boundaries were recorded systematically along the route and the alleged site of the English Civil War battlefield site of Braddock Down was also investigated through a metal detector survey, but no evidence of the seventeenth century battle was found. Prehistoric features included small flint scatters and a Bronze Age ritual site discovered near Bosmaugan (SX 117 618). This comprised a circular arrangement of small stone-lined pits, around a larger hollow, which produced pottery of Middle Bronze Age date. No bones were found but it is likely that the site is funerary or ceremonial in character.

Race Farm, Camborne to Portreath pipeline

Ann Reynolds

An archaeological assessment of the proposed site of a new sewage treatment works at Race Farm, and the route of a transfer pipeline was carried out for South West Water in March 1998. The study area extended from the A30 at Race Farm near Camborne, along the Red River Valley to the North Cliffs, and across Reskajeage Downs to the southern end of Portreath on the north coast. A total of 151 sites of possible archaeological interest were identified, ranging in date from a Mesolithic flint scatter at Race Farm to Second World War defences along Reskajeage Downs and within Illogan Woods. The most significant discovery was made at Race Farm (SW 637 409) – a multi-phased buried landscape of medieval (and possibly earlier) date. The remains of a settlement and two phases of field system were clearly identified by the geophysical survey, by GSB Prospection. This is probably the largest geophysical survey undertaken in Cornwall and reveals the technique's potential for revealing past landscapes.

Porthleven

Anna Lawson Jones

An archaeological watching brief for the Environment Agency associated with a flood alleviation scheme took place in the north-east corner of Porthleven's inner harbour during the winter of 1998–9.

Trenching immediately behind the nineteenth century harbour wall revealed a substantial peat deposit that was sampled for palaeo-environmental analysis and radiocarbon dating. This revealed that the peat formed in a freshwater mire and began accumulating during the Holocene, at some time prior to the Bronze Age (2131–1776 cal BC); the date relates to the point at which the peat was sampled rather than its base, which lay 1.0m below the bottom of the trench. It continued forming until the construction of the harbour during the early nineteenth century, when mine waste was dumped on the mire surface and timberyard and boatyard established on the site.

Fossil pollens preserved in the peat provide a history of vegetation here. The steep valley sides above the mire were wooded with oak and hazel from the Bronze Age to Roman times, with alder carr in the valley bottom. On the cliff top above the valley was heathland similar to that found on the Lizard cliffs today. During the historic period the woodlands declined markedly and the environment of the valley became more open. Changes in the ecology of the mire also occurred through time, as a result of local fluctuations in the water table, which caused variations in the percentage of carr woodland, aquatic plants typical of open water, and ferns and wetland herbs. There was also evidence in the pollen record for human activity, which increased steadily over time and was perhaps the result of the valley being used as an access route to the sea and possibly also as a sheltered place for settlement.

Environmental analysis was undertaken by external consultants: Julie Jones (Environmental Co-ordinator, plant macrofossils), Heather Tinsley (pollen); Nigel Cameron and Simon Dobinson (diatoms), Annette Kreiser (foraminifera), SURRC (radiocarbon dating)

St Hilary to Perranuthnoe pipeline

Andy Jones

During the spring of 1999 CAU carried out an archaeological watching brief and boundary recording programme along a 2.5km long South West Water sewage transfer pipeline linking St Hilary to Perranuthnoe on the south coast. The assessment identified thirty sites of probable archaeological interest, including ancient field boundaries, linear and curvilinear geophysical anomalies, a parish boundary, and areas of post-medieval mining and quarrying. The watching brief revealed a large flint scatter to the north east of Goldsithney and a series of buried soils preserved beneath massive ancient lynchetted boundaries of potentially prehistoric origin; such boundaries are well known in West Penwith, but not elsewhere in Cornwall. Soil samples were taken from these in the hope that environmental information will reveal important changes within this anciently farmed landscape.

Priory House, Bodmin

Richard Cole

A proposed flood alleviation scheme for part of Bodmin led to archaeological investigations in the grounds of Priory House. This County Council-owned house is an eighteenth century construction on land previously owned by one of the wealthiest institutions in medieval Cornwall, the Augustinian Priory of St Petroc and St Mary, recorded from the eleventh and twelfth centuries. Excavations in 1985 had already located a large number of medieval burials in the area and the Environment Agency commissioned an evaluation to discover the nature of the archaeological remains in the path of the proposed works. The project located a series of adult inhumations of probable medieval date as well as a later child's burial; these were left unexcavated and the trenches backfilled immediately. Also uncovered were the walls and cobbled floor surface of an outbuilding, which is likely to be of eighteenth century date, associated with Priory House. The walls of the outbuilding incorporated

fabric from the Priory and a cross slab grave cover, dating to the thirteenth century, had been reused as a lintel over an alcove.

St Andrew's Church, Stratton

Carl Thorpe

A cross section through the churchyard at St Andrew's Church, was exposed and recorded during the construction of a toilet extension to the north of the tower. A considerable depth of archaeological deposits was encountered. Medieval shroud burials were found to be overlain by two nineteenth century brick-built burial vaults, one of which appeared to have been unusually decorated internally with white painted walls and designs executed in black paint. Fortunately these vaults could be left undisturbed. The work was financed by the Parochial Church Council.

Tintagel Castle

Ann Reynolds

At Tintagel Castle archaeological recording was carried out on behalf of English Heritage, during a programme of conservation works. This included repairs and paving in the Upper Ward, Lower Ward and Barbican, Inner Ward and Site A (close to the chapel).

The work included an archaeological investigation of the East Curtain of the Upper Ward to determine the method and sequence of construction and its relationship to adjoining archaeological deposits; guidance and advice to ensure the retention and minimum disturbance of significant fabric and remains and the creation of a permanent record of historic fabric, fixtures and features where exposed or uncovered during the works.

St Catherine's Castle, Fowey

Nigel Thomas

Minor consolidation works on St Catherine's Castle, a Henrician period blockhouse, were undertaken by Historic Properties (Restoration) Limited on behalf of English Heritage (EH). CAU were commissioned by EH to carry out an archaeological watching brief while works were in progress and also to undertake an architectural appraisal of the building.

St Mawes Battery

Charles Johns

The completion of the programme of archaeological recording and conservation work at St Mawes battery was the final phase of the Nineteenth and Twentieth Century Defences Project at Pendennis and St Mawes Castles which formed one part of the successful Fortress Falmouth Lottery Bid (sponsored by English Heritage, the National Trust, Carrick District Council and Cornwall County Council). The light well, now refitted, gave access to a series of underground rooms and stores.

Anchor Warehouse, Penryn

Anna Lawson Jones

During May 1998 the quay either side of the nineteenth century Anchor Warehouse bone mill was the subject of an archaeological evaluation. Historical research and mechanical excavation of trenches led to the discovery of important and exciting remains. On the western side of the site, at a depth of 4.0m, were piled slabs of killas which were interpreted as the probable remains of the western arm of Penryn's medieval harbour (the eastern arm being buried beneath the warehouse).

Loggans Mill, Hayle

Nigel Thomas

An archaeological and historic building assessment of Loggans Mill (SW 573 385), was undertaken by CAU in response to a development proposal to convert this historic mill building into flats. Loggans Mill, a steam driven roller mill built for mass production of flour, was formerly owned by Hosken Trevithick and Polkinghorne (HTP), a company known throughout the county in the earlier part of the twentieth century. HTP later diversified into machinery sales and became known as Farm Industries Limited. Although machinery has largely been removed, the mill still contains much that reveals its former character.

Higginsmoor Wood, Lanhydrock

Nigel Thomas

In 1993 a CAU archaeological survey of the Lanhydrock estate identified an extensive alluvial streamwork within Higginsmoor Wood (SX 095 629), located downstream from Respryn Bridge in the Fowey Valley. The National Trust commissioned CAU to carry out a detailed survey of the streamworks and to provide a brief interpretation of the features. Careful analysis enabled the complex earthworks to be resolved into a series of tin works from the medieval period to the eighteenth century. Foundations of tinners' shelters and a possible stamping mill site were located during the survey.

Historic Landscape Characterisation

Nicholas Johnson

It is some time since we carried out the Historic Landscape Characterisation as part of the 1994 Cornwall Landscape Assessment. Since then several other counties and the Peak District National park service have carried out similar characterisations. In December 1998 English Heritage brought all local authority archaeologists together to discuss how these surveys might best be taken forward elsewhere. It is gratifying that the 'Cornish method' is regarded as the basic model upon which regional distinctiveness can be expressed. Talks on the Cornish method have been given, over the last few years, in Gloucester, Edinburgh, Sheffield, London, Cambridge, Bournemouth and Plymouth.

Following on from the publication of the Cornwall Landscape Assessment which contained details

of the characterisation exercise, Peter Herring has now produced a detailed description of the methodology, extensively illustrated with examples of the Cornish landscape. The publication, financed by English Heritage, has been sent to all local authorities and a wide variety of national regional and local environmental bodies.

Cornwall Industrial Settlements Initiative

Jeanette Ratcliffe

Cornwall's industrial settlements are the subject of a Conservation Area Partnership under the heading Cornwall Industrial Settlements Initiative (CISI). This partnership between English Heritage (with the Heritage Lottery Fund), Cornwall County Council, and the six District Councils is intended to assess the character and significance of 112 of Cornwall's settlements. These include villages, ports, and towns associated with Cornwall's nineteenth century industrial revolution, based on metalliferous mining, slate and granite quarrying, and china clay extraction. The historic importance and distinctive character of such settlements has previously been undervalued, and their existing status does not adequately represent Cornwall's industrial history. CISI is aimed at redressing this imbalance.

The aim is to assess for each settlement its historical development, present character, and importance. This will help determine where, for example, new Conservation Areas should be designated (and existing ones revised), and could provide the basis for Conservation Area Statements (to be drawn up subsequently by District Conservation Officers). The project methodology consists of historical research (carried out by CAU), followed by site visits and the production of a report for each settlement (carried out by a freelance consultant, Nick Cahill, working under contract to CAU).

The project started with a pilot study to test and refine the methodology and establish a standard report format. Three settlements of varying size, complexity, function, and geographical location were selected for assessment: St Breward, a village on the edge of Bodmin Moor associated with granite quarrying; St Blazey, a small town still servicing the St Austell China Clay District; and Porthleven, a former industrial port on the south Cornish coast.

For the main project the remaining 109 settlements have been grouped into thirteen geographical study areas: St Just Mining Area, Tregonning to Porkellis, Hayle Area, Constantine Area, Camborne/Redruth, St Day/Gwennap, St Agnes Area, Truro Area, Hensbarrow, St Austell Area, Caradon/Liskeard, Tamar Valley, Bodmin Moor/Tintagel. These study areas are being considered one at a time, with priority being given to those which are part of the Cornish Mining World Heritage Site bid.

It is early in the project to draw too many conclusions from the results, but there are a number of patterns emerging. All those so far assessed developed around earlier settlements: medieval churchtowns (St Breward, St Blazey, and St Just); manor farms or farming hamlets (Bojewyan, Pendeen, Trewellard, Carnyorth, Nancherrow/Tregeseal, Botallack); and fishing villages (Porthleven). Some settlements have been influenced by pre-nineteenth century industrial activity (such as tin streaming dating back to as far as the sixteenth century), and in these cases it is difficult to distinguish buildings which relate to this earlier industrial activity from those associated with the settlement's farming or market town function. Although agriculture continued to play an important role during the nineteenth and early twentieth century, it is much easier to identify 'industrial' buildings of this date. They are often located outside the pre-industrial settlement core (see St Breward, for example, where the settlement focus shifted from Churchtown to Row), although rebuilding of the original core may also occur (for example the square at St Just).

There appears to have been a tendency for new housing to be built on areas of earlier mining waste, and various types of industrial housing have been detected: pairs of cottages (some of which developed into rows); rows (of individually built cottages); terraces (of uniformly built cottages); detached houses and villas. Public buildings, such as chapels, schools, and institutes, date mainly to

the late nineteenth/early twentieth century, and were in many cases built after the industries influencing settlement growth had gone into decline (but when the settlements were still experiencing increased population and status).

The specific dates of the main period of industrial influence differs between settlements, as does the type, range, and location of the industrial activity. Most of the settlements in the St Just area developed as a direct result of tin mining in the immediate vicinity, in some cases within or on the edge of the settlement itself. The exception is Tregeseal/Nancherrow, which grew as a result of secondary industry, after Holman's Foundry was built to supply local mines. Although other industries operated in its hinterland, the main impetus for the modest expansion experienced by St Breward was the opening of Tor Down (granite) Quarry on the southern edge of the village. In contrast, both Porthleven and St Blazey were influenced by a range of industries (primary and secondary). Porthleven harbour was built for the export of copper ore, tin, and china clay from local mines and pits, and also had a fishing fleet and shipbuilding yard. St Blazey grew as a result of the extraction of tin and copper ores and china clay and stone in Luxulyan Valley, with the construction of the Par Canal, Par Harbour, the Cornwall Mineral Railway, and William West's Foundry providing additional impetus for expansion. For St Blazey and the settlements in the St Just area, the establishment of turnpike roads also had a fundamental influence on their development.

At this early stage it is already clear that CISI will be a ground breaking project, both in terms of increasing our understanding of Cornish industrial settlements (how they developed, how they survive, and how they can best be conserved and enhanced) and in developing an assessment methodology that could be applied to industrial settlements elsewhere.

Surveys for the Cornwall Wildlife Trust: Prideaux Woods and Caer Bran

Peter Herring and John R Smith

The Cornwall Wildlife Trust (CWT) may be regarded as the Unit's equivalent body in the ecological world. It holds the countywide ecological database (ERCCIS, the Environmental Records Centre for Cornwall and the Isle of Scilly), responds to proposed developments, generates conservation strategies, and raises general awareness of ecological issues. Unlike the Unit, the Wildlife Trust also either owns or leases tracts of land for its benign purposes and manages them as Nature Reserves. Management emphasis is, of course, on the wildlife interests, but the Trust also recognises its responsibility for conserving archaeological remains within the reserves. There is also an ever increasing awareness of the interdependence between nature and culture in our landscape. As recent reports on CAU work have illustrated, we now accept that the whole landscape is historic and that the vegetation communities within it can be considered semi-natural rather than natural. As such the human history of a reserve informs understanding of the origins and likely future of its plant and animal communities.

To help guide future land use and management, CWT has commissioned archaeological and historical surveys of several reserves. That of Cabilla Woods was mentioned in *Cornish Archaeology* **37–38**.

Prideaux Woods (SX 070 560), at the foot of the Luxulyan valley, recently acquired by the Trust, was assessed in 1998 by John Smith. The woodland here is secondary, having developed over an industrialised landscape riddled with tinners' prospecting pits, early surface lode workings, and later shafts, all with their associated dumps. At the lower edge of the reserve are ruined china-clay dressing floors. These industrial features have peculiar microenvironments, upturned or disturbed soil profiles, and stone masonry or concrete surfaces, often lime-rich, which provide opportunities for particular

plants and animals. Evidence for agricultural use of parts of the reserve exists in the form of field boundaries, and numerous circular platforms levelled into the slope indicate that some of the wood was burnt here for charcoal.

The Trust encourage people to explore and enjoy its reserves but health and safety concerns regarding shafts at Prideaux Woods have led to the fencing off of certain areas.

At **Caer Bran** in west Cornwall (SW 398 292), another recent acquisition, the Trust had taken on three large crofts on the northern slopes of Bartinney Downs in the old fields of Carn Gluze. Until the early 1970s this area was established heathland set among a typically rich West Penwith historic landscape. Aerial photographs were used by Andrew Young (working on English Heritage's National Mapping Programme) to plot complex field systems of overlapping prehistoric and medieval stony banks. Several prehistoric round houses, presumably Bronze Age in date, were plotted as were strings of early modern tinners' pits and dumps. Sadly the site survey by Peter Herring showed that all of these features had been removed in the 1970s as the crofts were subjected to particularly intensive agricultural improvement, leaving them as smooth and uninteresting grassland. Below-ground remains may survive, especially at the round house sites, but even these may have been disturbed by 1970s ploughing.

The Wildlife Trust intends to encourage long-term regeneration of heathland at their Caer Bran reserve by ceasing application of nutrients and by controlling grazing. This proposal is welcomed by the Unit because it will enhance the historic character of the wider area. By returning the reserve to heathland the Trust will allow this part of Bartinney to appear marginal again, and will give the surviving prehistoric remains on the downs immediately to the south a more appropriate landscape context.

The good relationship that has always existed between CAU and CWT should be made closer by such works and through them the historic and natural elements and character of important parts of the Cornish landscape should be made more secure.

Fowey estuary historic audit

Cathy Parkes

An audit of the archaeology of the Fowey estuary was carried out in 1998 for the Fowey Estuary Partnership to inform the conservation, management and presentation of the area's historic heritage, as part of the national estuaries initiative which stimulated the first audit of this kind in Cornwall, and England, CAU's 1997 Fal Estuary Historic Audit (see *Cornish Archaeology* **37–38**). Historical databases and original documents, maps, charts and photos were searched, and the five miles of sea coast (from Gribbin Head to Pencarrow Head) and 25 miles of river and creeks (reaching as far inland as Restormel) which form the Fowey ria or drowned valley system were visited. Over 1400 archaeological sites and historic structures were recorded, all associated with the economic exploitation, enjoyment and ornamentation of the estuary over the 10,000 years since it was shaped by meltwater after the last glaciation.

The diversity of the post-glacial environment, with deciduous woodland, salt and fresh water providing rich resources, attracted gatherer-hunters and early agricultural communities whose stone implements and weapons have been uncovered by chance around the estuary. Bronze Age artefacts found in the Fowey, such as a rapier dredged up near Mixtow, may have been ritually deposited in the river, which would have been both a boundary and a natural 'highway' for communications, and offered a sheltered natural harbour for fishing or trading vessels in Polruan Pool. Ramparts cutting off St Catherine's Point west of the river mouth suggest that this was a cliff castle or defended centre for the exchange of imported goods for Cornish ore and goods in the later first millennium BC. A ploughed-down enclosure near Restormel was occupied in the Roman period, and there may have

been a ford and quay on this reach of the Fowey, which was probably navigable by small ships before the tidal limit was pushed down to Lostwithiel by waste silt from medieval tin streaming upriver.

In the medieval period, settlement and cultivation expanded to form the basis of the modern farming landscape, surrounding the atmospheric churchtowns, several of which like Golant grew from early Christian settlements, chapels and holy wells sited above the rivers. Ancient woodland on the steeper slopes was intensively managed, and large tracts of coppiced trees survive at Colvithick, Lantyan, and alongside the River Lerryn. Water transport using landings sited where the river channels curve into the shore, as at St Winnow, was vital to the transport of timber, stone, and sand extracted from the coast or tidal flats and used to dress the acid farmland. Seine fishing, trade in fish and tin, privateering, and piracy contributed to the growth of the ports of Lostwithiel and Fowey. The Duchy Palace at Lostwithiel, close to the Cardinans' castle at Restormel, was a stannary and administrative centre for Cornwall, and this inland town was Cornwall's chief port until the thirteenth century. It was eclipsed by the growth of Fowey, which was protected by late-medieval fortifications including twin blockhouses at Fowey and Polruan.

During the post-medieval period, the built waterfronts and maritime infrastructure of Fowey and Polruan developed, the fishing industry expanded to new sites outside the towns, and the deepwater docks at Carn Point with railway links to Lostwithiel and St Blazey were established to export china clay. From the eighteenth century lime was burnt in kilns on quays from Readymoney Cove to Lostwithiel to provide fertiliser to supplement the local sand. Artillery fortifications such as the Henrician St Catherine's Castle were built and periodically rearmed as part of England's coastal defences. From the sixteenth century ornamental parks and features like the Hall Walk near Bodinnick were laid out to enhance the landscape and views. From the later nineteenth century extensive residential housing, lodging houses and hotels were developed around medieval Fowey. The estuary continues to develop as a focus for tourism, while Carn Point docks remain the busiest for china clay in the world.

The Scheduled Monument Management Project

Ann Preston-Jones

In 1997–8 the Scheduled Monument Management project again proved its worth in helping with conservation works which would otherwise probably never be carried out and in being able to react quickly as problems arose. The project depends entirely upon financial support from the Cornwall Heritage Trust, English Heritage, the County Council and other partners. Again, a wide variety of monuments and an equally varied selection of tasks were involved. Severe erosion was tackled at the Trippet Stones stone circle and severe cattle trample at Sancreed holy well. At Crinnis Cliff Battery we helped with vital survey work and at Kilkhampton Castle we helped in laying on a water supply to enable sensitive grazing of the monument. With the possible exception of the St Erth churchyard cross, few of our projects are 'one offs'; the erosion repair at the Trippet Stones is only the start of a long-term but much-needed project of restoration and the Crinnis Cliff Battery survey is feeding into further management works with which we will assist in subsequent years. At Warbstow Bury (SX 200 907) we helped North Cornwall District Council with an interpretation board which is an element in a long-term programme of management work at this important hillfort and a second board, at Trethevy in Tintagel will help provide information about a holy well which we restored in the first year of the project.

On **Chapel Downs, Sancreed** (SW 417 292) is a unique holy well. The spring rises in a 2m deep, roughly corbelled chamber, overhung by a gnarled ribbon-bedecked thorn tree, while just to the north are the ruins of a small chapel. Both are set within a small triangular enclosure created in the late nineteenth century by a zealous vicar who apparently used the plot as a small garden.

Just before Christmas in 1997, cattle broke into the enclosure, and caused extensive damage. Severe trample to the ground under very wet conditions led to erosion of paths and damage to a small bridge leading to the chapel: the incident also highlighted the poor condition of the boundaries and the chapel's walling.

As soon as ground conditions permitted, the damage was restored, with help from Mike Rosendale of Penwith District Council. After initial survey by CAU, the conservation work, carried out by Adrian Thomas and David Cutting, involved the replacement of inadequate fencing with a substantial Cornish hedge to prevent cattle getting into the site in the future, repair of the tumbled bridge and chapel walls, repair to paths where necessary and cutting back encroaching rhododendron to improve access and display the monument better.

On the flat, open moorland of Manor Common, on Bodmin Moor, stand the **Trippet Stones** (SX 131 750), a 33m diameter stone circle. Although only eight of the original 26 or 27 stones still stand, the surviving stones, being large and isolated, still give a good idea of the original circle. Because the area is heavily grazed and the soil wet and peaty, each of the standing stones has a large (3–4m diameter) hollow at its base, eroded by stock rubbing against the stones. It is known that two stones have fallen in the last one hundred years, while two of the surviving stones lean heavily and must be in danger of falling.

So in icy conditions in February 1999, an experiment to stabilise two of the stones was undertaken. The work was organised by David Attwell of North Cornwall's Heritage Coast and Countryside Service, with help from local volunteers. The method, which was developed from techniques used in Dartmoor National Park, involved, in essence, infilling the hollows with sand, stone and rab and finishing with a turf which matched that growing in the vicinity. Materials were supplied by ECCI from their clay pit at Stannon. At the same time, a nineteenth century boundstone, lying loose within the circle, was re-erected.

Initial observations suggest that this work has been successful: certainly there has been a dramatic improvement in the appearance of the individual stones treated but time is needed to confirm if there will be a long-term benefit, or whether erosion occurs again. If the signs are favourable after about one year, we will consider repairing further hollows and perhaps re-erecting the recently fallen stones.

Two fragments of a highly-decorated pre-Norman granite cross were removed from the wall of **St Erth Church** (SW 550 350) when it was restored in the late nineteenth century. At the time, they were displayed against the church wall but since 1985 had simply lain loose on the gravel close to the south porch, with a collection of other worked stones. In this position, they were extremely vulnerable to damage and theft and moreover very difficult to recognise as a significant and rare example of early medieval sculpture. Since the inception of the monument management project it had been felt that the rescue of these fragments should be a priority, but it was not until June 1998 that work finally took place. With help from Andrew Langdon, Sue and Lawrence Kelland cleaned the two sections of the cross and then mounted them, one on top of the other, inside the church, on a new granite base supplied by Garry Cowley and installed by S J Quick Builders. The work involved pinning the fragments to the church wall and supporting the upper stone on brackets; the section between the two pieces was filled with a matching lime mortar. As a result the monument is now secure and much better presented: its origin as a stone cross is clear and the decoration of interlace work and a crucifixion far better displayed.

Kilkhampton Castle (SS 243 116) is a fine but forgotten example of a medieval motte and bailey castle. Since the late 1980s, the owners, the National Trust, have been experimenting with different methods to control the growth of scrub on the well-preserved earthworks. Ultimately, it was concluded that carefully controlled grazing was the only realistic method, but this involved considerable fencing works and bringing in a water supply over a very long distance. The initiation of a Countryside Stewardship agreement for the castle and surrounding land in 1998 supplied the impetus for this and the work was finally undertaken early in 1999. The monument management budget helped finance the costs of archaeological recording associated with laying the water pipe.

This was carried out by Ann Reynolds, who also undertook a rapid survey of the whole property for the National Trust (see above).

Crinnis Cliff Battery (SX 038 513) was constructed in about 1793 at Charles Rashleigh's expense, to defend his newly-built harbour at Charlestown from French invasion during the Napoleonic Wars. In 1805, it was manned by the Crinnis Cliff Artillery Volunteers, a company consisting of almost every man in the neighbourhood, and was armed with four 18-pounder guns on wooden garrison carriages. Its last use was during World War II when a look-out was mounted here; it subsequently became neglected and overgrown and all features obscured.

However, works designed to improve the condition and presentation of the battery have recently been initiated by Jeremy Williams of the Falmouth-Fowey Countryside Service. This has involved clearance of scrub from the interior, fencing the cliff-edge, footpath work, and vegetation clearance from the crenellated battery wall as a preliminary to consolidation work. CAU helped in September 1998 with the production of a large-scale plan. An EDM survey was made by Nigel Thomas and John Brinkhoff and the results drawn up by Nigel, using CAD. In addition to the battery wall and nineteenth century magazine, which were already known, this survey revealed the positions of two hitherto lost gun platforms, the flagstaff and the platforms of two buildings.

Land Reclamation Programme

Adam Sharpe

As in previous years, the safety works undertaken by local authorities on former industrial land have made up a significant proportion of CAU project work. Kerrier District Council again took the lead role in this work and commissioned twelve assessment or watching brief contracts from CAU, including that for their thirteenth round of shaft-capping contracts. Cornwall County Council had also by this time begun to develop a considerable range of expertise in their own Land Reclamation Team and working in partnership with The National Trust and other landowners have commissioned archaeological assessments (and subsequent recording) on sites ranging from the Tamar Valley through United Downs near St Day, Upton Towans at Hayle, Sancreed Beacon and Steeple Wood near St Ives to the mines of the St Just coast in West Penwith.

By 1998–9 the Derelict Land Grants had been replaced with the Land Reclamation Fund and with this new name came a subtle change of emphasis on the part of English Partnerships – the body through whom these grants were channelled. Whilst projects which addressed matters of public safety alone were still recognised as important candidates for grant aid, those which had local or amenity benefit are increasingly being supported, particularly where applicants have drawn together matched funding from other sources and where works could be shown to fit into a county-wide strategy. The emphasis of the Land Reclamation Programme has thus begun to move away from simple shaft-capping programmes (or landscaping and safety schemes including a limited amount of structural stabilisation) to whole-site schemes which embrace safety, consolidation and a wide range of amenity works.

Within Kerrier District, leaving aside the district-wide shaft-capping contracts, much of the work has again been focussed on the Great Flat Lode to the south of Carn Brea and the wider Mineral Tramways area to the north. Engine house consolidation and landscaping schemes have followed on from very extensive shaft-capping programmes, and have been coupled to access, amenity and interpretation projects as part of a wider strategy which included the opening of the Trevithick Trust's Gateway Centre at Taylor's Shaft, East Pool and Agar. Completion of very extensive consolidation works at Marriott's Shaft, Basset Mines (South Wheal Francis), was temporarily delayed by the discovery of large quantities of blue asbestos on site, resulting in a very extensive clean up operation before the public could be admitted to the site.

Land Reclamation projects have been somewhat slower to take off across the remainder of Cornwall, but one of the principal emphases has been the development of a reclamation strategy for the Tamar Valley with which CAU has been centrally involved. Assessments have been undertaken for a number of key sites including Holmbush near Kelly Bray and Gunnislake Clitters. Site works have now been completed at Drakewalls Mine near Gunnislake (see *Cornish Archaeology* **37–38**).

This period has also been marked by efforts to develop new and less damaging techniques for shaft safety works, given the increasing recognition that whilst treatment by capping or plugging has achieved the aim of making these sites safe, the physical loss of all archaeological remains adjacent to these shafts was an inevitable corollary of this approach.

Pioneering work undertaken at the instigation of The National Trust in West Penwith had resulted in approaches based on physical barriers – generally variants of traditional shaft hedges backed up with internal fences – being acceptable for grant assistance. Adoption of this approach has been somewhat piecemeal across Cornwall, but appears to be gaining ground; major shaft fencing programmes have been proposed for the Caradon district whilst shaft hedging has been adopted on United Downs and in Steeple Wood and the nearby Trelyon Downs above St Ives. At Upton Towans many of the shafts were buried beneath the sand dunes. Experience at Wheal Ramoth, Perranporth, had shown that it was possible to install conventional concrete plugs only at the expense of the movement of enormous quantities of dune sand, with its attendant environmental effects. At Upton Towans, therefore, direct grouting of the shaft fills via drill holes down to bedrock level was successfully trialled, and found to produce minimal archaeological and ecological disturbance. In West Penwith, work to shafts associated with Wheal Owles, Botallack and St Just United Mines undertaken by The National Trust and Cornwall County Council used a variety of approaches including geotextiling, hedging, grilling and fencing as well as conventional plugging.

New light on Stannon Down settlement

Andy Jones

The prehistoric landscape at Stannon Down, St. Breward on Bodmin Moor has long been recognised as exceptional in the quality and variety of its upstanding remains. A number of round houses and their fields were excavated by Roger Mercer in the late 1960s and the results of that work made a significant contribution to our understanding of the character of upland settlement in Cornwall during the second millennium BC where small pastoral communities thrived. Continuing re-landscaping of the winning and working areas of the china-clay works on Stannon Down by English China Clay International has provided us with an opportunity to return to this rich prehistoric oasis and to explore further the complexity of the field remains.

In August 1998 funding from ECCI enabled a small team from CAU, aided by many student volunteers and members of the Cornwall Archaeological Society, to investigate two sites identified during field survey by CAU in 1985. Both lay within the area of re-landscaping (at SX 134 805). One was provisionally interpreted as a round house but was smaller and slighter than Mercer's houses, which are probably of Middle Bronze Age date (*c*1500–1200 BC). Did it belong to an earlier phase of settlement here? The second site was a small cairn. Was this a burial cairn, and if so, how did it relate to the settlement? The return to the site in 1998 aimed at the retrieval of well-sealed and dateable archaeological deposits as well as the recovery of good environmental data. Neither site turned out quite as expected.

These preliminary results, part of a staged programme of research at Stannon Down, have prompted a broader interpretation of the evolution of this particular prehistoric landscape and have provided direct archaeological evidence for greater time-depth and indicate changing land-use in this

area from the Early to Middle Bronze Age. This landscape provides an ideal opportunity to explore the physical and phenomenological relationships between the material and spiritual worlds of Bronze Age communities. The work at Stannon has by no means finished and it is anticipated that further opportunities to excavate in the future will contribute more intriguing detail to this increasingly complex reconstruction of the evolution of a landscape.

On excavation the site provisionally interpreted as round house proved to be less straightforward. It was a circular hollow embraced by a continuous collapsed stone wall which incorporated in its north-western side a large earthfast boulder and contained small pits and postholes. This first phase of activity was followed by concealment as the entire area was deliberately covered with a soil deposit. The final phase comprised the construction of a post-ring of thirteen posts forming a continuous circuit set just inside the stone wall. None of the features such as stone-lined drains, paved thresholds, porched entrances or structural post-rings so characteristic of the round houses investigated by Mercer were found and the general paucity of finds – a handful of abraded pot sherds, flint and stonework and perhaps more significantly, a rare star-shaped faience bead – prompted a re-interpretation of the site. It had all the traits of a ring cairn rather than a dwelling!

The second site investigated proved to be equally enigmatic. This was a small circular cairn predominantly made up of rough granite boulders placed on a raised bed of natural rab, edged with a rough kerb of boulders. A thick soil deposit filled the central void of the monument and two parallel lines of boulders forming an unusual stone 'tail' were built outwards against the north-west side of the cairn. A cluster of pits and postholes were dug to the immediately north-east of the site. These were filled with charcoal and produced flint work and cord-impressed pottery of Bronze Age date. No cremated human bone was found in any related layers so it was felt unlikely that the site was the focus for burial activity and was more therefore representative of a 'ritual' or ceremonial cairn, of which other examples have been excavated on Bodmin Moor, especially Davidstow Moor. For both sites an Early Bronze Age date is likely (*c*2000–1800 BC), rather earlier than the nearby houses excavated by Mercer.

Bears Downs to Ruthvoes pipeline

Anna Lawson Jones

During the spring and summer of 1998 an archaeological watching brief took place along a nine kilometre long South West Water pipeline linking Bears Down to Ruthvoes through St Columb Major parish in central Cornwall. As part of the prior assessment a geophysical survey took place along much of the route. This located a number of anomalies on which work was later focused.

In total the watching brief revealed 63 ditches (most of which were removed boundaries, some from known medieval field systems), 46 other features (including pits, stone alignments, postholes etc) and eight large subsoil layers representing past land surfaces. Fifty-three hedge banks were recorded in section to look at their development and character.

Flints were collected from the spoil heaps and stripped areas: 22 separate fields produced flint scatters, three fields produced Iron Age and earlier pottery, and 35 fields produced medieval and later pottery.

Three significant sites were discovered at Lanhainsworth. Parts of two ring-ditches may be either Bronze Age barrows or part of an Iron Age settlement; further analysis may clarify this. Elsewhere the pipeline cut through an enclosure identified by the geophysical survey. Excavation confirmed the presence of a substantial ditch, probably for a later prehistoric enclosed settlement or 'round', though no dating evidence was found. The third site here consisted of two substantial pits, probably medieval. At Ruthvoes the pipeline cut the site of a hitherto unknown barrow; sherds of Bronze Age pottery were associated with it.

Analysis of finds, features and hedges will be used to gain a better understanding of the historic character of the countryside through which the pipeline ran; the higher ground around Bears Downs is mostly 'Recently Enclosed Land', former heathland enclosed in the eighteenth and nineteenth centuries, whilst the remainder is mostly 'Anciently Enclosed Land', where the field patterns and settlements are mostly medieval in origin.

The watching brief included the partial excavation of a Romano-British enclosure or round adjacent to Little Quoit Farm (SW 925 619), which was initially located by geophysical survey. A narrow strip 6m wide was excavated, running north to south through the centre.

The excavation revealed a univallate enclosure, still just discernible in the field as an earthwork. The external ditch was 3m wide and 1.75m deep from ground surface, with a narrow flat base. The southern ditch had the remains of an internal, near ploughed out clay rampart with associated post settings. Inside the southern rampart was a palisade fence.

Five nearly circular depressions, the remains of structures or working hollows, were found within the round, away from the external defensive circuits. Underlying these hollows were several shallow ditches apparently representing an earlier field system, while cutting across the top of some of the hollows were features associated with metal-working. These included a 'classic' furnace with bowl and flue, a deeply cut 'fire pit' with a large stone pushed in, perhaps an anvil, and a large deposit of smithing slag, together with pit bases and broken iron objects which are currently undergoing analysis at the Salisbury Conservation Centre.

Pottery from the site has been inspected by Henrietta Quinnell and dated to the second, third and possibly the fourth centuries AD. As at the similar recently excavated 'round' of comparable date at Killigrew (near Trispen), which also specialised in metal-working, the wares found relate to the storage and eating of food rather than its preparation.

Environmental analysis too has provided some interesting results. Charcoal analysis (by wood anatomist Rowena Gale) has shown that many of the soil samples contain sufficient charcoal to obtain radiocarbon dates. Interestingly the existence of carefully managed oak woodlands was also clearly demonstrated by the frequency of coppiced charcoal rods found within the remnant metal-working fuels. Such clear evidence for woodland management provides a significant contribution to our understanding of the Romano-British countryside.

Atlantic Road, Newquay

Ann Reynolds

During October and November 1998, CAU carried out excavations alongside Atlantic Road, Newquay (SW 80308 61540). The excavation was carried out on behalf of South West Water in advance of a new sewage pipeline being built by McAlpine.

Due to overlying deposits of sand, the geophysical survey only located a small percentage of the final excavated features, which were part of a Romano-British settlement. This was characterised by a number of stone structures, ditches and pits, including a house with a well preserved stone-lined hearth and post sockets. The most striking features of the site were numerous shell middens and an extensive cultivated soil. This soil overlaid the settlement site and was full of bone, shell and artefacts resulting from domestic waste used to enrich the soil. Plough marks were also found, cutting through the soil.

Towards the end of the excavation, evidence was found of Iron Age activity, including pits and mounds of clay, heightened with domestic rubbish such as shell and bone.

Clean sand covered by modern turf overlay the Romano-British layers, indicating that sand blow was the reason the site went out of use (though farming and domestic activity probably continued nearby, perhaps on the other side Pentire Road, away from the effects of sand encroachment).

Due to the sandy soil there was excellent preservation of environmental remains, particularly shell and bone. These were present in huge quantities, providing a rare and vital insight to Cornwall's past. We are particularly grateful to Steve Hebdige for his voluntary assistance in processing this material. Preliminary identification has found plant macrofossils, land and marine snails, crab, mussels, winkles, limpets, fish, sheep, cow, cat, rodent and a fragment of human jaw. Some of the bones retain butchery marks.

Several different types of artefacts were also retrieved during the excavation: pottery fragments in substantial quantities, including some unusual fragments which appear to be from types of vessels not previously known from Roman Cornwall; iron objects, including a steelyard with a lead weight (for weighing), and hob nails; copper alloy objects, including eight Roman coins and parts of brooches; glass beads and stone artefacts such as spindle whorls (for spinning wool into yarn). A team of specialists will assess and analyse these results.

Revisiting Trevelgue Head – sixty years on

Jacky Nowakowski

Described by Jacquetta Hawkes as one of 'the best examples of a type of fortification very common around the Cornish coasts', Trevelgue Head cliff castle is an impressive and exceptional prehistoric monument. The cliff castle is defined by a spectacular series of massive stone and earth ramparts which cut off the headland and embrace the remains of a late Iron Age settlement and a barrow cemetery which crowns the western summit. The history of archaeological investigation at Trevelgue extends back to the early decades of the century when a number of prominent barrows were opened by Canon Rogers, but it was the work directed by C K Croft Andrew in the months preceding the outbreak of the Second World War which remains one of the most significant archaeological contributions to our understanding of Cornish promontory forts. At that time, in 1939, excavation at Trevelgue was considered a regional and national priority which would illuminate our limited understanding of the origins, character and status and chronology of these later prehistoric fortified coastal sites. It was anticipated that results from Trevelgue could be usefully compared with those gained from the small-scale investigations of contemporary, but smaller, cliff-castles such as Gurnard's Head in Zennor and Maen Castle in Sennen excavated by members of the West Cornwall Field Club.

Under the auspices of the Cornwall Excavations Committee (on behalf of the Royal Institution of Cornwall) and funded by public and private subscription, C K Croft Andrew was appointed to carry out the excavation which took place over a twelve week period from July to September 1939. During a summer blighted by bad weather and bouts of vandalism – the latter an unfortunate result of enormous public interest – the excavation nonetheless achieved a great deal as the inner rampart, a round house and metal-working features were investigated, providing good evidence for occupation dating from the Early Iron Age right through to the Roman period. With a collection of just over 4,000 sherds of pot, a mountain of iron-working debris and a large collection of late Roman coins, the overall rarity and quality of the material and the excellent preservation of many archaeological deposits revealed the potential of this site to address research aims that no other site of its class could or has since provided. Sadly the outbreak of war in September 1939 halted fieldwork and surprisingly, despite clear enthusiasm on the part of Croft Andrew to continue this work, no further archaeological excavation has since taken place. Work on analysis of the data continued on a sporadic basis right up to the 1970s but the full results were not published in Croft Andrew's lifetime.

Plans for post excavation analysis were put in hand by English Heritage following the transfer of the excavation archive to their offices on the occasion of Croft Andrew's death in 1982. During the next decade attempts were made by a variety of specialists to produce a draft report for publication

although these foundered given the absence of a clear research agenda. In February 1997 the Cornwall Archaeological Unit was invited to produce an assessment of the entire site archive and to make recommendations for publication. Work on the archive appraisal started in 1998.

Revisiting the Trevelgue Head excavation archive after sixty years has been both a challenge and an exacting process. Croft Andrew kept meticulous notes and records but unlike the systematic data records used by today's archaeological field-workers, the recovery of data and finds was somewhat arbitrary. Groups and associations of finds were daily recovered from the trenches and these were or were not necessarily linked to particular contexts or features.

The first part of our appraisal has been to re-bag the entire material archive removing the original 1930s finds packaging (historic artefacts in themselves!) and to transcribe information from the bags onto record sheets. An audit of the entire material archive has been created and by combining these records with notes from the transcribed site diary we have been able to reconstruct the daily progress of excavation. This has allowed us to gauge exactly how much context-based data is available for analysis and whether this can be married to a stratigraphic narrative and reconstruction of events on the site. In effect we have been re-excavating the site, but this time on paper and in the warm confines of CAU's offices rather than out on the exposed headland itself! What has emerged is not only the sheer quantity of material that Croft Andrew managed to recover from such a small campaign of fieldwork in 1939, but also the excellent quality of that data. The ceramic assemblage is unusual not only in size but also because it contains many Early Iron Age forms which are rare in the south-west whilst the large collection of well-preserved animal bone and boxes of iron-working debris are both unique classes of data from sites of this period in the region. The result of this appraisal, which has been undertaken by a number of specialists, will form the basis for a targeted post-excavation research design which will be submitted for consideration by English Heritage in the autumn of 1999. It is hoped that plans for analysis and publication will proceed by the turn of this millennium. Despite the fact that this excavation took place 60 years ago the information that Croft Andrew discovered in 1939 is still highly relevant and will provide a significant contribution to the study of later prehistory in Cornwall.

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Recent work by the Cornwall Archaeological Unit, 1999

Sites and Monuments Record

Steve Hartgroves

A great deal of the work on the SMR during the past year was related to national data standards. English Heritage have commissioned and are promoting software for county SMRs called Exegesis, which incorporates national standards for monument types and classes, event records, consultation records, and links to geographical information systems (GIS). Several county units have now taken up this system, and CAU are actively considering its adoption for Cornwall and the Isles of Scilly. Whether or not we adopt Exegesis, the data within the existing Access based SMR should reflect national standards as closely as possible to facilitate data interchange with other national bodies.

Site types, which describe the class of the monument record in terms of its function, were a major issue that had to be addressed. The type entries for some 40,000 records were checked and altered where necessary to conform to the English Heritage Thesaurus of Monument Types. This has resulted in the loss of some distinctively regional terms (*menhir* becomes *standing stone*, for example). A new site types glossary has been produced to enable all projects and new records to use the national standard.

The CAU SMR does not yet have the facility to enter event records, that is records which detail interventions affecting a site (survey, excavation, visits, reports etc) rather than records of the monument itself. A system of paper event records has now been set up, using an entry form that mimics as far as possible the data structure of Exegesis. The intention is to enter these paper records into the SMR once software has been purchased which can incorporate them. Already, paper records have been compiled for most of the CAU projects from 1994 onwards, thanks to the efforts of volunteers Lynn Wilson and Stuart Randall, and Gemma Martin, working with us on a student placement from Bradford University.

Another radical change has been to trial a system whereby field staff create SMR records as part of their projects, in order to reduce or prevent an ever increasing backlog of sites which exist in reports but not in the digital SMR. To do this it has been necessary to create special software which allows quick record entry and that allows automatic production of site inventories from the data. So far three field projects have used this system.

Work has continued to enhance the GIS system and to link it to the SMR data. One major addition to the GIS this year has been the Ordnance Survey historic mapping in digital form, recently purchased from Landmark. This comprises coverage of the 1st and 2nd edition 1:2500 mapping (1870s–1880s and 1900s respectively), and includes the revisions of the 1930s for the urban areas. A great deal of time has been spent on the methods for linking GIS polygons, lines and points to SMR records. We anticipate that the GIS and electronic maps will eventually form the gateway by which all users will approach the SMR and its vast store of information about Cornwall's past.

Heritage management in the planning process

John Gould

The historic environment continues to have a high profile in the planning system and consultations continue to run at a very high level. Our involvement is focussed on identifying development proposals with archaeological implications and ensuring that adequate information is available to ensure an informed planning decision with suitable conditions for protecting or 'preserving by record' significant sites and areas. This usually involves a mix of desk-based documentary research and fieldwork. Geophysical surveys are an important tool for locating buried archaeological horizons, but this often needs to be followed up with some trial trenching to assist with the interpretation of results. Our principal objective is to protect sites from disturbance and to maintain the historic character of the landscape. When this is not feasible we try to ensure that the information which a site contains is retrieved by excavation or recorded by survey.

Amongst the more significant developments with which we have been involved in the year are the following.

Penwith District

Sports Hall, St Clare, Penzance. Geophysical survey in advance of a previous application had revealed evidence for an Iron Age settlement on the hilltop. This resubmission placed the sports hall away from the area of archaeological activity and incorporated shallow foundations which avoided disturbance to buried archaeological horizons. Building work was subject to a watching brief.

Hayle Harbour. Ongoing archaeological assessment of the harbour development proposals includes a detailed archaeological and historic audit of the built and buried environment.

Loggans Mill. An archaeological assessment survey produced recommendations for conservation and sympathetic conversion of this important listed industrial building; the original application was amended and a more sympathetic scheme is now under consideration.

The Jampot, Gwithian Towans. CAU provided historical information to English Heritage who were considering a proposal to list this important local feature

Mitchell's Engine House, Trencrom. CAU opposed the application for conversion to a dwelling.

Kerrier District

Site of Holy Trinity medieval chapel, St Day. CAU provided information and advice in connection with an objection to the proposal to zone this site for residential development in the Kerrier Local Plan.

Rosuic Eclipse camp site. CAU monitored the creation of an eclipse festival site on the Lizard Downs in the vicinity of a Bronze Age barrow cemetery.

Clodgy Lane Helston. CAU have recommended a full archaeological assessment and geophysical survey in advance of developments in an area where cropmark evidence for prehistoric settlement is widespread.

Archaeological assessments have been requested in advance of developments at Blowing House (Godolphin), Barncoose Terrace (Redruth) and Ponsanooth.

Amendments to development layouts, to avoid or minimise disturbance, have been requested at Pednandrea yard (Redruth) and at Ruan Minor.

A photographic survey has been requested in advance of work to Taylor's Shaft, East Pool, a listed mine complex now converted into a heritage centre by the Trevithick Trust.

Carrick District

Pydar St, Truro. Archaeological assessments have been carried out in advance of two developments in this ancient thoroughfare.

Mylor Yacht Harbour. An archaeological record was made of a Second World War grid iron (where D-Day landing craft were repaired and serviced) prior to its burial.

Tywarnhayle Mine, Portreath. A detailed building and landscape survey has been carried out on this important historic mine prior to remedial and conservation works.

Wheal Busy. The site of a proposed observatory was altered in the light of historic features discovered during an archaeological assessment.

St Allen Church. Proposals for improved access and car parking are being reconsidered in the light of the potential for prehistoric and medieval settlement features.

WW2 Anti-Aircraft battery, Restronguet Barton. CAU recommended refusal of a proposal adversely affecting this important war-time survival.

Archaeological assessments have been requested on development sites at Mitchell, The Green (Truro), Hallenbeagle industrial park, Holywell Bay Golf Course and at Carnon Downs.

Restormel Borough

Manor Tannery, Grampound. CAU has produced the brief for an archaeological and historic assessment and survey of the last traditional oak-bark tannery in Cornwall, following its closure this year.

Par Consols (Polgooth). A proposal for the conversion of the stamps engine house led to the structure being recommended for listing to protect it from unsympathetic redevelopment. This was refused by DCMS, but a similar request for the protection of the count house was accepted and the proposed demolition was averted.

St Austell Railway Station. CAU objected to the demolition of the original Cornwall Railway station building, to no avail. A photographic survey was carried out prior to demolition.

Archaeological assessments have been requested at South Street and Quay Street, Lostwithiel, and watching briefs have been requested during developments at Crantock and in the car park of the Red Lion, St Columb.

Caradon District

Old Road Liskeard. Extensive geophysical surveys were carried out on a development site located immediately adjacent to the site of the Bronze-Age enclosure discovered during the construction of a new school (see *Cornish Archaeology* **37–8**). Despite every effort to locate archaeological features, the area failed to produce any evidence for earlier occupation.

North Cornwall District

Port Arthur Gun Battery, Padstow. CAU provided advice and assistance with a proposal for conversion of this important Second World War battery for the Sailing Club.

The Old Vicarage, St Eval. The Victorian vicarage sits within a scheduled semi-circular earthwork thought to be the remains of an early Christian monastic enclosure. The archaeological assessment indicated that the earthwork originated as a garden feature and no evidence for medieval activity was found in the interior. A copy of the report was sent to English Heritage with a request that the status of the site be reviewed.

Trevose Golf Club. An archaeological assessment was carried out in advance of the construction of irrigation reservoirs close to the remains of St Constantine's church, holy well and associated cemetery.

Windmill Hill, Launceston. The site of a civil war redoubt overlooking Polson Bridge; no evidence for archaeological activity was found during this assessment.

Archaeological assessments have been recommended in advance of developments in historic settlements at Priory Road Bodmin, Madford Lane, Launceston and Duke Street, St Stephens.

Isles of Scilly Council

Dolphin Town, Tresco. Two archaeological assessments were carried out in connection with planning applications. Negotiations continue on the development and the options for creating football and cricket pitches whilst protecting archaeological layers from disturbance.

A proposal for two new cottages in Dolphin Row close by was found to affect features related to nineteenth-century bulb cultivation.

Renewal of Old Mineral Permissions (ROMPS)

In addition to the 'normal' planning applications we have been involved in the ROMPs process, whereby 'old' planning consents for Mineral Operators, mostly obtained many years ago and lacking proper environmental controls, are renegotiated with the County Council as Mineral Planning Authority. Because these cover areas with existing planning consents it is not generally possible to protect sites from disturbance, but the process enables us to request archaeological assessments and surveys and to introduce new conditions requiring recording prior to disturbance of archaeological and historical sites or structures.

Schemes of Working have been reviewed and new conditions have been, or are being, negotiated for the Mineral consents at Stannon (Bodmin Moor) and at Trelavour, Goonvean, Greensplatt and Goverseth China Clay works in the St Austell area.

Pipelines

These proposals can have a considerable impact on the archaeological resource, but also enable archaeologists to sample a broad sweep of landscape selected, effectively, at random. In past years major new discoveries have been made as a result of archaeological work in connection with such developments. In the current period, archaeological assessments have been carried out and work has taken place along the St Day to Redruth gas pipeline for Transco, and the Kingsand to Cawsand sewage transfer pipeline for South West Water.

The Monuments Protection Programme

Cathy Parkes

On behalf of English Heritage we are carrying out an 'Additional Scheduling Project' in Carrick District, preparing documentation for sites to be given statutory protection as scheduled monuments. This involves initial contact with landowners, and site visits, before the proposals are presented to English Heritage. For 1999 this resulted in the scheduling of 50 archaeological items in 23 proposals. The MPP is a major review of schedulings throughout Cornwall and England.

Agri-environment schemes and countryside advice

Peter Rose

The Farming and Rural Conservation Agency (FRCA), on behalf of MAFF, is now one of the most important agencies for conserving the historic environment. This is done in particular through the West Penwith Environmentally Sensitive Area (ESA) and through Countryside Stewardship, voluntary schemes offering farmers grant incentives to manage their land to the benefit of the environment. Many important historic sites and landscapes are now covered by these schemes. In 1999 we were consulted by the FRCA on 72 Stewardship applications. This included 24 scheduled monuments (three cliff castles, two hillforts, 18 barrows, one round) and many other sites (four rounds, two cropmark complexes, one Roman settlement, two holy wells, five medieval settlements, one medieval castle, two deer park boundaries, three parkland landscapes and seven or more mine sites and quarries).

Changes in government and European policy mean that agri-environment schemes are set to expand enormously, perhaps quadrupling over the next seven years, as agricultural support is shifted away from production. This will provide an unparalleled opportunity for conserving the historic environment but will require additional resourcing to ensure that we can respond with the level of advice that is going to be needed and, indeed, assist in the process of securing agri-environment funding for farmers and landowners in Cornwall.

National Trust advice

Peter Herring

Many years of close liaison between the National Trust and the Cornwall Archaeological Unit have led to a good supportive relationship between the two bodies, with the Unit regularly providing advice on the historic environment and its archaeological components (including many property surveys), and the Trust developing good practice which can be offered by CAU as a template for other landscape bodies to follow. In 1999 Robert Woodside was appointed the Trust's Assistant Archaeological Adviser responsible for Cornwall (among several other regions). He is based in the Trust's Cirencester offices and his appointment was linked with a formalisation of the Trust-Unit relationship which saw the Trust commission a number of days of consultative advice from CAU for each of its five Countryside Managers. This advice is provided largely by Peter Herring, though CAU has in addition a broad pool of expertise that can be drawn upon. In the first year this has largely involved familiarisation with properties and issues but has included some site-specific advice. A strategy and policy document for managing the historic environment has been prepared by Robert, with some help from CAU.

Trevessa

Peter Herring

A classic tenement of the type common from St. Ives to Pendeen, a narrow stretch of land, or 'ribbon' property, leading from the sea, across the coastal plateau and up to the high downlands to the south, Trevessa has been acquired by The National Trust piecemeal over the last few decades. A typical National Trust property assessment has been prepared by Joanna Sturgess of the Unit, partially collating two others it prepared in the 1980s. Trevessa contains prehistoric field systems and the probable sites of at least two prehistoric settlements as well as medieval and modern farms and fields.

Early tin and copper mining remains are present on and near the cliffs. There has been no overtly archaeological management but successive farmers have maintained the farm's hedges, walls and buildings well. Ownership of Trevessa by the Trust will conserve an important and very visible part of West Penwith's historic landscape.

Gribbin Head to Lansallos

Nigel Thomas

Much of the farmland and cliffs from Gribbin Head to Lansallos (west and east of the Fowey River respectively) is in the ownership of the National Trust, who commissioned CAU to carry out a rapid assessment of archaeological sites and the general historic environment in their property. This beautiful stretch of coastline contains a wide variety of archaeological features, ranging from Bronze Age barrows to twentieth century military installations and historic landscapes that include Coastal Rough Ground, Anciently Enclosed Land, Steep-sided Valleys and Navigable Rivers and Creeks (as defined in the 1994 Cornwall Landscape Assessment).

California Quarry, Western Blackapit

Peter Herring

This small sea-cliff slate quarry immediately to the west of Boscastle, operational some time between *c*1840 and 1882 and probably reused in the late nineteenth or early twentieth century, is owned by the National Trust. An assessment was undertaken by Joanna Sturgess to inform a Countryside Stewardship scheme. Sea-cliff quarries differ from the more conventional inland quarries; there are no primary waste dumps (this material having been disposed of into the sea) and working faces tend now to be completely inaccessible (indeed, only visible from a distance). Horse whims and dressing floors often survive on the cliff tops, as here where there are two or possibly three horse whims, two vertical quarry working faces (although more may be present), two ruined buildings (one a workshop, the other a slate-splitting shed with an area of dressing waste immediately outside), and the track down to the quarry.

Gannel estuary

James Gossip

A survey of the Gannel estuary for the National Trust and the Newquay-St Agnes Countryside Service has shown that it constitutes a diverse historical landscape with surviving elements from prehistoric, medieval and post-medieval periods, which are crucial to the understanding of the economic and social development of the area.

Bronze Age barrows are present on the dramatic headlands of Pentire Points East and West, and the Bronze Age settlement and Iron Age cemetery at Trethellan overlooks the north side of the estuary. A number of Iron Age or Romano-British settlements (rounds) surround the estuary, including the extant (once multi-vallate) earthworks of Treringey Round. The village of Crantock on the south side of the estuary has documented medieval importance both as a port and for its monastic college, which had pre-Norman origins. Activity on the estuary diversified during the eighteenth and nineteenth centuries with the arrival of tin mining (Chiverton Wheal Rose) and the silver and lead

smelter to the north west of Penpol. Also at Penpol Creek are the extant remains of a quay and a limekiln. Numerous other mooring places and boat 'lay-ups' are evident along the estuary, cut into or built up against the rocky shores. The remains of Tregunnel boatyard can be seen on the north bank of the Gannel, where a number of large ocean-going boats were built, mainly during the latter half of the nineteenth century.

The very existence of the estuary has provided a physical barrier to the expansion of Newquay's suburbs, but with the exception of Pentire Point East residential development has spread along the entire north side of the estuary. It is now seen as important to balance further development with the special environmental character of the estuary.

Roseland Heritage Coast

Richard Cole

During late 1999 and early 2000 the CAU carried out an historic audit of the Roseland Heritage Coast to Portmellon. This project came about as a result of a request for more comprehensive information on the historic resource of this area of landscape and its coastline, to ensure that the historic environment was fully integrated into future management strategies. This is reflected by the range of funding agencies, co-ordinated by the Falmouth-Fowey Countryside Service: Countryside Agency, Carrick District Council, European EAGGF, The National Trust, Restormel Borough Council.

The number of archaeological sites and historic structures recorded within the study area now totals over 1000, of which 350 were 'new' or previously unrecorded sites. The study area contains evidence for later prehistoric and Romano-British occupation in the form of barrows, cliff castles and defended farmsteads (rounds); well known examples are, respectively, Carne Beacon, the Dodman, and the Ringarounds at Veryan. The basic rural settlement pattern which endures today was consolidated during the early medieval period, with the place-name evidence making it possible to recreate the distribution of pre-Norman farming estates and early Christian sites. Harbours and maritime sites are very much a feature of the area.

Chûn Downs

James Gossip

CAU was commissioned by Environmental Consultants (CTNC) Ltd for the Cornwall Wildlife Trust to prepare an archaeological and historical assessment of an area of Chûn Downs newly acquired by the Trust as a Nature Reserve. This study area included the scheduled monuments of Chûn Quoit, an important Neolithic chambered tomb, and the northern half of Chûn Castle, an imposing and well preserved hillfort occupied between the late Iron Age and the early Romano-British period, and reoccupied in the sixth and seventh centuries AD. In addition to these were a scheduled Bronze Age barrow, prehistoric, medieval and post medieval field systems reflecting patterns of land use over thousands of years. The heathland itself is a part of the historic environment, being created by woodland clearance in the third or second millennium. Decline of traditional management of the Downs – grazing, fuel gathering – has meant that areas have become obscured with bracken, bramble and European gorse. Active management, with a mixture of hand clearance, burning and livestock grazing, would encourage the growth of heathland and help to reveal historic features; clearance within Chûn Castle would create an opportunity for a modern and detailed survey.

Polpeor Cove

Charles Johns
An historical assessment was commissioned by the Cornwall County Council Land Reclamation Team to guide conservation of the old Lizard lifeboat station at Polpeor Cove, established in 1859 and closed in 1961. Successive crews saved some 595 lives. The second and third lifeboat houses, built in 1884 and 1914, together with the 1914 slipway, are of concrete, which presents particular problems for the long term conservation of this historic site.

Kennack Sands

Charles Johns
Sections of destabilised Second World War anti-tank landing wall and a partly demolished pillbox on the beach at Kennack Sands were recorded prior to their removal by the Cornwall County Council Land Reclamation Team for health and safety reasons. The survey also identified a possible Iron Age cliff castle.

St Nicholas' Church, Dolphin Town, Tresco, Isles of Scilly.

Jeanette Ratcliffe
The area in front of this church was the subject of an assessment and field evaluation to assess the archaeological impact of a proposal to create a playing field (associated with a new sports hall sited nearby). Although the present church is relatively recent (1877), artefactual, documentary and place-name evidence indicates that Dolphin Town has been a focus for settlement since prehistoric times. A stone-lined well (with ruined well house) mentioned in a late eighteenth century description of Scilly was a key watering place for visiting ships and a granite cattle grid stile built into a nearby field boundary to the north was historically associated with the well. On the eastern edge of the study area geophysical survey indicated a semi-circular area of increased magnetic response, which evaluation trenching revealed to be the remains of a medieval shell midden overlying a Bronze Age occupation layer. Numerous artefacts were retrieved from these deposits, including almost 200 sherds of Bronze Age pottery, which filled a shallow depression in the underlying subsoil.

Eden Project road corridor

Andrew Jones
During the spring of 1999 CAU carried out an archaeological watching brief for McAlpine Joint Venture – Eden Project along the route of the Eden Project road corridor. This involved the recording of tin streamworks (probably medieval). A Neolithic flint scatter was also identified. The field patterns along the route are of medieval origin, and 25 field boundaries were cut through. These boundaries formed an important sample which produced a valuable set of results, demonstrating how boundaries preserve evidence within their structure for how they have developed from the medieval period to the present day. It was found that the majority of the boundaries had undergone very similar processes in the way they were first laid out and have developed over time. Typically the boundaries began as earthen banks between shallow parallel ditches, and were periodically rebuilt and heightened; refacing of the hedge banks in stone to make 'Cornish hedges' is invariably a relatively late development (perhaps eighteenth or nineteenth century).

Lands End and Sennen Cove

Ann Reynolds

As part of the National Cycle Network, Cornwall County Council initiated the creation of a new bridleway (usable by cyclists) running between Lands End and Sennen Cove. The bridleway followed the alignment of the cliffs a little inland, mirroring the route of the coastal footpath. CAU carried out a rapid assessment of the area and targeted recording of five field boundaries that were crossed as part of the route. The boundaries showed a number of phases of development, with the characteristic stone-faced hedges of West Penwith generally representing the latest phases of activity. One example contained a row of individual boulders set on an earlier line, almost identical to the form of abandoned prehistoric fields in the immediate vicinity, and is probably of the same date. A number of flints were recovered from the spoil heaps possibly dating to the Bronze Age, along with a whet stone and sherd of later medieval pottery, demonstrating continuing activity within the area.

Codda

Peter Herring and Nigel Thomas

Survey at Codda (Altarnun) revealed the footings of a longhouse in the currently ruinous lower end of the house. The farmhouse was re-modelled and extended in the seventeenth century, with a second storey and rear wing added during the eighteenth century. The archaeological survey, funded by English Heritage, Jasper and Chloe Bagshawe, and The Cornwall Landscape Project, which also examined the farm outbuildings (and located a second ruined longhouse to the east of the present yards), was designed to inform plans for the reconstruction of the lower end of the farmhouse and for restoration of outhouses and hedges.

Cutmadoc

Joanna Sturgess and Peter Herring

Historic research and a detailed building survey were carried out at Cutmadoc, a Grade II Listed later medieval, seventeenth century and nineteenth century farmhouse in the National Trust's flagship estate of Lanhydrock. The house has fallen in hand and is to be carefully restored in the year 2000. Archaeological recommendations relating to the conversion proposals made by CAU with help from Eric Berry, Historic Buildings Consultant, have largely been adopted by the Trust and the works will not disturb the house's historic fabric but rather will enhance it.

Pendennis Castle

Charles Johns, Nigel Thomas and James Gossip

Between September 1999 and February 2000 CAU carried out two archaeological watching briefs for English Heritage at Pendennis Castle, initially during alterations and improvements to paths and trackways and then during the installation of a new pumped fire main. The aims were to deflect the impact of the groundworks on buried archaeological remains and to advise on and record anything of archaeological significance.

The work revealed a large number of buried services at Pendennis, including several communications cables laid during the first half of the twentieth century. All pipes and cables were recorded archaeologically and preserved intact. The recording and analysis of buried services are now seen as significant to the understanding of the history of communications and power supply, particularly in a military context. This type of work has formed a major part of the recording carried out by CAU in recent years at Pendennis Castle, thought to be the only site in Britain where the recording, analysis and interpretation of buried services is taking place. Finds from the watching briefs included a seventeenth century clay pipe bowl, medieval pottery and a sixteenth century cannonball. A Post Office Telephone cable marker was found *in situ* close to One Gun Battery.

All archaeological features recorded during the watching brief, including services, will be plotted onto a cumulative survey record of the site during the course of the Pendennis Castle Historic Mapping Programme being undertaken as part of the Pendennis Conservation Plan.

A programme of archaeological recording was carried out during Phase II conservation works at **Crab Quay Battery** on Pendennis headland, part of The Fortress Falmouth project sponsored by the Heritage Lottery Fund. The project was organised by CCC's Falmouth to Fowey Countryside Service.

The interior of the seventeenth/eighteenth century guardhouse was investigated and recorded. The western wall and the truncated northern wall of the guardhouse, previously thought to have been demolished, were revealed. Fragments of limewashed plaster still adhere to the interior walls. A demolition layer of roofing slates was exposed.

The truncated wall and splayed embrasure of the eighteenth and nineteenth century revetment was uncovered in the corridor between the guardhouse and battery. Other features revealed in the battery included a granite flagpole base, the fire commander's terrace between the gun emplacements, and a stone kerb delineating the earthen mound over the late nineteenth century underground magazine. A total of 160 finds were recovered, including a complete Second World War bayonet in its sheath.

The measured survey of the seaward facing battery wall, used in conjunction with Eric Berry's photographic record, established the sequence of construction of the wall, demonstrating that the central part of the wall is a segment of the early eighteenth century battery known as *Crab Quay Platform*. By 1752 the wall had been extended to the south, whilst the northern section was rebuilt. Three embrasure sills from this period can clearly be seen. The position of a fourth was recorded; this was obscured when the battery was joined to the guardhouse in *c*1902.

An electronic three-dimensional survey by Terry Pascoe of Cornwall County Council's Transportation and Estates Department produced a definitive contoured plan of the battery as well as isometric wire frame models and a composite section though the defences.

Kingsand and Cawsand

Jeanette Ratcliffe and Bryn Perry Tapper

An archaeological assessment was carried out ahead of a South West Water sewage transfer pipeline extending from the historic fishing villages of Kingsand and Cawsand through open farmland to Millbrook in Caradon District. The farmland was enclosed during the medieval period; an abandoned settlement was identified at Sollack. The twin settlements of Kingsand and Cawsand with their narrow streets, modest town houses, fishermen's cottages and fish cellars, originate in the later medieval period and are famous for their smuggling history. They fall within a Conservation Area that has a high number of Listed Buildings and other historic features that include seventeenth and eighteenth century walls, granite kerbs and drains and exposed and buried cobbling. Borehole data from The Square, Cawsand revealed potential for yielding palaeo-environmental information.

Norway Bridge, Perranarworthal

Adam Sharpe, James Gossip and Carl Thorpe

Cornwall County Council's Transportation and Estates Department commissioned CAU to undertake a programme of archaeological work in advance of improvements to the A39 at Norway Bridge, Perranarworthal. The work comprised the two evaluation trenches to test the survival of eighteenth and nineteenth century quayside structures, a watching brief and an accurate drawn and photographic record of the bridge.

From 1795 onwards the area around the Norway Inn adjacent to the River Kennall was developed as a river port and later became marked on maps as Perran Wharf. Activity intensified during the late eighteenth century with the construction of an industrial foundry, bringing with it more river traffic, buildings, quays, canal cuts and diversion of the river. In 1828 a turnpike road connecting Truro and Falmouth was opened and this is probably when the bridge visible today was constructed to cross an inlet off the main canal cut which led to a limekiln. The Norway Inn (then the Norway Hotel) was also built around this time. With the collapse of industrial activity around Gwennap and Redruth, in the area fell into decline.

The evaluation trenches were excavated through canal silts and revealed little of archaeological interest, and indicated that the old canal cutting had for some time been used to fly-tip rubbish. The two sections of road revetment that were investigated suggest that this was the side of the original canal cut, and any wharf surfaces or structures are likely to have been sealed beneath the modern road. A detailed record of the bridge itself suggested that the majority of the original nineteenth century bridge fabric survived intact.

St Day to Redruth

Anna Lawson Jones

An archaeological watching brief carried out for Transco, along the St Day to Redruth gas pipeline produced a number of archaeological features and finds. These ranged from shallow sub-surface tunnels and adits (many of which were open), to large numbers of ditches and boundaries belonging to lost field systems dating to the medieval period (or earlier). Forty-eight boundaries were recorded in section, some of which preserved earlier boundaries or had become lynchetted (representing the partial fossilisation of the past landscape). Finds included scatters of worked flint indicating prehistoric activity, medieval pottery related to known medieval settlements, and post-medieval/modern finds which in part relate to recent landscaping focussed around the western end of the pipeline where the surface remains of mining are clearly visible.

Blowing House Cottage, Godolphin

Anna Lawson Jones

At Blowing House Cottage the construction of an extension to the rear of the property gave CAU the opportunity to look at remains associated with an early ore dressing complex, dating approximately to the sixteenth century. The complex consisted of a water wheel powered stamping mill, a very early blowing house and extensive dressing floors. The excavation, paid for by the owners, Mr and Mrs Portch, recorded three distinct phases of activity. Three timber-lined launders, a partial stone-lined buddle and spreads of tin waste represent the earliest phase associated with the stamps and dressing floor. Two pits and a spread filled with near black smithing waste relate to the 1820s reuse of the blowing houses as a smithy shop. The most recent phase related to domestic service trenches.

Greensplat

Nigel Thomas
CAU were commissioned to carry out a measured survey of **Greensplat** pumping engine house, St Austell, prior to its demolition by Goonvean Ltd in advance of clay pit expansion. This little engine house formerly contained the last beam pumping engine to work in Cornwall, which stopped work in the 1950s. The engine was moved some years ago to Poldark Mine, Wendron where it is on display.

Slip Cottages, Rostowack

Richard Cole
On behalf of Goonvean Ltd, CAU recorded Slip Cottages at Rostowack near St Stephen, within the working area of the china clay industry, prior to their demolition. This small terrace of three labourers' cottages had been constructed of granite with integral brick chimneys between 1840 and 1880. Plans were produced of the ground and first floors through an annotated sketch survey. Phases in the development of the cottages and principal features and fittings belonging to the different phases were also identified. A full black and white photographic record of the exterior elevations was also produced.

Marconi Wireless Station

Nigel Thomas
During the winter of 1999–2000 the National Trust undertook restoration of the former **Marconi Wireless Station** at the Lizard. These buildings, originally sited here in 1901, mainly survived through their conversion and re-use as a holiday bungalow from the 1930s. The receiver/transmitter hut was used by Marconi to send a signal to the Isle of Wight, the first radio signal to be sent over the horizon, regarded by many as Marconi's first technological breakthrough, before he went on to send signals across the Atlantic from Poldhu. Restoration works included separating the conjoined buildings back into separate huts. The watching brief funded by the National Trust followed on from previous archaeological recording at the site (see *Cornish Archaeology* **37–8**) and revealed further details of the site's development.

The 1999 solar eclipse

Steve Hartgroves
When in the summer of 1998, it was realised that the total eclipse was only a year away, and that during the last eclipse in 1927, it was said that three million people travelled to the north of England to see it, there was some consternation in Cornwall. A Steering Committee was set up to discuss the likely effects of such an influx. Predictions of gridlocked traffic, overwhelmed health services and water and food shortages galvanised the local authorities, public services, utilities and tourist organisations into action.

The Archaeological Unit was among those considering the impact of three million visitors heading for the hilltops, possibly camping out, lighting fires and digging latrines in the Cornish countryside.

Few hilltops are without their share of historic sites, particularly Bronze Age barrows and cairns and Iron Age hillforts, not to mention the stone circles and other megalithic sites which were bound to be major attractions for 'new-age' folk wishing to experience the cosmic aspects of the event.

A Historic Sites Working Party was established under the auspices of the Steering Committee, consisting of representatives of English Heritage, the National Trust, Cornwall Heritage Trust and the Pagan Federation. It was considered essential to include the last named group because of their interest in many of the sites which we sought to protect, their record as partners with the CAU in site management and protection over several years, and because, as soon became clear, there would be a large pagan presence in Cornwall for the Eclipse. CAU's Steve Hartgroves chaired the group. It was decided that the group had neither the legal right, nor the manpower, nor the wish to exclude people from historic sites during the eclipse and opted instead for a campaign of education and information.

A successful application for funding from the County Environmental Trust (from Landfill Tax credits collected by County Environmental Services) paid for the publication of 75,000 copies of a small souvenir booklet that was widely distributed to locals and visitors in the two weeks before the eclipse. The booklet included an introduction to ideas about the astronomical properties of stone circles, and the main text described Cornwall's historic sites and landscapes, and in particular, where their archaeological value lies and how this can be protected.

Our wish that people enjoy the eclipse without damaging the fabric of the historic environment was summed up in 'The Eclipse Code': Don't Light Fires – Don't Dig Holes – Don't Disturb Stones or Cause Erosion. To back up the booklet signposts were erected by the hundred sites at most risk of damage, again describing the history of each site and explaining its archaeological value, underlined with the Eclipse Code.

On the day visitor numbers were much lower than expected, a combination of the negative publicity, particularly the prospect of gridlocked roads, and the stormy unsettled weather which encouraged a lot of people to stay away and watch it on TV. This was a pity since though it was cloudy, the eclipsed sun did peep through the clouds at a few locations and even when it was fully obscured by clouds the short moments of totality were a not to be forgotten, experience.

Pagans turned out in numbers, as did the film crews anxious to record latter-day druids and witches though few knew what to expect. Ceremonies were enacted, spirits were invoked, songs were sung, dances danced, food shared and cameras buzzed and flashed. Many people returned the following day to pick up litter and restore the atmosphere of ancient tranquillity.

It is a relief to be able to report that no significant damage was caused to any sites during the eclipse. The big post-eclipse clean-up has not been necessary and many visitors will have had their eyes opened, through the notices and the booklet, to the richness and diversity of Cornwall's ancient sites and landscapes.

The National Mapping Programme

Carolyn Dyer (English Heritage) and Andrew Young

Work on the Cornwall and Isles of Scilly Mapping Project (COMP) has continued apace this year. The project forms part of the National Mapping Programme (NMP) which aims to map, describe and classify all archaeological sites recorded by aerial photography in England. With the project now into its seventh year, just over half of Cornwall has been mapped and its value has been underlined by English Heritage's commitment to fund the work to completion. A detailed timetable was drawn up and mapping is now expected to be completed by April 2005.

50,000 aerial photographs will be consulted during the lifetime of the project; these come from a wide variety of sources. Recent sources include vertical colour photographs of the whole of Cornwall taken in 1988 and 1995/6 which are held by Cornwall County Council, and the 6,000 oblique aerial

photographs which are held in our offices in Truro, many taken by the CAU over the last 16 years. Historical photographs are also proving to be most useful, particularly the complete coverage by the RAF in 1946. In addition, certain areas were photographed by the United States Air Force in March 1944. These have provided a valuable record of Cornish anti-invasion defences associated with the Second World War as well as pre D-Day preparations.

The project has continued to record large numbers of Second World War military sites. We have mapped the extensive anti-invasion defences of strategic towns such as Hayle and Falmouth. Heavy and light anti-aircraft batteries, pillboxes and at least eight barrage balloon mooring sites formed a defensive ring around Falmouth, Cornwall's most important harbour. The barrage balloons themselves are visible on a US Air Force photograph taken in 1944. Second World War defences have been mapped in such numbers that it is now possible to see them, not so much as individual features but as components forming a coherent network: in effect a military landscape. Features of particular interest include the camouflaging of military airfields by 'painting' the pattern of former field boundaries over the runways, as seen on a USAF photograph of Portreath airfield taken in 1942.

The area currently being mapped covers four of Cornwall's principal mining districts, Camborne/Redruth, St Day/Gwennap, St Agnes/Perranporth and Wendron. Although the Ordnance Survey historical maps (1880 and 1907) provide detailed mapping of many mines in this area, aerial photographs are providing additional information. By plotting small-scale features such as prospection pits, shallow extraction pits, shafts and open works, COMP is producing a graphical view of the extraordinary impact on the landscape made by Cornish miners. In the St Day/Gwennap area, the cropmark remains of nineteenth century miners' smallholdings are also being recorded. In this way, the project is contributing to a complete picture of the Cornish industrial landscape, which will prove invaluable in helping outline the extent of the mining areas which are candidates for World Heritage Site status.

The Truro to Newquay mapping block has proved to have one of the densest concentrations of prehistoric enclosures in Cornwall. In the twelve sheets that make up this block, totalling 300 square kilometres, 323 enclosures have been plotted, 70% of which are new to the SMR. Many of these sites are likely to relate to Iron Age/Romano-British enclosed settlements or rounds. It is clear that, as a result of COMP, estimates for the number of rounds in Cornwall need to be drastically revised. Previous estimates have suggested 750 enclosed settlements in Devon and Cornwall. It is now expected that by the end of the project, the total known in Cornwall alone will be well in excess of 1000.

Hayle Historic Assessment

Jeanette Ratcliffe and Nick Cahill

During the autumn and winter of 1999/2000 an historical assessment was carried out in order to inform proposals for the regeneration of Hayle, one of Cornwall's most important industrial towns.

Located on the north Cornish coast, within the beautiful natural setting of the Hayle Estuary, this has been a focus for settlement and maritime trade since prehistoric times. From at least the mid eighteenth century it developed into one of Cornwall's main industrial ports, serving surrounding mines and becoming home to the Cornish Copper Company and two of Cornwall's three largest iron foundries. Internationally renowned for the scale of their work and the breadth of their engineering expertise, these rival companies (Copperhouse Foundry and Harvey's Foundry) were largely responsible for the expansion of Hayle during the nineteenth century. Despite both having ceased operation by 1903, Hayle continued to be a thriving port until the 1960s, but commercial shipping ceased in 1977, and the harbour now only supports a small fishing fleet. Some small-scale industrial activities continue, but the town is no longer an important industrial centre.

Nevertheless, despite the demolition of much of Copperhouse Foundry and key elements of Harvey's, as an historic industrial town and port Hayle is still largely intact. Much of its harbour infrastructure survives, together with key industrial and public buildings, and a wide range of industrial housing. There is also high potential for the survival of buried archaeological remains. Not all of these important assets are covered by existing statutory designations, and there is considerable scope for extending the protection these afford and for enhancing the existing character of the town.

Commissioned by English Heritage, the Hayle assessment, included the types of work normally involved in studies of this nature: historical research (to identify archaeological sites and historic buildings, and to map the historical development of the town); fieldwork (to identify additional sites, and obtain information on survival, character, condition and present day setting); the preparation of a project report. The latter, prepared by Nick Cahill, is largely of similar format to those for the Cornwall Industrial Settlements Initiative (see CAU work 1998, above). As with that project the fieldwork for the Hayle assessment also included a general visual assessment of the town, taking into account its historic character, landscape setting, views and open spaces, and the impact of modern development and alterations. Particular importance was attached to identifying what made Hayle significant and distinct in both a local and a national context.

The methodology of the Hayle Historical Assessment differed from all previous CAU projects of this type in that it involved the creation of a consolidated GIS/SMR database, a first for any settlement (or indeed any area) in Cornwall. What this means is that information on each site can be brought up on the computer screen by clicking on its position as displayed on the computer mapping. Sites identified during the historical research and the subsequent fieldwork were plotted on the OS 1:2500 Landline map base, which forms part of CAU's GIS (ArcView 3.2) mapping system. For most sites a polygon or line was drawn to show actual extent; sites whose extent was unknown were plotted as symbols. For each plotted site a brief SMR record was created. Information tables attached to the GIS polygons link the latter to their SMR records. This is the first time that such a link has been achieved; the ultimate aim is for the SMR to be accessed directly by clicking onto the GIS polygon, without the need for an intermediate information table.

As well as increasing understanding of the historical development and significance of Hayle, the assessment has allowed general recommendations to be made for the future management of its historical assets, and provides the data necessary to assess the impact of current and future development proposals and to inform schemes aimed at enhancing the historic character of the town.

Through its involvement in the Harvey's Foundry Action Plan and the Hayle HERS Implementation Plan, CAU has had a direct input to two linked schemes aimed at regenerating the area within and around the site of Harvey's Foundry.

During the last five years the community of Hayle have proposed a series of initiatives to protect the remains of Harvey's Foundry. Their enthusiasm has led to the formation of the Harvey's Foundry Steering Group and the commitment of public sector funds for an Action Plan. This is the first step towards developing a project that will bring about the appropriate re-use of the historic buildings as a catalyst for the regeneration of the Foundry area and the town as a whole. CAU were contracted to write those parts of the Action Plan which describe the historic fabric and buried archaeological potential, and provide a specification and rough costs for the recording of the standing buildings and buried archaeological remains, and their consolidation, interpretation and presentation.

Penwith District Council recently made a successful application for a Heritage Economic Regeneration Scheme (HERS) for the Hayle Conservation Area, which is focused around the Foundry site. Having carried out an assessment of the whole of the town and contributed to the Harvey's Foundry Action Plan, CAU (via its conservation consultant) was ideally placed to draw up the HERS Implementation Plan, which sets out how the three-year English Heritage grant will be spent. The intention is that it will be integrated into the Foundry development project and directed towards the repair and enhancement of both the foundry buildings and other historic buildings within the surrounding Conservation Area.

These are exciting times for Hayle, which appears at long last to be about to receive the regeneration it deserves.

Wild Cornwall

Peter Herring

The CAU was commissioned by the Cornwall Wildlife Trust to prepare preliminary archaeological and historical assessments of forty of its nature reserves, all those included in its National Lottery funded Wild Cornwall Project for undertaking capital works, supported by the Heritage Lottery Fund.

The assessments proceeded from rapid identification of archaeological remains and summary characterisation of the overall historic landscape within each reserve to the preparation of management recommendations to conserve, consolidate and, where appropriate, enhance archaeological sites and historic landscape character. These recommendations are expected to guide the preparation of the Wildlife Trust's management plans.

The project allowed the Unit to investigate certain historic landscape types it has previously not had many opportunities to work in but which contain precious habitats (hence the Wildlife Trust Reserves). These included lowland bogs and marshes such as Red Moor and Breney Common (with their extensive medieval and modern streamworks), Tywardreath Marsh (a post-medieval bog once an arm of the Par/Tywardreath estuary), Ventongimps Moor, Loggans Moor and Creddacott Meadows. All contained marsh-related remains and their apparently wholly natural vegetation communities were shown to have been affected or determined by past land use. Several blocks of ancient woodland were inspected, most notably Devichoys Wood, but also parts of the reserves at Armstrong Wood (near Trecarrell Mill), Hawkes Wood and Park Hoskyn.

The archaeological remains in some reserves have long been well-known (Penlee Battery and Kennall Vale gunpowder works, for example) but the surveys led to many new archaeological features being recorded, some of considerable interest and importance. A Bronze Age kerbed cairn was discovered at Bosvenning Common and other possible barrows were found in Devichoys Wood and at Creddacott Meadows. Possibly prehistoric fields were seen on the cliff top at Ropehaven Cliffs and surviving medieval field banks were noted at the edges of Armstrong Wood and in Kennall Vale. At the bases of Ropehaven Cliffs are the adits of a late medieval silver mine and on their higher slopes are overgrown early quarries. A stamping mill in Breney Common, long known from a seventeenth century map, was found on the ground and the well-preserved ornamental ponds, bridges and walks at Pendarves were recorded for the first time. Less clearly defined ornamental drives from Carclew House were identified among the tracks within Devichoys Wood where there are also numerous charcoal burning platforms.

It is hoped that the Wild Cornwall project, as well as providing concrete help on the management of important parts of the Cornish landscape has helped cement good working relations between the Unit and the Trust, in many ways the equivalent body to the Unit within the natural environment. We have had our appreciation of the semi-natural communities raised at the same time as we hope to have raised awareness within the Trust of the historic environment and the processes which created and maintain it.

Helford estuary survey

Ann Reynolds

The Helford Estuary became a Voluntary Marine Conservation Area (VMCA) in 1987, and although the wildlife importance of the estuary has been known for some time, there has been no

comprehensive assessment of its historic assets. For this reason, a historic audit was commissioned by the Helford VMCA, with funding through the means of a grant from the County Environmental Trust, with additional funding from the National Trust and Environment Agency. The aim of the audit was to assist all agencies directly responsible for the conservation and management of the area's historic heritage. It will also fulfil a more general role of increasing understanding of the estuary's historic environment and form the basis for future archaeological work.

The historic audit was carried out during the winter of 1999–2000. It provided a comprehensive account of the history of the estuary, identifying, discussing and listing in a concise gazetteer over 380 archaeological features and historic structures located around its 27 miles (47 kilometres) of shore. Less than one third of these sites were previously recorded in the Cornwall SMR; the majority were identified as a result of the desktop search and fieldwork carried out during the audit. The audit methodology and report structure are based on those developed by CAU for the Fal Estuary Historic Audit, the first comprehensive historic survey of an estuary in Cornwall and England, and used for the Fowey Estuary Historic Audit.

The Helford is a ria, a drowned valley that was created during the retreat of the last glaciers, around 12,000 years ago. Gatherer-hunter groups would have moved around the area of the estuary, benefiting from its sheltered position and abundance of natural resources. The coming of agriculture around the fourth millennium BC would have seen the clearance of woodland to create settlements and small, early field systems. By the end of the Iron Age, the area around the estuary contained an established pattern of enclosed settlements, interspersed by larger hillforts and cliff castles. The Romans would have introduced the concept of relatively large scale organised trade during the latter years of the Iron Age, and the Helford was to capitalise on this up until the twentieth century.

In the early medieval period, small religious communities were based around parts of the estuary, living in enclosed sites known as *lanns*. Gweek rose to prominence with the natural build-up of Loe Bar, effectively cutting off sea access to Helston. It became the main port for Helston and remains the closest water access to the town. During the medieval period, the Helford developed a settlement pattern that remains little changed today. Many of the small farms and hamlets around the estuary have been continuously occupied since at least the thirteenth century. Communications developed, with the construction of roadways and bridges, although the main form of transportation revolved around the water.

Numerous small quays developed, providing water access for the villages, manors and farmsteads, and mills were constructed at the heads of most the creeks. The surrounding woods and even sand from the estuary bed were exploited for use in the fields and the developing mining industry. Oysters and other shellfish were harvested and large fish cellars appeared at most hamlets and villages alongside the shore.

All these industries continued to develop throughout the post-medieval period, with the ports of Gweek, Helford and Gillan flourishing. Tin, coal and timber was added to the trade carried out at these centres. Limestone was brought up the river to numerous limekilns along the shore, and was used to counteract the acid Cornish soils alongside the continued use of sand. Customs houses and coastguards were located along the Helford, to regulate the growing trade and shipping movements. A large fort was built on Dennis Head during the seventeenth century, but was surrendered and abandoned after only a short period.

The gentrification of the landscape saw the development of the medieval manors into country seats for example at Merthen and Bosahan. The granite industry saw the development of large, load-bearing quays and was responsible for the growth of Pons-a-verran, later known as Porth Navas.

During the twentieth century the focus of the estuary began to change; large coal, stone and timber bearing barges were replaced by pleasure craft. The fishermen's cottages, coastguard houses, fish cellars and even some limekilns were converted to modern housing. Large hotels developed in the bigger residences and housing developments grew around Helford Passage, Porth Navas, Gweek, Helford, Flushing and Gillan. Tourism is now the main industry bringing thousands of visitors to the Helford.

Boscawen-Un

Peter Herring

The Cornwall Archaeological Unit was commissioned by Penwith District Council to prepare an archaeological and historical assessment of the north-western, moorland part of Boscawen-un farm in St Buryan. The area is being entered for a Countryside Stewardship scheme administered by the Farming and Rural Conservation Agency (FRCA). The assessment was intended to identify, record and describe the archaeological resource, and prepare management recommendations to ensure that it is enhanced rather than disturbed or damaged by any developments within the scheme.

The principal archaeological site is the famous Boscawen-un stone circle with its leaning central stone. The survey included making a new detailed plan and description of the circle, partly to facilitate monitoring its condition before and after the solar eclipse of August 11th 1999. A re-interpretation of the monument's development, based on the new record was presented which has the central stone, with its carvings of stone axes, as the first element (probably Neolithic), a possible cist grave or chambered feature to its north-east second, and the stone circle (which incorporates the cist) third. The central stone was itself possibly carefully selected as resembling a stone axe head and perhaps even erected at a chopping angle. The two axe heads carved in relief on its north-east face appear to represent Neolithic stone axes and were first recorded by local archaeologist and artist Ian McNeill Cooke in 1984.

Fragments of prehistoric field systems, post-medieval crofts and some minor industrial sites were also recorded within the moorland. Management recommendations were made for land use (grazing) and for particular sites and it is hoped that these will be incorporated in any final Countryside Stewardship scheme.

Scheduled Monument Management Project, 1999–2000

Ann Preston-Jones

Funding from the Cornwall Heritage Trust, English Heritage, Cornwall County Council and other partners has enabled us to undertake a rolling programme of conservation work to some fifty sites since the project was established in 1994. This year we were on standby to set right any damage resulting from the Eclipse, but fortunately this did not prove necessary. The following are some highlights form this year's work.

Lanyon Quoit (SW 4297 3365) is perhaps the best known, and certainly the most accessible, of the Penwith chamber tombs. Visitor pressure, combined with the trampling of cattle sheltering beneath the capstone, had resulted in serious erosion and a muddy hollow around the stones. In the spring of 1999, the National Trust, assisted by CAU, took measures to repair the erosion and tidy up the surroundings by replacing fencing, cutting bracken, and repairing the stile which gives access to the site. The work was partly planned to help the quoit withstand the onslaught of visitors anticipated for the eclipse. Erosion repair here involved stripping any surviving turf and removing mud down to a firm surface, infilling with well-compacted rab, and finally re-turfing.

A latin-style cross at **Kemyel Drea** in Paul parish, formerly leaning loose against a hedge, was re-erected in a new base, on top of a hedge, beside a stile on a public footpath at SW 4611 2113 in September 1999. The work was part-funded by Penwith District Council. Adrian Thomas, David Cutting and Edward Bolitho manhandled the cross into position.

Following complaints to CAU and the English Heritage Field Monument Warden that the **Tregeseal Stone Circle** on Truthwall Common in St Just in Penwith (SW 387 324) was becoming lost beneath a sea of gorse, scrub clearance was carried out by a combined force of British Trust for Conservation Volunteers and local pagans. Prior to the work, dense gorse standing up to one metre high dominated the site but now all the stones are fully intervisible and easier to appreciate. Access

to the circle was also improved by cutting back gorse from the paths leading to the site slightly. It is to be hoped that this improvement can be maintained in the future by regular cutting.

Sue and Lawrence Kelland visited Cornwall in June 1999 to carry out conservation work to three stone monuments: the **Killboy Cross** at Braddock (SX 1647 6228); the churchyard cross at **St Nighton**'s (SX 1284 5996) and a medieval stone column re-used as a gatepost on a former carriage drive at **Ethy**, near Lerryn (SX 1312 5678). The granite of the Ethy column was splitting as a result of corrosion of iron fittings; the St Nighton's Cross was at risk because it pivoted and rocked on the internal dowel fixing the cross to its modern base, and the head of the Killboy Cross was loose. Repair of the Killboy Cross involved removing the loose head, replacing the central iron dowel with less corrosive stainless steel, and then re-fixing the head with stone glue and a lime-based mortar, coloured to match the granite of the cross.

Madron Well (SW 445 327) consists of a spring rising in a willow-grown, marshy area, from which water is conducted to a well chapel. This exceptionally well-preserved medieval building retains a large stone altar at the east end, stone benches against the north and south walls, and at the west end, a stone-built, corbelled cistern into which the holy water runs. During the summer of 1999, the building was repeatedly vandalised, stones from the sides of the cistern being pulled down and thrown onto the ground and into the water-collecting basin. CAU helped in supervising repair work which was carried out on one occasion by workmen from the Bolitho Estate's team, the Bolitho Estate being owners of the monument. Sadly, this mindless vandalism was repeated within a very short time of carrying out the repair and the damage has not yet been put right again – although we hope to do so again in the near future.

Lost amongst the dunes to the north of Perranporth are remains of St Piran's Oratory and **St Piran's Church** (SW 772 564). Twenty years ago, the oratory was buried beneath sand, to preserve it, but ruins of the church can still be seen. This year, the Unit has been involved in two projects involving the ruined church: to interpret the ruined building through a plan and illustrations on an information board and to protect the crumbling walls by capping them with a thick layer of turf.

On the south east side of the hill known as **Ridge** in Northill parish is the well preserved ridge and furrow of a medieval field system, overlying the remains of a prehistoric settlement. But the most conspicuous feature in the area is a modern granite memorial cross, made of blocks of granite held together with iron pins and cramps, erected in memory of a young woman killed in a riding accident here in 1922 (SX 245 775). Corrosion of the ironwork had enabled cattle which rub against the cross to loosen and lift the head, which was discovered lying on the ground at the base of the cross by Mary Avent of Cornwall Archaeological Society in September 1999. Although the cross is modern, it is an important landmark in this part of the moor and as a result of its location amidst prehistoric and medieval remains, is a Scheduled Monument. So the Monument Management budget was able to help in arranging for repairs and with assistance of David Attwell of North Cornwall District Council, the cross was restored at the start of the new millennium by stone mason Ernie Hillson.

Bryher cist: Iron Age sword and mirror burial

Charles Johns

A highlight of this year, which generated much interest from the national and local press, was the discovery of a unique Iron Age grave in the Isles of Scilly.

In March 1999 Paul Jenkins of Hillside Farm, Bryher was working one of his fields when one of his tractor wheels sank into a hole in the ground. To free it he had to remove a large stone, exposing a cavity, which proved to be a stone-lined grave or 'cist'. Reaching inside Mr Jenkins pulled out a sword. The site was visited by MPP archaeologist Dave Hooley of English Heritage and quickly designated as a Scheduled Monument and in the autumn CAU and English Heritage (in association

with the British Museum and the Duchy of Cornwall) carried out a programme of investigative fieldwork, funded by English Heritage, to determine the context of this remarkable find. The fieldwork consisted of the excavation and reinstatement of the cist, together with topographical and geophysical surveys and evaluation trenching in the surrounding fields.

The cist grave contained the fragmentary remains of a human skeleton, lying in a crouched position, facing west, with its head to the north. The most surprising discovery was a complete bronze mirror found lying on the west side of the skeleton, next to where the buried person's face would have been. Next to the right shoulder was a bronze loop which would have been attached to a baldric or leather belt for a sword. Fragments of the iron sword's bronze scabbard were also found, together with several bronze studs. The British Museum has confirmed that an Iron Age burial containing both a sword and a bronze mirror is a find of international importance and unique in Western Europe. Sword burials are in any case rare, this being only the tenth burial with a sword to have been excavated in the British Isles, outside East Yorkshire where 22 are known; this is also the only sword burial outside East Yorkshire with a bronze scabbard. The mirror is one of only 40 known, the rest coming from mainland Britain apart from one from Ireland and another from Holland. The sword is thought to date to between 250 and 125 BC. If the mirror is contemporary, then it is probably the earliest so far known, as fine bronze mirrors are typically late first century BC or first century AD; perhaps the sword was already old, an heirloom, when it was buried.

Due to its extreme fragility the mirror was excavated within a block of soil from the grave and examined using X-ray equipment before the soil was removed by conservator Margaret Brooks. One side of the bronze mirror would have been highly polished to form the reflective surface, whilst the reverse is likely to have been ornamented with Celtic designs. The discovery of sword and mirror in one burial casts doubt on notions that they reflect gender; mirrors are assumed to be buried with women, swords with men. It may be that mirrors had more to do with status, ritual and magic than vanity.

The project was very successful in establishing a local context for the find. The cist grave was found to be within a terraced field system on the north side of Samson Hill, which appears to be broadly contemporary. A second cist was revealed a few metres south west of the original one, suggesting that the sword burial is part of a larger cemetery. Limpet middens yielding early artefacts are visible on the ploughed surface of the same field. These were found to overlie the stone walls of an Iron Age/Romano-British building containing a stone-lined drain and hearth; after going out of use the structure had been infilled with domestic rubbish. Finds included a fragment of second century AD imported fineware bowl ('Samian'). Other early settlement remains were uncovered in the field to the east, where finds included a complete stone mortar and Romano-British pottery.

A particular feature of the project is the wide range of specialists and organisations involved (see below). A programme of post-excavation analysis and conservation work is currently being undertaken on the various artefacts and environmental material. It is hoped that DNA and other testing on skeletal material from the grave will determine the age and sex of the person buried. It is envisaged that a full report will be prepared for publication in *Cornish Archaeology* with a synopsis in *Antiquity* and that the finds will be displayed in the Isles of Scilly Museum.

Conservation work by Margaret Brooks has revealed evidence for a wooden shield, surviving as bronze clips and bindings from its edge; and mineral-preserved wool on the sword may be evidence that the buried person was laid upon a fleece.

Stannon, St Breward; excavations in 1999

Andy Jones

A staged programme of development of the Stannon china clay works on the north-west edge of Bodmin Moor has resulted in a second season of excavation, funded by Imerys (formerly ECCI).

Excavations in 1999 focused on two ring-cairns, a linear cairn and a substantial prehistoric boundary. A very disturbed round house and the sections of eight prehistoric boundaries were also recorded. As in 1998 we were assisted by many student volunteers and members of the Cornwall Archaeological Society. The initial results from these recent excavations indicate that the majority of upstanding remains belong to a 'ritual' use of the Down which dates to the Earlier Bronze Age (2000 –1500 BC). Importantly, however, evidence for Iron Age (600 BC–AD 43) activities was also identified at one of the sites. This discovery was of particular interest as the more obvious Iron Age sites, the enclosed settlements or rounds, avoid the Moor and it is generally supposed that the uplands were not settled in the first millennium BC, although they were still in use for rough grazing. The results from the project have again highlighted the potential for considerable time depth together with major shifts in land use over time.

Land Reclamation projects

Adam Sharpe and Colin Buck

The Land Reclamation projects with which CAU have been involved through the past year illustrate well the shift from the conventional 'excavate and plug' approach to shaft treatment characteristic of most of the works programmes undertaken in the first ten years of derelict land treatment towards the development and adoption of engineering approaches which have far less damaging archaeological and ecological effects on the landscape. An outline of these developing techniques was given in CAU Recent Work 1998, above.

Hard engineering approaches continue to be adopted where site after-use requires them, or where a strong enough case for the installation of surface barriers cannot be made, but even in these contracts, flexibility amongst the engineering community is becoming evident, and CAU staff members increasingly work in partnership with engineers and landscape designers to meet the twin needs of safety and conservation. At Dolcoath, the need to secure two shafts within an area proposed for scheduling was met by grout pumping to form shaft plugs within existing chokages. At West Basset, although most of the shafts were plugged or slabbed, the Kerrier engineering team modified their original designs to ensure that balance bob or angle bob mountings discovered during excavation work at two shafts were as little damaged as possible, whilst at Lyle's Shaft, when the removal of the existing shaft slab revealed an open, brick-lined shaft, engineers designed a self-supporting slab incorporating grilles so that the newly-discovered features could be viewed in safety. Likewise in Kerrier Shaft Capping Contract 12, a significant number of the shafts were plugged at depth, preserving important archaeological features near surface. Sadly, this contract also saw the destruction of further sections of the sub-surface Dolcoath water distribution system, a complex, and under-documented network of tunnels, probably of the eighteenth century.

At Watch Croft, Morvah, the National Trust and Cornwall County Council have constructed a further eleven protective hedges around shafts adjacent to the public footpaths, an approach also to be adopted at Levant and in the extremely environmentally sensitive context of Godolphin Woods. At Minions and on Goonzion Downs near St. Neot, the Duchy of Cornwall and Caradon District Council are using fencing to achieve the same end result. Throughout Cornwall, underground exploration by local groups is increasingly highlighting the wealth of detail relating to early, shallow mining activity which can only continue to be researched where shafts and adits are left accessible using such methods and are not plugged or capped.

As well as a wide range of smaller-scale watching briefs and assessments throughout Cornwall, CAU have also been involved with major consolidation and safety projects in the Tamar Valley, near St. Agnes on the north coast and in the far west near St. Just in Penwith.

Okel Tor and Gunnislake Clitters in the Calstock/Gunnislake area have both been recommended for scheduling under English Heritage's Monuments Protection Programme and will be keystones within the World Heritage Site bid for Cornish Mining in the east of the county. As a result, the specifications for buildings consolidation (focussing on those with the greatest need of immediate consolidation and safety works) have been worked up in partnership between CAU, English Heritage, Caradon District Council (Listed buildings), Cornwall County Council Land Reclamation Team and engineering consultants Frederick Sherrell Ltd. of Tavistock (in partnership with BSW of Plymouth) and the John Knevitt Practice of Bodmin. A similar consultative process will be followed prior to any shaft safety treatment or other geotechnical works on these and other sites included in future programmes. There are plans to carry out EDM surveys of all the buildings affected by the Land Reclamation Scheme at Gunnislake Clitters (including four engine houses). At Calstock, the provision of new car parking facilities near the river exposed extensive sections of the cobbled ore quays and their network of tramlines. Through CAU involvement these were not ripped up or buried, but after EDM survey recording, the most significant elements were incorporated into the finished scheme.

At Tywarnhayle Mine just inland from Porthtowan, the abandonment of the underground training facilities used by the Royal School of Mines (Imperial College, London) has allowed Cornwall County Council and Carrick District Council to draw up consolidation schemes for the two prominent engine houses in this well-preserved mid-nineteenth century copper mining landscape. One of these engine houses (Taylor's) is of a particularly early form and had the distinction of housing the last wooden bob (beam) to be installed in Cornwall as well as being the site of the first electric pump installed in a shaft anywhere in the county. The consolidation works here were preceded by full buildings recording by CAU using a reflectorless total station. Shaft safety works have been programmed for this summer by consultants acting for the RSM and will be the subject of archaeological watching briefs.

As well as the work at Watch Croft, the St. Just Mining Coast Project has included work undertaken by the National Trust at Priest's Cove, Cape Cornwall, where the reconstruction of the slipway to ensure the sustainability of the local fishery is being followed by safety works undertaken in partnership with the County Council to secure a coastal stope, upgrade the car park, and consolidate a collection of idiosyncratically-constructed fishermen's store buildings.

At Levant just up the coast, CAU and the National Trust have been the lead partners in drawing together specifications for the mine building consolidation and for shaft safety works on this historically important site. The scheme, administered by Cornwall County Land Reclamation Team, also incorporates advice from English Nature and Cornwall Wildlife Trust, specialist engineering consultants The John Knevitt Practice of Bodmin and Cornwall School of Mines Associates (CSMA). Perhaps most important given the sensitivity of the site has been the input from local residents and mine research groups.

Initial results have been well received, the consolidation of the pumping engine house being a model of its kind, whilst the controlled excavation of the ruins of the former count house has revealed a wealth of detail concerning its internal layout, appearance and room functions. Boscregan Shaft in the car park has now been hedged and fenced whilst shallow stopes under this area have been geotextiled. Further work is planned to the prominent engine house and its associated shaft at Higher Bal, to the former stamps tramway tunnel and to other mining features and buildings in the vicinity, including the imposing ruins of the 1901 compressor house, but probably the most challenging aspect of this project will be the restoration of the steps and tunnel from the miners' dry to Man Engine Shaft, which, it is hoped, can be reconstructed to surface using authentic techniques and materials to provide an appropriate memorial to the miners who died in the disaster of 1919.

Indicative of the changing role of land reclamation schemes during 1999/2000 has been the contract awarded to CAU by English Heritage to act as their consultants on sites recommended for statutory designation where such works are either presently underway or likely to take place in the near future Through this role, CAU are in a position to ensure that works specifications reflect the

highest standards of good practice and that land reclamation schemes, formerly focused only on the remediation of site hazards are now used to secure the preservation of the archaeological character and integrity of these important components of the Cornish landscape.

St Day Church

Jacky Nowakowski

The pinnacled tower of the church of the Holy Trinity of St Day near Redruth presents a dignified face despite its dereliction. Since 1956 the church has stood as a neglected ruin, which in 1985 was completely sealed in efforts to halt increasing vandalism. At just over 170 years old, it is one of Cornwall's newest church buildings and was described by Nicholas Pevsner as 'refreshingly negligent of Cornish traditions'. It was built with funds made available by a special Royal Commission in order to fulfil the pastoral needs of the town which, during the nineteenth century, did not have a church despite the town's rapid expansion as a result of the prosperity of the local mines. The demise and decay of its earlier (ancient) church – the former Holy Trinity – was the price the town paid for its success as a popular pilgrim centre, when some 350 years ago it was "dissolved" during the Reformation. Although the Church Commissioners maintained the dedication of the earlier medieval Chantry Chapel, the new church building was built at a different location at the southern end of the village. Its foundation stone was laid with great display and ceremony in October 1826 and a crowd of 8000 was reported in the local press. In Paul Annear's excellent booklet on the histories of both churches he does not fail to note the double tragedy of a town which has lost two churches.

Since the early 1990s there have been determined efforts by members of the St. Day Historical and Conservation Society to raise funds to stabilise the structural fabric of the church ruin. These met with some success when European money together with matching funds from other bodies (principally English Partnership) were allocated to transform the church into a community and interpretation centre. The present owners Kerrier District Council have leased the building to the Trevithick Trust under whose tenancy the building will once again be given a new lease of life. Clearance work of the church interior began in the autumn of 1999 and CAU co-ordinated a watching brief during these preliminary works; day-to-day site recording was carried out by staff of the Trevithick Trust. The aims of the archaeological recording were twofold:

To record structural and architectural detail in order to preserve an appropriate level of record of the church fabric

To record, recover and preserve items of intrinsic interest for the information they would provide on architecture or local history or for their artistic value

Given the recent history of this building any archaeological recording represented a unique methodological challenge. The interior of the building, sealed off since 1985, was choked with demolition debris, and the systematic destruction of the roof dynamited in the mid 1980s made it difficult to predict the level of any surviving structural features and fixtures. Finds and debris sorted by class and category were recovered from a grid laid out within the interior. Whilst vandalism since the 1950s closure meant that many features and fixtures had been removed from their original locations, a great deal of structural fittings, including large pillars and floor covering, were remarkably intact.

The results of the watching brief are still being appraised but a number of significant discoveries have been made. In the first instance the range and quantity of finds was a surprise. Along with the nuts and bolts fixtures and many fragments of stained glass, roof, arcade and gallery timbers, font fragments, church notice boards, broken wall memorials, and an abandoned American harmonium, other finds included dead pigeons, detonator wire, a beer barrel and a lawn mower! On a more serious

note this work provided new insights about the structural character of the building. In the 1820s the church was built at a cost of £4,000 – a considerable sum of money – and since that time has witnessed a series of renovation projects common to most churches. Re-used oak ship timbers were used for flooring as well as for the galleries. The impressive pilaster arcade pillars were made of diagonally-set bricks covered with plaster mouldings; their overall effect achieved an architectural solidity which masked an effective economical solution. Local bricks were used in the construction of the boiler house, but the tessellated floor of the main altar area comprised Jackfield tiles manufactured in Shropshire. The existence of a previously unknown northern chapel – or choir vestry – found at the east end where abrupt changes in the floor levels were noted together with the evidence for a blocked doorway (previously a window), show that available historical plans have to be treated with a critical eye. One of the most poignant discoveries was the slate wall plate dedicated in memory of William John Harfoot and Ernest John Bunker – both had died in 1931 during a church restoration project. Indeed a great number of wall memorials were found and these have been recorded and it is hoped that they can be replaced in their original locations. Among the finest decorative features are the three impressive stained glass windows in the east end. Despite weather and vandalism these are in remarkable condition and in the long-term will be restored. As was expected a great number of glass fragments were recovered.

Even though a great deal of documentation regarding this nineteenth century church is available, archaeological survey even on a limited scale can demonstrate that worthwhile information can still be recovered. The opportunity to record structural detail may show evidence for changes for which any documentation can be slight, misleading and even non existent – as is the case for our discovery of the north chapel. One of the most important challenges of this type of work is the correlation of the archaeological record with historical sources. A thorough literature search will be one of the main recommendations arising out of our work.

Recording churches and churchyards

John Gould

Churches represent the largest collection of standing medieval buildings in Cornwall. They are places one can appreciate for their fine and varied architecture or simply for their antiquity and tranquillity. They are places too where one can read the history of the local community, sometimes explicit in the memorials and the development of the structure, sometimes more subtle, with the true complexity of the building history only revealed when plaster is stripped from walls or groundworks expose long-forgotten foundations. Most Cornish church sites have their origins well before the Norman Conquest. This applies equally to their churchyards, and not infrequently one can see in the shape of the churchyard the outline of the original enclosure or *lann*, in some cases, such as Crantock, Probus and St Buryan, defining the precinct of the early monastic community. The archaeological potential of churchyards was demonstrated in excavations at Tintagel in 1991 and 1992 which recorded a sequence of burials from the sixth century onwards, and the remains of a small stone building, probably a pre-Norman church. At St Buryan, recording during road widening in 1985 showed that the present boundary had been rebuilt over hundreds of years and originated as the bank and ditch of a Romano-British round.

Any work undertaken in a church or churchyard has the potential to have an impact on the historic fabric, both above and below ground; this can include drainage works, new buildings such as toilets or meeting rooms, reflooring and replastering. It is crucial that an adequate record is made in such cases so that historical information is not lost.

Under a procedure known as Ecclesiastical Exemption, works to historic churches are exempt from listed building consent, though they do require planning permission. The exemption is

conditional upon a Code of Practice being followed, in effect applying similar procedures to those required under Planning Policy Guidance no 16, Planning and Archaeology. Advice on proposed works is given by the Diocesan Advisory Committee; English Heritage is represented and John Gould attends on behalf of the County Archaeologist.

Even small scale work can provide information that contributes, piece by piece, to a greater understanding of a place's archaeological potential and history. Below, two more substantial interventions are described, at Tintagel and St Mawgan-in-Pydar; a third project, on the site of Bodmin Friary, involved a church and cemetery which had long gone out of use.

In 1999 a programme of repairs at St Materiana's church at **Tintagel** included removal of Victorian plaster to allow damp walls to dry out. Numerous architectural features became exposed as a result of this work and a unique opportunity arose to record the fabric of this historic church. This occurred within a short time scale, before the walls were scheduled to be re-covered with a thin lime-based plaster.

With the co-operation of the Rector and Parochial Church Council and with help from Professor Charles Thomas, CAU undertook detailed photographic recording, supplemented with notes to use this opportunity to study the development of the church. Surveyors from English Heritage's Emergency Recording team undertook a measured survey with an electronic theodolite, to obtain an accurate interior and exterior plan and to record the principal details. Emergency funding from English Heritage, Cornwall Archaeological Society and the Cornwall Heritage Trust allowed a more comprehensive measured survey to be undertaken in the autumn. CAU used reflectorless EDM (electronic distance measurement) to add further information to the English Heritage survey. Measurements from the EDM theodolite were drawn on site, using AutoCAD software running on a notebook computer. A three dimensional model of the interior was built up and elevations of the wall surfaces were extracted from the survey data.

Significant information has been gained from the study. Tintagel is confirmed to be the best preserved Norman church in Cornwall, with its nave and chancel containing Norman doorways and windows. Changes of build within the nave and the existence of a re-used cut stone in the east gable also suggest a pre-Norman predecessor. A small chapel adjoining the north side of the chancel is a later Norman addition. The cruciform plan of the church had led to an interpretation of a tower at the crossing; this has now been dismissed as the transepts are now known to be additions. It appears that the crossing was designed and perhaps small transepts added, but these were replaced in the thirteenth century by the large existing transepts. The north transept is of slightly earlier date than that on the south. The tower probably dates to the late fourteenth century or early fifteenth century.

Survival of the Norman nave is rare, as most churches in Cornwall were enlarged with additions of arcades and aisles in the later medieval period. Addition of the transepts to the church in the thirteenth century might be associated with Richard of Cornwall's construction of the castle on Tintagel headland; after this time the population of the nearby settlement may have stabilised or declined, reducing the need to extend the church further.

Eighteen early burials were recorded during construction of a toilet extension on the north side of **St Mawgan-in-Pydar** church, in a watching brief on behalf of the parochial church council. Probably a pre-Norman monastery – Lanherne – this is another ancient Christian site. The new foundation trenches were dug through 2 metres of churchyard deposits without reaching bedrock, revealing a long sequence of burials, found in at least four phases. The most recent burials were in coffins – the nails survived – and may be late medieval, perhaps later. The earlier burials were presumably in shrouds. A very high proportion were infants or juveniles, suggesting a particular use for this part of the churchyard.

CAU were called in when human remains were discovered at Mount Folly, **Bodmin**, where CORMAC were carrying out landscaping for North Cornwall District Council in front of the old Shire Hall. This is known to have been the site of a thirteenth century Franciscan friary. The church was built on a scale comparable to Bodmin priory and for 300 years was one of the major

ecclesiastical institutions, dominating the central area of the town. After the Dissolution the lofty church continued to play a major role as the shire hall and assize court but was finally demolished in 1891.

Archaeological recording and a little historical research has now given us a clearer idea of the layout of the Friary. Nine graves were recorded, with human remains exposed immediately beneath the present surfacing; all but one could be left in place. The graves had been cut into a levelling layer which probably seals and protects evidence for the early town. From nineteenth century maps and descriptions it is possible to establish the position of the friary church. Surprisingly, no foundations were found to survive, probably because of major landscaping in the nineteenth century.

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'A supplement to *Corpus of Early Christian Inscribed Stones of South-West Britain*', by Elisabeth Okasha: some comments, a correction and an addition

Charles Thomas

Dr Elisabeth Okasha of the Department of English at University College Cork published her *Corpus of Early Christian Inscribed Stones of South-West Britain* in 1993 (Okasha 1993). Her 'A supplement to *Corpus* . . .' (Okasha 1998–9) appeared in *Cornish Archaeology* 37–8, an issue published in spring 2003. From internal evidence the text of the 'supplement' was completed in 2000.

Dr Okasha's stated aim (so *Corpus,* Preface) was not to write a history of the south west in the early Christian era, still less a work of palaeography or a treatise on Celtic philology. More modest was her intention to offer a 'corpus of the early Christian inscriptions . . . which is accurate in its information and reliable in its reading of the texts'. Though this is not stated, Okasha does not use a camera and confines illustrations to extant or commissioned photographs that unfortunately, as reproduced, are useful only in so far as they represent the general appearance of the stones. Drawings, based perhaps on well-made rubbings, would have been more useful. As things stand, the reader has no opportunity to study a reasonable reproduction. However, unlike virtually every other student of these monuments, Okasha does not use drawings; the idea that no epigrapher should ever touch a stone (so much for generations of Oriental and Classical workers with their reliance upon 'squeezes') perhaps debars her from making rubbings. A self-imposed confinement simply to looking at a worn inscription on a rough granitic surface, allied to an apparent unfamiliarity with the composition and orthography of the Celtic languages in their Archaic or Primitive stages, must at the outset raise doubts as to the validity of some of Okasha's transliterations.

While the *Corpus* is amply, indeed magnificently, furnished with the fullest possible bibliographies for every stone included – this is Dr Okasha's *forte,* and certainly unrivalled for its thoroughness – many of her readings are demonstrably inadequate. To visit a stone once or twice, to look at it in variable degrees of direct lighting or shade, and to dispense with all other accepted modes of recording is simply not enough. It cannot be a substitute for repeated inspections, some in the dark with strong lateral lighting, team visits, where a team includes a geologist to confirm (on granite) pegmatite scars and natural erosions, ample photography, where necessary emphasising letters with (harmless, washable) chalk or artists' charcoal, and final drawings checked on site.

These early inscriptions in Cornwall, Devon, Wales and southern Scotland cannot be divorced from the Christian, or social, histories of their homelands, or from the ill-comprehended story of continuing *romanitas* in parts of western and northern Britain; or from the ill-charted development of the neo-Brittonic languages, Cumbric, Welsh and Cornish. They are not only prime evidence; in some respects they are the *only* evidence. A full comprehension of their importance means that many if not most of these early letterings, notably in Cornwall, can be dated relatively and often absolutely at the level of half or third centuries. Such a view, expounded and developed at some length by the

present writer in his *And shall these mute stones speak?* (Thomas 1994), stands in stark contrast to Okasha's reluctance to date anything without a thicket of qualifications. It has, however, recently been stated afresh, mainly on linguistic grounds, by Patrick Sims-Williams in his magisterial *The Celtic inscriptions of Britain: phonology and chronology, c. 400–1200* (2003).

Okasha (1998–9) updates three entries in her *Corpus* and adds five about inscriptions that have come to light since 1993. Here, Dr Okasha's bibliographical skills seem to have deserted her. For '45 Rialton', a large granite pillar now housed in the Royal Cornwall Museum at Truro, the additional entry omits the fact that an accurate drawing appears in Thomas 1994, as figure 16.8, accompanied by a long historical explanation of the name 'Tribunus' that, at the very least, should have been cited alongside Okasha's reading of '[the stone] of Bo[n]emimor(i)us, son of Tribun(i)us', two unattested and improbable names.

One could dissect all the entries in Okasha 1998–9*,* but the reader may be spared, save perhaps for her second thoughts on the Penzance Market Cross. Claiming that since its 1997 move to a new stance outside the Penlee House entrance this tall and elaborately decorated granite cross 'can [now] be examined without difficulty' – all four faces were fully visible when it stood in the courtyard – Okasha's revised readings make no reference to this writer's *Penzance Market Cross. A Cornish wonder re-wondered* (Thomas 1999). This illustrated study deals at length with the longer and shorter inscriptions and the related ornamentation; the principal inscription is analysed and shown to be a composition in what is known as 'Biblical style' containing by telestich the name of its composer and by chronograms the date, MVII or AD 1007, in accordance with the art style and allowing an historically explicable context. Nothing of this is mentioned. Okasha seems not to accept the analysis, believing that 'it is altogether uncertain how many letters, syllables, words and sentences the text originally contained' (Okasha 1998–9, 148). However, a model text restorable from the purposely-curtailed display text, P(ro)CUMBU(nt) IN FORIS / QUICUMQ(ue) PACE / VENIT HI(n)C ORET, has 43 letters reduced to 36; sixteen syllables, eight words and two clauses, and with its key number 17, leads inevitably to the Vulgate text of John, cap. 21. In listing more than 80 inscriptions, most of them actually pre-eighth century, and (arguably) without exception composed and set up by Christians to commemorate fellow-Christians, discussions in Okasha's *Corpus* seem to brush aside the underlying central source – the Bible in Latin, Jerome's Vulgate – almost as an irrelevancy. As for the wording on the Penzance Cross, Okasha regards this author's earlier published interpretation (Thomas, 1997, 55–63) as something to be viewed 'with scholarly scepticism' and treated 'with extreme caution'. Readers may bear those phrases in mind as we turn to the outcome of a recent field-trip by Dr Okasha, published in the 'supplement' under the heading '69a Trevalgan' (Okasha 1998–9, 145).

An inscribed gate-post at Trevalgan farm, parish of St Ives

A disused gatepost of local granite about 1.5m high stands at a gap in a hedge on Trevalgan (NGR SW 4910 4053). Vertically-disposed lettering on one face was noticed some time ago and reported to Cornwall Archaeological Unit in January 1995. The item was entered in the Sites and Monuments Register, thus becoming public knowledge.

Okasha visited Trevalgan in March 1996. She saw the gate-post as 'an uncarved pillar-stone' that in the past appeared to have been converted to its practical use, and then, for no stated reason, decided that the stone had been 'apparently set up inverted' in relation to the inscription. This requires an explanation. When early Latin-alphabet inscriptions were cut in one line, or more, to be displayed vertically on the longer axis of any stone, the almost invariable practice was for readers to turn their heads 90 degrees to the *right,* and to read *downwards.* Why this should have been so is something that we may leave to neurologists and physiologists; is it linked to the dominance of right-

handedness? If and when any such inscribed stone was subsequently inverted, or turned through 180 degrees and re-positioned the other way up, then it would have to be read from *bottom* to *top,* with readers' heads turned over to the *left* as Okasha believed to be the case here. Had this taken place one would expect to see, at the new 'top', an uninscribed length of the pillar perhaps as much as one-third of the overall length, corresponding to the original portion set in the ground for stability. No such length can be seen in the published photograph (Okasha 1998–9, fig 5), nor is there any sign that the present level of the top has resulted from a secondary transverse break. One would have to dig up the gate-post to check this but the present basal portion is likely to be the original base.

Okasha's reading of the inscription ('a mixture of capitals and insular forms', leaving individual letters not further specified) caused her to see it as complete at the beginning – that is the *bottom* end – and starting with a small cross. She suggested that the text may have read, reproducing her conventions (for which see Okasha 1993*,* 59), [+ABI]TT DISN[U–], and that this 'might be expected to contain one or more personal names but, if so, the exact forms and origins of these names are uncertain'. Assigning it to her Category 1a, or 'pillar-stones with a simple memorial text', she states that 'this stone cannot be more closely dated' than to the fifth – sixth to eleventh century range that she attributes to her Category 1 (Okasha 1998–9, 145).

When encountering for the first time a puzzling inscription in the field it is a sound principle to suppose that, if a first reading makes no sense, something may be wrong. The putative +ABITT DISNU cannot be Latin (or Greek, or Hebrew) and the only likely alternatives in the very wide date-range preferred by Okasha, a name or names in a Celtic language or conceivably in Old English, can be dismissed out of hand. Immediate clues to a basic error are, first, the putative letter 'A', which, as read, would be upside-down, and second, the closing 'NU'. If this stood for a genuinely early 'NV' it might resemble Roman capitals N and V ligatured, or cut with a stroke in common; but the requisite right-hand diagonal of a supposed 'V' is absent. It is Okasha's reading, not the pillar itself, that must be seen as inverted.

Trevalgan was visited in August 1995 by Peter Herring of CAU, to whom the inscription had been reported, Carl Thorpe (also CAU) and the writer. The inscribed surface was sunlit and it could be seen at once that the stone as an artefact was of no real antiquity. Inspection showed that it had been split from some much larger moorstone slab using iron feathers and wedges; a slightly worn angle suggested a phase as a rubbing-stone for cattle and it had been drilled for iron hanging-bolts as a

Fig 1 The lettering on the Trevalgan granite pillar, drawn from numerous photographs and checked in situ; upper edge, the wedge-and-feather splitting marks, late eighteenth or early nineteenth century, and lower part, holes for use as a gate or fence post

gate-post before being abandoned. As Lt-Col. Frederick C Hirst pointed out many times, in West Penwith the use of such feathers and wedges may be no older than the eighteenth century, nor does evidence from field-names and maps allow one to place further back than this period the very existence of wide field-gates requiring stone gate-posts.

The first (top) letter was visible as a large rounded 'W', on its own enough to dispel any hope of a genuinely early memorial-stone. The inscription is to be read *downwards,* head turned to the right. It is immaterial at what stage the letters were hacked out – presumably before conversion to a gate-post – but they read, and were meant to be seen as, ' W S 1 8 1 1 1 A 4 '. All the graphs are rather crude. The '8' is rectangular with a faint cross-bar, and the four 'I's differ considerably; the final '4' is what Okasha mistook, looking at it upside-down, for an initial cross. (Note, *en passant,* that initial

Fig 2 The Trevalgan pillar in morning sunlight, August 1995 (author)

line-height crosses, of Continental inspiration, are extremely rare on Insular incriptions of the late fifth to seventh centuries and no instances are known from Cornwall.)

In the eighteenth and nineteenth centuries, Trevalgan or Trevalgen and the adjoining tenement of Trowan were held by an old St Ives family; that of the Stevens. One would suppose, therefore, that 'W S' in 1811 was either for William Stevens, a parish constable of St Ives in 1777, or a son of the same name who died in 1837 (Matthews 1892, index, s.nn. 'Stevens of Trevalgen and Trowan'). This stone falls into a small, generally neglected, group of recently lettered granite posts, lintels and slabs, dating from the seventeenth to nineteenth centuries, that seem to be records of ownership, of family alliances by marriage, or perhaps of transfers of property. After the 'W S 1 8 1 1' the '1 A 4' may be a public witness set up at an appropriate point to an intake of croft, or an adjustment between Trevalgen and Trowan, estimated at one acre (Cornish? statutory?) and four roods or perches. Two centuries on, the details are irrecoverable.

This reading (Fig 1), agreed on site by a party of three, with an explanation and a photograph similar to Figure 2 here, was sent to Melville Osborne, proprietor of Trevalgan farm and caravan park, on 4 August 1995; that is, seven months before Dr Okasha's visit. In the 'supplement' she records her thanks 'to Melville Osborne for the information he supplied about the stone on his land' (Okasha 1998–9, 152). More recently, Okasha writes (letter, 6 May 2003) that 'As I made clear in the paper, I am of the opinion that it is indeed a genuinely Early Christian stone.'

Throughout Dr Okasha's *Corpus,* and now 'supplement', there is a manifest tendency to regard all south-west British inscriptions as phenomena to be recorded in isolation. This colours her handling, whether of stones previously shown by epigraphers and Celticists to be from post-Roman times, or of recent and post-medieval date like Trevalgan and several others in the *Corpus* ('76 Whitestile' at Gwennap is extremely dubious). But this approach is obsolete. No inscription should be read and interpreted without full reference to its physical matrix, geographical context and both external and purely local historical implications. Letter-forms, changing through time, must be examined against Continental as well as Insular epigraphic fashions; words and names demand considerable familiarity with Late Latin and the Celtic languages. Merely to amass a collection of 'texts', studiously avoiding references to other, sometimes previous, and usually far wider, treatments of these complex literary productions is to court descent towards what the late Glyn Daniel described (of megalithic-tomb lists) as 'the higher philately'. No-one with a knowledge of Cornish granite and the West Penwith landscape should have mistaken W S's rough-hewn statement for a work of antiquity. Dr Okasha's '69a Trevalgan' is to be expunged from any corpus of early inscribed stones.

A recent discovery at St Just in Penwith

Partly to ensure an accurate record in print, but mainly to emphasise that the reading and interpreting of inscriptions on stone, of whatever age, often requires local knowledge as well as practical skills in the field, we look at an object that has recently (May 2003) come to light.

Early in 2003, Mr Rory Te' Tigo, sculptor and expert on holy wells, was told that a letter 'R' was visibly cut on the face of a granite boulder built into a hedge a short way up the side road known as Nogoby Hill that runs from St Just in Penwith across to Pendeen. The NGR is SW 3723 3204 and the boulder is on the east side of the road directly opposite some modern farm buildings. Mr Te' Tigo cleared away some vegetation, exposing a line of five letters; he reported this to Cornwall Archaeological Unit. On 8 May 2003 the writer met him by the boulder. The letters are best viewed when morning sunlight crosses them, on the day in question between 11:10 and 11:20 hours.

The boulder is about 1.5 m long, about 0.5 m thick, lies on its side, forming the upper part of a low hedge here, and probably weighs rather more than a ton. It is local moorstone granite and is unlikely to have been moved any distance. The line of letters is at present horizontal, near the north or uphill

end of the stone, and no other letters or markings can be seen on the exposed surface. Drawings, agreed by those present to correspond to what was visible, were made, photographs taken and a slightly corrected drawing – Figure 3 – was produced the next day.

There are five distinct and separate graphs, heights from 10 to 14 cm, cut or chiselled coarsely and quite deeply. In the illustration they are numbered *1* to *5* and it is assumed that they are far more likely to be the initials of names or words rather than to convey a single name. Letter *5* is a standard capital 'R', from Roman times to today. Letters *2* and *4* are very similar, a capital 'I' barred top-and-bottom, with an additional central bar across the upright. Letter *3* is not a capital; it might look a little like the figure '6' but, with a full vertical, is closer perhaps to a lower-case 'b'. Letter *1* is the most eroded and least clear of the five. Superficially like *2* and *4,* its central bar is more prominent on the left of the vertical, the top bar is small and the bottom bar also seems to emphasise the left.

The graph shown here as *2* and *4* is known elsewhere in West Penwith and is a distinctive form once used on granite surfaces, and probably on other media, representing a capital 'J'. Ludgvan churchyard contains half-a-dozen very small granite headstones, antedating the full size lettered tombstones of the late eighteenth century onwards. There are three against the inner wall-face of the churchyard, just east of the south entrance, two more in the open on the north side, and one (Fig 4) now on a window-sill by the Lady Chapel, north inner wall, east end. The writer published this in 1966 (Thomas 1966), suggesting that it resembled the primary grave-markers of Scotland and Ireland and could be as early as the seventh century AD. This suggestion must now be seen as mistaken and the far greater probability is that it records the initials 'J J' (of a James Jory, say, or a John Jacka). It goes with a small piece of lettered granite found at Dowran, St Just in Penwith – present whereabouts not known – reported to the writer in May 1966 by the late Miss Edie Nicholas, accompanied by her drawing of it (Fig 5). There is no reason to see this as funerary – it was unearthed some years previously in a field at Dowran called Henas Grose – and, at a guess, it may mark a betrothal or marriage (say between a James and Jennifer Angwin, if it is read as 'J A J'). Thirdly, one can draw attention to a document published in facsimile by Buller (1842, 75–7). This, dated 5 May 1658, is an attestation of loyalty to the Lord Protector signed by a number of male inhabitants of St Just. Most were illiterate and could 'sign' only by marks, their names being written around these. The marks were either squiggles or letters standing for baptismal names. Among them is a 'John Paley', the apparent mark of 'J' being boldly penned as for the letters *2* and *4* in Figure 3 and those in Figure 5. In the same attestation, several men with the forename 'Thomas' used a recognisable capital 'T' as a mark, but there may have been an alternative. The mark of Thomas Cook, or Cock, is shown here in Figure 6, along with John Paley's 'J'. It is possible that letter *1* on the Nogoby boulder is the same, and stands for 'T' rather than 'J'.

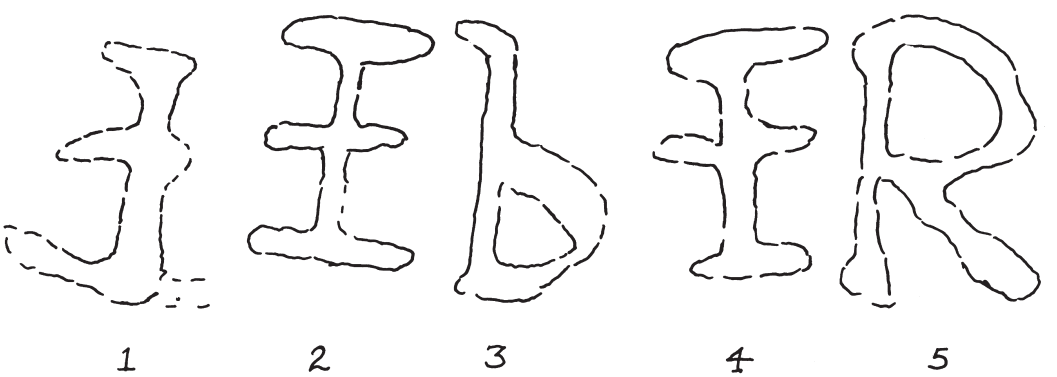

Fig 3 Drawing, made in situ and corrected from photographs May 2003, of the letters (numbered for reference) on the Nogoby boulder

Fig 4 Ludgvan; small granite headstone with 'J J', probably seventeenth century, now in the parish church. Photograph, May 2003 (author)

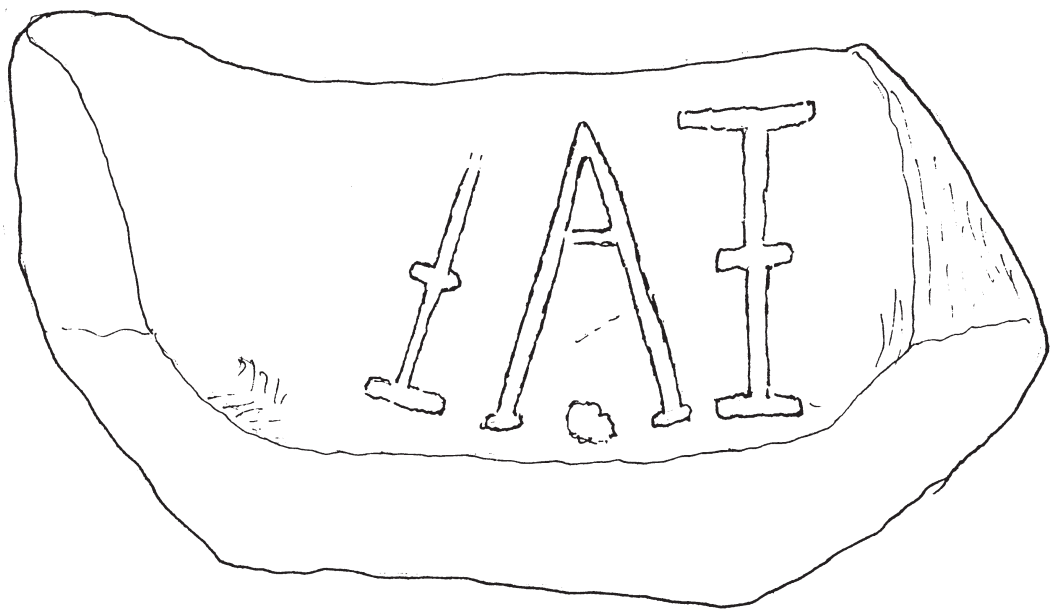

Fig 5 Granite stone, size unrecorded, with letters, found in a field at Dowran, St Just in Penwith; drawing by the late Miss Edie Nicholas, 1966

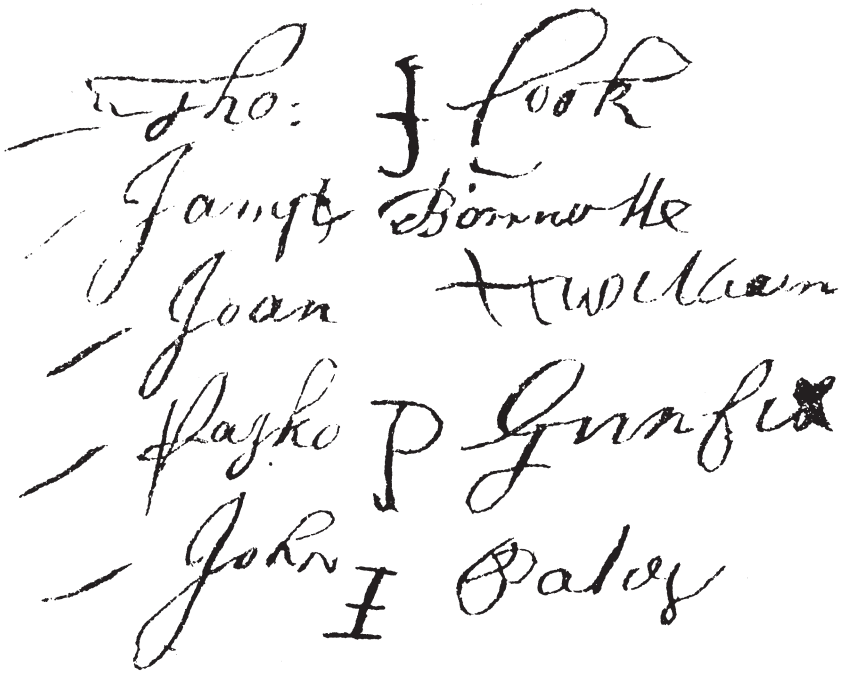

Fig 6 'Marks' by way of signatures, as initial letters between forenames and surnames, from a St Just document of 1658; top line, Thomas Cock or Cook, with 'T' (?), bottom line, John Paley with 'J'

The boulder is shown in Figure 7, the placing of the five-letter row being visible. The hedge, or the now–surfaced road, is said to be on the boundary between the tenement of Kenidjack, seawards, and probably that of Tregaseal. Whether the stone stood upright or had simply been incorporated in the hedge before the letters were cut, one might suppose that the inscription marks an agreement between neighbours as to a point on their common boundary, and was cut for public display. The reading would then be

T (or J) J b J R

with lower–case 'b' for 'bounds, bound-mark', and the whole regarded as eighteenth if not seventeenth century. In another document (Buller 1842, 77), dated 5 September 1653, seven signatories mention 'oure Parish', that is, were all St Just men. One is John Rowelings (a surname later found as Rowlings, Rawlings, Rawlins). A century later, when the largest bell at St Just was re-cast, it was inscribed to that effect with the date and the names of the churchwardens, the first being James Reynolds (Buller 1842, 23). Here, then, we have two candidates for a 'J R', and perhaps the first initials with letter *2* as a 'J' refer to the Jenkin family (William Jenkin figures in the 1658 attestation). Solutions may be left to local historians.

Very little seems to be known about the use of these aberrant, only partly explicable, and supposedly post-medieval capital letter forms found on these late bound-stones; as indications of ownership, land transfer, perhaps also family marriages. There are many others in the granite areas of West Cornwall alone. In the porch of Towednack parish church, serving as the east-side bench, a long granite slab with a long, expanded-terminals cross can be seen, probably a priest's grave cover

Fig 7 The lettered surface of the Nogoby boulder, May 2003 (author)

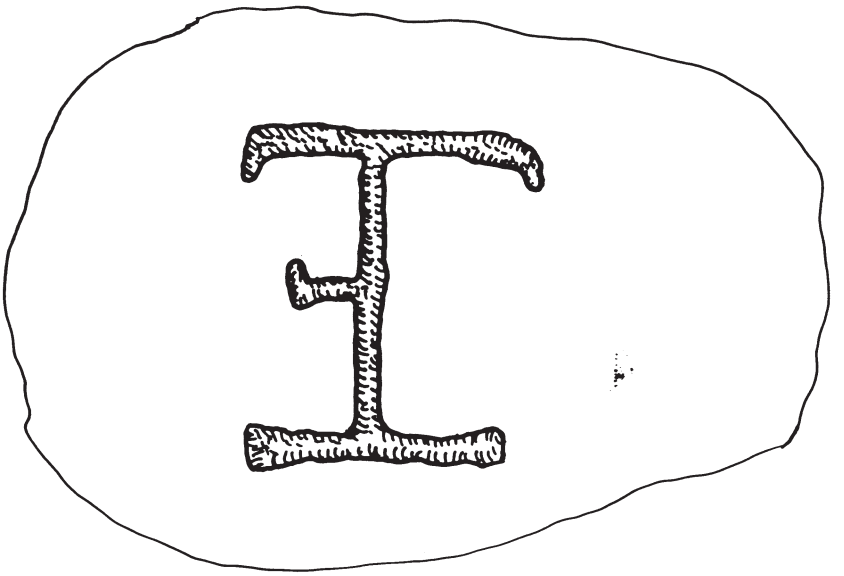

Fig 8 Pecked-out letter on a large granite pressing-stone, St Ives Museum; drawn through glass, September 2003

re-used (Langdon 1896, 421). On its upper surface and along the long axis, there is a fine instance of the letter 'J', just as nos. *2* and *4* above, measuring some 13 cm overall. As for the curious first letter on the Nogoby boulder, here provisionally interpreted as a 'T', something very close to it can be seen in St Ives Museum. In the old fish cellars, large granite boulders were used as pilchard pressing stones, and sometimes marked with pecked-out signs of ownership; for example, one has a clear 'W B'. Another, noted there recently, shows a single letter (Fig 8) that – with its barred vertical, and a side or half bar to the left – must invite comparison with letter no. *1* above. It would be interesting to have other examples brought to light, particularly in the St Ives to St Just coastal belt.

The Nogoby boulder may seem a modest discovery, but it is of great interest and offers perhaps a salutary warning. It merits speedy publication, if only to forestall any erroneous future recording as 'FEBER' or any similar misreading.

References

Buller, J, 1842. *A Statistical Account of the Parish of St Just in Penwith*, Penzance

Langdon, A G, 1896. *Old Cornish Crosses*, Truro

Matthews, J H, 1892. *A History of the Parishes of Saint Ives, Lelant, Towednack and Zennor*, London

Okasha, E, 1993. *Corpus of Early Christian inscribed stones of south-west Britain*, Leicester

Okasha, E, 1998–9. A supplement to Corpus of Early Christian inscribed stones of south-west Britain, *Cornish Archaeol*, **37–8**, 137–52

Sims-Williams, P, 2003. The Celtic Inscriptions of Britain: phonology and chronology, c. 400–1200, *Publications of the Philological Society*, **37**, Oxford

Thomas, C, 1966. A cross-incised slab from Ludgvan churchyard, *Cornish Archaeol*, **5**, 86–7

Thomas, C, 1994. *And Shall These Mute Stones Speak? Post-Roman Inscriptions in Western Britain*, Cardiff

Thomas, C, 1997. Christian Latin inscriptions from Cornwall in Biblical style, *J Roy Inst Cornwall*, **NS II**, **2**, **4**, 42–66.

Thomas, C, 1999. *Penzance Market Cross. A Cornish Wonder re-wondered*, Penzance

Cornish Archaeology 39–40, 2000–1

Navigational considerations of pre-medieval trade between Cornwall and Brittany: a reply to Mr P R Davis

R G Winslade

Cornwall is situated at a junction in the western seaways, between the Celtic Sea, the English Channel and the Atlantic Ocean. These seaways have been used from prehistory for trade and other purposes (Bowen 1977, Cunliffe 2001). The article in *Cornish Archaeology* 36 by PR Davis concerning the navigational context for maritime trade between Cornwall and Brittany in the pre-medieval period (Davis 1997) therefore deals with a topic that is more important, from the Cornish point of view, than is normally recognised by land-based archaeology, other than by way of commentary on the distribution of artefacts. However, one of his conclusions – that trade between Cornwall and Brittany would have proceeded by way of a lengthy voyage up, across and down Channel rather than by a direct Channel crossing – is in need of review. The purpose of this comment is to suggest that, rather than the direct crossing being either impractical or impossible, it would have been simpler, safer and altogether more practicable than the round-about route suggested by Mr Davis. Authorities are cited where relevant but these remarks are also based on a modest amount of practical experience.

There is evidence of trading links around the western seaways from the Bronze Age onwards (Muckelroy 1981, Cunliffe 2001). There are also hints that the inhabitants of the British Isles were able to make long passages across seas more challenging than the English Channel from at least the Middle Iron Age: Pytheas of Marseilles is said to have visited Iceland in about 325 BC by way of the British Isles, no doubt making use of a British vessel or a British pilot (Hawkes 1975, Cunliffe 2002), and early medieval Irish hermits established themselves on the Faeroe Islands and Iceland (Dicuil, *Liber de Mensura Orbis Terrae, c* AD 825, cited in Jones 1984, 255–6).

The problem is thus not how the Cornish *could* have traded with Brittany, with a direct crossing being impossible, but how *would* the Cornish have traded with Brittany, and by which routes? In this paper, the problem will be considered in the context of the late Iron Age, but the argument and conclusions may be equally applicable from the Bronze Age to the early medieval period. It will be assumed that Cornish sailors of this period went to sea in lightweight, wide-beamed, shallow draft boats, of wood-framed, hide-covered construction – as mentioned by Pliny the Elder (Pliny 1991, 52) – equipped with oars and a sail, with limited ability at sailing to windward but seaworthy enough for short coastal and sea voyages in reasonable weather conditions.

It is perhaps embarrassing for navigators to admit but, given the right weather conditions, sailing from south Cornwall to the northern coast of Brittany is quite easy. If the weather forecast is favourable, and the wind in the west or north west, one sets off either in the morning or the afternoon, depending on the anticipated speed of one's vessel, in the confident anticipation that, by steering more or less due south, one will sight Brittany in daylight tomorrow. There is nothing peculiarly dangerous about sailing offshore by night. Although it is good practice to work up an estimated position from time to time, this is not essential as long as one can hold one's course. It is, however, useful to estimate one's position when about two-thirds of the way across. This involves the navigator

making 'guesstimates' of the distance run, steering errors made by various helmsmen, leeway, surface drift and tidal streams. The result is marked on the chart, and then a new course laid off to avoid ending up down wind and down tide of one's intended destination. Even so, the navigator, will be satisfied if the vessel's landfall is within five or ten miles of the intended point. This degree of imprecision, with the aid of a steering compass, is not much better nor much worse than is suggested by Davis for a vessel steering by the wind or the Pole Star (Davis 1997, 131).

The Iron Age Cornish navigator, of course, having no chart, no tidal stream atlas, no pilot book, no compass, no patent log and no accurate means of measuring time, would have had to use more basic methods of navigation, to have sailed on until in sight of land, and then see where the vessel had arrived and whether up or down tide of the intended landfall.

Although one thinks of weather as changeable, weather systems tend to follow a pattern. As a depression passes, after the cold front the wind may settle in the north west, with showers but with good visibility in the bright periods (MacGibbon and Caldwell, 1978, 532–3), ideal conditions for a crossing to Brittany. To establish a southerly course when departing, the Iron Age navigator would have needed reference points, or transits, on land. Leaving from Falmouth, for example, where the estuary runs north and south, sailing out in line with the estuary, keeping Loe Beach visible between Pendennis and St Anthony, would suffice until sufficiently clear of land disturbance to feel the true wind. The navigator would then trim the sails to the wind and steer by it until nightfall, after which it would be possible to steer by the Pole Star. After daybreak it would be necessary to steer by the wind again. By mid-morning, in fair weather, cumulus clouds may have built up over Brittany, indicating the lie of the land from 20 or 30 miles off; separate cloud formations over the *Île Molene* and Ushant may even show the way to the *Chenal du Four,* which leads through to Brest. The writer has benefited from the reassurance given by these helpful clouds.

It is after making a landfall that the real difficulties begin: the coast of Brittany offers dangerous rocks (Cumberlidge 1991) and tidal streams much fiercer than the south Cornwall coast (S.H.O.M. 2000) and the Iron Age navigator may not have had the benefit of navigation marks. For sailing along an unfamiliar coast in these conditions, a lightweight, shallow-draft vessel able to be hauled up the beach, either overnight (one can imagine a grilled mackerel supper) or until wind and tide are more favourable, would have much to recommend it, as against an apparently more seaworthy, deep-keeled, heavy displacement vessel.

It is interesting to note that if such a vessel, of limited windward ability, were to make the return voyage from Brittany in a north-westerly wind, so as to benefit from the improving weather and visibility after the passage of a cold front, it would be headed off towards Plymouth. Mount Batten, in Plymouth Sound, was apparently a port of entry from at least the middle of the first millennium BC (Todd 1987, 153; Clarke 1971, 145, 153).

The alternative to a direct Channel crossing suggested by Mr Davis (Davis 1997, 133) is a long, round-about route from Cornwall to (say) Christchurch, across to the Cherbourg peninsula and then around the Channel Islands and Bay of St Malo and back along the north Brittany coast. However, a voyage along the English coast is not without problems. There are headlands (eg, Dodman and Start Point) with strong tidal streams (Fennessy 1990; 1997), making passage difficult without the benefit of favourable winds and tides. Portland Bill has a tide race that may be dangerous to a vessel not having the benefit of local knowledge of an inshore passage, nor wishing to sail well offshore to avoid the race (Fishwick 1998, 12–14). For a vessel sailing only by day such a voyage up Channel might take anything up to a week, depending on wind and weather. Once across to France, the passages around the Cherbourg peninsula have tides running at over 4 knots at times, even on neap tides, and at up to 10 knots on Springs (S.H.O.M. 2000). Between the Channel Islands and the north Brittany coast there are many rocks (Cumberlidge 1991) and quite strong tidal streams, while in the Bay of St Malo the tidal range (ie, the difference between high and low tide) can reach 10 or 12 metres on Springs (S.H.O.M. 2000, 16). This area offers difficult sailing. With the prevailing winds in the Channel being westerlies (Davis 1997, 131), the journey west along the north coast of Brittany

is likely to take at least twice as long as the journey along the English coast to Christchurch and present other difficulties and dangers to the Iron Age navigator.

Quite apart from the natural reluctance of any sailing person to spend time running down to leeward, merely to spend much more time working back up to windward, it does seem unlikely that a prudent Cornish sailor, either now or in the Iron Age, would prefer to make this long, difficult and in parts dangerous voyage around three sides of a rectangle, rather than the much quicker, simpler and safer direct cross-Channel passage. This is particularly so for the Iron Age navigator, lacking the navigational aids, equipment and sources of information available today.

For the reasons set out, the writer has come to the view that it is more likely that Iron Age Cornish sailors made use of the direct crossing to Brittany from Cornwall rather than the round-about route by way of the Cherbourg peninsula. Whether or not any archaeological evidence will come to light to settle the question one way or another, only time will tell.

References

Bowen, E G, 1977. *Saints, seaways and settlements*, Cardiff

Clarke, P J, 1971. The Neolithic, Bronze and Iron Age, and Romano-British finds from Mount Batten, Plymouth 1832–1939, *Proc Devon Archaeol Soc*, **29**, 137–61

Cumberlidge, P, 1991. *North Brittany and Channel Islands crossings*, London

Cunliffe, B, 2001. *Facing the ocean: the Atlantic and its peoples, 8000BC – AD1500*, Oxford

Cunliffe, B, 2002. *The extraordinary voyage of Pytheas the Greek*, London

Davis P R, 1997. Some navigational considerations of pre-medieval trade between Cornwall and North-West Europe, *Cornish Archaeol*, **36**, 129–37

Fennessy, M, 1990. *Tidal stream atlas of the south Cornish coast*, Plymouth

Fennessy, M, 1997. *Tidal stream atlas of the south Devon coast*, Plymouth

Fishwick, M, 1998. *West Country cruising*, London

Hawkes, C F C, 1975. *Pytheas: Europe and the Greek explorers*, Oxford

Jones, G, 1984. *The Vikings*, Oxford

MacGibbon, J, and Caldwell, S, trans., 1978. *The new Glenans sailing manual*, Newton Abbot

Muckelroy, K, 1981. Middle Bronze Age trade between Britain and Europe: a maritime perspective, *Proc Prehist Soc*, **47**, 275–97

Pliny, *Natural history: a selection. Pliny the Elder*, trans John F. Healy, 1991, London

S.H.O.M. (Service Hydrographique et Oceanographique de la Marine), 2000. *Courants de Marée – La Manche de Dunkerque à Brest*, Brest

Todd, M, 1987. *The South-West to AD 1000*, London

Obituary

Henry Leslie Douch

HL Douch – 'Les' to his hundreds of colleagues and friends, a single category – died peacefully at Truro in March 2003. For 37 years, from 1951 when he was pitchforked into the job when George Penrose passed on until his retirement in 1988, he was Curator of the Royal Institution of Cornwall; and for about half that period, before the appointments of Roger Penhallurick as Assistant Curator in 1964 and then in 1968 Angela Broome, *via* the office, as Assistant Librarian and later Courtney Librarian, Les ran the show more or less single-handed. He, his wife Joan and their son Paul lived on the premises in accommodation rather smaller than any of Truro's small Victorian terraced dwellings. Les was by profession an archivist, with a post-graduate diploma from the University of Liverpool (his first degree, at Exeter, was in history). Simply as an archivist he was brilliant, intuitive, incisive and practical, and after his retirement the RIC persuaded him to continue as Honorary Archivist in which capacity he staffed the Courtney Library one day each week. This burly, bearded ex-Naval son of Dorset – and he never wanted to be anything except a Dorset man – over all those long holiday-skimping years of underpaid curatorship placed the whole of Cornwall, and every conceivable facet of Cornish studies, in his debt to an unequalled extent. The mere fact that Les never saw his work in that light, and that – though in fact he was not religious – all his efforts, all his interactions with the public, with enquirers from academicians and professors to artists and plumbers, were guided by a sort of 19th-century Christian Socialism tells you quite a lot about him as a man.

The 2003 *Journal* of the Royal Institution of Cornwall contains, and rightly so, twenty pages (with photographs and bibliography) of tributes to Les, from his son Paul and from favoured colleagues. Members of CAS who have not yet done so should read this record. It merits, however, a brief archaeological appendage. Though as Curator he was frequently obliged to arrange prehistoric or later objects in cases, to hump sagging boxes of finds around the building and to do his best in identifying a steady influx of chance finds, Les would not have regarded himself as an archaeologist *per se*. It came with the job. But it did not stop him from joining, and taking a very active part in, the Cornwall Archaeological Society; from its foundation in 1960–61 and indeed earlier, he made arrangements for meetings and lectures, served on various committees, looked after papers and assisted with individual research. Nor was that all. Les was by nature an outdoor man, offering in the field an ideal combination of physical strength, dexterity and meticulous observation. He liked outings and he particularly liked taking part in excavations. It will not be generally known that more than once Les found himself obliged to undertake, virtually solo, salvage or rescue excavations.

Successive presidents, secretaries and editors of our Society knew or still know how much they were indebted to Les Douch for his help, support and advice. Possibly his greatest service to CAS was his editorship of our *Newsletter*; an incredible 72 issues from 1979 to 2003, nos 30 to 101 inclusive. As if he didn't have enough on his desk already, both before and after his official retirement in 1988, the *Newsletter* in Les's hands was always interesting, factual, fair, useful and (most important) out on time. Members who never met Leslie Douch can be assured that this adopted Map Kernow, Son of Cornwall, was no ordinary personality; for one thing, he seems never to have had an enemy, uniquely so in the archaeological world! Those who did know him, who liked to count him as a friend and who were recipients of his aid and kindnesses will affirm all that has been said here. Our thoughts remain with his family. Our memories combine gratitude and real respect with lasting affection.

Charles Thomas