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# CORNISH ARCHAEOLOGY

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HENDHYSCANS KERNOW

2002–3

EDITORS

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## Preface

This double-volume of *Cornish Archaeology* marks the start of its fifth decade of publication. Your Editors and General Committee considered this milestone an appropriate point to review its presentation and initiate some changes to the style which has served us so well for the last four decades. The genesis of this style, with its hallmark yellow card cover, is described on a following page by our founding Editor, Professor Charles Thomas.

The cover is now glossy laminated card – very durable – with a colour photograph, for this volume, of the mirror recovered from Trelan Bahow, St Keverne, in the nineteenth century. The spine and back remain yellow so that the volumes will keep their distinctive appearance on the shelf and preserve visual continuity with those previously published; the convenient contents list on the back also remains. The colour photograph on the cover will change from issue to issue, generally illustrating an item in the volume. The position and form of the title and volume details may change slightly from volume to volume to ensure a good balance with the background of the photograph but we will continue to display a bilingual journal title.

Overall page size of the publication is now just a trifle larger. Surprisingly, with modern paper sizes, this increase actually results in a more economic use of paper and proportionate reduction in costs. Hopefully this slight size change will not result in any problems of shelving or binding. Inside the covers the most obvious change is the two-column format. Many find this easier to read than long single lines; the double column layout has advantages for the arrangement of illustrations. Your Committee was split almost fifty - fifty on this innovation and we await reaction. For this volume we regard it as experimental. There is also an improvement in paper quality. Colour illustrations will appear at first in modest numbers but in future should both improve the look of the content and the presentation of complex data.

*Cornish Archaeology* has, since its inception, made a major contribution to the national, and indeed international, archaeological publishing world. I look at the long line of yellow volumes on my bookshelves and feel a sense of pride and achievement on the Society's behalf. Those volumes form an enormous repository of archaeological data which both represent the current state of knowledge and the basis for such knowledge and research far into the future. Some members, as we are well aware, find too much space taken up with detailed accounts of excavations but the publication of reports on excavation and other forms of investigation and research forms a commitment to archaeology in Cornwall that the Society must carry out. (Editors spend a lot of time chasing up unpublished reports and then reworking them into a state in which they can be published.) But your Editors are aware of the need to keep the contents varied and there are plans to extend the range and scope of published papers and to increase our appeal and importance to a wide range of readers in the new format which this volume introduces.

Editing archaeological publications is very time-consuming, a task that can only be carried out by those with appropriate background knowledge. There have been problems over the past decade in finding those with both the time and the knowledge to edit *Cornish Archaeology* and this has resulted in the slippage in volumes that is only now being rectified. Our present Editors, Peter Herring and Graeme Kirkham, have now brought us

PREFACE

nearly up-to-date and have also invested the time necessary to present the journal in its modern guise. The Society is greatly indebted to them. As the second Editor, from 1975 to 1981 and immediately following on from Charles Thomas in the old hot metal days, I appreciate the amount of work put in. Technological changes make the end result appear more attractive but do not reduce the amount of work involved to any great extent.

Enjoy this issue of *Cornish Archaeology* and let the Editors, myself or other Officers and Committee members know what you think about the changes.

*Henrietta Quinnell*  
*President 2004–7*

## Reflections

In the run-up to the official launch of our Society on 7 April 1962, the matter of an annual journal to replace *Proceedings of the West Cornwall Field Club* had been discussed. As President, C A Raleigh Radford persuaded the officers and committee that we should move from the crown 8vo format of *PWCFC* to a larger size, 7 by 9 inches, to allow for larger text figures, to attract fresh contributors and to fall into line with our sister journals in Devon, Somerset and Dorset. Having edited the first seven annual issues of *PWCFC*, I had handed over the editorship to Bernard Wailes, but was now persuaded to resume the post on Bernard's departure to Philadelphia. Peter Pool, as Hon Treasurer, and I were instructed to bring out the first issue of our new journal before the end of 1962.

We chose as printers H E Warne of St Austell, at that time probably the best commercial printers in Cornwall, and had unstinting help and support from the brothers Jock and Stuart Warne. Because, though lecturing at Edinburgh during university terms, I now spent the vacations mainly at our Gwithian home, it was possible to supervise printing and production at Warne's St Austell press. Of course, we needed a new design. Vincent Megaw (later Professor J V S Megaw), an active WCFC member, was then employed on the archaeological publications at Thames and Hudson in Bloomsbury. For a ridiculously small fee, Vincent arranged that Ian Mackenzie-Kerr, T & H's staff typographer and designer, should create an entirely new format for us. Wishing to emphasise 'Cornishness', Peter Pool and I settled on a yellow cover with bold black titling. Revived Cornish then had no word corresponding to the (invented) Welsh *archaeoleg*, first seen in 1928. As a calque on the Greek basis of 'archaeology', Peter came up with *Hendhyscans Kernow*, literally 'Old-Knowledge, Ancient-Learning – Cornwall'.

We also decided to use different cover illustrations for each number. The first, drawn for us by Morna MacGregor (Mrs D D A Simpson), inevitably used William Borlase's c 1740 watercolour of Lanyon Quoit. For subsequent issues, I commissioned as editor drawings from Cornish artists - Peter Lanyon, Marjorie Somerscales, Roger Penhallurick, Bryan Pearce, etc – paying for these myself and therefore, cunningly, retaining the originals.

*Cornish Archaeology* 1 (1962) appeared on time and was well received, within and beyond Cornwall, by members, librarians and reviewers. Ian Mackenzie-Kerr had suggested a full-page layout for papers and the Parochial Checklists, with double column format (then very fashionable) for reviews, notes and the various serials. We adhered to this throughout, the only change being in the generous spacing of full-page material, which was set 10 or 11 pt on 14 or 15, i.e., with wide spaces between lines. The Warne brothers pointed out that we were paying for blank space and in *CA* 2 the letterpress was indeed vertically condensed to something like 10 on 12. Our new journal brought us plenty of new members and, more importantly, new contributors. I was happy to edit it for a good many years until sheer pressure of work obliged me to resign.

But the inception of *CA* was over 40 years ago; the content has changed, and tastes and fashions in printing

REFLECTIONS

and display have also shifted. It's high time for a completely new design; hot metal printing has gone, the technology is not only different but cheaper and easier to operate and your founding editor looks forward, sympathetically and eagerly to this first number of *Cornish Archaeology redivivus*.

*Charles Thomas*



# An Iron Age sword and mirror cist burial from Bryher, Isles of Scilly

CHARLES JOHNS

with contributions from KERI BROWN, J D HILL, CLAIRE INGREM, PETER MARSHALL,  
SIMON MAYS, HENRIETTA QUINNELL, IAN STEAD, VANESSA STRAKER, ROGER TAYLOR,  
CHARLES THOMAS, GORDON TURNER-WALKER and PENELOPE WALTON ROGERS

*During autumn 1999, Cornwall Archaeological Unit and English Heritage carried out a programme of archaeological fieldwork following the discovery by a farmer of an Iron Age sword in a Porth Cressa-type cist grave on Bryher, Isles of Scilly. The fieldwork, funded by English Heritage, consisted of topographical and geophysical surveys, evaluation trenching, and excavation and reinstatement of the cist grave.*

*Within the north–south orientated cist were the fragmentary remains of a crouched human skeleton, laid on its right side with its head to the north and facing to the west. In addition to the sword, which survived within a bronze scabbard, the grave goods included a mirror, shield fittings, a sword belt ring, a brooch and a spiral ring (all of copper alloy), together with a shattered tin object. There was also evidence for the grave having contained a sheepskin or fleece and woven textile incorporating goat and other animal hairs. This is the only known Iron Age grave to contain both a sword and mirror, raising interesting questions as to the gender significance of both these grave goods.*

*Analysis of skeletal material showed that the buried individual was about 25 years of age, although preservation of bone and DNA was too poor to determine the person's sex. A long-bone fragment was submitted for radiocarbon dating, giving calibrated date ranges of 200–45 cal BC; the metalwork typology narrows this range to the first half of the first century BC. The dates indicate that the Bryher mirror is the earliest known British decorated bronze mirror.*

*The discovery of a second cist (not excavated) a few metres to the south west of the original one suggests the possible existence of a cist cemetery. The cists lie within an ancient terraced field system that appears to be broadly contemporary.*

*Further evaluation trenching revealed Iron Age – Romano-British settlement remains at the southern end of the cist field, where a stone-walled building situated on top of a terrace contained a stone-lined drain and may have been used as a byre. After abandonment the building was infilled with domestic rubbish, including limpet middens and burnt material. Other contemporary settlement remains were uncovered in a field to the east.*

*Stratigraphic and ceramic evidence indicates a break in occupation between the second century AD and the post-Roman period. Limpet middens, visible on the ploughed surface of the cist field and the field to the west, contained E ware, indicating renewed activity in the area centred on the seventh century AD.*

## Location and historic landscape setting

*'Due north of Samson is Bryher of the five hills, the lakes, the shell-stippled beaches, the turbulent half-moon of Hell Bay, and the detached promontory of Shipman Head clouded with sea-birds ... in storm ... you feel that the "queen of air and darkness" rules in Bryher....'*

(Trewin 1948, 261–2)

The Isles of Scilly lie in the Atlantic Ocean, approximately 45km (28 miles) south west of Land's End (Fig 1, inset). The small granite archipelago comprises 200 islands, islets and rocks, of which five are inhabited: the main island of St Mary's and the 'off-islands' of Bryher, Tresco, St Martin's and St Agnes. The archipelago is an incised and partly submerged granite cupola, the western tail of the ridge of exposed granite cupolas or bosses running along the spine of south-west Britain: Dartmoor, Bodmin Moor, Hensbarrow, Carnmenellis and the Land's End peninsula. These comprise the visible part of the single, large Cornubian batholith which intruded into the killas in the early Permian period some 225 million years ago (Edmonds *et al* 1975, 7; Bristow 1996, 94–5).

Bryher, 2.5km long by up to 1km wide and the smallest inhabited island, is located at the north-west corner of the island group (Fig 1). It has a more varied topography than the other islands and is composed of a series of small rounded granite hills; these rise to heights of 33m to 42m above the three intervening valley pastures which run east–west across the island (colour plate 1 and Fig 2). At the northern end of the island is the windswept, heathy headland of Shipman Head Down, leading to the long, rocky promontory of Shipman Head. The wilder north and west sides of the island are open and exposed to the Atlantic, which has eroded semi-circular bays, including Great Porth and Hell Bay, into the coastline. The east coast is sheltered and separated from Tresco by narrow, sandy flats. To the south a sandy strait separates Bryher from Samson, depopulated by Augustus Smith in the mid nineteenth century (Land Use Consultants 1996, 89).

The geology of Bryher is granite, with weathered periglacial head, known locally as *ram*, mantling the lower hill slopes and valley floors and supporting soils suitable for cultivation and pasture. On the south-western side of the island blown sand creates a low-

lying area of sand dunes; the coastline is otherwise of rugged granite (*ibid*, 89; Geological Survey of Great Britain, 1975, Isles of Scilly, Sheets 357 and 358).

The sword and mirror burial site is situated on Hillside Farm, towards the southern end of Bryher, just below the 10m contour line at the base of the north-facing slope of Samson Hill (SV 8774 1441). It lies within narrow rectangular bulb fields, ridged for potato cultivation, bordered by *pittosporum* hedges and stone walling. To the south is unenclosed heathland on the steep rise of Samson Hill, which visually dominates and overlooks the site. To the north the farmland falls to the narrow neck of land between Great Porth and Green Bay, rising up again to the bulb strips on the southern slopes of Timmy's Hill. Nearby, at the edge of Great Porth, is the prominent landmark of Great Carn, which, when the shoreline was further away, must have been even more striking as a natural feature, rising out of the low ground below the site.

### Historic landscape character

The 1996 Historic Landscape Assessment for Scilly characterised the farmland surrounding the sword and mirror cist as a mixture of Anciently Enclosed Land (AEL) and late nineteenth or early twentieth century bulb strips (Fig 3; Land Use Consultants 1996). AEL is land that was probably first enclosed in the medieval period or earlier, and includes both rectilinear and irregular stone-walled fields. The bulb strips are small narrow enclosures with high hedges designed for the cultivation of flowers (daffodils and narcissi); the vast majority of these have been created by sub-division of AEL, although their distinctive pattern of parallel strips tends to obscure the earlier field pattern. Most of the farmland here retained the ancient pattern until the end of the nineteenth century but had been sub-divided into linear bulb strips by the time of the 1908 Ordnance Survey 25in map.

### Archaeology and history

The presence of worked flint in the vicinity of the site indicates activity from the Neolithic period onwards (see the commentary below by Henrietta Quinnell on flint finds). The island has numerous Bronze Age cairns and entrance graves, including some on Samson Hill, together with relict prehistoric field systems and the boulder walls of others within the intertidal zones to east and west of the site (Fig 4; Ratcliffe and Johns 2003, 26–30).

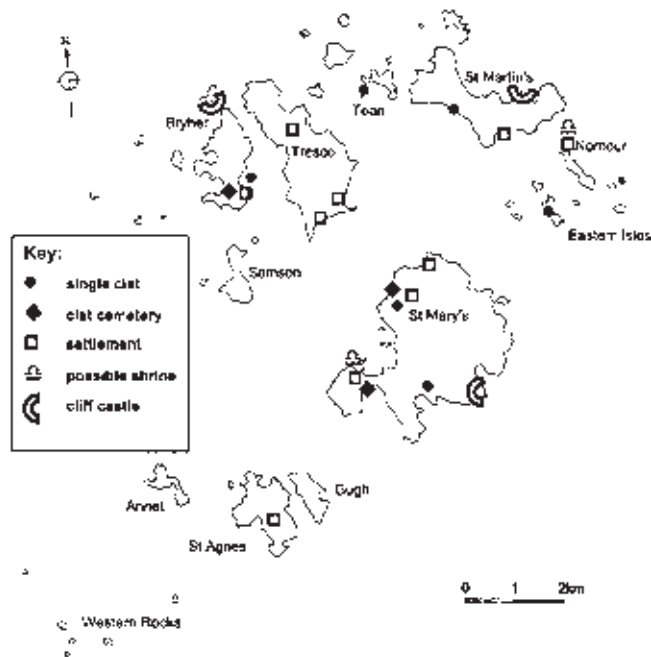


Fig 1 The distribution of selected Iron Age and Romano-British sites in Scilly

Iron Age and Romano-British remains on the island include an Iron Age cliff castle at Shipman Head (*ibid*, 27) and a single, stone-lined cist grave lying below the present high water mark in Green Bay (Thomas 1977). A Roman coin, a brooch and greisen spindle whorl have been retrieved from the ploughsoil in the field to the north of that in which the cist was discovered (G Langdon pers comm). A single sherd of E ware from Veronica Farm, 300m north-east of the Hillside Farm site, indicates activity in the area during the late sixth to early eighth centuries (Ratcliffe 1991, 147).

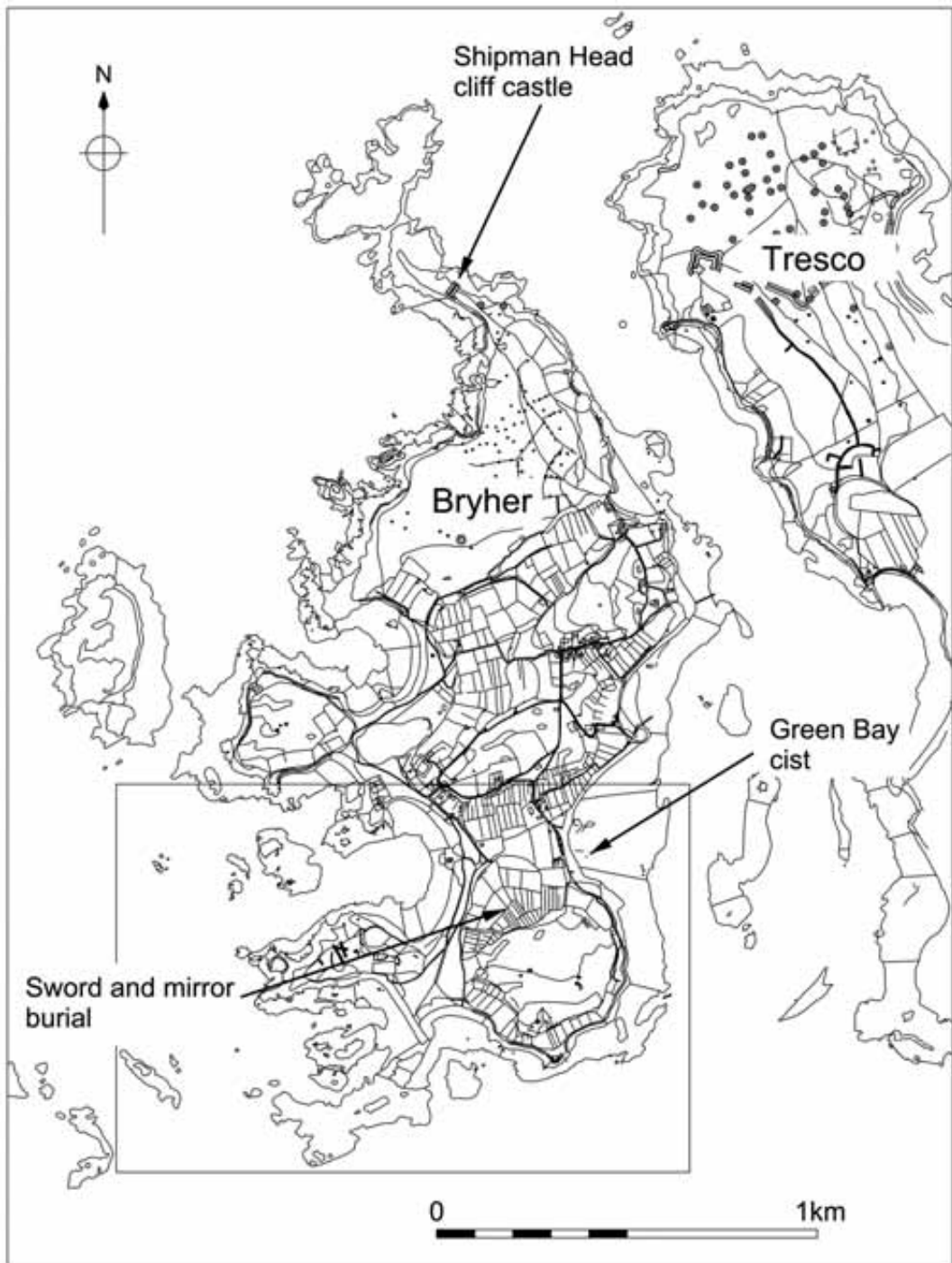
The place-name Bryher is first recorded as *Braer* in 1319 and is probably derived from the Cornish place-name elements *bre*, 'hill', and the plural suffix *yer*; that is, 'place of hills' (Padel 1988, 60). A concentration of medieval pottery in the fields around Veronica Farm at South'ard suggests that it could be the site of the documented medieval settlement of *Bantom* (Ratcliffe 1991, 146–7).

### Coastal change

During the Pleistocene glaciation, the Scillonian archipelago may have been a single landmass stretching from the Western Rocks to the Eastern Isles and from Peninnis, St Mary's, to Shipman Head

on Bryher. From the beginning of the Holocene period, as the ice sheets melted and sea level rose, the submergence of low-lying areas led to the formation of one main island by about 3,000 BC. This included the present islands of St Mary's, Bryher, St Martin's, Treviso, Samson and the Eastern Isles, with three smaller tracts of land around St Agnes, Annet and the Western Rocks (Ratcliffe and Johns 2003, 4).

Charles Thomas' model for sea level change in Scilly suggests that at around 1000 BC Mean Sea Level (MSL) was 7.25m lower than today, with the modern 5m marine contour roughly representing the coastline at that time (Thomas 1985, 17–64). The main island may have survived until the end of the Roman period but further rises in sea level, and perhaps a final inundation during the early second millennium AD, resulted in the eventual submergence of the 'flats' in the middle of the land mass and formation of the present pattern of islands. Final separation of the islands might not have been complete until the early sixteenth century. More recent research, involving radiocarbon dating and environmental analysis of inter-tidal peat deposits, suggests that sea level rise has been less dramatic. At around 1000 BC, for example, MSL may have been only 2.5m below that of today, meaning that the



*Fig 2 Map of Bryher showing selected archaeological sites*

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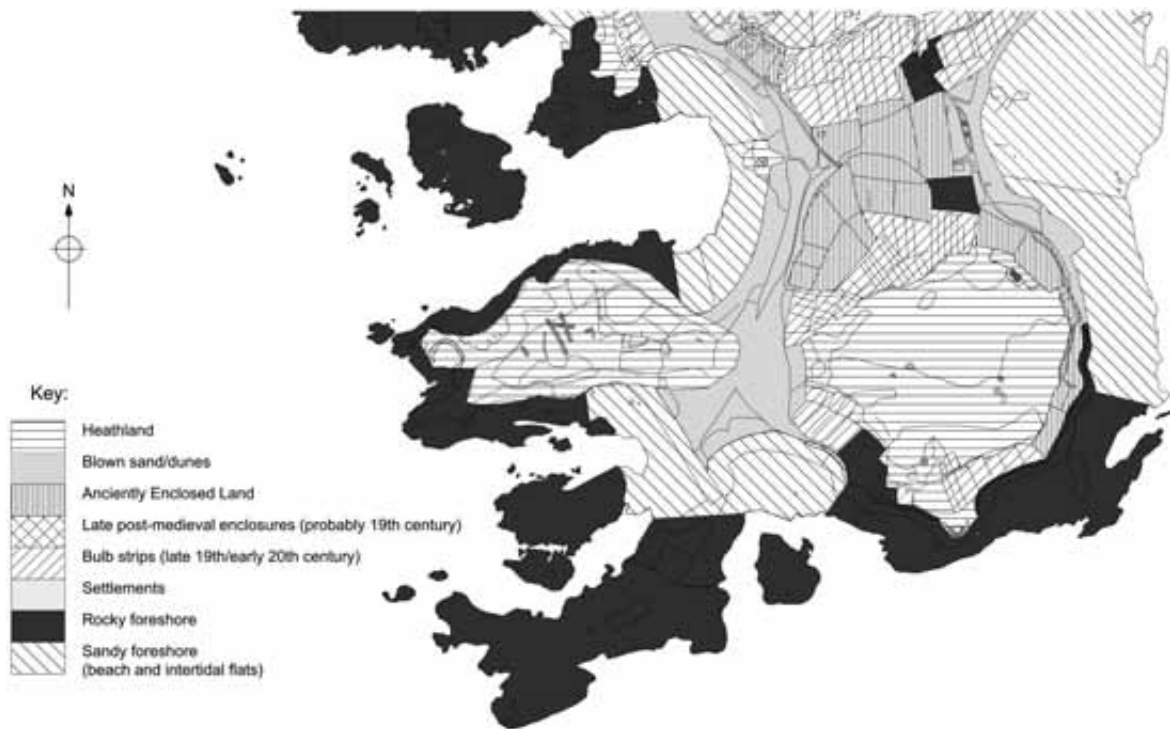


Fig 3 Historic landscape character of the southern end of Bryher (after Land Use Consultants 1996, fig 4.1) (Based on the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Cornwall County Council Licence No 100019590, 2005.)

islands would have been largely separated by the early Iron Age (Fig 5; Ratcliffe and Straker 1996, 44–50).

This still suggests that the western side of Bryher has experienced considerable coastal retreat since prehistoric times; during the late Iron Age and Romano-British period the nearest shoreline is likely to have been between 0.8 and 1.2 km to the west of the Hillside Farm cist-burial site (Fig 6). Since then, sea level has risen between 4.2 and 5.2m and the nearest point on the present shoreline is Great Porth, some 220m distant (Fig 2).

## The project

In March 1999 a local farmer, Paul Jenkins, found an iron sword in a bronze scabbard inside a stone-lined cist grave exposed during potato cultivation in a field on the northern side of Samson Hill (Fig 7). Previously, during 1998, having relatively recently taken on the tenancy of Hillside Farm, he had deep ploughed the cist field to break up the lower

soil structure in order to rejuvenate soil fertility and improve drainage. This involved ploughing to a depth of 400mm, in comparison with the usual depth of 250mm, and it is this deeper ploughing that is likely to have initially disturbed the cist. In 1999 the field was ploughed to the usual depth and potatoes planted. During late March, while Mr Jenkins was spraying his potato crop, one of his tractor wheels sank into the ground. To free it he had to remove a stone, below which was a hole opening into a larger cavity. Closer inspection revealed the cavity to be stone-walled and roofed, the removed stone being a dislodged capstone. On reaching inside he discovered the sword (Hooley 1999).

He then contacted the British Museum, who gave him initial conservation advice regarding the sword and recommended that he take it to the Isles of Scilly Museum. There, Steve Ottery and Sarnia Butcher identified it as a La Tène II Iron Age sword on 31 March 1999. Sarnia Butcher visited the site during early April and made an initial record, consisting of a written description, a measured sketch plan of the



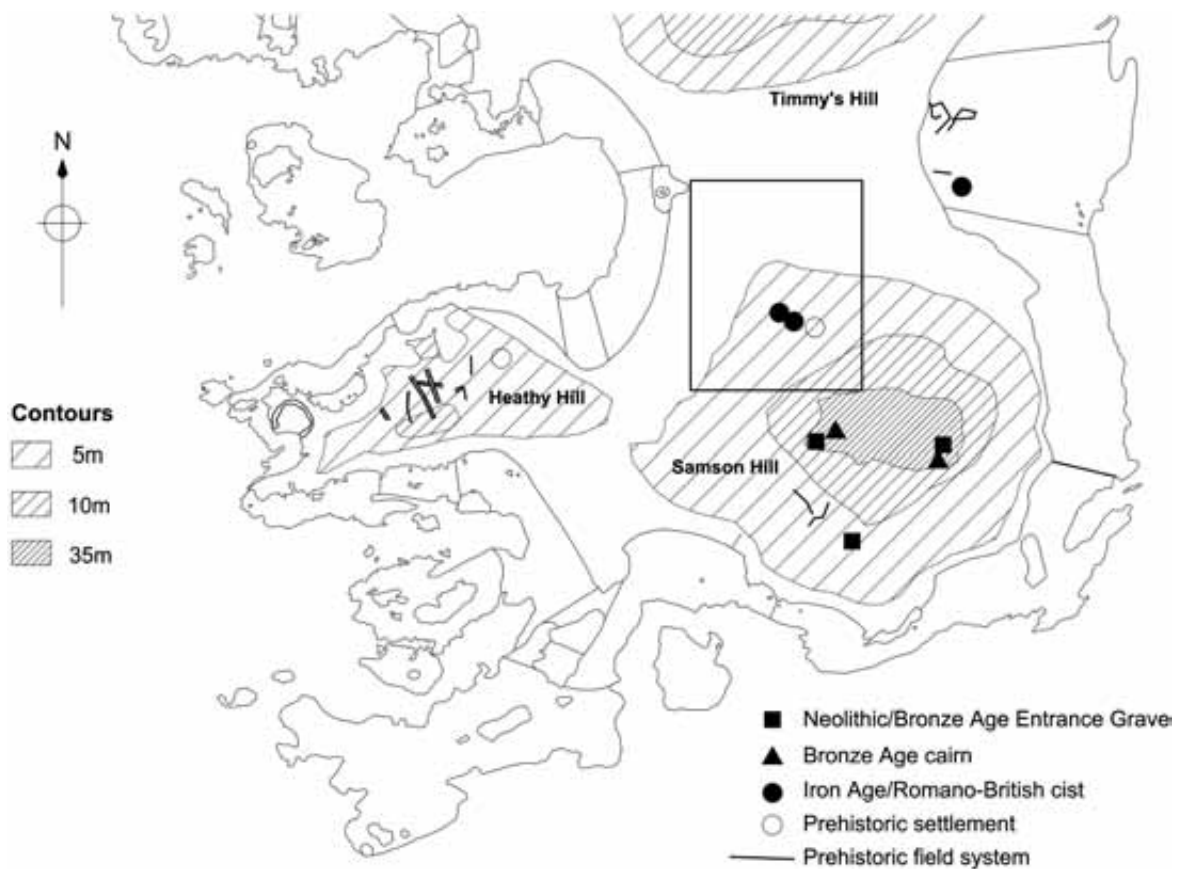


Fig 4 Map of the southern end of Bryher showing the site location and other archaeological sites in the surrounding area

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interior of the cist and photographs of its location (Butcher 1999). A few days later the site was visited by David Hooley, English Heritage Monuments Protection Programme Archaeologist for Scilly, who was on holiday in the Islands. He took detailed notes and measurements and made a photographic record, using a dedicated flash to photograph the interior of the cist (Hooley 1999).

The discovery was reported in the local press and mentioned on national radio. Prince Charles visited Hillside Farm to view the sword during an official trip to Scilly in May 1999. The sword was subsequently transferred to English Heritage's Centre for Archaeology (CfA) in Portsmouth, where it was assessed for two levels of conservation: first, to stabilise the object and allow investigative

analysis, and second, to allow it to be put on display.

The national importance of the archaeological discovery was recognised and in September 1999 Jeanette Ratcliffe, Senior Archaeologist at the Cornwall Archaeological Unit (CAU, now the Historic Environment Service, Cornwall County Council), produced a project design for evaluation, recording and reinstatement of the site (Ratcliffe 1999a). The project was designed as a partnership between CAU, English Heritage (EH) and the British Museum (BM). There were a number of strong conservation, research and management reasons for the project: the contents of the cist were vulnerable to contamination and deterioration and looting by treasure hunters was a possible threat. The project offered the unique opportunity to record fully the

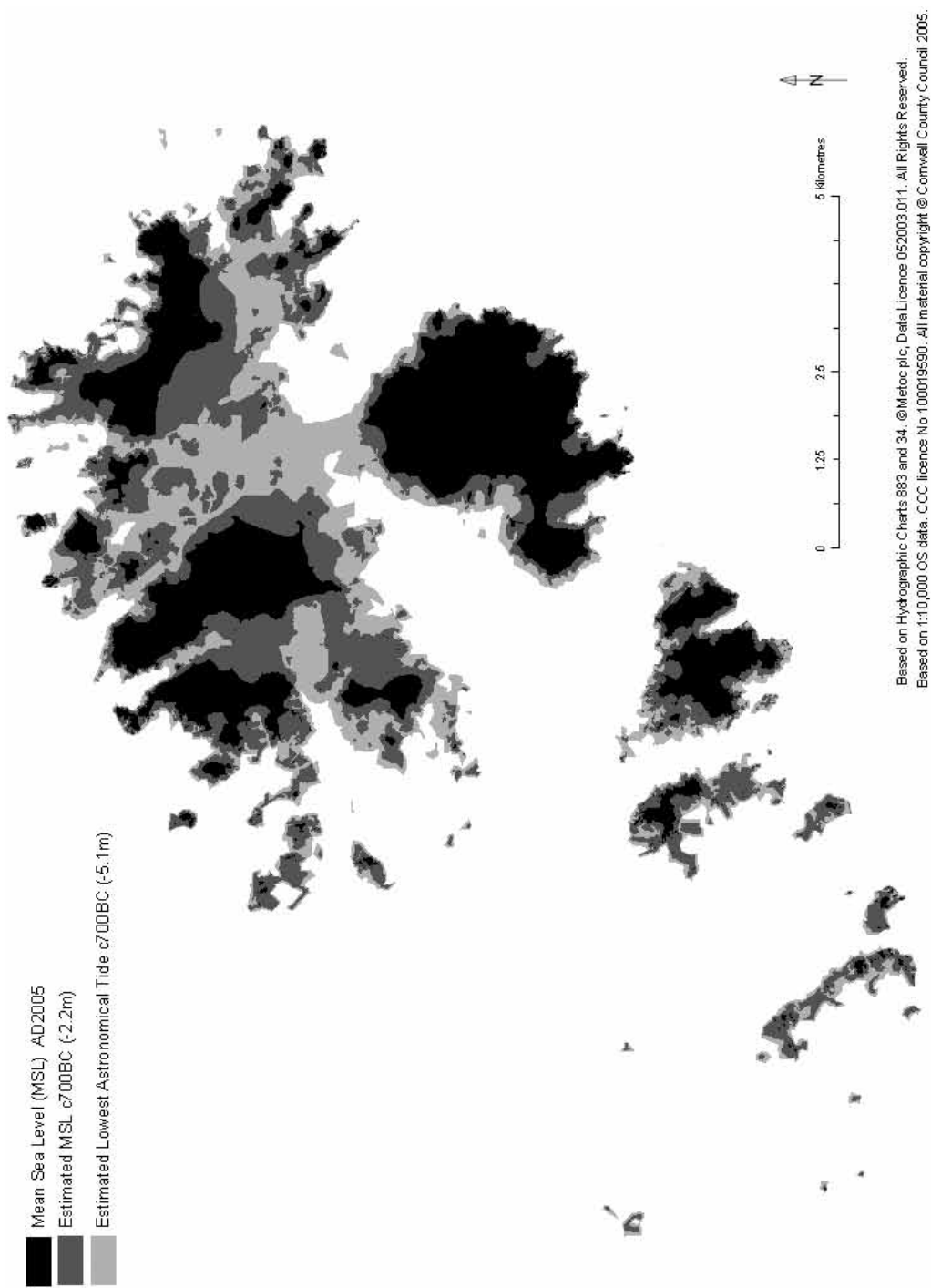


Fig 5 Hypothetical model of coastline and lowest neap tides c 700 BC against current Ordnance Datum at St Mary's. The coast and tide levels in the Late Iron Age are likely to have been similar.

archaeological context of the first Iron Age sword to be found west of the Tamar as well as adding to understanding of Scillonian cist graves, a significant local and national research gain. Finally, although a 20m radius around the exposed cist was designated as a Scheduled Monument (NM no 15546), other buried remains in the surrounding field(s) were potentially vulnerable to ploughing and it was therefore necessary to determine the nature and extent of any associated buried remains in order to formulate an appropriate management strategy.

The general aims of the project were to: ensure the conservation and interpretation of the burial and its grave goods; record the contents of the cist by careful excavation; establish the potential for further analysis; determine the local context of the burial in order to more accurately define the Scheduled

Monument boundary; reinstate the site to ensure future conservation of the remaining cist structure; and analyse and disseminate the results of the project.

The timetable for the archaeological fieldwork was designed to fit in with the farmer's cropping programme. The potato crop was lifted in July–August and ridging-up for a winter crop of potatoes was to take place from the beginning of November. Consequently, on-site recording work commenced during September and was completed by the end of October 1999.

The first stage was a topographical survey, recording the immediate landscape context. This was followed by magnetometer and resistivity surveys over an area of c 3ha of the cist field and surrounding fields (Linford *et al* 2000). The resulting plan of geophysical anomalies, overlaid on the topographical survey, was used to locate the cist excavation,



*Fig 6 The southern end of Bryher (looking south-east), showing Samson Hill and the relict prehistoric field system. The location of the sword and mirror burial is circled (© Cornwall County Council).*



Trench 1, and to target the 12 evaluation trenches, Trenches 2–13 (Fig 8).

The excavation strategy for the cist consisted of the controlled removal of the contents in spits or layers. Identified human bone and artefacts were recorded three-dimensionally, their position being marked on a plan and depths recorded with a dumpy level reading. Recording was carried out according to standard CAU procedure (Nowakowski 1992). Excavation of the contents was total, down to the

*ram* that formed the floor of the cist. All the soil inside the cist was sampled and retained for post-excavation analysis.

### Phosphate sampling

At the project design stage phosphate sampling was considered essential, given the strong possibility that there would be little or no surviving human bone. Sampling intervals needed to be close enough to



*Fig 7 Paul Jenkins with the sword soon after its discovery (© Gibson Collection)*



*Fig 8 Detail from the topographical survey showing surface features, geophysical anomalies and trench locations (Trench 1 and T2–T13)*

make it possible to detect the position of individual parts of the body. Consequently, samples were taken at 50mm intervals based on a consistent grid pattern for each spit or layer, 10gm of soil being taken from the intersection point between the 50mm squares. A total of 811 phosphate samples were taken from the cist interior. A sequence of 60 phosphate samples was taken at 50mm intervals from four columns on the northern edge of the Trench 1 in order to obtain information on background levels of phosphate from the ground outside the cist.

When it became clear during excavation that bone had survived, albeit poorly, and that the position of the body could be seen, it was decided that the primary aim in assessing the phosphate samples should be to test the methodology of phosphate analysis, to define in more detail the position of the body and also to analyse the samples for manganese to see if this showed enhancement in the area of the body or the underlying thin layer of brown silty clay. The assessment showed that where bone was present, total phosphorous and calcium

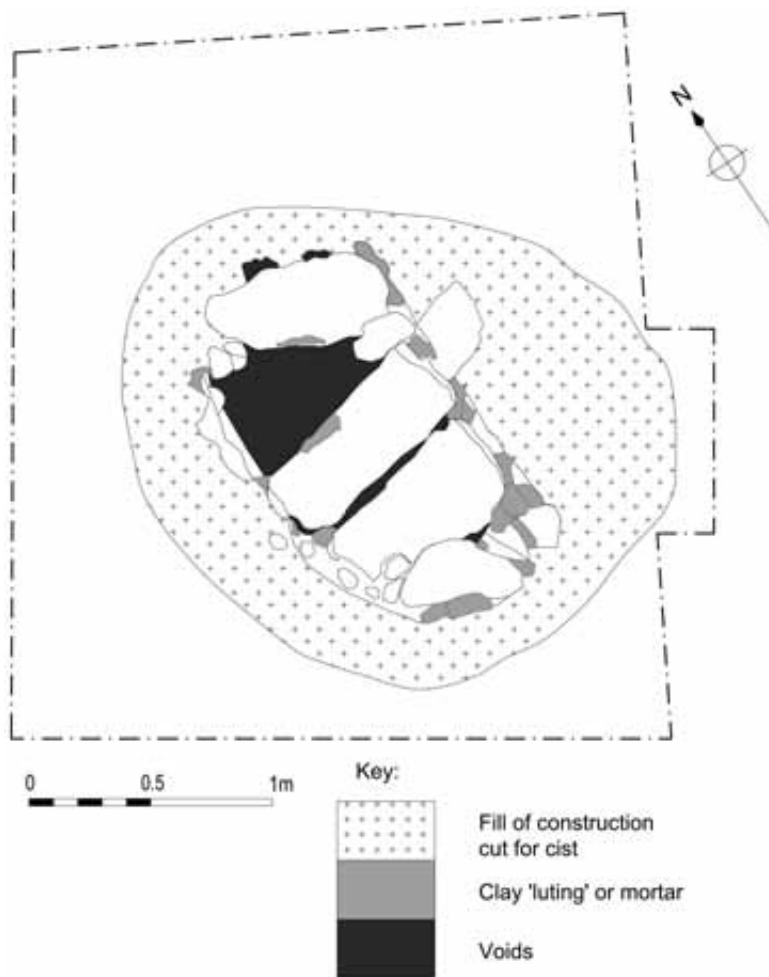


Fig 9 Pre-excitation plan of the cist

concentrations in the soil samples from the cist were higher than background levels, as would be expected. However, these did not provide more information about the position of the body than was already known from excavation and therefore no further analysis was carried out on the phosphate samples (Keeley and Smith 2000).

## The sword and mirror burial

This section provides a summary description of the excavated cist, followed by detailed specialist reports on the cist contents. Throughout the report, the context numbers for features, cuts and structures are shown in square brackets – for instance [15] – and those for deposits, layers and fills in parentheses – (12).

## Cist structure, contents and post-depositional processes

### Cist structure

The cist survived complete below the surface of the field, the flat, upper face of the capstones lying at a depth of 660mm below the present ground surface. Adhering to the capstones were vestiges of the light olive-grey clay 'luting' or mortar that sealed the gaps between them and held them and some smaller stones in place on top of the walls. The four *in-situ* bolster-shaped granite capstones fitted together well but barely spanned the top of the cist; the one removed by Paul Jenkins would also have fitted neatly (Figs 9 and 14).

The dry-stone walls of the cist (Fig 11) are coursed and slightly corbelled. The main basal

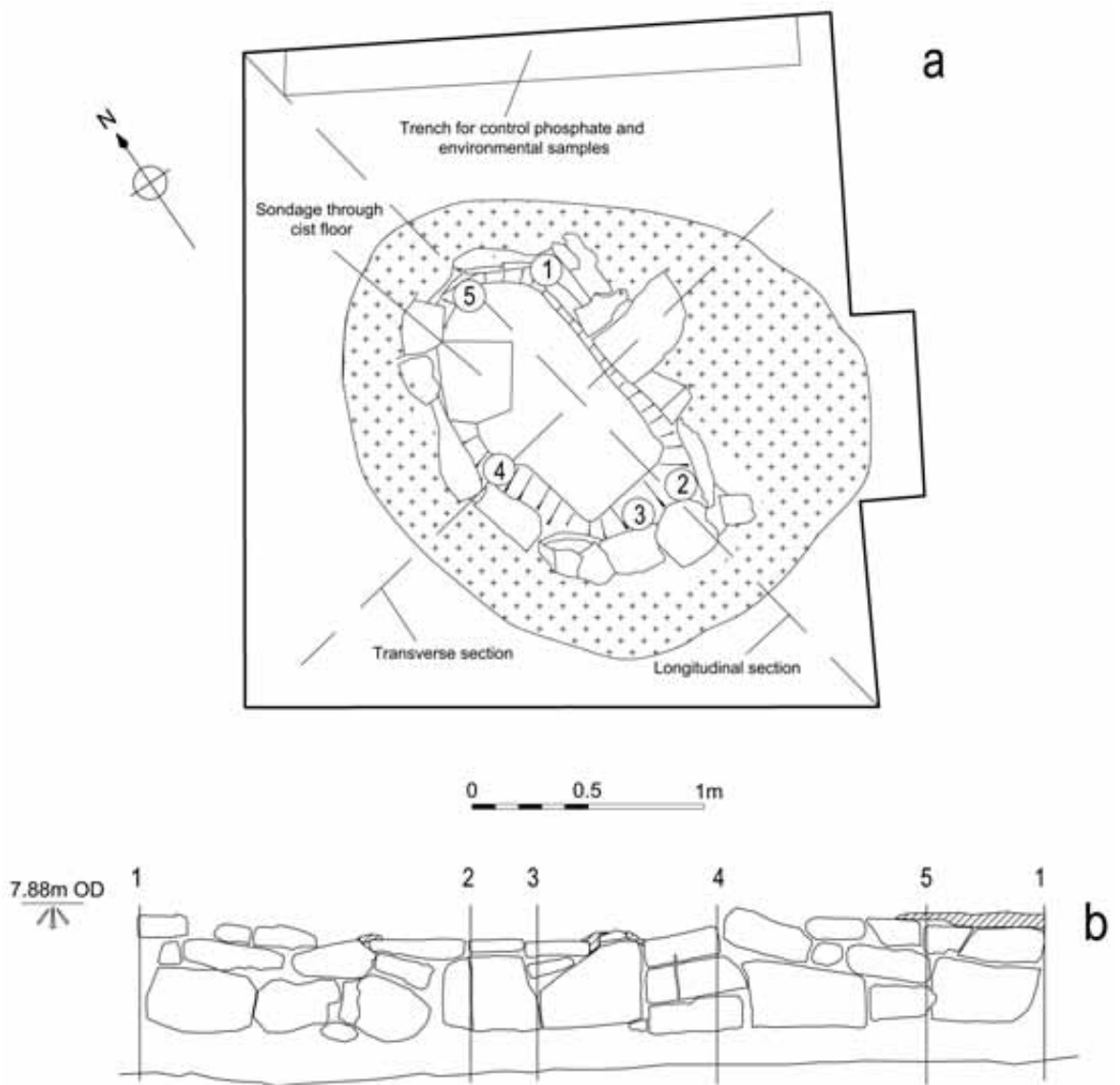


Fig 10 a) Post-excavation plan, and b) elevation of the cist

AN IRON AGE SWORD AND MIRROR CIST BURIAL FROM BRYHER, ISLES OF SCILLY

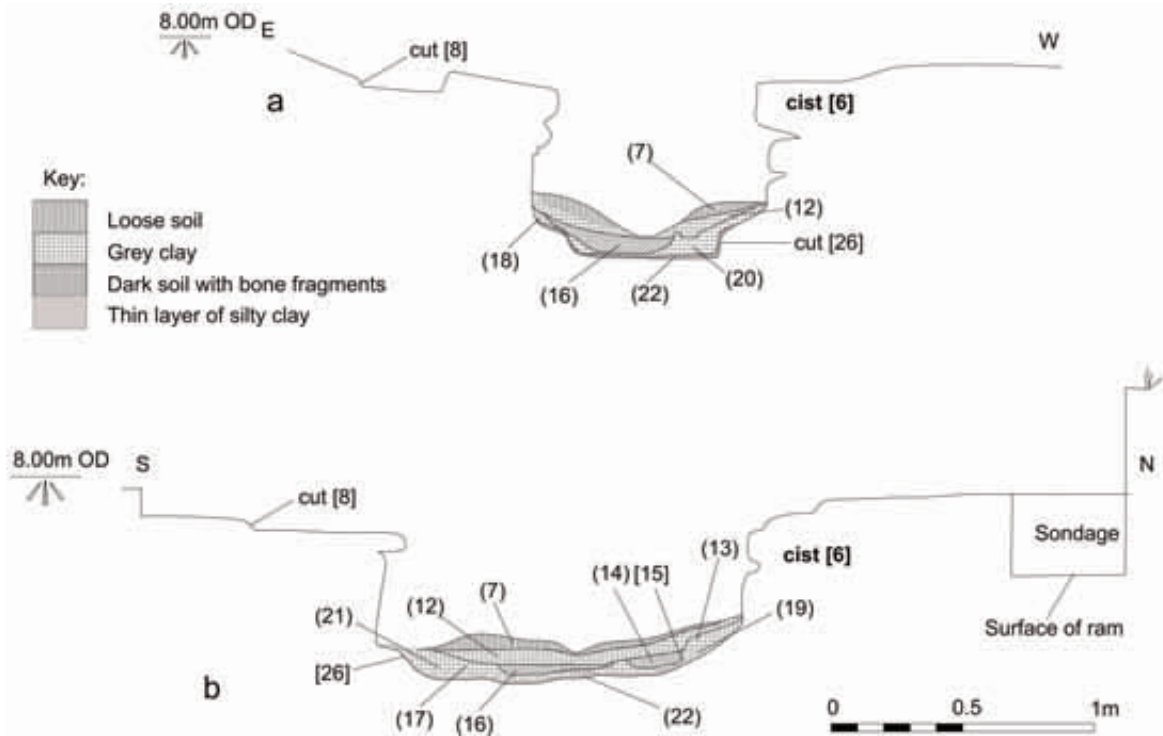


Fig 11 a) Transverse section and b) longitudinal section through the cist

course comprises fairly large slabs (roughly 250–600mm long) which are mostly edge-set. Above these, up to two courses of smaller slabs and rubble, generally laid flat, infill irregularities in the top of the basal course and raise the wall to a fairly even upper level about 700mm above the cist floor. There was no evidence of luting in the interstices of the side walls.

The walling defines a quadrilateral internal area with a north–south long axis measuring 1.5m long by up to 0.93m wide. The plan is asymmetrical: the east side of the cist has a shallower concave curve than the west and the southern end is angled while the northern end tapers to a single, rectangular transverse wall slab.

The cist was built as a freestanding structure within an ovate pit measuring 2.24m long by 1.92m wide (Fig 9). This had been dug through a layer of buried soil and into a pocket of naturally occurring, soft, stoneless, orange silty clay in the *ram*, which formed the floor of the cist. There was no evidence of an old turf-line on the buried soil and this was probably removed during the construction process. The space between the cist

walls and the edges of the pit had been backfilled with redeposited *ram*, compacted dark yellowish-brown stony clay, which might have been dug and brought from elsewhere. The floor of the cist was cut down into an oval shape, 100mm deep and squared off at the south end with a crescent shape cut out of the west side, probably to accommodate the flexed knees of the body. This was reflected in the curve of the walling above.

The body was almost certainly laid in the grave after the cist walls had been built. There would have been insufficient space in the pit to build the walls around the interred body without disturbing it.

#### Cist fills

The primary deposit in the cist was a thin layer of brown silty clay, 20mm deep (22), referred to during excavation as ‘the body stain’ but more likely to have derived from soil spilling into the cist during the interment (Fig 11). The human skeletal remains (very poorly preserved because of the acidic soil conditions) and most of the finds were embedded in

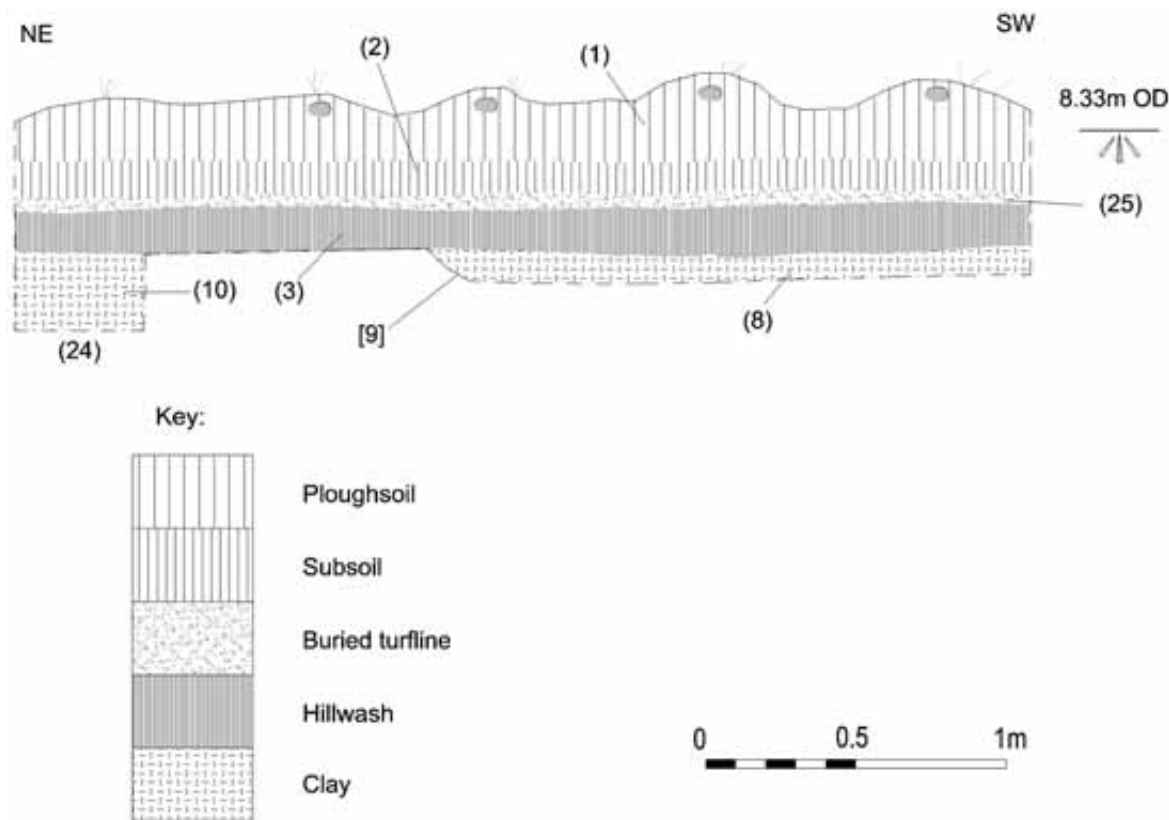


Fig 12 Section drawing showing the overlying stratigraphy in Trench 1

an essentially homogeneous deposit of compact, mottled yellowish-brown-grey clay, about 100mm deep towards the centre of the cist and 150mm deep at the edges. The clay was assigned various context numbers according to level or spatial position within the cist: (13), (17)–(21) (Fig 11). Taken as a whole, the deposit has been interpreted as washed-in clay luting from the capstones above. Similar deposits were recorded at the bottom of the Porth Cressa cist graves (Ashbee 1979, 65–73).

The area of the skull was defined by a sub-circular cavity [15] filled with loose soft dark brown silty clay (14), its eastern edge partially formed by *in situ* skull fragments (Figs 11 and 16). Presumably, at some stage in the skeletal decomposition, the skull had collapsed and filled with soil before being sealed by more luting washed in from above. Forty-four teeth fragments were recovered from sieving the grey clay below the skull cavity. The general position of the body was marked by an amorphous

mass of loose dark soil incorporating small bone fragments, 250mm wide by up to 350mm long, beginning 150mm south of the skull impression.

Overlying the yellowish-brown-grey clay – contexts (13), (17)–(21) – was an uneven deposit of loose, dark greyish-brown clay, 70mm deep, probably formed by the soil overburden spilling into the cist through gaps between the capstones where the luting had been washed away (12). Above this was a layer of loose soil (7), deposited since the capstone was dislodged in March 1999. Below the capstones, above the contents of the cist, was a void 450mm deep (Fig 11).

#### *Soil overburden*

The soil overburden, up to 660mm deep, comprised modern ploughsoil (1), ridged for potatoes, and subsoil (2) above a buried turf-line and old soil (25). This turf-line was 250mm above the level from which



the cist had been cut and had formed over a thick layer of hillwash (3) covering the top of the cist capstones (Fig 12). The very tops of the capstones were covered by a thin spread of pea grit (4) consisting of small clay pellets, a type of deposit apparently caused by worm action (V Straker pers comm).

*Modern disturbance*

The hole caused by the removal of the capstone dislodged by Paul Jenkins' tractor wheel measured 640mm long by 350mm wide and was located towards the northern end of the cist. This had been open since the sword's discovery but Paul Jenkins had covered it and the cist contents with pieces of black plastic sheeting for protection. Paul Jenkins mentioned that when he recovered the sword he raked his fingers across the probable rib cage area of the burial to see if there were any bones left.

**The burial**

*Position of the body*

The head was towards the north of the grave (Figs 13 and 16). The eastern edge of the skull cavity was partially formed by *in situ* fragments from the base of the back of the cranium, indicating that the inhumation was facing west. The body was almost certainly buried in a crouched position, lying on its right side with the knees drawn up close to the chin. The distance from the top of the skull impression at the north to the southernmost bone fragment was only 700mm. The only identifiable long-bone fragment, a distal femur, came from a disturbed context in the northern part of the grave.

*Spatial distribution of the grave goods*

In addition to the iron sword and bronze scabbard,

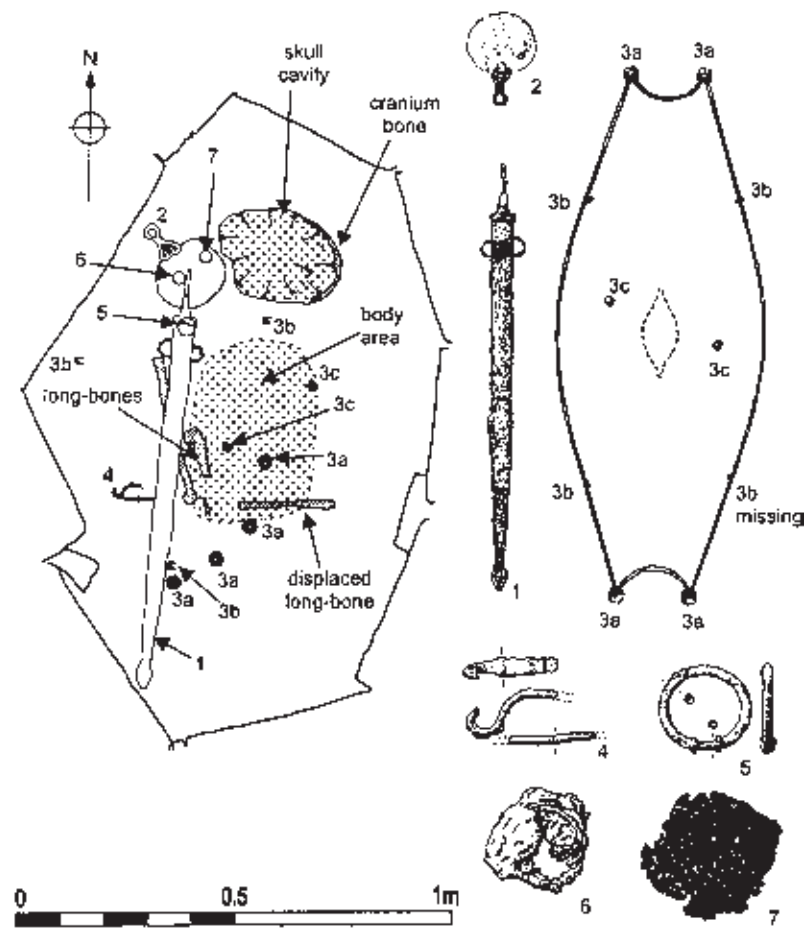


Fig 13 Plan of the cist interior showing the position of the skeletal remains and selected grave goods: 1) sword, 2) mirror, 3) shield fittings – 3a corner knobs, 3b shield binding clips, 3c studs, 4) brooch, 5) sword belt ring, 6) spiral ring, 7) tin object. Illustrations of grave finds not to scale

the cist contained the following identified grave goods: a mirror, a ring from a baldric (sword belt), shield fittings, a brooch and a spiral ring, all of copper alloy, and a shattered tin object (Fig 13).

The sword, when found by Paul Jenkins, was lying along the western side of the cist with its hilt to the north. He noted that the sword was lying in the surface deposits of the grave and it is perhaps surprising that it was not more deeply embedded in the washed-in luting (as were the skeletal remains and the other artefacts). The scabbard had been placed face down in the grave with the suspension loop uppermost, causing fragmentation of the embedded front scabbard plate when the sword was pulled out of the grave.

The mirror was found on the west side at the north end of the cist, lying 100mm from the skull impression, with its handle uppermost and angled towards the north west. The reflective surface would have been turned towards the face of the deceased person.

The sword belt ring was located 50mm south-west of the bottom of the mirror. The spiral ring and tin

object were below the mirror, and were lifted in the same soil block. The brooch was recovered from near the probable position of the feet of the inhumation.

There was no surviving archaeological evidence for a crown, helmet or any other form of headgear, such as was found in the Deal, Kent, warrior burial (Parfitt 1995).

#### *Sequence of deposition*

The sequence of deposition of the objects is not entirely clear-cut and the possibilities of residuality, secondary deposition and intrusion in the cist have been carefully considered. The mirror, sword belt ring and brooch were stratified in closed contexts at the same level as the skeletal remains. The position of the mirror clearly corresponds to the body's head and there can be little doubt that they are contemporary. The handle was uppermost (that is, higher than the plate of the mirror) and it seems that British decorated mirrors were designed to be held



*Fig 14 Pre-excavation photograph of the cist, looking north-west (© Cornwall County Council)*





*Fig 15 The excavation in progress with spot phosphate samples being taken at 50mm intervals, hand measured from 200mm grid squares for bulk soil sampling (© Cornwall County Council)*

this way. It has been suggested that when not in use they were hung on a wall by their handles so that the design on the back could be appreciated (Laing and Laing 1996, 114–5), although there is growing evidence to suggest that, as valuable and easily marked objects, they may have been kept in bags for protection (J D Hill, pers comm).

There are parallels for the position of the brooch, towards the feet of the burial rather than near the neck where brooches are more traditionally found, but the position of the sword is more problematic. It must have been lying at or very near the surface of the cist fills to be pulled out by Paul Jenkins. The question of why it was not more deeply stratified is unresolved, particularly as there were fragments of the tang and horn hilt on the underside of the mirror and the sword belt ring was at the same depth as the lowest part of the mirror.

The Bryher inhumation reflects the usual practice in warrior burials of placing the sword, scabbard and baldric on the right side of the body. The deceased would not have been wearing the sword and it is possible that if the sword had been placed, or balanced, over the thigh of the crouched body the weightier hilt end would have sunk down while the blade and point rose. The clay luting, when washed in from above, would not have settled on the narrow, raised blade. The hilt of the sword could initially have been supported by a rolled sheepskin cape or simple wrapper, also used to prop up the mirror, which was inside a bag fastened by the spiral ring. As the sheepskin decayed, the mirror would have fallen back onto the hilt of the sword.



*Fig 16 The cist interior showing the cavity formed by the skull and the emerging mirror, looking north (© Cornwall County Council)*



*Fig 17 Detail of the north end of the cist showing the in situ mirror and sword belt ring next to the skull impression, looking north west (© Cornwall County Council)*

The shield fittings were only identified after the excavation. The four knobs, presumably from the corners of the shield, were quite closely grouped and spaced equidistantly in the lower, central part of the grave. The position of the fittings suggests that the Bryher shield was probably broken or folded transversely and propped up against the west wall of the cist; similarly, the shield in the Deal burial seems to have been broken longitudinally and propped against the west side of the grave (Parfitt 1995, 20). The shield was probably the last object to be placed in the grave.

The suggested sequence of deposition is therefore:

- interment of the body
- cloak or some other garment, fastened with the brooch, folded at feet
- sword placed across thigh with hilt resting on bag and blade resting on cloak
- sword belt placed alongside sword

- tin object placed near head
- mirror, inside a textile bag fastened by the spiral ring, placed by the head and propped against the sheepskin sword wrapper
- shield broken transversely and propped against west wall of cist.

#### *A double burial?*

It has been suggested that the ‘obvious’ explanation for having a sword and mirror in the same grave is that two individuals, a man and a woman, were buried in the Bryher cist. This is an interesting theory and satisfies existing gender-related preconceptions about sword burials, which are presumed to be male, and mirror burials, presumed to be female. It is a possibility that cannot be excluded – there is so little surviving bone and it is so poorly preserved that it is impossible to say whether one or two bodies are

AN IRON AGE SWORD AND MIRROR CIST BURIAL FROM BRYHER, ISLES OF SCILLY

represented – but it is not supported by the excavation evidence. There was no identifiable indication of a secondary burial in the cist and the burial contained no apparently ‘female’ grave goods other than the mirror itself. The cist is not wide enough for two bodies to be buried side by side. A double burial would therefore require that the cist was reopened and the body with the sword laid on top of the other with the mirror; and that, while some identifiable bone from the lower body survived *in situ*, the upper body has vanished without any detectable archaeological trace.

All other known burials with weapons in the British Iron Age are single male inhumations and double burial at this period, while not unknown, is very rare. Most of the known examples from the Late Iron Age in south-west Britain involve the burial of an adult and child, side by side. There were two double burials, apparently of adults with children, in uncisted graves

at Trethellan Farm (Nowakowski 1991, 213), and four examples from Harlyn Bay. One of these was of two infants in a cist, another two bodies in a cist, the third two adults and an infant in a partitioned circular cist, and the last the skeletons of an adult and child found flattened beneath wall foundations (Whimster 1981, vol 2, 281–3, nos 35, 39, 56, 57).

*Other finds from the cist*

More than 600 metal objects were recovered from the cist. Most were copper-alloy scabbard fragments recovered during sieving. Three pieces of haematite recovered from the cist fills have signs of wear consistent with grinding to provide a fine powder that could be used as red pigment. Other finds included residual sherds of pottery, fragments of daub, pieces of flint and a single intrusive fragment of Roman glass.



Fig 18 The excavated cist, looking east (© Cornwall County Council)

Specialist reports relating to the cist are reproduced in full in the following sections. The artefact drawings in these sections are the work of Stephen Crummy. Technical reports by Margaret Brooks on the conservation of the metal artefacts and Peter Northover on the analysis of two metal studs from the burial are deposited with the excavation archive.

## Human bone

*Simon Mays, Gordon Turner-Walker and Keri Brown*

### Bone survival

Survival of bone was very poor. Less than 150g of bone fragments were present (precise weighing of remains was impossible due to firmly adherent soil being present on many fragments) and these were mainly long-bone and skull fragments. The surfaces of the long-bone fragments were heavily eroded; the skull fragments a little less so. The only long-bone fragment that was identifiable to skeletal element came from the distal part of a femur shaft. Tooth crown fragments were preserved, although only the enamel component survived; there was no dentine.

In order to investigate the state of bone preservation at the histological level, a sample from a long-bone fragment was subjected to examination under transmitted light microscopy and scanning electron microscopy by one of us (GT-W). The bone sample was ultrasonically cleaned, dried and vacuum embedded in water-white epoxy resin for sectioning (150 µm). For electron microscopy the sample was carbon coated.

The bone was found to show very poor preservation, with almost complete destruction of identifiable histological features except for Haversian canals. An exception to this pattern was at the endosteal surface where some osteocyte lacunae were visible (Fig 19.1). When viewed in polarised light the birefringence characteristic of bone tissue could be identified close to the endosteal surface (Fig 19.2) but elsewhere this was restricted to isolated patches. Where preservation was better, near the endosteal surface, staining suggested that the bone collagen had undergone some cross-linking by humic or other substances carried into the bone from the burial environment. This appeared to confer some protection from the microbial attack responsible for destruction of bone tissue in the

interior. This attack has reduced the interior to a loose network of re-deposited bone mineral which still preserves a ghost of the original histological structures (Fig 19.3). The numerous ragged holes visible in Figure 19.3 demonstrate that much of the original mineral content of the bone has been lost to the environment through leaching by acidic groundwater. Quantitative image analysis of the Scanning Electron Micrograph (SEM) images suggested that less than 15% of the original bone tissue was unaffected by microbial decomposition and that the bulk of this (6%) was represented by the endosteal surface, the remainder represented by small islands a few microns across in the interior.

### Age at death and sex

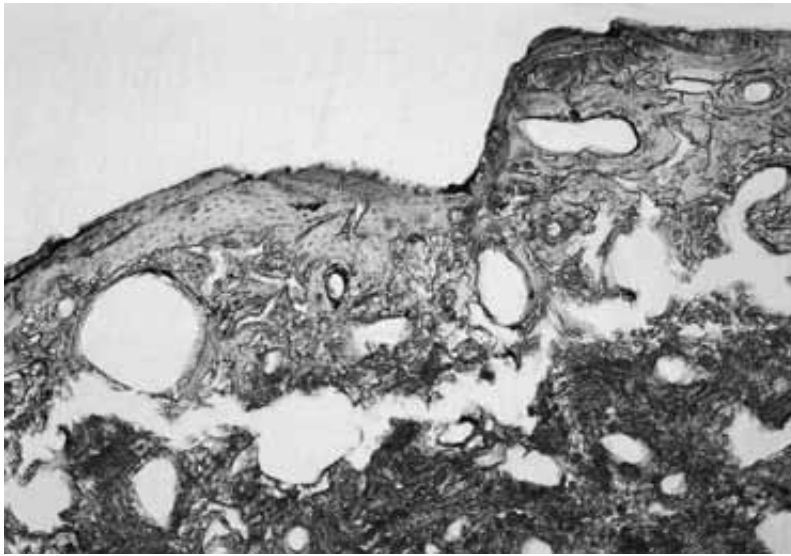
The burial was clearly that of an adult. Examination of the dental remains indicated a mandibular first molar crown at Brothwell's wear stage 3 (1981, fig 3.9), and a maxillary third molar crown at wear stage 2. This suggests an age at death of approximately 20–25 years.

It was impossible to identify the sex of the individual from bone morphology but an attempt was made by one of us (KB) to achieve this using ancient DNA. Two separate extracts were prepared from 0.5g of powdered cranial bone from which the surface had been scraped with a scalpel. Polymerase chain reactions (PCRs) were carried out aimed at the amplification of fragments of the amelogenin gene (Sullivan *et al* 1993). This gene is present in non-identical form on X and Y chromosomes and so may be used for sex identification. Because a small minority of males have the amelogenin gene missing from the Y chromosome, primers for the SRY gene, which is present in the non-recombining region of the Y chromosome, were incorporated into the amelogenin PCR (Santos *et al* 1998). For full details of laboratory methods see Brown *et al* (forthcoming). The size of the PCR products is 112 base pairs (bp) for the Y amelogenin, 106bp for the X amelogenin, and 93bp for the SRY gene.

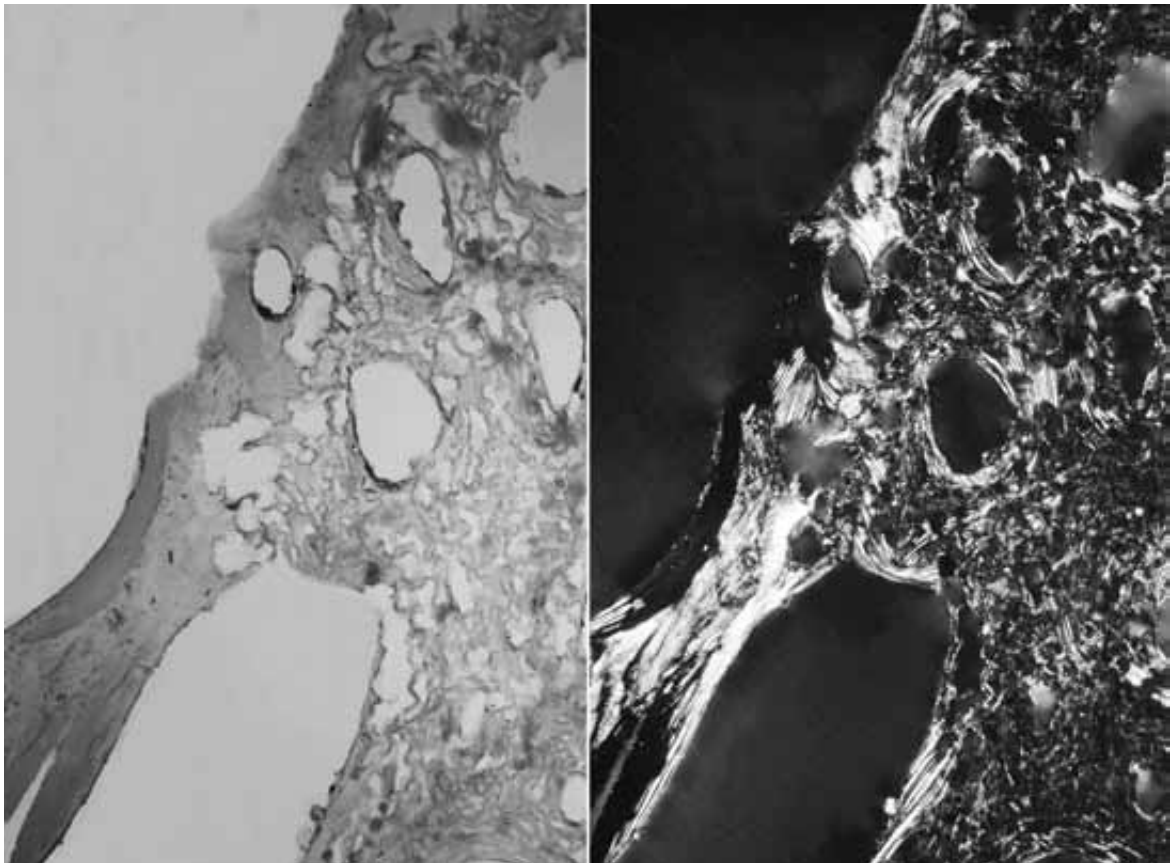
Results obtained proved to be non-diagnostic, probably due to poor survival of DNA. It was therefore not possible to identify the sex of this individual using DNA.

It has been suggested (Hagelberg *et al* 1991; Colson *et al* 1997) that there may be an association between human DNA survival in ancient bone and the level of histological preservation, DNA survival being poor in instances where there is severe diagenesis at the histological level. The present





*Fig 19.1) Transmitted light micrograph of endosteal surface of Bryher bone sample. The bone tissue is transparent and shows small osteocyte lacunae in the upper part of the image, whereas the tissue below is dark and opaque. Note that the well-preserved tissue has shrunk away from the interior opening a broad crack.*



*Fig 19.2) Views of the Bryher sample in ordinary light (left) and polarized light (right). Islands or alternate bands of lamellar bone can be seen near the surface and around Haversian canals,*

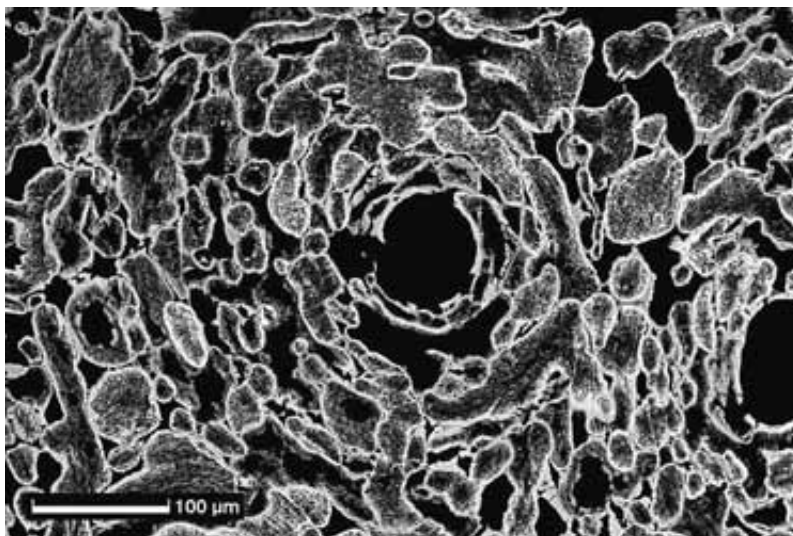


Fig 19.3) Electron micrograph viewed in backscattered electron mode. Bacteria have reworked almost all the original bone tissue leaving rounded islands of re-deposited bone mineral which appear brighter in the images. The large increase in porosity demonstrates how much original material has been lost to the burial environment. Nevertheless, it is still possible to distinguish Haversian canals and the concentric arrangement of the original tissue (photographs: G Turner-Walker)

results are in accord with this and illustrate the difficulties that may be encountered when attempting to identify sex using amplification of ancient DNA in instances where burial conditions are hostile to survival of skeletal remains.

### Stable isotope analysis of diet

Despite the severe diagenesis seen in the present case, analyses for nitrogen and carbon stable isotopes from long-bone fragments were successful (see the radiocarbon report below by Peter Marshall for methodologies).

Carbon and nitrogen stable isotope ratios in human bone collagen provide evidence regarding protein sources in human diets. Since collagen turnover is slow, information is on long-term average diets. The stable isotope results from Bryher, together with some comparative data from other Iron Age material from south-west England, are presented in Table 1.

In a north-west European context, carbon stable isotope values give an indication of the relative contribution of marine foods to dietary protein; a diet where all protein came from sea-foods would result in a human bone collagen  $\delta$  value of approximately  $-12\text{‰}$ , and for British archaeological skeletal material a completely terrestrial diet would be indicated by a value of about  $-21.5\text{‰}$  (Mays 1997). The present  $\delta^{13}\text{C}$  results indicate that the Bryher person obtained only a small proportion (perhaps a quarter or less) of his or her dietary protein from seafoods, despite the island location. Because they are protein-rich, marine foods would have made a much smaller contribution than this to whole diet. The Bryher individual may have consumed a little more marine food than either the Poundbury or Bleadon people, but the differences are minor.

Nitrogen stable isotope values in human bone collagen tend to show rather more inter-individual variation than do carbon  $\delta$  values. This reflects

**Table 1** Stable isotope elements, human bone (results in ‰)

		<i>Bryher</i> (Coastal) Mid Iron Age	<i>Bleadon, Somerset</i> (Coastal) Mid-late Iron Age	<i>Poundbury, Dorset</i> (Inland) Late Iron Age– Early Roman
$\delta^{13}\text{C}$	N	1	2	13
	Mean	-18.9	-20.2	-19.9
	Range	–	-19.7 – -20.4	-19.1 – -20.6
$\delta^{15}\text{N}$	N	1	2	13
	Mean	10.7	10.7	8.5
	Range	–	–	7.8 – 9.4

Data sources: Bleadon (Mays nd); Poundbury (Richards *et al* 1998). No range is given for Bleadon  $\delta^{15}\text{N}$  because the two values were within 0.1‰ of one another. Mean values given for Bleadon and Poundbury.

physiological and environmental factors and that there is more variation in nitrogen  $\delta$  values within food classes (marine or terrestrial) (Katzenberg 2000). It is, therefore, more difficult to define precise end-points for marine and terrestrial diets. However the mean  $\delta^{15}\text{N}$  for the Bryher skeleton (10.7‰) is broadly consistent with that expected for a diet where the majority of protein sources are of terrestrial origin (cf Mays 1998, fig 9.2). The rather greater N value for the Bryher than for the Poundbury material may, at least in part, reflect the slightly greater marine component in the Bryher diet.

## Radiocarbon dates

*Peter Marshall*

The first set of dates was seriously inaccurate because of low collagen yield in the sample (from a human long-bone). Consequently the sample was re-dated at the Oxford Radiocarbon Accelerator Unit and at the University of Groningen Laboratory. The results are conventional radiocarbon ages (Stuiver and Polach 1977) and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). The sample measured at the Oxford Radiocarbon Accelerator Unit was processed according to methods outlined in Bronk Ramsey *et al* (forthcoming) and Bronk Ramsey and Hedges (1997). The sample processed at the Centre for Isotope Research of the University of Groningen was measured by Accelerator Mass Spectrometry (AMS), according to the procedures set out in Aerts-Bijma *et al* (1997; 2001) and van der

Plicht *et al* (2000).

The calibrated date range (Table 2) and probability distribution (Fig 20) for the samples have been calculated using OxCal v3.5 (Bronk Ramsey 1995; 1998) and the usual probability method (Stuiver and Reimer 1993). They are quoted in the form recommended by Mook (1986), with the end points rounded outwards to 10 years if the error term is greater than or equal to 25 radiocarbon years or to 5 years if it is less. The results have been calibrated using data from Stuiver *et al* (1998).

The two measurements (OxA-12095+GrA-22411) are not statistically different ( $T^2=0.0$ ;  $v=1$ ;  $T^2(5\%)=3.8$ ; Ward and Wilson 1978) and so a weighted mean can be taken of the results before calibration. The weighted mean of  $2098\pm 21$  BP gives a calibrated date range of 200–45 cal BC (95% confidence).

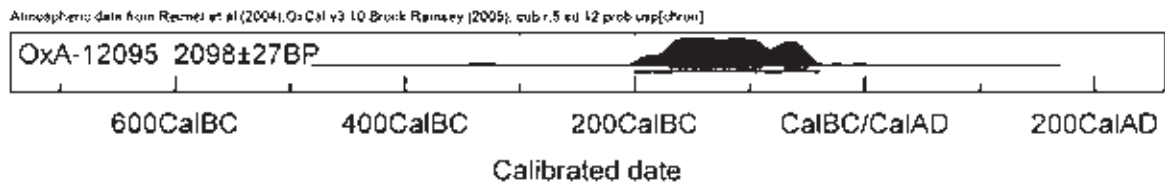
The  $\delta^{13}\text{C}$  values of  $-19.6\text{‰}$  and  $-19.0\text{‰}$  together with the  $\delta^{15}\text{N}$  value of  $+12.2\text{‰}$  suggests a small marine component in the diet, although this is not likely to affect the radiocarbon dating (Chisholm *et al* 1982; Schoeninger *et al* 1983). The C:N ratio of 3.2 suggests that bone preservation was sufficiently good to have confidence in the radiocarbon determinations (Masters 1987; Tuross *et al* 1988).

## The metalwork

*Ian Stead and J D Hill*

This burial contained a unique range of metal objects that are central to its interpretation and are also important for future discussions of the development

Fig 20 Radiocarbon date; the filled shape indicates the date range 200–45 cal BC



**Table 2** Radiocarbon results from Hillside Farm, Bryher

Laboratory number	Sample number	Radiocarbon age (BP)	$\delta^{13}\text{C}$ (‰)	$\delta^{15}\text{N}$ (‰)	C/N ratio	Weighted mean (BP)	Calibrated date range (95% confidence)
OxA-12095	HSF99/79//16	2098±27	-19.0	+12.2	3.2	2098±21	200–45 cal BC

of British Iron Age metalwork. A large number of metal fragments and larger objects were recovered from the burial. These came from:

- an iron sword in a bronze scabbard
- metal fittings from a wooden or leather shield
- a decorated bronze mirror
- a brooch
- a finger ring
- an unidentified tin object.

All the metal objects are very poorly preserved, sometimes very fragmentary and fragile. This poor preservation has largely destroyed the original engraved La Tène style decoration on the bronze scabbard plate and the back of the bronze mirror. Much of the shield binding has completely disintegrated and many of the small studs from the shield and the sword hilt are in poor condition. The metal objects were studied and drawn at the British Museum. Ian Stead has studied the sword; the other objects have been studied by J D Hill.

### **The sword and scabbard**

#### *Ian Stead*

A sword in its bronze scabbard, broken in two joining pieces on discovery (Fig 7). The corroded blade is visible where the front plate of the scabbard has broken away (Fig 21). It appears to be thickened in the centre and is perhaps 48mm wide at the top. The blade could have been up to 825mm long but its tip cannot be distinguished on X-rays. It maintains its width until just above the chape (45mm wide at 350mm from the end of the chape) and then tapers to what must have been an extremely long narrow point. Mineral-preserved organics retain the overall shape of the guard, 58mm wide with rounded ends. On the front, two small ornamental disks, apparently bronze dome-heads within washers with raised edges, and the shank of a third, are partly obscured by iron corrosion products. There is a similar central disk on the back and traces of the shanks of two more to left and right. X-rays suggest that the shanks may be bronze rivets passing through the thickness of the guard; the tops of the central domed heads are 24mm apart. The top of the guard, including mineral-preserved organics, is 24mm wide and 20mm thick, the tang within perhaps 14mm wide and 11mm thick.

It ends at a sharp straight break, perhaps where a washer separated guard from grip. The guard ends with a cast bronze hilt end, 49mm wide, with a high arched central panel on the front decorated with lobes arranged in a chevron with hatched background (colour plate 2). Three loose fragments of tang were found during the archaeological excavation, including the top, which tapers markedly and terminates in a dome over a bronze washer. Eight small disks similar to the three surviving on the guard were also found, suggesting that both pommel and guard had originally been decorated with three on each side.

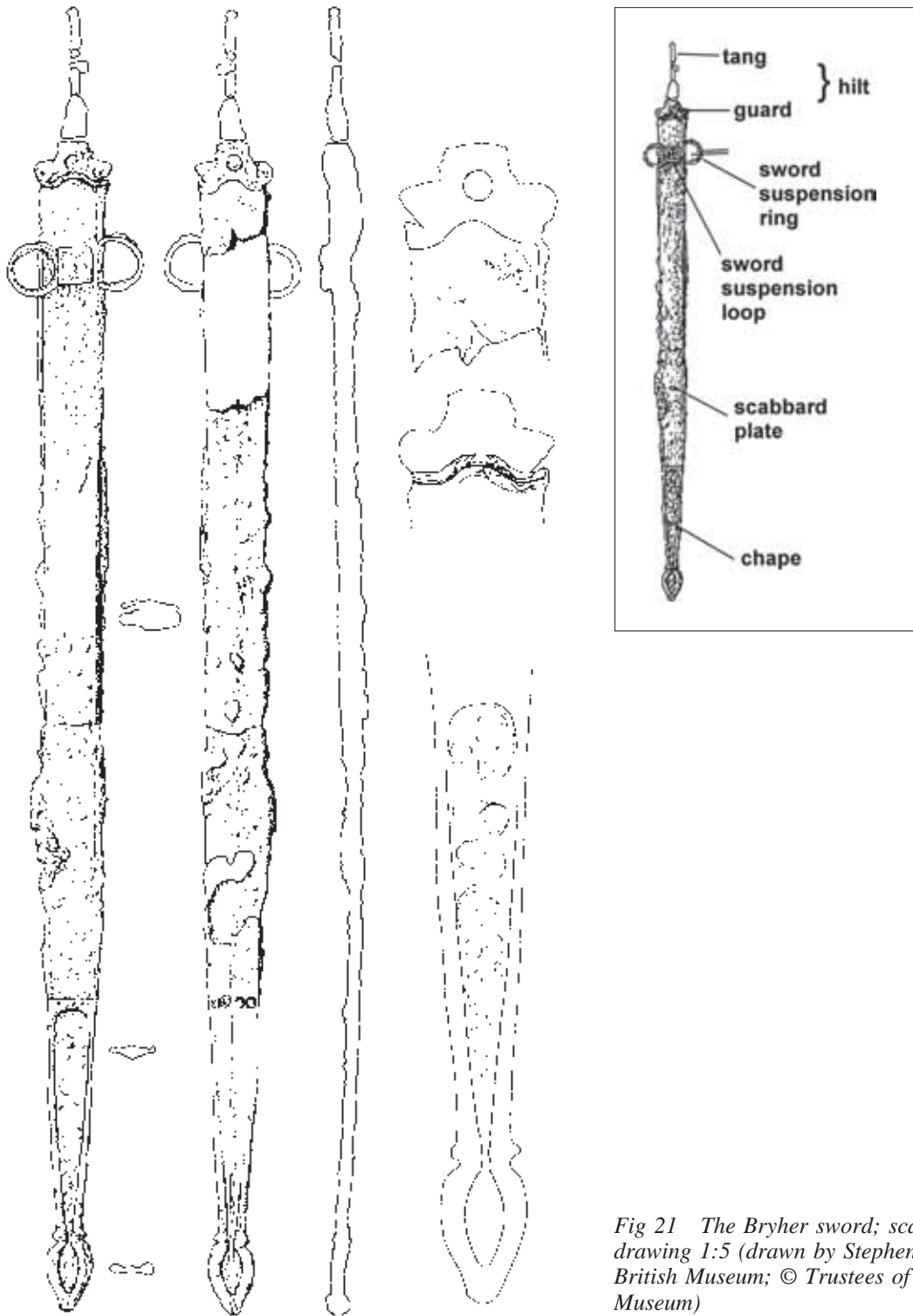
The front plate of the scabbard is fragmented and badly corroded. At the top, a fragment up to 65mm long includes the campanulate mouth, about 8mm high, and traces of a decorated panel (colour plate 2). The surface is corroded but there is engraved or incised decoration, including hatching, in the top right corner. At the bottom, a 290mm length attached to the blade includes the whole of the chape, and there are small fragments corroded to the blade elsewhere. The lower piece includes a midrib that is absent from the top piece. A loose fragment includes the start of the midrib and what is presumably the bottom of the decorated mouth-panel, but without any trace of decoration. As the top and bottom of the scabbard are corroded onto joining pieces of blade, the full length of the scabbard can be established, about 842mm. Its width at the top is about 51mm.

The full length of the back-plate survives, broken where the sword is broken, and its mouth is decorated with a band of lozenges arranged chevron-wise with hatched background, as on the front of the hilt end. The front plate overlaps the back. The suspension loop is 25mm wide, 28mm deep and stands about 6–7mm high, but there are no loop plates and no hint of fixing on the X-rays. The surface of the loop is corroded but its decoration can be distinguished: a four-petal design with triangular infilling in the background. When found, there was a bronze ring on each side of the loop, about 40mm diameter and 4–5mm thick; both rings are now broken.

The excavation recovered another bronze ring that may have secured a baldric (Fig 23.3). It is 50mm wide by 46mm and has two rounded mouldings defining a 10mm width to which a strap would have been attached.

The chape is 230mm long with a bridge, straight on top and concave underneath (Fig 21). The badly corroded chape-end is about 60mm high to the tops





*Fig 21 The Bryher sword; scale of main drawing 1:5 (drawn by Stephen Crummy, British Museum; © Trustees of the British Museum)*

CHARLES JOHNS



Fig 22 1) X-ray of scabbard chape 2) close up of x-ray showing design detail within the chape area (© English Heritage)

of the moulded finishes. At the finishes it is 26mm wide, below them only 19mm. The maximum width of the chape-end is 33mm and X-rays suggest that it is hollow at the sides. At the bottom, the chape-end expands, in side view, to the terminal moulding. On the front, at the top of the chape, are two imitation clamps, each a figure-of-eight shape with two projecting circles, one on either side of the central bar. The imitation clamps have been attached by tiny rivets, two at either side of an indent on the outer surface, possibly others in the projecting circles and perhaps others on the inner surface where they are lost to corrosion and breakage. On the back-plate of the scabbard, within the chape, there are traces of

incised or engraved decoration including hatching. In its present corroded state it is impossible to offer an analysis of the design, but there are hints that it is unusual (Fig 22). X-rays show a spot central below the concavity of the bridge, perhaps a rivet head that would have helped to retain the bridge.

The Bryher scabbard is one of a group of eight British examples, the others being Henley (Stead 2005, 5.1), Meare Heath (*ibid*, 5.4), Little Wittenham (5.2), Amerden (5.6), Lakenheath (5.7), London (5.5) and Hunsbury (5.3). All are made of bronze and have campanulate mouths, but the other distinguishing features, especially two types of suspension loop and two types of chape, are

associated in different combinations. The Bryher suspension loop is of the same type as Little Wittenham but is of bronze and decorated whereas Little Wittenham is iron and undecorated. The Bryher petal decoration is matched in the same place on a very different scabbard from Isleham (*ibid.*, 6.5). The chape is like Little Wittenham, Henley, Meare Heath and Hunsbury in having a long heart-shaped chape-end and imitation clamps. The Henley and Meare Heath chape-ends have been cast on, but Bryher is perhaps like Little Wittenham and Hunsbury in having the chape-end, frame and bridge cast in one piece.

The Meare Heath and Little Wittenham scabbards have midribs down the front plate, like that from Bryher, and on each the midrib starts below a decorated mouth panel. The Hunsbury midrib extends to the top of the scabbard, bisecting the decorated mouth panel, and Henley has a decorated mouth panel but no midrib. The decoration on the Bryher mouth panel resembles Meare Heath and Hunsbury in being engraved, chased or incised, with hatched background; Henley and Little Wittenham employ repoussé. The other panel of decoration on the Bryher scabbard, within the chape, is on the back rather than the front of the scabbard. But this accords with the British tradition: Henley has openwork decoration on the back of the chape, as has an earlier chape from Little Wittenham (*ibid.*, 4.5); Hunsbury and Little Wittenham (5.2) are also decorated on the back, on the bridges, and Hunsbury has decorated rungs as well. However, the Bryher scabbard differs in that its decoration is on the scabbard plate within the chape; the others are decorated on the chape itself.

The Bryher sword is unusual in having such a long, narrow taper to the tip of its blade. Comparable chape-ends on the scabbards discussed above are 40mm to 53mm wide where Bryher is only 33mm wide. But there is a parallel: a loose chape-end of this type from Woodeaton (*ibid.*, 5.8) is also 33mm wide. The surviving pieces of handle are from a standard British sword best represented in Yorkshire (especially Kirkburn and Wetwang Slack (8.1–8.3), also Thorpe Hall (12.1); for the smaller disks see Rudston (10.2) and Fiskerton (2.5); Lakenheath (5.7) has loose disks). The suspension rings can be best matched in La Tène III contexts at Essendon (5.22, 5.26), Whitcombe (7.2) and Coleford (7.29), but, perhaps significantly, the baldric is different.

The Bryher sword and scabbard are British, the scabbard belonging to a tradition represented by

seven others. In detail it compares best with Little Wittenham, Meare Heath, Hunsbury and Henley, although it is noticeably longer (841mm, compared with 740mm to 770mm for the others). But two other scabbards in the group, Amerden and London, are even longer (851mm and 907mm) and their chapes are typologically later. Bryher's length may well have chronological significance. The entire group is typologically later than the Deal scabbard (*c.* 200 BC) and is likely to span the second century BC and extend into the first century BC. Bryher alone has associations, although they do not provide a clear date. The brooch is certainly not La Tène II and could date to any time from the end of the second century BC to perhaps as late as the second century AD, depending on whether or not it had a solid or open catch-plate. The scabbard narrows the range to late second century BC or first century BC. The associated mirror cannot be dated closely (see below), but the earliest British decorated bronze mirror that can be dated is from Chilham Castle, with brooches of the mid first century BC (Stead 1998). On balance, the Bryher burial is likely to date from the first half of the first century BC.

### The shield fittings

*J D Hill*

The grave contained metal parts from a hide-shaped shield (Figs 13 and 23). This shield would originally have been of a similar shape and construction to that buried with the Deal warrior (Stead 1995). The Deal shield and the copper-alloy miniature shields of the same shape in the Salisbury Hoard are hide-shaped with bowed sides, concave ends and four projecting corners (Stead 1991b). Originally made of wood or treated hide, only the shield's metal fittings have survived in the Bryher grave. As these fittings are poorly preserved and there is no metal shield boss, the presence of the shield in the grave was not recognised during the excavation and only became clear as Margaret Brooks conserved the objects. Analysis of the distribution of the shield fittings in the grave by Stephen Crummy, who illustrated the finds, suggests that the shield was propped up against the west side of the grave and did not lie over the body. This is similar to the way in which the shield was originally placed in the Deal warrior's grave, placed propped against the left side of the grave (Parfitt 1995).

The metal parts of the shield consist of fragments

of copper-alloy binding, three clamps (Figs 13 and 23.5) and four globular knobs that originally were fixed to the corners of the shield (Figs 13 and 23.4). The shield's boss and handle were probably made of wood. No other metal parts of the shield have been identified, except several studs, 10 or 12mm across, with a bead edge and flat under-surface. Their function is unclear but they may have been rivets in the front of the shield (Figs 13 and 23.6–7).

There would have been strips of U-shaped copper-alloy binding around the top and bottom of the shield. This is very poorly preserved and now only exists as many tiny fragments. Several lengths did survive and were lifted as blocks of soil because of this poor preservation. The longest of these is 110mm long. The binding is made from thin copper-alloy sheet bent into a U shape to fit around and hold the edge of the shield. The binding is 9–11mm wide to fit over a shield 8 to 9mm thick. The binding is 8mm deep. Although poorly preserved, there are not enough fragments of binding to suggest it originally went around the whole edge of the shield. Rather, as with the Deal shield and other surviving shield bindings, the binding probably only covered the very top and bottom of the shield, protecting the sharp corners but barely extending down the sides of the shield (cf Stead 1991b; 1995).

Each of the four sharp corners of the shield was probably adorned with a decorative and protective globular knob (Fig 13). Four of these objects were recovered from the grave. They are similar to each other (Fig 23.4). They are made in two cast parts from a heavy copper alloy. Each consists of semi-spherical domed knob, 18mm in diameter and 15mm high, attached to a straight-sided collar of the same metal with an external diameter of 16mm, internal diameter of 12–13mm and a height of 5mm. It is not clear how these knobs were originally attached to the shield, or whether they were fitted over the top of the binding strip or directly to the shield. These knobs are of a different construction to those on the Deal shield or on similar binding strips (Stead 1991b; 1995). In these cases the knobs are an integral part of the binding strip, worked from the sheet of metal used for the binding.

The three clamps are identical (Fig 23.5). Made of copper alloy, each is c 9–12mm wide, and 8–9mm long. In section they are U- or C-shaped, fitting over a gap c 8–10mm wide. Each is segmented with three lobes. The outer lobes on each side are of a shallow rounded shape with a much thinner tapering lobe in the centre. There is no clear evidence for where on

the shield these clamps were originally placed. One (small find no 16) clearly fitted over the binding, as part of the binding is preserved inside the clamp. This was the case for some of the clamps in the Deal grave. There, a clamp fitted over the binding at the centre of the concave part of the top and bottom of the shield. The presence of only three clamps at Bryher is a problem. It could be expected that these clamps occurred in pairs on opposite sides of the shield. It is possible that a clamp was lost in use, or because of the poor preservation and disturbance of the grave, was lost after burial.

The Bryher shield belongs to a common British type of Later Iron Age shield, although a type unknown before 1988. Hide-shaped shields were only revealed because of the miniature bronze versions from the Salisbury Hoard that surfaced in 1988 and the excavation of the Deal warrior burial later the same year. The distinctive binding and clips from the Deal grave enabled similar bindings and clips from several sites in southern and central England to be correctly identified, including Danebury, Glastonbury, Meare, Hayling Island and South Cadbury (Stead 1991b; O'Connor *et al* 2000). These hide-shaped shields can be dated to between the later third and first centuries BC. A small number of the Salisbury miniature shields have zones of La Tène style decoration highlighted by fine basketry hatching. If this imitates incised or painted decoration on some full size shields, can we envisage the original Bryher shield with similar decoration?

## The brooch

*J D Hill*

A very poorly preserved brooch was recovered in the area of the body's feet and legs (Fig 13). Although very fragmented, the brooch is most likely to have been a Nauheim-type simple La Tène III brooch or a Nauheim derivative. Distinction between the two types depends on the shape of the catch-plate that, unfortunately, does not survive in this case. The spring has disintegrated into seven parts, although a large central part of the pin remains intact, as does the head of the bow. The surface of the bow is badly pitted by corrosion but traces of the original decoration can be traced under a binocular microscope.

The largest surviving piece is most of the bow, the bowhead and start of the spring coil (26mm long).

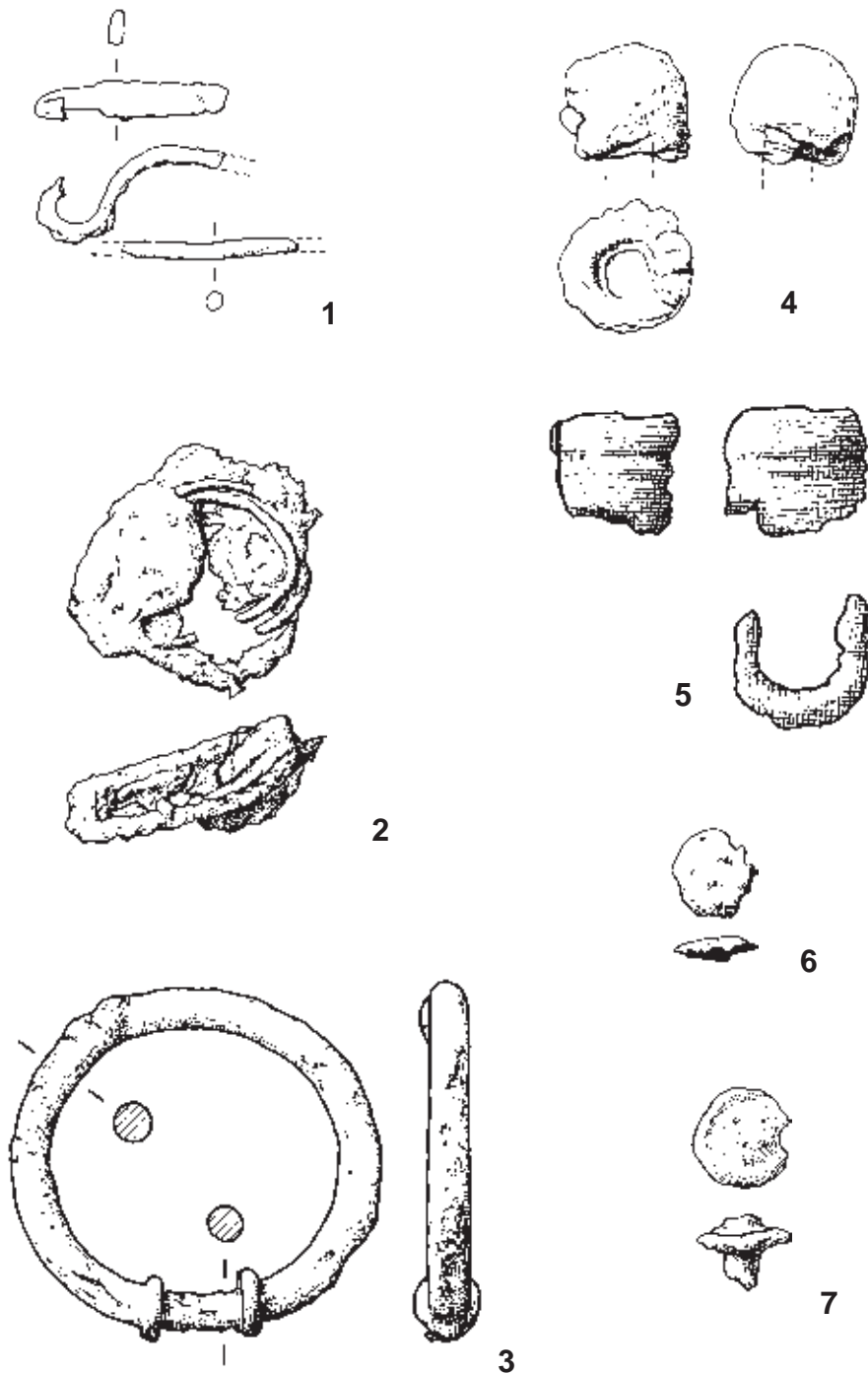
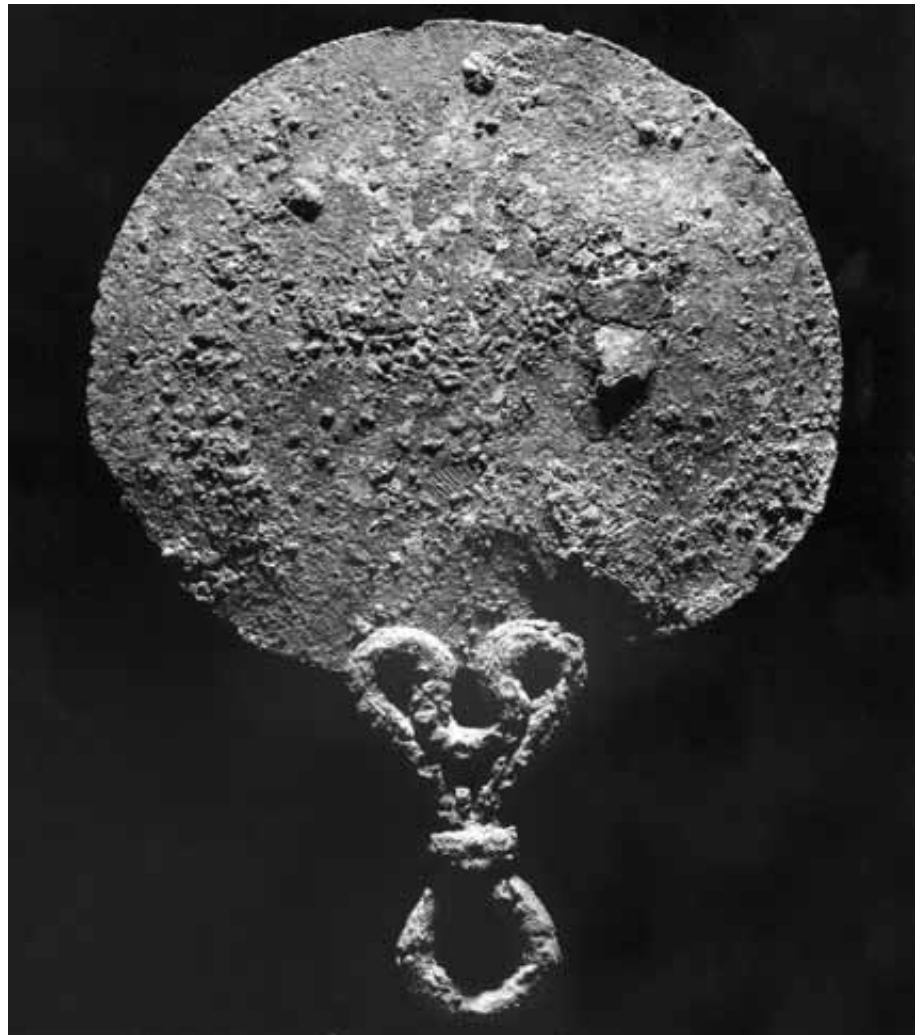


Fig 23 Copper alloy objects from the Bryher cist: 1) brooch, 2) spiral ring, 3) probable sword belt ring, 4) knob from corner of shield, 5) clip or clamp from shield, 6 and 7) studs from shield; scale 1:1 (drawn by Stephen Crummy, British Museum; © Trustees of the British Museum)





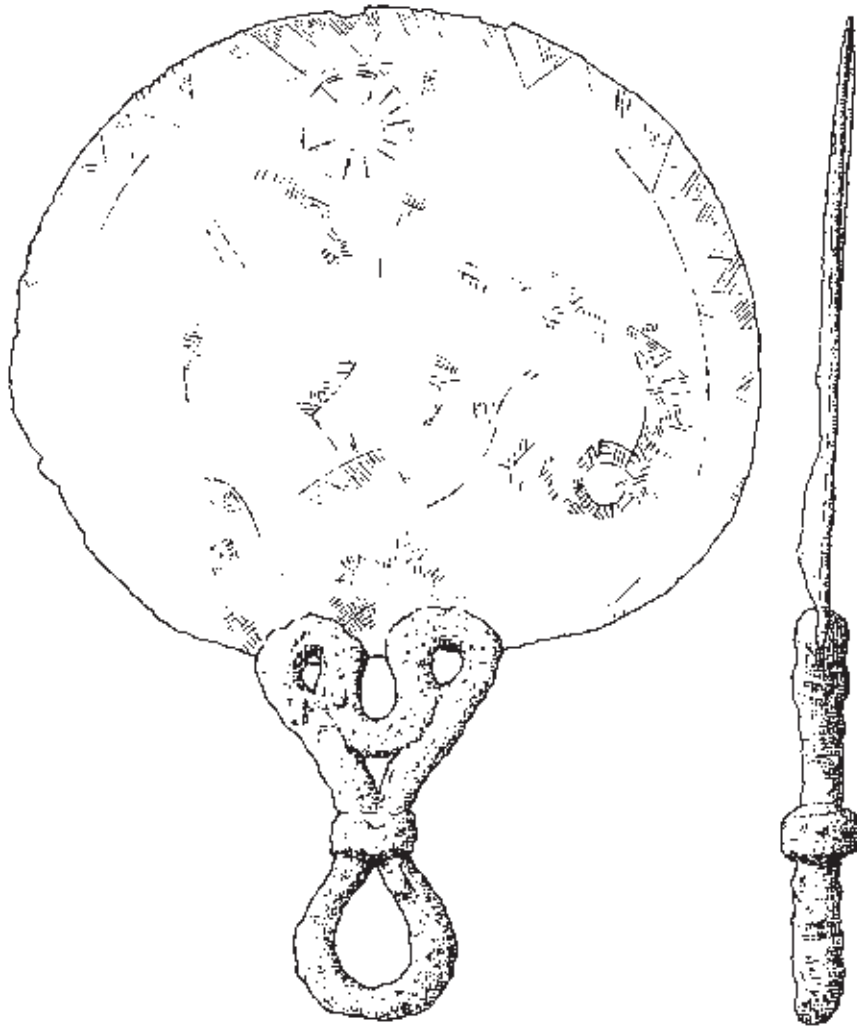
*Fig 24 The Bryher mirror, view of decorated back plate, scale 2/3 (© Trustees of the British Museum)*

The bow is flat and slightly lancelet in plan. Widest just behind the head (5.5mm wide), the bow tapers to a width of 3mm at the point where the foot has broken away. The bow would have stood about 13mm high from the pin. Close to the break at the rear of the bow there is a raised cross-rib with a faint fine zigzag decoration along its length. Along the length of the bow, from the cross-rib to the head, are faint traces of several lines, suggesting that the bow was decorated with parallel lines. The surviving part of the spring coils to the left. There are two other fragments of the spring coil, giving a maximum of two coils. However, it is impossible to say if the spring had an internal or external chord. The spring fragment with the start of the pin has two sharp, tiny fractures at the top of the start

of the pin, consistent with it having been damaged in use.

The brooch is probably a variant of the Nauheim type. It is not a classic Nauheim brooch, but there were many contemporary variations on this theme. Of interest is the fact that the surviving brooch from the St Keverne mirror burial on the Lizard is a similar Nauheim variant (Jope Rogers 1873).

Nauheim-type brooches were made and used over a long period. The later variations on this theme are the Nauheim derivative brooches that continue to have been made in the first and even second centuries AD. The main distinction between derivative and earlier classic and variant brooches is the shape of the foot. Classic Nauheim and early Nauheim variants have open feet with a perforated catch-plate. Later



*Fig 25 The Bryher mirror, decorated back plate and profile, scale 2:3 (drawn by Stephen Crummy, British Museum; © Trustees of the British Museum)*

Nauheim derivative brooches have solid feet and catch-plates. The feet and catch-plates, unfortunately, are both missing for the Bryher and St Keverne brooches. It could, however, be argued that a solid foot might have been preserved in the Bryher burial, albeit as a separate fragment, if originally present. This suggests that the Bryher brooch is likely to have had an open foot. The flat bow, as on both the Bryher and St Keverne brooches, occurs on all earlier types and many later derivatives. Earlier types usually but not always have lancelet shaped bows, wider at the head than the rear, as here. Cross-rib decoration is most common on earlier types, as here.

On the weight of the evidence, both the Bryher and the St Keverne brooches are Nauheim variants.

Nauheim and Nauheim variants (Feugère 1985, types 5a and b) are classic early La Tène III/D brooches. Evidence from southern-central France shows that they were most common in the last quarter of the second century BC and first quarter of the first century BC – La Tène D1 (Feugère 1985 type 5a) – although the variants such as Feugère 1985 type 5c were most common during the first half of the first century BC. This dating is confirmed by work on German brooches (Striewe 1996), where classic Nauheims and early variants date to La Tène D1 (125–75 BC). While the variations on this type continue for a longer period on the Continent, Colin (1998, 39 and fig 12) suggests Nauheim and variants (Feugère 1985 types 5a and b) are most common in

archaeological contexts from c 125–50 BC. Certainly in southern Britain there are very few Nauheim and Nauheim variants in the early phase of the Aylesford-Swarling cremation burials, where brooches are most commonly *Knotenfibel* – the type fossil for the early Welwyn phase burials (Stead 1976) – and other plain bowed types with pronounced high, sharp shoulders. These types are typical of La Tène D2 (c 70–30 BC) (Haselgrove 1997, Fitzpatrick 1997, Stead 1998). It is possible that the Nauheim variant brooches from St Keverne and Bryher could date as early as 125 BC but a probable date of between 100 and 50 BC might be suggested and they could have been made later than this.

The position of the brooch near or over the legs and feet is similar to the position of the brooch from the warrior burial at Deal, Kent (Stead 1995, 88). In most Continental and British inhumations with brooches, the brooch is found at the shoulder or by the side of the head. This suggests it was being used to hold a cloak on the deceased body during burial. At Deal, Stead suggested the brooch might have been in or on a cloak laid over the corpse upside down, as was the mail shirt from the Kirkburn cart burial (Stead 1991a). Alternatively, the cloak may have been folded and laid over the feet.

## The mirror

*J D Hill*

The mirror was found close to the head of the body (Fig 17), placed face up; that is, with the undecorated front of the mirror on top and the handle to the top of the grave. It is one of the earliest British Iron Age bronze decorated mirrors so far found and has several unique features.

The mirror is made from two pieces, an oval plate with a decorated back and a cast loop handle that is attached to the plate without rivets (Figs 24 and 25). There is no binding strip around the edge of the mirror plate. The plate is now very thin, only about 1mm thick. Uniquely, the mirror plate has a milled edge with approximately five to six notches per centimetre that survives around parts of the top lip of the plate. No other mirror shares this feature. The mirror plate is 152mm wide and 131mm tall, in shape an irregular oval. The top half of the plate is semi-circular but the lower half is an asymmetrical flattened arch. The lower left quadrant of the mirror edge is particularly irregular. This might be a product of poor preservation, although it is possible that the mirror was broken and repaired before being placed

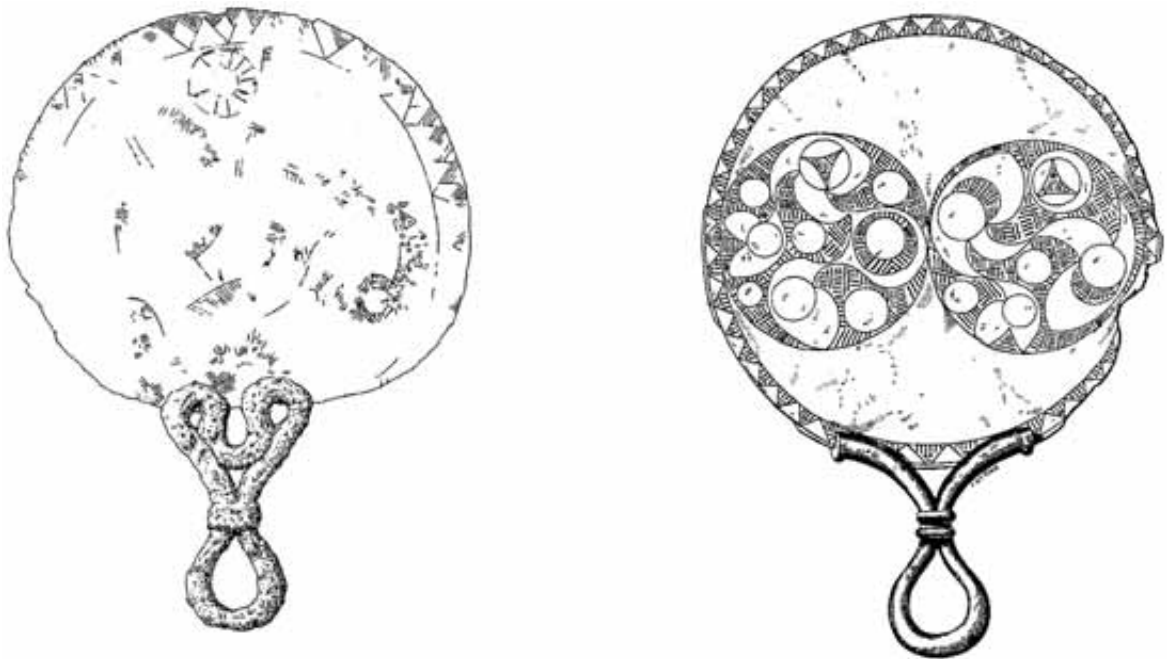


Fig 26 *The Bryher mirror (left) and the Trelan Bahow mirror*



in the grave. The shape of the mirror plate could be interpreted as somewhat bean shaped, as is the case with later mirrors such as Birdlip and Holcombe. However, the band of incised infilled triangles around the edge of the decorated back of the plate is an even width from the outside around the top half of the plate. But in the lower half the band tapers towards and disappears altogether before reaching the handle. This might have been intentional, but there are no signs of the milling around the lip of the plate in its lower third. There is also clear evidence that the handle fits over areas of the main design on the mirror plate. Areas with basket-weave infill from the main design probably go under the handle and certainly run right up to the bottom lip of the plate, where they appear to be cut off. It would be very unusual for a mirror design to not have a zone between it and the mirror edge. This evidence suggests that the mirror plate might have been broken at some time in the past. The handle and a lower part of the plate possibly broke away from the main part of the plate. The (original?) handle was then reattached after the plate had been carefully trimmed to create the existing irregular oval shape. This trimming has cut away part of the external band of incised triangles around the plate's edge and meant that when the handle was reattached it covered part of the main design on the plate. If this is correct, it implies that the original shape of the mirror plate was circular.

The cast handle is 81mm long, 48mm wide at the widest point of the top, 20mm wide at the waist and 34mm across at the widest point on the main loop. The handle is an unusual variant on the simple loop handles found on many mirrors (Fox 1958, type IIIa). Cast as a single piece, the plain main loop of the handle is waisted with a bipartite band. The top of the handle is unique, made in the form of another loop turned in on itself to create two looped arms.

As with the other metal objects from the grave, the mirror is poorly preserved. The surfaces are so badly corroded that the decoration on the rear barely shows and the extent and nature of the original design are very difficult to establish. It is only because of the skill and dedication of the illustrator, Stephen Crummy, that so much has been traced. The design on the back of the plate starts from the picot edge. A band of engraved decoration extends around the complete outer edge of the back of the plate, including under the arms of the handle. This is defined by the edge of the plate and a single line

drawn approximately 10–11mm inside the edge. This band is filled by simple triangles pointing into the middle of the mirror. These triangles are not identically drawn and vary slightly in size and angle. They are between 14 and 17mm wide along their longest side at the edge of the mirror. Each triangle is further sub-divided by two smaller infilled triangles of similar sizes and an empty diamond. Each smaller triangle is filled with six unevenly spaced engraved diagonal lines.

The main design is difficult to reconstruct, but covers almost every part of the plate. Areas filled with 'basket weave' or arrangements of incised diagonal strokes can be seen in different parts of the back-plate. At the top of the plate one part of the design extends up to and possibly touches the outer band of triangles. The design certainly was not contained in two or more circles, as with the mirror from Trelan Bahow on the Lizard. Unfortunately, it is not possible to say much more about the shape and nature of this design. However, given the area of the plate covered and the structural elements that can be determined, it is difficult to envisage how the common tripartite flowing designs seen on other early mirrors such as Chilham, Latchmere Green and Shillington could fit on this mirror's plate.

A unique feature of the design is at the top of the plate (Fig 25). Here there exist two concentric circles with at least 11 lines radiating between them. The outer circle has a diameter of 23mm, the inner of 10mm. Overall, these concentric circles were not executed with great precision. The top of the outer circle has two lines, perhaps where, when incising the line, the two ends of the circle did not exactly meet. Equally, the radiating lines joining the circles are not evenly spaced or slanted. This element looks very similar to the so-called Solar or Sun Disk motif that was used at different times and places in prehistoric Europe. No other British decorated mirror has a similar motif and it is not found on other British decorated Iron Age metalwork or other artefacts. This motif has a long history throughout later prehistoric Europe, although considerable caution is needed before relating the motif on the Bryher mirror to similar motifs used in different cultures and at different periods of European prehistory.

Certainly, compared with other mirrors, the Bryher find shows less consistency and precision in creating and highlighting the design. Part of a curving element in the lower left portion of the plate appears to have what may be a faint original tracing line just beyond the main incised arch that defines

the edge of the basket weave. The use of basket weave is often uneven in terms of the number and size of strokes and their orientation and spacing; in some cases they are not even straight lines. There is a similar lack of even spacing, direction and linearity for the diagonal infilling.

Decorated bronze mirrors are a well-known type of British Later Iron Age object (Fox 1958; Fox and Pollard 1973; Jope 2000; Stead 1996). British mirrors have been most recently reviewed by Fitzpatrick (1996) in the context of the mirror from Portesham, Dorset. At least 20 complete or almost complete examples are known. With one exception, they are only found in Britain and are a distinctively British object. The exception is a mirror from a first century AD cremation burial from Nijmegen, Holland. This may have been made by a British craftsman or by someone who had seen British mirrors (Jope 2000). These decorated bronze mirrors are probably related to the equally insular and earlier iron mirrors known from burials in East Yorkshire (Fitzpatrick 1996, Stead 1996). There are also three composite mirrors from Britain; one with a copper-alloy plate and iron handle from Glastonbury, Somerset (Gray and Bulleid 1911, 223), and one with an iron plate and copper-alloy handle from Mucking, Essex (Jones and Jones 1975, 142–4, fig 48, 14). Excavations at Maiden Castle, Dorset, produced an iron plate with copper-alloy binding (Wheeler 1943). Mirrors are comparatively rare from other parts of Iron Age Europe (Stead 1996, 57).

Where the context is known, almost every decorated bronze mirror has been found in a grave; that from a settlement at Holcombe, Devon, is an apparent exception (Fox and Pollard 1973) although recent study by Henrietta Quinnell (pers comm) suggests that the provenance of the Holcombe mirror was in fact a burial pit. Most mirrors have come from south-east England (Kent, Essex, Buckinghamshire, Bedfordshire and Hertfordshire), although this probably reflects the more frequent incidence of formal burial in this part of Britain in the Late Iron Age and the greater scale of modern development. However, five complete mirrors and parts of another six have been found in Scilly, Cornwall, Devon and Dorset, and other mirrors and mirror handles have come from around the Irish Sea – south-west Scotland (Balmaclellan, Carlingwark), north-west Wales (Llechwedd du Bach), south-west Wales (Llanwnda) and northern and central Ireland (Ballybogy Bog, Lambay Island) – suggesting that

mirrors were widely distributed, if not necessarily common, across most of southern and western Britain and around the Irish Sea province.

The Bryher mirror is unusual for its small size, oval plate and band of decoration around the plate edge. If it has been trimmed down from an original round plate, however, the size and shape of this mirror may not be atypical. It is similar to one other that, until the new discovery on Bryher, was considered an oddity; the mirror from Trelan Bahow, St Keverne, on the Lizard peninsula (Jope Rogers 1873; Fig 29). This was found in 1833 while cutting a new road across a large field. Several cist burials were disturbed, one containing a mirror, several glass beads, bronze bracelets and a broken brooch. The brooch is very similar to the one in the Bryher grave, being a Nauheim variant with a flat bow but also missing its foot. The mirror is round without a binding strip around the edge of the plate. The handle is a simple loop type. The mirror has a band of incised triangles around the edge of the plate and the main design is contained in two circles across the centre of the mirror.

The St Keverne mirror has often been seen as falling outside the main schools and types of decorated mirrors. Fox (1958, 98) dismissed it as having ‘debased ornament’ and being a late local copy, observing that ‘side by side with outstanding developments in pattern and technique, workshops finding a steady market in remote communities may, in mirrors as in other things, go on producing apparently outmoded patterns indefinitely’.

However, the Bryher mirror provides a better local context in which to reassess the St Keverne mirror. Both came from cist burials and are associated with Nauheim-variant brooches. Both have small circular or near circular plates with loop handles, although the handle of the St Keverne mirror is a simple loop type compared to the more extravagant arms of the Bryher find. The St Keverne mirror has a band of engraved triangles running around the edge of the decorated surface of the mirror, again very similar to the band of triangles on the Bryher mirror. Only these two Scillonian–Cornish mirrors have these relatively wide bands of decoration with triangles around the rim of the plate (Fig 26).

The decoration on the St Keverne mirror is unique for any British mirror. Most mirror designs are variations on three interconnected roundels (Fox 1958; Jope 2000). The St Keverne mirror has two isolated roundels containing a flowing design set across the middle of the plate. This flowing design

could be seen as similar to that on the Bryher mirror. The only other example with isolated circles of design is the mirror from Stamford Hill, Plymouth, which has three isolated roundels containing the design (Cunliffe 1988, 87–90). This mirror is later than that from St Keverne but these common elements may point to a stylistic difference between south-western mirror designs and those made in the south east. Certainly, the Bryher and St Keverne mirrors show striking similarities in shape and dating, and both have the distinctive bands of triangles around the plate edges (Fig 29). Placed in graves separated only by 80km of sea, these mirrors from Scilly and the Lizard are probably products of local workshops, even the same workshop, and do not need to be seen as imports from other parts of southern Britain (*contra* Fox 1958). They may also be the earliest known bronze decorated mirrors from the British Isles.

Until comparatively recently, few bronze mirrors had been found in closed archaeological contexts. What dating evidence was available for the deposition of mirrors concentrated on the early to middle first century AD. This led to the assumption that these mirrors began to be made in the last quarter of the first century BC at the earliest (Fox 1958, Jope 2000). Recent finds, including this one from Bryher, show that decorated mirrors were being made earlier in the first century BC. They also allow a firmer chronology and typology for bronze decorated mirrors to be created. The earliest examples usually have circular or near-circular plates, with loop handles, and lack a binding strip around the edge of the mirror plate. These can now be firmly dated to the first century BC. Later mirrors often have larger plates that can be kidney-shaped and there may be a binding strip around the edge. Handles are often complex looped types ending in a large terminal ring. The design on the mirror plate can be more extensive and elaborate. These mirrors, including those from Desborough, Birdlip, Holcombe, Stamford Hill and Portesham, mostly date to the early and middle first century AD. The Dorton mirror has a complex handle but lacks the binding strip around the edge and is dated to the late first century BC (Farley 1983). These mirrors may have continued to be made, and were certainly in use, for several decades after the Roman Conquest (Fox and Pollard 1973, Fitzpatrick 1996).

Four early circular mirrors with loop handles have been found in the last 20 years: Aston (Rook *et al* 1982), Latchmere Green (Fulford and Creighton

1998), Chilham Castle (Parfitt 1998) and Shillington (Hill 2000b). Other mirrors of this type have been known for a long time, but lacked any contextual information (for example, the Mayer and Gibbs mirrors: Fox 1958). The similar Lexden, Colchester, mirror, initially dated to the early first century AD (Fox 1958, 91–3), probably dates to before 15 BC (Fitzpatrick 1996, 67). The Ashton mirror came from a disturbed Aylesford-Swarling type cremation burial (Rook *et al* 1982); associated with it was some disturbed pottery, wheel-made grog-tempered wares consistent with a first century BC date. The Latchmere Green mirror, also from a cremation grave, was dated on stylistic grounds to the early first century AD, although the pottery and iron fibulae provide a *terminus post quem* of the late first century BC (Fulford and Creighton 1998, 339). This writer would argue that the pedestal urn and the iron brooches (probably Stead and Rigby 1989, type S; Feugère 1985, type 9a) indicate a date earlier in the first century BC for this mirror than Fulford and Creighton suggest. The Chilham Castle mirror unequivocally comes from a first century BC cremation burial. The grave also contained two La Tène III *Knotenfibel* type brooches. As discussed by Stead (1998), these brooches are type fossils of Aylesford-Swarling cremations of the first century BC and can be dated on Continental evidence to La Tène D2 (*c* 75–25 BC) (Gebhard 1991; Fitzpatrick 1997). Stead has argued that the Chilham Castle brooches are stylistically early and were perhaps made before 50 BC. This would imply that the Chilham Castle mirror was one of the earliest mirrors so far known. The newly discovered mirror from Shillington is of a similar middle first century BC date. This metal detector find is associated with a silver *Knotenfibel* (Hill 2000b).

To these early finds can be added the Bryher and St Keverne mirrors. Both are associated with Nauheim brooches. As argued above, on the Continent these brooches were in fashion before *Knotenfibel* (La Tène D1 = *c* 125–75 BC, as opposed to D2 = *c* 75–25 BC). Assuming that western Cornwall and Scilly were not conservative in the type of brooches in use in the first century BC, a date in the first half of the first century BC or slightly earlier can be argued for both burials. This implies that the Bryher mirror is among the earliest British decorated bronze mirrors, if not the earliest, so far known. If the Bryher mirror was broken and repaired before being placed in the grave, it might already have been relatively old when buried.



Fig 27 *The shattered tin object, scale 1:1* (© Trustees of the British Museum)

The current evidence suggests that decorated mirrors need not be seen as an innovation produced in south-east England that slowly spread to supposedly more peripheral, ‘backward’ areas. Rather, the distinctive features of these mirrors, such as the decorated band around the edge, the unusual main designs and the ‘solar circle’, can be seen as a product of a distinctive local tradition and of their early date. Already in the early first century BC the distinctive use of ‘basket weave’ to highlight the main design is present. It also shows how local Scillonian–Cornish craftspeople were an active part of the wider development of insular La Tène art in Britain.

### The ring

*J D Hill*

A poorly preserved copper-alloy spiral ring was found under the mirror (Figs 14 and 28.2). Flattened and severely corroded, the ring has an internal diameter of approximately 20mm and has two-and-a-half or three spirals. The ring appears to have been wrapped in a piece or pieces of fine cloth. Made from thin wire, now only 1–2mm thick but originally probably slightly thicker, this would have been a very fine ring compared with other copper-alloy Iron Age spiral rings. It is probably a finger or toe ring.

Rings are rare finds from Iron Age Britain. Only four copper alloy rings were recovered from almost 300 East Yorkshire graves excavated by Stead (1991a, 92–4); three of these were toe rings, worn by both sexes. Only three definite and possible rings were found at Danebury (Cunliffe and Poole 1991). More were found at Glastonbury and Meare and these have an average diameter of 18.7mm (Gray and Bulleid 1953, 208). Most of the other known Iron

Age rings are made from wider bronze bands than the Bryher example, but thin spiral wire rings do occur (cf Meare rings E32, E45, E80, E93; *ibid*, 208–212).

### The shattered tin object

*J D Hill*

Under the mirror, in the block of earth in which it was lifted, was an unidentifiable object made from tin (Figs 13 and 27). The object is extremely poorly preserved, the metal badly corroded and fragmented and the object itself crushed beyond recognition. It appears to have been constructed from very thin tin sheeting strips about 3mm wide and was constructed around an almost square wire frame base, 43mm by 46mm. It appears likely that this was a pyramidal or domed object, made from a number of lengths of tin strips, but what the original shape was, whether it was completely sealed, had a lid or was open, is impossible to ascertain.

Despite these problems, this is a very important object. There are very few prehistoric objects made from tin; those that are known are almost all of Bronze Age date. There are almost no other examples from the Iron Age except for seven small objects from Meare Lake Village (Gray and Bulleid 1953).

### Remains of textile and animal pelt

*Penelope Walton Rogers (Textile Research in Archaeology)*

Mineral-preserved fibres were noted by Margaret Brooks on two of the objects from the Bryher cist. Samples were therefore removed and sent for specialist examination at Textile Research. One sample was taken from the iron hilt of the sword and the other from around the outside of the copper-alloy spiral ring. The original position of the hilt of the sword within the grave is uncertain, although it seems to have been on the body’s right-hand side; the spiral ring was excavated from beneath the mirror next to the skull, also on the body’s right.

The structure of the samples was recorded with the aid of a low-power microscope (×10 magnification) and the fibres were then identified using a transmitted-light microscope fitted with an eye-piece graticule (×100 and ×400 magnification). Scanning Electron Micrographs (SEM) were also provided by Margaret Brooks as a cross-reference. The fibres are



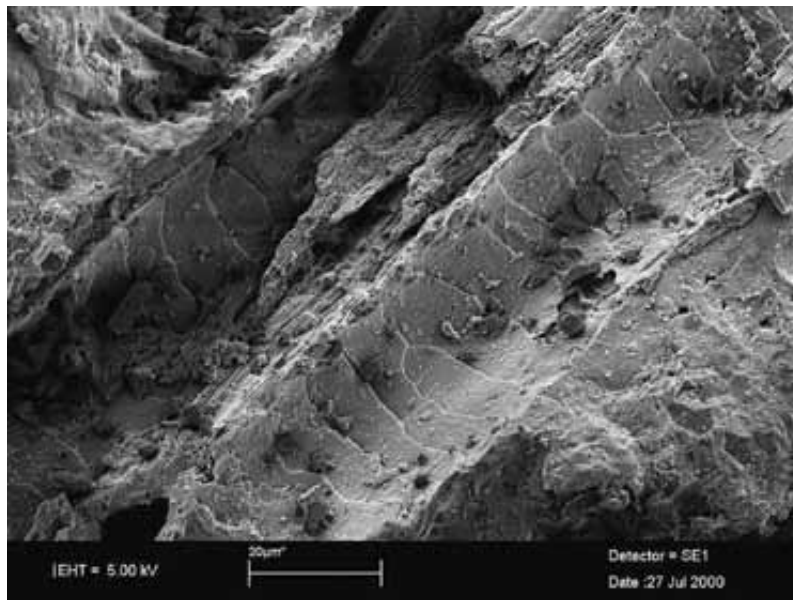


Fig 28 Image of the mineral preserved organic fibres from the sword hilt taken with a scanning electron microscope (photograph: Margaret Brooks)

all either fully or partially mineralised (that is, replaced by iron corrosion products) and some features could be seen best by transmitted light while others were clearer by SEM. Diameters of fibres were measured by transmitted light, but these should be regarded as a general guide only since it is possible that fibres shrink or expand during mineralisation.

### The fibres on the sword hilt

The fibres from the sword hilt lie parallel to each other in a dense layer, which suggests an animal pelt. The surviving fibres are 10–50 microns diameter, most being around 20 microns (taken from 25 fibres) and there appear to be remains of some coarser fibres which have fragmented. The cuticular scale pattern is irregular mosaic, sometimes waved, with smooth near margins. On one of the better-preserved fibres there is an interrupted medulla, although most fibres are hollow due to the mineralisation process. Cross-sections are oval.

These features indicate sheep's wool. Because the original position of the hilt within the grave is uncertain, it is impossible to say what function this fleece, or sheepskin, served within the burial. Animal skins are relatively common in prehistoric burials. Cattle hides are the most frequently encountered; they were often used to wrap bodies for inhumation in the Danish Bronze Age (Hald 1980, 313) while in the Finnish Iron Age they were placed under the body (*ibid*, 380). In Britain, remains of cattle hide

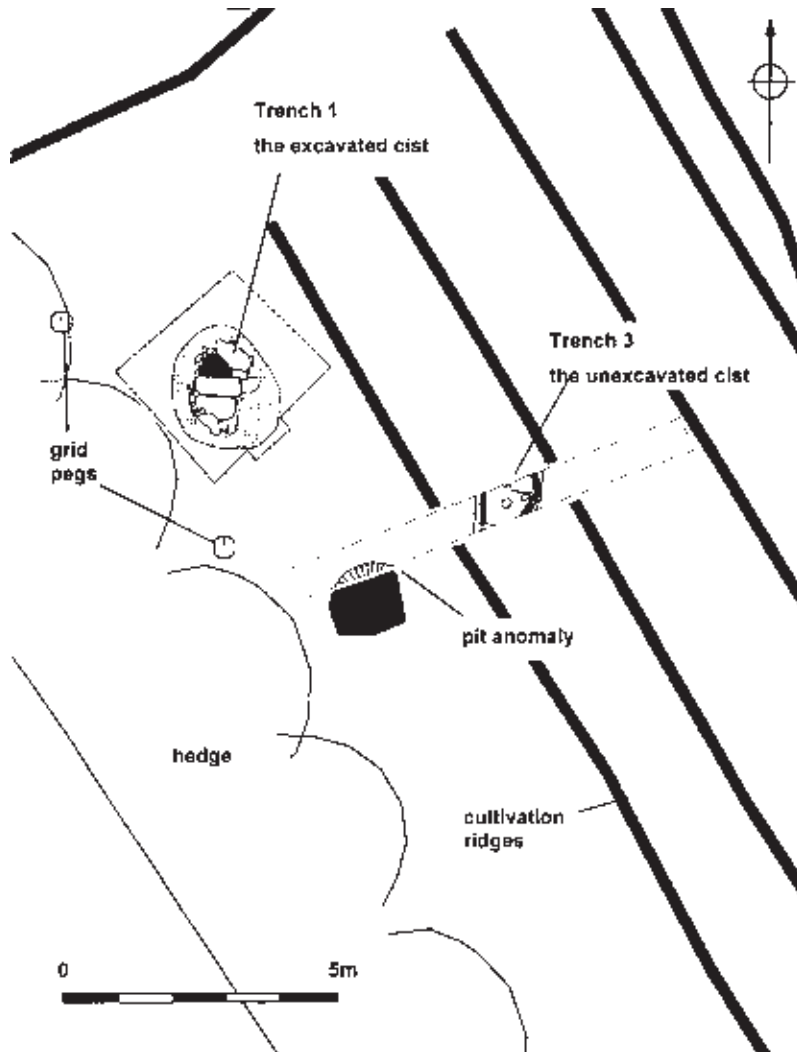
have been identified in a Bronze Age woman's burial at Ingleby Barwick, Cleveland (author's unpublished work), a Late Iron Age Arras group burial at Skipwith Common, Yorkshire (Bender Jørgensen and Walton 1985), and a Late Iron Age cremation burial at Westhampnett bypass, West Sussex (Walton Rogers 1997). There were also badger skins on the bier of the prince buried at Hochdorf, Germany, in the Early Iron Age (Körber-Grohne 1985, 141–2, 146–8), and the pelt of a small mammal with fine black fur in a Late Iron Age cremation burial at Welwyn Garden City, Hertfordshire (Ryder 1967). Sheepskins do not seem to have been identified as yet in burials from the British Iron Age but there are several short sheepskin capes from Pre-Roman Iron Age non-burial sites in Denmark (Hald 1980; Walton 1988). The Bryher remains could represent the remains of such a garment or a simple sheepskin wrapper for the sword.

### Textile on the copper-alloy ring

The sample taken from the spiral ring proved to be a twisted and distorted piece of textile. The weave cannot be identified with confidence, but the yarns are clearly Z-spun in warp and weft and 0.8–1.2mm in diameter. The surface is slightly matted in places. Although most of the remains come from outside the ring, Margaret Brooks also noted a single thread running inside it.

The fibres of the textile are 7–38 microns, with a





*Fig 29 Detail from the topographical survey showing the location and orientation of the two recorded cists*

few over 55 microns diameter, the most common measurement being 16 microns (taken from 30 fibres). The scale-pattern is irregular mosaic with smooth distant margins; cross-sections are circular and there are medullas on fibres of 30 microns. This may be tentatively identified as the undercoat of goat. The most diagnostic fibres of goat hair are the coarse outer ones, but these tend to be air filled and are particularly prone to fragmentation when mineralised, which may explain their absence here.

Two fibres with ladder medullas were also noted in the sample. These represent fur from a small mammal such as rabbit or squirrel. Some spun badger-fur yarn was used in the Hochdorf textiles (separately from the

badger skins mentioned above), but that was for special patterned weaves (Banck-Burgess 1999, 131). In the case of Bryher, the fibres are more likely to have been accidentally spun or woven into the textile during manufacture, or may represent the remains of another animal pelt within the burial.

Relatively coarse textiles made from Z-spun yarn have been found throughout lowland north-west Europe in the pre-Roman Iron Age, and in Britain in the Late Iron Age (Bender Jørgensen 1992, 119–21; Crowfoot 1991, 119–25; Bender Jørgensen and Walton unpublished). There is less evidence for the Middle Iron Age but the Bryher example suggests that similar technology was available. The tentative

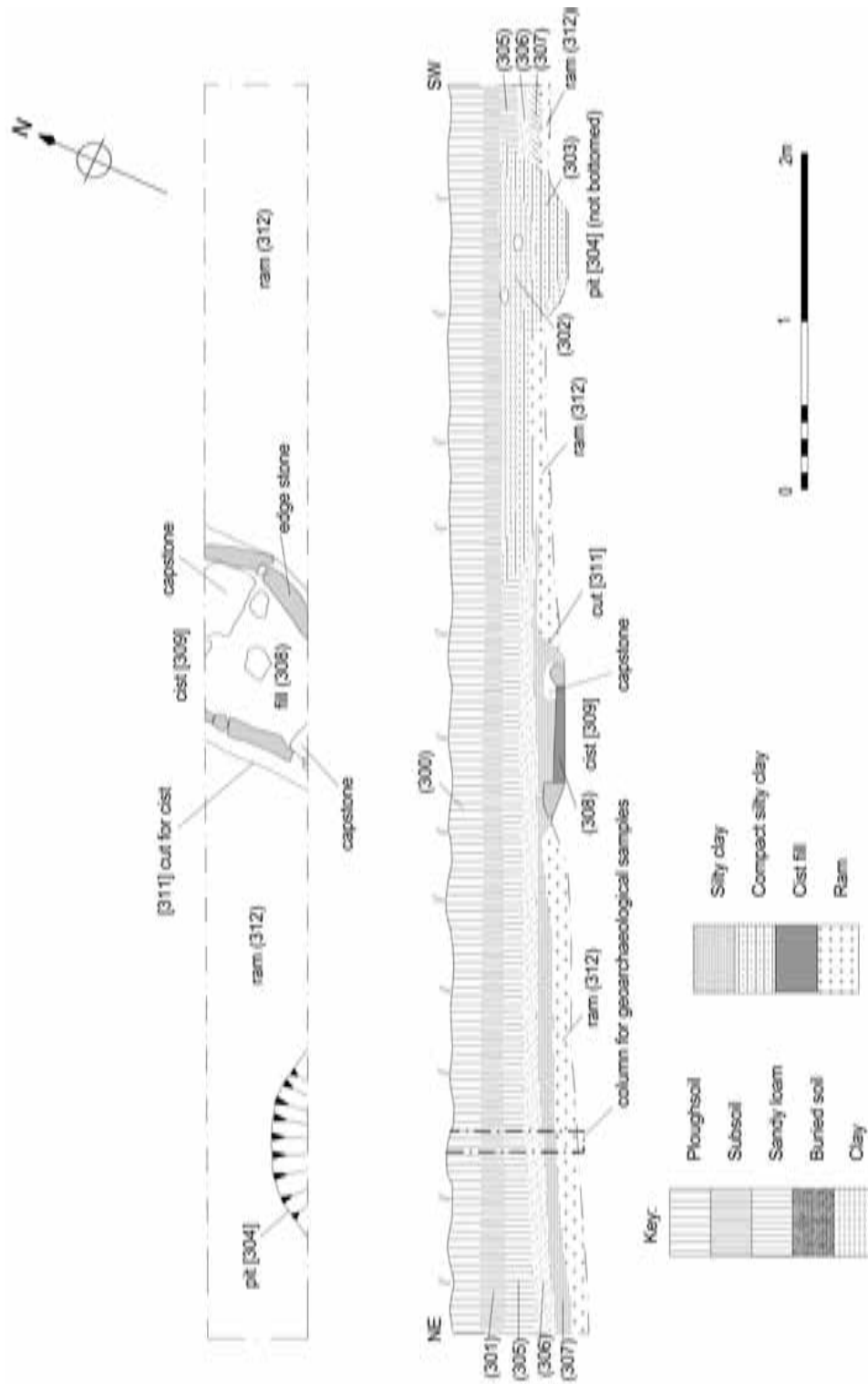


Fig 30 Plan and section drawing of Trench 3



Fig 31 Trench 3 showing the unexcavated cist, looking east (© Cornwall County Council)

identification of goat hair is, however, entirely new, the previous finds having been sheep's wool. The fact that a single spun yarn runs through the ring suggests that the textile and ring form part of the same object, perhaps a garment or cover with a ring fastener.

## A cist cemetery?

An unexcavated cist [309] was located 5.5m to the south-east of the sword and mirror burial. It was revealed during evaluation trenching to examine a discrete pit anomaly, 2.0m west of it, detected by geophysics (Trench 3, Figs 8, 29–31). Like the excavated cist it underlies a later buried soil and turf-line (306). The turf-line is cut by the pit [304] and is sealed by a layer of hillwash (301) (Fig 30). The top of the cist was uncovered at a depth of 600mm below the present ground surface; the character of the

stratigraphy here is comparable to that above the excavated cist. This cist is also cut into the natural *ram*, which is harder at this location, although it was not clear whether it is cut through a buried soil layer. This cist is 1.0m wide and oriented north–south. The walls apparently consist of a single course of edge-bedded granite stones, with one surviving *in situ* capstone.

It is reasonable to assume that the two cists at Hillside Farm are contemporary and could be part of a more extensive cemetery. However, geophysical survey proved ineffective in detecting additional cists, even the exposed cist failing to produce a distinguishable earth resistance anomaly.

The only comparable excavated Iron Age–Romano-British cist cemeteries are those at Porth Cressa and Poynter's Garden on St Mary's and at Harlyn Bay on the north Cornish coast. The 11 graves investigated at Parson's Field, Porth Cressa, were closely grouped, with the Poynter's Garden group of five cists located some 100m to the north. It is conceivable that the two groups of graves are both part of a larger cemetery (cf Ashbee 1979, 74). The Harlyn Bay cemetery, excavated in 1900, contained more than 50 graves in an area of approximately 300 square metres; the positions of 70 others were not recorded, however, and the overall area occupied by burials may have been substantially greater (Whimster 1977, 73–5).

A possible cist-cemetery has been noted above Halangy Porth and Toll's Porth on St Mary's (Ashbee 1979, 74–6). The distance between the cliff-exposed cist at Halangy Porth and the cists observed in the bulb gardens at Toll's Porth is approximately 250m, but it is not clear whether both are part of the same cemetery or represent separate groups of burials. The unusual stone-floored cist in Green Bay, Bryher, lies approximately 400m east of the sword and mirror cist (Fig 2).

## The Iron Age–Romano-British settlement and post-Roman activity

### Structural and stratigraphic evidence

Remains of an Iron Age–Romano-British settlement survive at the southern end of the cist field, where Trench 5 revealed part of a stone-walled building on top of an approximately 10m wide occupation terrace (Figs 8, 32–5). The terrace is situated between the 15m and 20m contour lines, some 40m upslope and south east of the excavated cist. The

nearest fresh water source is a spring located towards the northern edge of the curvilinear field system some 130m and 160m north-east of the excavated cist and settlement respectively (Fig 8).

The terrace is defined to the north by a substantial stony lynchet [517] and a settlement boundary made up of a 1m wide, double-skinned stone-faced wall with a dense, crushed, limpet midden infill [555], a construction method noted in other prehistoric Scillonian structures (J Ratcliffe pers comm). North of the lynchet is a buried soil (513) with possible ploughmarks. About 1.2m south of the boundary wall was a building. The north wall of the building comprises a robbed out, double-faced stone wall [565]–[557], a massive 2.5 m thick, again with a tightly packed limpet midden infill. The building appears to be 3.4m in internal diameter, its south wall formed by a stone-revetted lynchet [549] upon which the present field boundary is built.

The identified interior features of the building consist of a discrete patch of yellow–olive-grey clay (500) adjacent to a stone-lined and -capped drain [543]. Thin-section micro-morphological analysis of a sample from the clay surface indicates that it represents *in situ* modification of the subsoil adjacent to the drain, caused by periodic saturation of the material by overflow from the drain during its active use. The presence of vivianite, a secondary mineral, suggests that the drain did not function as a channel for water but rather that it contained cess or animal manure. It therefore seems likely that this building functioned as a byre or as shared animal and human habitation (Heathcote 2000).

After going out of use, the building was infilled with domestic rubbish in the form of a sequence of limpet middens and redeposited burnt material (541). Layers of hillwash, (510) and (511), sealing the midden deposits in the stone building, may represent a period of abandonment and disuse between the second and sixth centuries AD, corroborated by analysis of the pottery from this trench.

On the surface of the field, churned up by ploughing, was a limpet midden scatter (Midden A; see Fig 8) containing E ware, thus post-dating the main settlement phase and likely to indicate renewed activity in the seventh century AD.

Other Late Iron Age–Romano-British settlement remains were uncovered in the field to the east, in Trench 8 (Fig 8). There, 300mm below the modern ground surface, limpet middens – (801), (802) and (809) – overlay both sides of a sizeable wall, stone-faced on either side [806]–[807], with an earthen core

(818), measuring 2.4m wide (Fig 36). On top of the wall was found a complete stone bowl (Fig 41, S4).

The edge of a possible second wall [814] was uncovered 800mm to the west of the first. The features in Trench 8 may relate to a substantial stone building, c 8m in overall diameter, suggested by the geophysical survey results (Fig 8). Like the structure in Trench 5, this became a repository for domestic rubbish after its abandonment. An auger survey revealed that midden deposits extend over an area of some 450 square metres in the centre of the field (Heathcote 2000, 71, fig 22).

Other archaeological remains were recorded to the north of Trench 5 in Trench 4 (Fig 37). At the north-east end of the trench were three shallow and narrow ditches or gullies of uncertain function and date. At its south-west end the stratigraphic sequence comprised a shell midden deposit (413) overlying an anomalous compact, homogeneous, yellowish-brown silty deposit (414). This layer was 50mm thick and lay at a depth of 550mm beneath the modern ground surface. The working hypothesis during excavation was that it could be an artificial floor of anthropogenically reworked loess and consequently the deposit was sampled for heavy mineral analysis for comparison with other loess deposits in the area. Results showed that the mineral suites were not directly comparable, indicating that the deposit is unlikely to be loess. Its source is still unclear. However, its characteristics suggest that it is unlikely to have been deposited in its current position by natural processes (Heathcote 2000). The only pottery recovered from Trench 4 was an unstratified sherd of seventeenth-century Barnstaple ware.

Of the other evaluation trenches, Trench 2 was positioned to investigate a tentative cist anomaly and two pit anomalies indicated by the geophysical survey; these anomalies all proved to be large natural slabs of granite. No archaeological features or deposits were encountered in Trenches 6, 7 or 9. Trench 10 contained a spread of rubble from a collapsed wall; vestigial stone walling was revealed in both Trenches 11 and 12, and a limpet midden in Trench 13 (Fig 8). The keyhole nature of the investigations precludes clear interpretation of these features.

A limpet midden scatter on the surface of the field to the west of the cist field (Midden B, see Fig 8) was not trenched at the request of Paul Jenkins, as it had been ridged and planted with spring bulbs. E ware recovered from the ground surface indicated that the midden is likely to date to the seventh century AD.

Specialist reports relating to the settlement are reproduced in full in the following sections. The

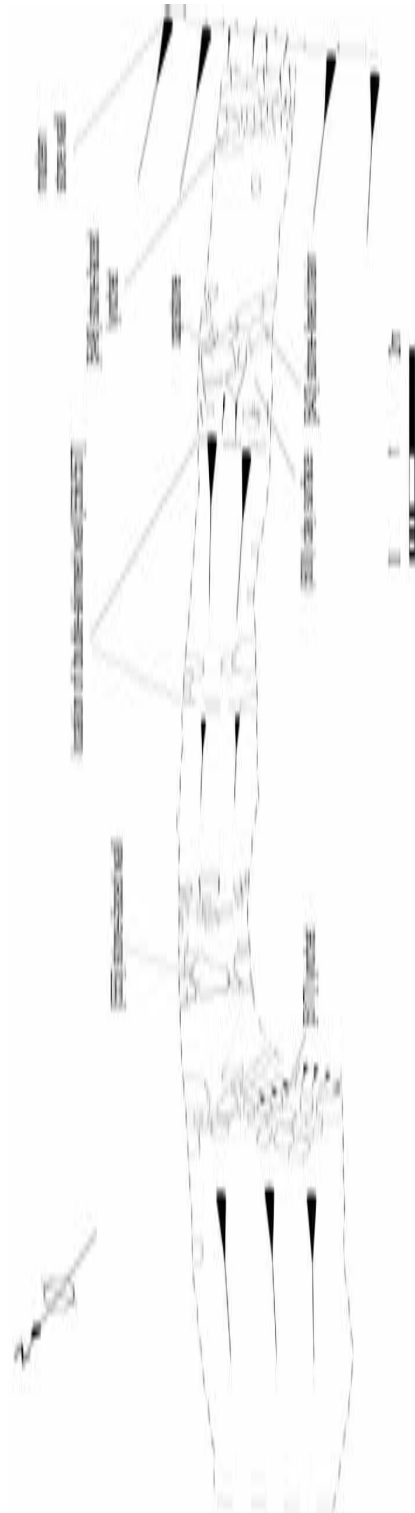


Fig 32 Plan of Trench 5



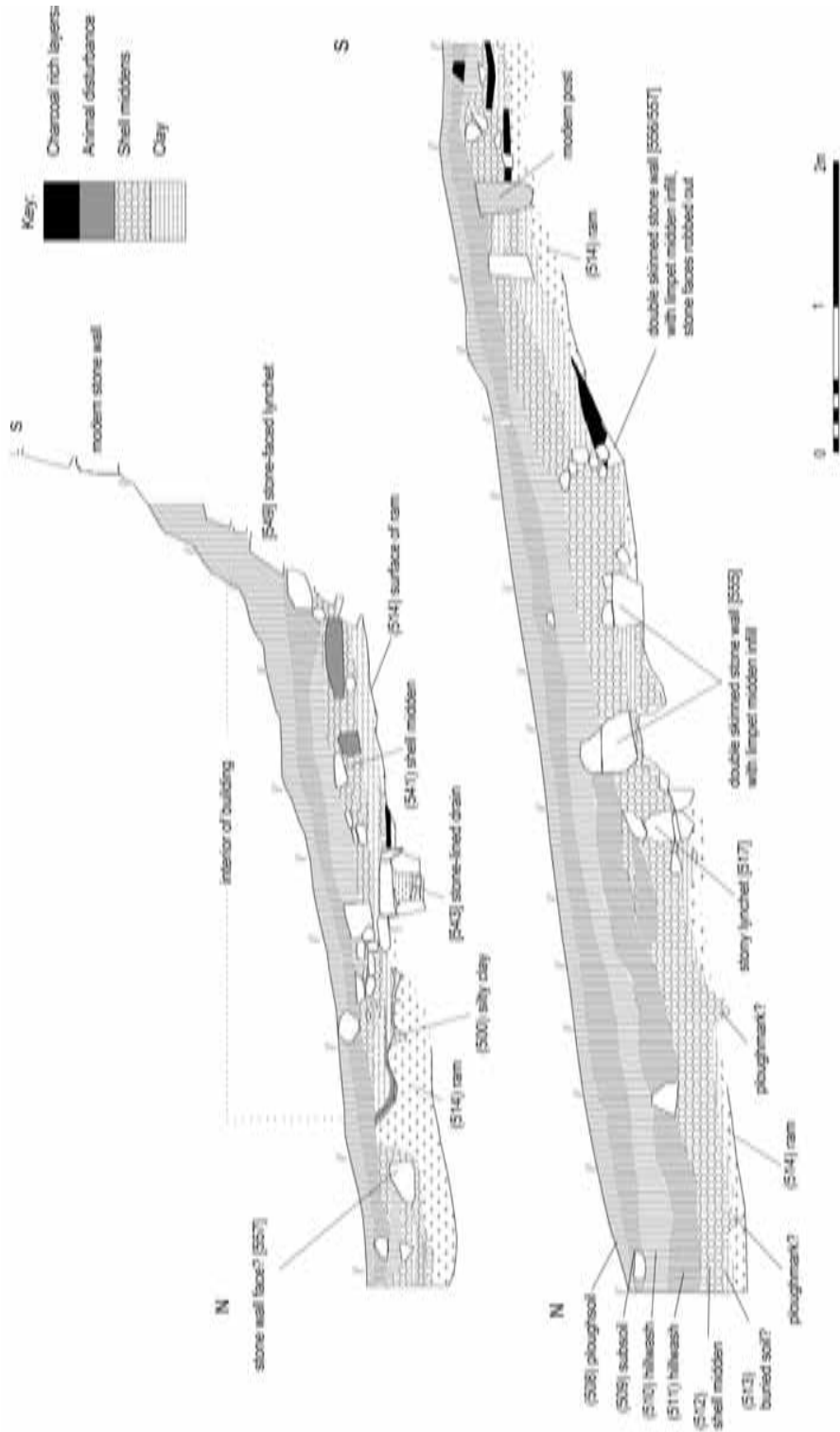


Fig 33 Section drawing of Trench 5

CHARLES JOHNS



*Fig 34 Northern end of Trench 5 looking south, in the foreground is the stony lynchet defining the northern extent of the occupation terrace (© Gibson Collection)*



*Fig 35 Southern end of Trench 5 looking south, showing the stone-lined drain [543] and, in the foreground, the clay surface (500) (© Gibson Collection)*

artefact drawings accompanying these sections are the work of Carl Thorpe. Technical reports on geoarchaeology by J L Heathcote and geophysics by Neil Linford *et al* have been deposited with the excavation archive.

## The pottery

*Henrietta Quinnell, with petrographic comment by R T Taylor*

The assemblage comprised 73 sherds weighing 526g. Of these 68 were of local, Scillonian or

Cornish, fabrics, ranging from Later Iron Age to post-Roman in date; one was samian and four were Class E post-Roman imports weighing together 115g. In addition, a little medieval and post-medieval material was found from surface layers; a brief note on this is included below. The absence of this later material from stratified deposits indicates that these had suffered little disturbance.

Details of the assemblage, by context, fabric, weight and abrasion, are given in Table 3. Abrasion is presented following Sorenson (1996). Grade 1 (A1) 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

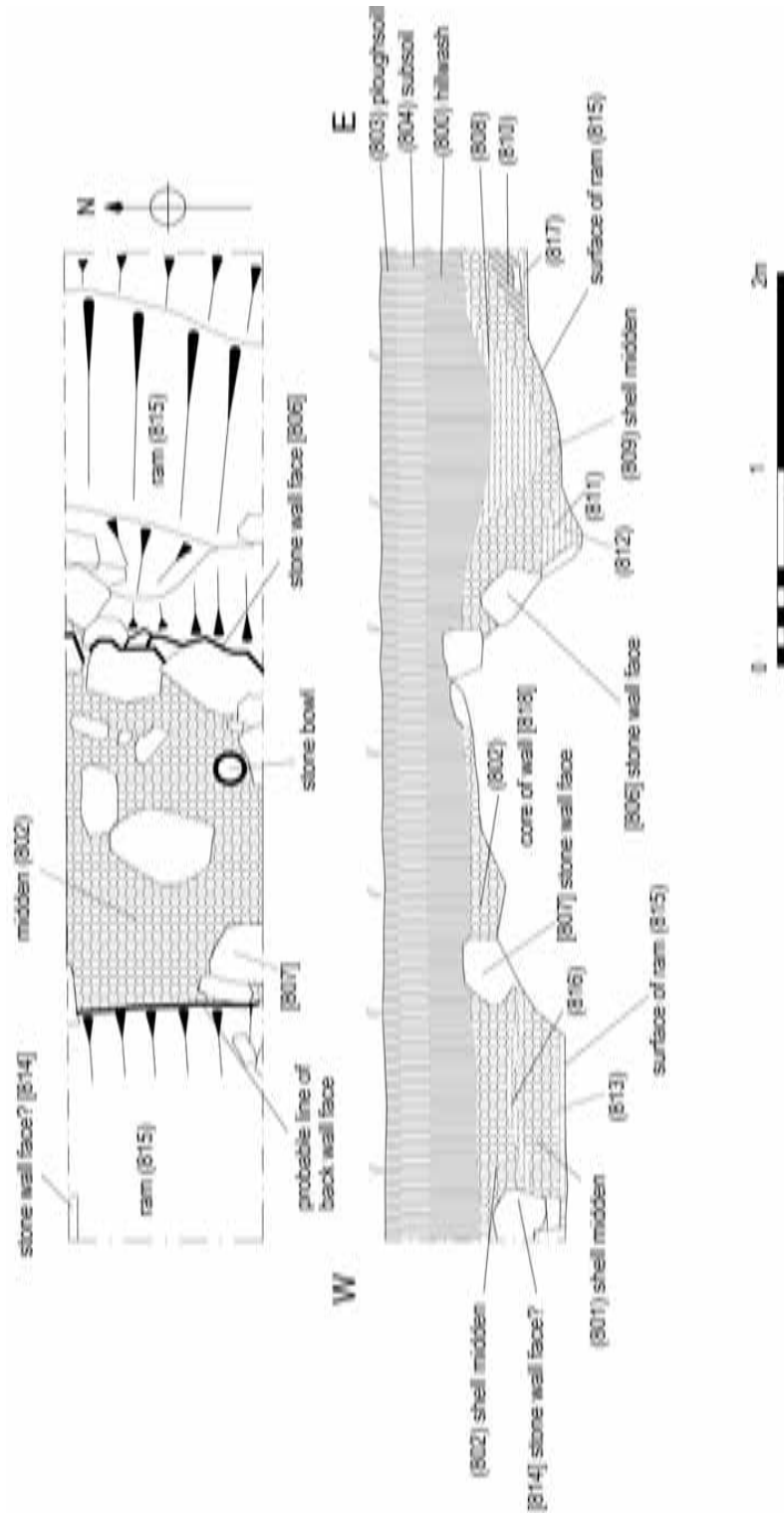


Fig 36 Plan and section drawing of Trench 8

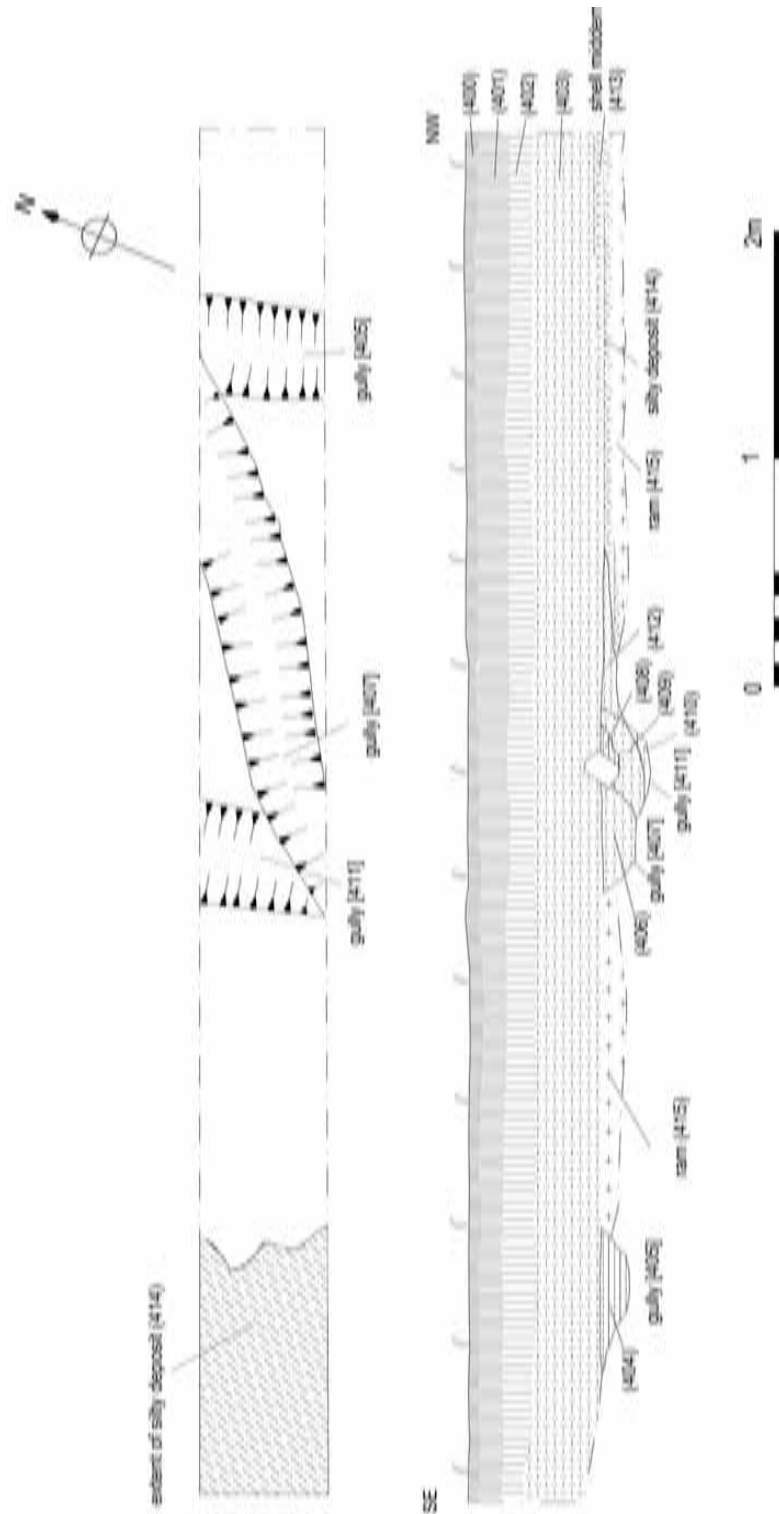


Fig 37 Plan and section drawing of Trench 4

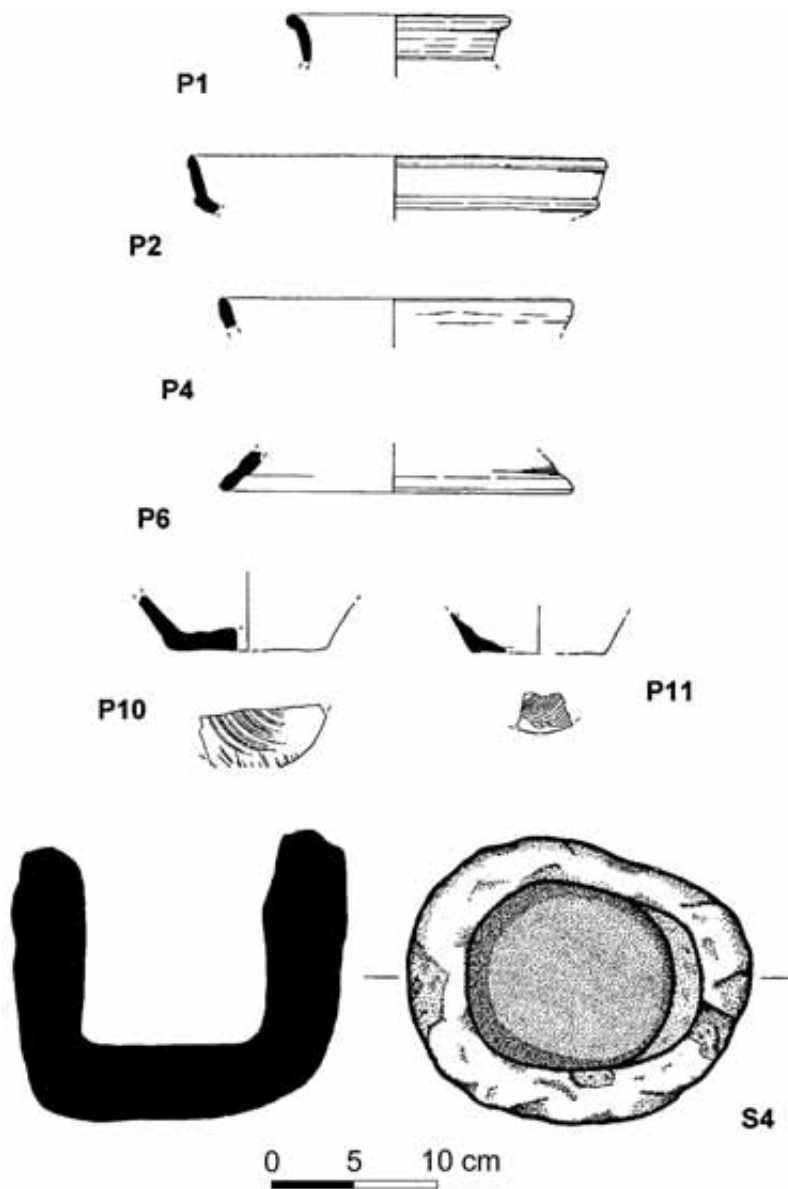


Fig 38 Enumerated potsherds, P1-P6 gabbroic fabric, P10 and P11 E wares; stone bowl S4. The scale is the same for all the objects (drawn by Carl Thorpe)

by the presence of pieces of temper which constituted obvious obtrusions' (*ibid*, 67). Grade 2 (A2) is medium abrasion: 'Some abrasion indicated by the absence of fresh breaks and patinated core colour, but sharp corners are still present'. Grade 3 (A3) 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'. The majority of the Hillside Farm sherds had medium abrasion which, together with the low average weight of sherds in local fabrics, c 6g, indicates that most of the

assemblage was not deposited in the contexts in which it was found immediately after breakage.

#### Cornish and Scillonian fabrics

Nine fabrics were present. Fourteen sherds were examined by R T Taylor under a  $\times 20$  binocular microscope. His detailed petrographic descriptions, numbered RT 1-14, have been deposited in the archive but are summarized in the fabric descriptions. These follow the terminology recommended



by the Prehistoric Ceramics Research Group (1997; 1991).

*Gabbroic 1.* Dark grey 5YR 4/1 with surfaces sometimes oxidised 5 YR 5/2 reddish grey; soft; abundant, medium inclusions; exterior surface smoothed, sometimes burnished. Inclusions: altered and fresh feldspar, amphibole, magnetite, rare sub-rounded quartz, a little white mica in some sherds (RT 1, 4, 11, 12). Generally similar to the gabbroic fabrics from the St Keverne area of the Lizard. Gabbroic fabric appears on Scilly in sherds of Cordoned ware (Quinnell 1991, 73), possibly in the first century BC, and gradually becomes more common until it forms the major part of the assemblage at Halangy Down from the second century AD onward (Samuels 1996). The Hillside Farm Gabbroic 1 fabric is compact with well-finished surfaces and, with the exception of P6, generally similar to the 'well-made' gabbroic fabrics that date, on the mainland, from about the third century BC to the second century AD (Quinnell 1992, 95).

*Gabbroic 2.* Dark grey 5 YR 4/1; hard; common, medium inclusions; exterior surface smoothed. Inclusions: altered feldspar, possible fibrous amphibole and serpentinite, abundant muscovite, rare sub-rounded quartz (RT 7). This fabric is similar to GB3 from Halliggye fogou, there only used during the Later Iron Age (Elsdon and Quinnell forthcoming). It has not so far been recognised elsewhere.

*Granitic 1.* Dark grey 5 YR 4/1, sometimes partly oxidised 5 YR 5/2 reddish grey; soft; abundant, medium inclusions; exterior surface smoothed. Inclusions: mainly angular quartz with a few sub-rounded grains, muscovite, tourmaline and some fresh feldspar (RT 2). Generally equivalent to 'Iron Age fine granitic fabric' in previous analyses by this author (Quinnell 1991; 1994). These analyses suggest a date range from the advent of South West Decorated forms, perhaps third century BC, until late first or early second century AD. The fabric is assumed to be Scillonian but all granitic fabrics described here are petrographically indistinguishable from those produced from mainland granitic clays.

*Granitic 2.* Oxidised 5 YR 5/4 reddish brown but can be paler and or reduced; soft; abundant, coarse inclusions; exterior surface smoothed. Inclusions as Granitic 1 (RT 3, 5). Generally equivalent to 'Iron Age

standard granitic fabric' in previous analyses (Quinnell 1991; 1994). With numerous minor variations, this appears to be the main fabric produced in Scilly from the Iron Age until the post-Roman period.

*Granitic 3.* Generally oxidised 5 YR 5/3 reddish brown but irregular firing can cause grey patches; soft; moderate, medium inclusions; exterior surface smoothed. Inclusions as Granitic 1 but some biotite noted (RT 13). Variant of Granitic 2, with sparser inclusions, which has not previously been distinguished.

*Granitic Derived 1.* Dark grey 5 YR 4/1; hard; very common coarse inclusions; exterior surface smoothed. Inclusions: quartz – angular, also sub-angular and sub-rounded, fresh cleaved feldspar, black tourmaline, fine-grained muscovite in matrix (RT 6). The term 'granitic derived' indicates that the clay used derives from a granite source but at some distance, so that granitic minerals have been sorted and those deposited in the clay do not represent the full granitic mineral range. It is unlikely that the landmass on Scilly was ever of sufficient size to allow the deposition of appropriate clays and the Granitic Derived fabrics are likely to originate in Cornwall. There, such fabrics have been recognised at St Michael's Mount (Quinnell 2000) and Boleigh fogou (Quinnell 2000–1), in both cases in small assemblages that appear to date to the fourth to second centuries BC.

*Granitic Derived 2.* Dark grey 5 YR 4/1 with light grey interior; hard; abundant medium inclusions; exterior surface smoothed. 'An unusual fabric extremely rich in muscovite, which also forms much of the matrix. Quartz, mainly angular, but with a few sub-rounded and occasional very well rounded and polished beach sand grains. Black tourmaline quite common' (RT 8).

*Granitic Derived 3.* Oxidised 5 YR 5/4 reddish brown; hard; common, medium inclusions; exterior surface smoothed. Inclusions: much fine grained quartz, some larger quartz, some well-rounded; some fresh cleaved feldspar and muscovite (RT 14).

*Granitic/Gabbroic.* Reddish brown 5 YR 5/4 with reduced grey interior 5 YR 3/1 to 5/1; soft; common, coarse inclusions with some up to 3mm+; exterior surface smoothed. 'Much clear angular quartz, white and cleaved altered feldspar grains, two small

euohedral grains possibly derived from fine grained granite, rare grains brown cleaved pyroxene, rare grains magnetite, fine grained quartzo-feldspathic granitic fragments: material probably derived from both gabbroic and granitic rocks' (RT 9, 10). In the past it has probably not been distinguished from gabbroic fabrics. Granite occurs in the Lizard, and clays should be present there that contain mixed material from both gabbroic and granite outcrops.

*Enumerated sherds in local fabrics*

These are diagnostic sherds, assigned a distinguishing pottery reference number: **P1**, **P2**, etc.

**P1:** context (7) upper cist fill (Fig 9). Rim sherd jar with upright neck and slightly out turned rim, Gabbroic 1 fabric (Fig 38). Exterior burnish. The standard plain jar shape in Cordoned ware, with a probable date range on Scilly from the first century BC until the early second century AD.

**P2:** context (541) midden (Fig 33). Rim sherd from Cordoned ware dish, Gabbroic 1 fabric (Fig 38). The shape appears to copy that of samian Dr 15/17 dishes of the later first century AD. A similar copy (P140) occurs at Trethurgy (Quinnell 2004). Cordoned ware, in the late first, possibly early second century AD, imitates a range of imported material. A copy of a samian Dr 29 bowl occurred at Carvossa (Carlyon 1987, fig 3, no 92), a site with a range of other copies and finds of samian Dr 15/17 dish fragments; a piece of Dr 15/17 was found at Halangy Down (Dickenson and Hartley in Samuels 1996, 88).

**P3:** Trench 7, unstratified (Fig 8). Grass-marked base sherd, Granitic 2 fabric (not illustrated). The only grass-marked sherd present. The style may start in the late sixth or the seventh century AD (Thomas 1991).

**P4:** context (801) midden (Fig 36). Plain rimmed dish, Gabbroic 1 fabric (Fig 38). These dishes are thought to copy the general style of plain rimmed dishes in south-east Dorset Black Burnished ware; at Exeter these occur from the Antonine period onward (Holbrook and Bidwell 1991, 93) and the earliest date for gabbroic copies is the later second century AD. This form shows Gabbroic 1 or 'well-made' gabbroic fabric continuing to be used until that date.

**P5:** context (802) midden (Fig 36). Sherd from jar

shoulder, Gabbroic 1 fabric (not illustrated). High quality exterior burnish is typical of that found on jars, as P1.

**P6:** Midden A (Fig 8). Edge of lid, Gabbroic 1 fabric (Fig 38) but less compact than other sherds; rather larger feldspar inclusions and rough finish. Lids occur throughout the Roman period in Cornwall (Carlyon 1995, Group 44) and probably into the immediate post-Roman centuries.

*Samian*

**P7:** Trench 5, unstratified (Fig 33). Rim and side of Dr 31 dish, South Gaulish and probably earlier second century AD (not illustrated).

**Class E imported pottery**

*Charles Thomas*

**P8:** Trench 7, unstratified (Fig 8). A body sherd which may well be from the same vessel as P10, similar thickness and fabric; if so, from lower or mid-part of vessel before curve up to neck (not illustrated).

**P9:** Trench 7, unstratified (Fig 8). Body sherd, thin, faint indications of being near angle of base. From its size, this can only be part of a small beaker-like vessel, type E2 (not illustrated).

**P10:** Midden A (Fig 8). Large sherd with basal angle, showing part of base with faint and typical marks of 'wire cut-off' (removal of pot from wheel with wire or thin cord while still turning) and lower part of wall (Fig 38). Typical E1 jar, medium-size rather than large (for typology see Thomas 1990, fig 1).

**P11:** Midden B, unstratified (Fig 8). Basal sherd, angle with part of base showing strong wire cut-off marks and part of lower wall (Fig 38). Smaller diameter than P10. Both wall and base get markedly thinner from the angle outwards. Almost certainly from a type E3 carinated bowl.

**Comment.** Three vessels, minimum, represented. All the breaks seem rather old, perhaps more so than one would expect if these pots had been broken on site and jettisoned (and it is slightly odd that there are no more pieces). A single piece of an E1 jar came from Veronica Farm on Bryher (Thomas 1991, no 174), 300m to the

north. Another E ware assemblage, a large one, has come from quite close: East Porth, dug in 1970–1 by David Neal, 1500m to the south on the foreshore of Samson. All the vessels from Hillside Farm are fully represented on the Samson site (Neal nd). The Hillside Farm pieces might have been collected on Samson and taken to the site for some reason. If so, the *terminus post quem* would still be around the seventh century AD, when E ware occurs frequently in Scilly (Bar Point, St Mary's; Dial Hill, Tresco; Tean; May Hill and a second site on St Martin's).

### Medieval and post-medieval material

*Trench 1* (Fig 12): context (2) sherd from medieval cooking pot, clay pipe stem, nineteenth- or twentieth-century sherd; context (1) sherd from medieval cooking pot, sherd of green glazed Saintonge jug, seven sherds seventeenth to nineteenth century, including Barnstaple ware and salt-glazed handle. *Trench 3*: unstratified nineteenth- or twentieth-century sherd. *Trench 4*: unstratified seventeenth-century Barnstaple sherd. *Trench 5*: unstratified sherd of modern willow pattern. *Trench 8* (Fig 36): context (800) seventeenth-century Barnstaple sherd; unstratified nineteenth- or twentieth-century sherd. (For comparison with other medieval and post-medieval assemblages from Scilly, see Allan 1991.)

### The pottery and its contexts

The 24 small sherds present in construction and infill levels of the cist are unlikely all to be intrusive. Their small size, degree of abrasion and scattered positions through the fill make deliberate deposition in the cist unlikely. They therefore indicate Iron Age activity in the area prior to the cist burial; the concentration of sherds, about one-third of the whole assemblage, suggests settlement rather than agriculture, possibly the early phases of that found in Trenches 5 and 8. This interpretation is supported by the presence of 13 daub fragments – material that is friable and erodes with agricultural activity – in cist fill contexts. The dating of pottery from the cist would be generally consistent with the radiocarbon dating. The single sherd of Gabbroic 1 fabric from context (7), high in the cist infill, is likely to be intrusive.

Stratified settlement and midden contexts in Trenches 5 and 8 produced only 12 and five sherds respectively. Midden deposits did not contain much pottery. P2 from (541) is most likely to be of late first century AD date, P4 from (801) of the late second

century AD, while the unstratified samian P7 is probably earlier second century AD. The stratified material did not come from the very lowest levels in either trench and cannot provide a date for the start of activity. The quality of the enumerated gabbroic sherds, and the absence of the standard gabbroic fabric common on Cornish sites from a date in the second century onward, strongly indicates, despite the small assemblage, that activity did not continue into the third century AD and that there was a gap before activity resumed in the post-Roman centuries. The situation contrasts with that at Halangy on St Mary's where the recently published assemblage (Samuels 1996) contains standard gabbroic fabrics and a range of forms that suggest continuity of occupation from the end of the Iron Age through to the post-Roman centuries.

The E ware from Middens A and B and unstratified in Trench 7 (in a position likely to be an extension of the latter midden) indicate activity centring on the seventh century AD. The grass-marked sherd P3 may be of a broadly comparable date. The date of the introduction of grass-marked pottery is uncertain. At East Porth, Samson, it appears to occur stratified above E ware and has been assigned to the seventh or eighth centuries AD (Thomas 1985, 186), while on Tean it has been assigned to the sixth and seventh (Thomas 1991, 87). Grass-marked pottery was found in the same general area as the E ware sherd from Veronica Farm on Bryher but here the distinctive forms were of bar-lug type, broadly tenth and eleventh centuries (Thomas 1991, 89). Unfortunately, a single base sherd such as P3 cannot be dated within the general sequence of grass-marked forms, which may extend as late as the thirteenth century. If P3 is in fact of broadly the same period as the E ware, it would be of the same pre-bar lug, grass-marked ceramic tradition which occurs on many sites on Scilly, notably Tean, Samson East Porth, Porth Cressa and Halangy Down; the latter provides the only good published assemblage (Samuels 1996).

### Stone artefacts

*Henrietta Quinnell, with comments on petrography by R T Taylor*

A detailed petrographic commentary is filed with the project archive. All stone is likely to derive locally, in Scilly, from the granite and its intrusions, from the now-submerged metamorphic aureole

## AN IRON AGE SWORD AND MIRROR CIST BURIAL FROM BRYHER, ISLES OF SCILLY

**Table 3** Details of pottery by context

<i>Context</i>	<i>Gab 1</i>	<i>Gab 2</i>	<i>Gn 1</i>	<i>Gn 2</i>	<i>Gn 3</i>	<i>Ga/Gn</i>	<i>Other</i>	<i>Total</i>
(8) fill of cist cut			3s 12g A2	4s 13g A2	1s 3g A2			8s 28g
[6] cist structure			1s 2g A2					1s 2g
(20) basal fill of cist			1s 2g A2					1s 2g
(19) basal fill of cist			1s 2g A1	2s 2g A3				3s 4g
(18) basal fill of cist			1s 1g A1					1s 1g
(14) cranial cavity in cist				1s 1g A2				1s 1g
(12) cist fill				4s 16g A3				4s 16g
(7) upper cist fill	1s 5g A1			4s 8g A3				5s 13g
(4) pea gravel	<b>P1</b> 9g A1		1s 3g A2					2s 12g
(3) hillwash			2s 12g A2					2s 12g
(541) midden	<b>P2</b> 12g A2							1s 12g
(512) midden		1s 24g A1	1s 5g A2	2s 16g A2			GnD1 3g A1 GnD2 12g A1	6s 60g
(503) midden	1s 4g A2							1s 4g
(501) midden				1s 15g A2				1s 15g
(502) midden				3s 16g A3				3s 16g
(539) hillwash				1s 6g A2				1s 6g
Tr5 U/S			1s 2g A2	2s 22g A2			Samian <b>P7</b> 11g A2, GnD3 13g A3, *	5s 48g
Tr7 U/S				<b>P3v</b> 6g A2		1s 6g A2	E ware <b>P8, P9</b> 16g A2	4s 28g
(801) midden	<b>P4</b> 6g A1					1s 6g A1		2s 12g
(802) midden	<b>P5</b> 6g A1		1s 5g A2		1s 2g A3			3s 13g
(800) hillwash				1s 2g A2		1s 26g A2	*	2s 28g
Tr8 U/S				3s 10g A2			*	3s 10g
Tr11 U/S				1s 10g A2				1s 10g
Midden A	<b>P6</b> 17g A2					2s 28g A2	E ware <b>P10</b> 82g A2	4s 127g
Midden B	1s 3g A2			1s 6g A2	3s 10g A3	1s 6g A2	E ware <b>P11</b> 17g A2, GnD3 4g A2	8s 46g
Totals	8s 62g	1s 24g	13s 46g	31s 149g	5s 15g	6s 72g	9s 158g	73s 526g

U/S = unstratified; s = sherd; g = gramme, A = abrasion; Gab = gabbroic; Gn = granitic; GnD = Granitic Derived; v = variant; \* indicates medieval–post-medieval material also present. Contexts with only medieval–post-medieval material are not included in the table.

which produces beach pebbles, or as erratics from Pleistocene glaciation.

### Haematite

**S1, S2** context (19), silty clay in cist; **S3** context (21), silty clay in cist (not illustrated). **S1** (3gm) has one flattened surface which, under x20 binocular microscope, shows polishing and parallel scratches: edges show smoothing, faceting, rounding and scratches. **S2** (6gm) has three adjacent flattened and ground facets. **S3** (10gm) originally had a roughly triangular pointed shape, the tip of which has been worn down to a flat facet. All wear on **S1, S2** and **S3**

is consistent with grinding to provide fine powder that could be used as red pigment. Haematitic veins are present in the Land's End granite and may well occur in Scilly.

### Stone bowl

**S4** (802) midden. Muscovite granite. Oval, maximum height 180mm, length 200mm, width 160mm; base 50mm thick, wall thickness varies from 25mm to 40mm, interior depth 130mm (Fig 38). The shape is generally even, with a straight-sided interior, but one corner has been worked to slope outward as though to form a rough spout. The

exterior is roughly dressed all around the sides, probably with a stone maul, with some small worn patches; the base is worn smooth as though by movement over a hard surface. The interior is more finely dressed than the exterior. The base shows some signs of use and the sides have been worn fairly smooth. The sides, but not the base, have been discoloured almost black. This discolouration is likely to have been caused by the gradual absorption of smoke. Heating of the vessel has made parts of the rim friable, breaking off in places. The interior is covered by a buff deposit, which only shows up over the discoloured dark grey of the sides. This deposit can be seen under a  $\times 10$  lens to have been deposited in a series of layers.

Samples from the top, mid-side and base of the interior were analysed by energy dispersive X-ray fluorescence (EDXRF) and X-ray diffraction (XRD) by Dr D Dungworth, EH Centre for Archaeology. This analysis provided no information as to the use of the bowl.

The shape of the bowl indicates that it was designed for pouring. Wear patterns suggest pounding of the contents with the vessel set on a hard surface. The contents appear to have been heated, causing smoke discolouration and the internal deposit. The analysis carried out would have given indications if the bowl had been used for metalworking. In the absence of evidence for this, some other form of preparation, such as that of dyestuffs, may be suggested. Some subsequent abrasion of the base of the vessel removed all trace of burning.

Stone bowls are known from the Bronze Age onward on Scilly but most are shallower and have thicker and more sloping sides. The only site to produce closely comparable bowls is Nornour. Nos 1 and 3 (Butcher 1978, fig 40) are larger than S4 but have similar shape and proportions, including the thin, straight sides. No explanation of the function of these, or any of the other Scillonian bowls, has been published. The Nornour bowls are assigned to the site's Period 7 (*ibid*, 93), which dates to the Later Iron Age and earlier Roman period. S4, deposited in a level above P4, has a *terminus post quem* date of the later second century AD, which overlaps with the end of the range for similar bowls from Nornour.

### Whetstones

**S5**, Trench 7, unstratified. Fragment of biotite hornfels pebble, which has wear on one surface characteristic of use as a whetstone (not illustrated).

**S6**, Midden A, unstratified. Granite cobble, one surface with a patch of wear characteristic of use as a whetstone and another parallel surface with slighter wear resulting from use as a rubbing stone (not illustrated)

### Possible rubbing stones

Several cobbles, pebbles or fragments (not illustrated) had no detectable traces of wear, although short episodes of use, especially on soft materials such as leather, will leave no trace detectable under a  $\times 20$  binocular microscope. These stones were of metaquartzite, porphyritic dolerite and a biotite-rich rock from (3) and granite from (2), (4) and unstratified from Trench 5.

### Flint

*Henrietta Quinnell*

Thirty-five pieces of flint were recorded. Trench 1 produced eleven, all from contexts post-dating the cist. Trenches 2, 3, 5, 8 and 11 produced two, three, five, three and one respectively, all unstratified. Midden A had nine pieces and Midden B three, all unstratified. Because the material is either redeposited or unstratified, the assemblage may be regarded as a single group. Thirty-one pieces were of pebble flint, including five unworked pebbles. Four pieces had cortices of worn chalk type. Most of the pieces were heavily patinated.

There were seven attempts at cores and six flakes, two with trimmed edges. Tools consisted of an awl on a cortical flake and a small end-scraper. The remaining pieces were either rough chunks from attempted core preparation or chips. The workmanship on the cores and the nature of the tools are consistent with the lithics found with assemblages of the second millennium BC, best typified at Nornour (Miles in Butcher 1978). Awls or borers were found in some numbers at Nornour, where it was suggested that their frequency in a Bronze Age context, compared to virtual absence at this date on the mainland, was a Scillonian feature. However, the awl is on a piece with worn chalk cortex and the other three pieces in this material are core preparation chunks. The possibility that this cortical flint was generally present at a date earlier than the Bronze Age has been discussed with regard to assemblages on St Martin's (Ratcliffe 1997, 8) and



may indicate that the assemblage is not all of one date. Cortical flint of this type did not occur at Nornour. A possible Neolithic assemblage including cortical flint occurs at Bonfire Carn (Quinnell 1994), 300m to the south west of Hillside Farm.

The presence of the flints indicates activity in the area at a date or dates well before the burials, settlement and middens, but the possibility that some pieces were contemporary with the latter cannot be entirely dismissed. No settlement site of Iron Age or Roman date on Scilly is entirely without flint, but site formation processes on these settlements are not of the kind that allows a clear assessment of the likelihood of redeposition.

## Daub (baked clay)

*Henrietta Quinnell*

Small fragments of baked clay (not illustrated) were found in the following contexts: (1), 1; (4), 4; (7), 2; (8), 3; (12), 2; (16), c 6; (516), 1; (542), 1; (550), 1; Trench 5 (unstratified), 10; Trench 7 (unstratified), 4; Trench 8 (unstratified), 5; (802), 1; Midden A, 3. These were of a variety of granitic fabrics. While some pieces had small areas of smoothed surface, none had any form that would provide some indication of function and no surface had any residue. A number of the smaller pieces were retrieved through wet sieving and were very eroded. It seems likely that all the pieces come from various domestic fittings, daub on walls, hearth or oven linings, although the possibility that objects such as loom weights were present cannot be ruled out.

## Animal bone

*Claire Inghem*

### Methodology

A small quantity of mammal, bird and fish bones was recovered from the excavated cist and from midden deposits in Trench 5 and Trench 8. Although it has not been possible to obtain a radiocarbon determination for the midden deposits they are probably broadly contemporary with pottery of Late Iron Age–Early Romano-British date.

The mammal bone was recorded at the Centre for Human Ecology and Environment (CHEE),

Department of Archaeology, University of Southampton, during the assessment phase. All fragments were identified and recorded to species level only, although observations such as the presence of neonatal lamb or kid metapodia were noted.

The bird and fish bones were identified and recorded at CHEE during a later phase of post-excavation work in which all of the specimens were identified to species and anatomical element (where possible), to produce a basic fragment count (Number of Identified Specimens = NISP). The bones were examined for any evidence of gnawing, butchery and burning. Measurements of bird bones were taken according to the conventions of Driesch (1976). The size of fish was visually categorised with the aid of reference specimens as very small (<150mm), small (150–300mm), medium (300–600mm), large (600–1200mm) and very large (1200–c 2000mm).

### Mammals

A small quantity of mammal bone was recovered from the midden deposits but has little potential to provide detailed information on animal husbandry and hence was not further analysed. The results of the initial assessment are briefly discussed here. The shell midden produced a total of 71 identifiable mammal bones; the majority (n=50) belong to sheep or goat, including several neonatal lamb or kid metapodia, the presence of which suggests that livestock was being bred at or in close proximity to the site. Cattle and pig are also present and five rodent bones were recovered. Other midden deposits produced 19 fragments of identifiable mammal bone. Apart from the three major domesticates (cattle, sheep or goat and pig), which were almost equally represented, two fragments belonging to dog were recovered.

### Birds

A total of 14 bird bones were recovered from stratified deposits (Table 4). The majority (n=10) came from the midden in Trench 8 (802) (Fig 36) and the remainder from the shell midden in Trench 5 (512) (Fig 33). Despite the small sample size, eight species are represented: Manx shearwater (*Puffinus puffinus*), shag (*Phalacrocorax aristotelis*), grey heron (*Ardea cinerea*), galliform, razorbill (*Alca torda*), guillemot (*Uria aalge*), puffin (*Fratercula arctica*) and auk (*Alcidae*). The size of the two auk bones suggests that they must belong to the now extinct great auk (*Alca impennis*),

according to the illustrations of Cohen and Serjeantson (1996).

The shell midden in Trench 5 produced three identifiable fragments: a scapula belonging to grey heron and a humerus and furcula belonging to great auk. The great auk furcula displays several heavy cut or chop marks at the midline. The midden in Trench 8 produced a wider range of species with shag and razorbill both represented by three bones and Manx shearwater, galliform, guillemot and puffin each by a single fragment (Table 5).

The galliform bones most probably belong to chicken or pheasant, neither of which were present prior to the Roman period. All of the other bird remains belong to species known to inhabit coastal regions (Heinzel *et al* 1979). For instance, Manx shearwater breed on marine islands whilst shag are found on rocky coasts where they nest on cliffs and stacks. Grey heron are also known to feed in coastal waters and sometimes to nest in cliffs. Of the auks, razorbill breeds on cliffs, guillemot in inaccessible, narrow, open ledges on sea cliffs and puffin in burrows, usually in turf on islands (*ibid*).

Butchery marks on the great auk bone and the fact that the bird remains were recovered from contexts also containing the bones of domestic mammals suggests that they represent food remains rather than natural casualties. The bones of seabirds, including the great auk, are commonly found on coastal sites in

Scotland ranging in date from the Neolithic to post-medieval periods (Serjeantson 1988). Great auk was previously known to have been present in the Isles of Scilly, having been recovered from deposits at Halangy Down (Locker 1996a). According to Brothwell *et al* (1981), these coastal assemblages are generally characterised by a wide range of species in relation to the total number of bones. This also appears to be the case at Hillside Farm and some other sites in the Isles of Scilly, including the pre-Roman settlement on Nornour; there a variety of species were present including heron, razorbill, guillemot, shearwater, puffin and domestic fowl (Turk 1978). As Serjeantson (1988) points out, the habit of breeding in dense colonies makes seabirds a reliable food source and Turk (1978) suggests they formed a considerable part of the diet. The sample from Bryher is of insufficient size to estimate the relative importance of sea birds in the diet; however, in respect of the wide range of species present, the assemblage conforms to that found on other coastal sites where it appears that seabirds were deliberately targeted as a food source.

## Fish

A total of 63 identifiable fish bones were recovered from sieved samples, of which the majority (n=48) came from midden deposits in Trench 8 (Table 6). A smaller amount (n=15) came from the shell midden in Trench 5. Unidentifiable fragments of fish were also recovered in the sieved samples from the cist deposits in Trench 1, where they constitute the only evidence for fish.

At least eight species are represented in the sieved material: common eel (*Anguilla anguilla*), conger eel (*Conger conger*), whiting (*Merlangius merlangus*), pollack (*Pollachius pollachius*), bass *Dicentrarchus labrax*, red sea bream (*Pagellus bogaraveo*), ballan wrasse (*Labrus bergylta*) and mackerel (*Scomber scombrus*). Flatfish (*Pleuronectidae*) were also present, although it was not possible to identify the bones to

**Table 4** Bird species representation by trench

	Trench 5 (512)	Trench 8 (802)	Total
Manx shearwater		1	1
Shag		3	3
Grey heron	1		1
Galliform		1	1
Razorbill		3	3
Guillemot		1	1
Puffin		1	1
Great auk	2		2
Unidentifiable	1		1
Total	4	10	14

**Table 5** Bird species: anatomical representation in Trench 8

	Manx Shearwater	Shag	Razorbill	Galliform	Guillemot	Puffin	Total
Premaxilla		1					1
Scapula			1		1	1	3
Humerus	1		1				2
Femur			1	1			2
Tibiotarsus		2					2
Total	1	3	3	1	1	1	10

**Table 6** Fish: species representation in sieved samples (NISP)

	<i>Trench</i>			<i>Total</i>
	<i>1</i>	<i>5</i>	<i>8</i>	
Common eel			3	3
Conger eel		1	3	4
Whiting			1	1
Pollack		1	7	8
Gadidae		1	3	4
Bass			3	3
Red sea bream			2	2
Sparidae		2	16	18
Ballan wrasse			1	1
Labridae		7	4	11
Mackerel		2	3	5
Flatfish		1	2	3
Unidentifiable	6	38	313	357
Total	6	53	361	420
Total identifiable	0	15	48	63

**Table 7** Fish: species representation from hand collection (NISP)

	<i>Trench</i>			<i>Total</i>
	<i>1</i>	<i>5</i>	<i>8</i>	
Conger eel			3	3
Pollack		5	6	11
Gadidae		2	2	4
Mackerel	1			1
Sparidae			1	1
Labridae		1	1	2
Flatfish			4	4
Unidentifiable		3	10	13
Total	1	11	27	39
Total identifiable	1	8	17	26

species. The small sample size prohibits reliable analysis of species frequency although it appears that sea bream (Sparidae) are the most numerous fish in Trench 8 and wrasse (Labridae) in Trench 5.

In the hand-collected material only fragments belonging to conger eel, pollack and mackerel were identifiable to species level, although fragments belonging to members of Sparidae, Labridae and Pleuronectidae were also present (Table 7). The majority of the identifiable hand-collected material came from Trench 8 (n=17), with a smaller number (n=8) of fragments from Trench 5 and a single fragment of mackerel from the cist deposits in Trench 1. Again, sample size prohibits useful analysis of species frequency; although pollack is the most numerous species in both Trench 5 and 8, this is likely to reflect recovery method, pollack being a relatively large fish. The importance of sieving is illustrated by the differences in sample size and by the size of the fish bones recovered from the sieved

and hand-collected material, a clear indication that hand collection is unlikely to recover bones belonging to small fish.

The anatomical representation of the fish bones from Trench 5 and 8 is shown in Tables 8 and 9. Detailed analysis of body part representation is precluded by the small sample size (n=23); however, both vertebrae and cranial elements belonging to pollack and wrasse are present. In Trench 8 (n=65), with the exception of common eel, whiting and bass, all species are represented by both cranial and vertebral elements, indicating that some fish were brought to the site whole.

None of the bones displayed unambiguous evidence indicative of gnawing, butchery or burning, although one fragment belonging to sea bream appears to have been chewed.

All of the species recovered are known to inhabit the inshore zone and many prefer rocky ground (Wheeler 1969). The catadromous common eel is often found in inter-tidal pools and below the low tide mark; conger eel also inhabits the inter-tidal and inshore zone but prefers rocky ground. Whiting and pollack are mainly inshore fish and the latter is also generally found near rocks or rough ground. According to Wheeler (1969), 'bass seem particularly attracted to inshore areas where rocks and sand mingle, but may be common off shingle and sandy beaches as well'. Young red sea bream are also found close inshore, again, generally over rocky ground, although older, larger fish are found in deeper water; ballan wrasse, although found inshore, is only abundant near rocks. Mackerel, a pelagic fish, is common off the coasts of southern Britain during summer and autumn. Numerous species of flatfish are known and are found anywhere from shallow estuarine habitats to deep water (Wheeler 1969).

An idea of the size of the fish was gained by comparison to reference specimens and is given in Tables 10 and 11. As size and age is not a factor influencing the habitats of most of the species considered here it is not discussed further. The exception is red sea bream (see above) whose remains from Trench 8 fall into the medium size (300–600mm) category, indicating that they belong to mature individuals (Wheeler 1969). Older and larger red sea bream are known to inhabit deeper water; their presence here amongst inshore species is therefore difficult to explain unless either adult red sea bream were found in the inshore waters surrounding the Isles of Scilly in the past, or the inhabitants undertook some deep-water fishing from boats.

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**Table 8** Fish: anatomical representation from Trench 5

	<i>Conger eel</i>	<i>Pollack</i>	<i>Gadidae</i>	<i>Sparidae</i>	<i>Labridae</i>	<i>Mackerel</i>	<i>Flatfish</i>	<i>Total</i>
Parasphenoid			1					1
Dentary		1						1
Pharyngeal					1			1
Cleithrum					1			1
Anterior abdominal vertebra			1					1
Posterior abdominal vertebrae	1	3	1	1	2			8
Caudal vertebra		2		1	4	2	1	10
Total	1	6	3	2	8	2	1	23

**Table 9** Fish: anatomical representation from Trench 8

	<i>Eel</i>	<i>Conger eel</i>	<i>Whiting</i>	<i>Pollack</i>	<i>Gadidae</i>	<i>Bass</i>	<i>Red sea bream</i>	<i>Sparidae</i>	<i>Ballan wrasse</i>	<i>Labridae</i>	<i>Mackerel</i>	<i>Flatfish</i>	<i>Total</i>
Parasphenoid				1									1
Premaxilla							1						1
Dentary		2		2			1		1				6
Palatine					1								1
Quadrate				1				2					3
Ceratohyale											1		1
Epihyal											2		2
Hyomandibular					1			1					2
Opercular		1											1
Preopercular					1								1
Subopercular										1			1
Urohyal												1	1
Epibranchial													0
Pharyngeal					1								1
Anterior abdominal vertebra								1					1
Posterior abdominal vertebrae	2	2	1	8	1			3		1		1	19
Caudal vertebra	1			1				10		2		4	18
Vertebra fragment		1											1
Total	3	6	1	13	5	0	2	17	1	4	3	6	65

**Table 10** Fish: estimated size from Trench 5

	600– 1200mm	300– 600mm	c300mm	150– 300mm	<i>Total</i>
Conger eel	1				1
Pollack	3	3			6
Gadidae	1	2			3
Sparidae		2			2
Labridae		1	1	6	8
Mackerel				2	2
Flatfish				1	1
Total	5	8	1	9	23

**Table 11** Fish: estimated size from Trench 8

	>1200mm	600– 1200mm	c600mm	300– 600mm	150– 200mm	<i>Total</i>
Eel				2	1	3
Conger eel	4	1				5
Whiting				1		1
Pollack		10		3		13
Gadidae		2		3		5
Bass		1		2		3
Red sea bream				2		2
Sparidae			11	4	2	17
Ballan wrasse		1				1
Labridae		1		1	3	5
Mackerel				3		3
Flatfish		3		1		4
Total	4	19	11	22	6	62

**Table 12** Fish: species representation by context in Trench 5

	(501)	(502)	(503)	(504)	(512)	(540)	Total
Conger eel	1						1
Pollack				1	5		6
Gadoid	1				1	1	3
Sea bream	2						2
Wrasse	5	1	1				8
Mackerel	1	1					2
Flatfish			1				1
Total	10	2	2	1	6	2	23

In Trench 1 the single identifiable mackerel fragment was recovered from the upper layer of the cist fill (7) and unidentifiable fragments were recovered from other cist deposits: (8), (12) and (13). However, there is no reason to believe that the fish bones were deliberately deposited with the inhumation. It is more likely that they were accidentally incorporated into the deposits as a consequence of midden material being spread on the fields. Six contexts in Trench 5 produced fragments of fish bone (Table 12), including the shell middens (501), (502), (512) and (540), a pit fill (503) and the charcoal layer (504); most of the identifiable specimens came from (501) (n=10) and (512) (n=6) in the shell midden. All of the fish remains from Trench 8 were from the midden (802).

## Discussion

The majority of fish remains were recovered from midden deposits containing domestic mammal remains and hence there is no reason to doubt their anthropogenic origin. Despite the small sample size, a wide range of species is represented, most of which are known to inhabit the inshore zone now. The predominance of these inshore species suggest that the Iron Age–Romano-British inhabitants at Hillside Farm were practising low-risk, subsistence-level fishing, either from the shore using hand-lines, nets or traps, or perhaps employing small boats. The presence of both cranial and vertebral elements indicates that whole fish were brought onto the site, as expected in a community exploiting marine resources in order to fulfil subsistence requirements. Although the sample is relatively small, comparison with the quantity of mammal remains suggests that fishing is likely to have been an integral part of the economy and would have supplemented the protein available from animal husbandry and exploitation of sea birds.

Unfortunately, the small size of the domestic mammal assemblage from Hillside Farm prohibits comparison with contemporary sites and fish remains are in any case generally scarce on Iron Age sites from mainland southern Britain, to the extent that it has been suggested that marine resources may have been taboo (J D Hill pers comm). However, a general comparison of fishing practice may be made with other sites on the Isles of Scilly and other contemporary sites in marginal areas, such as the Northern and Western Isles of Scotland, where fish bones are more often recovered.

Occasionally, fish bones are recovered from the south-west peninsula itself. The Romano-British site at Atlantic Road, Newquay (Ingrem forthcoming), produced several fish bones from sieved samples in which all of the identifiable fragments belong to wrasse, with both cuckoo and ballan wrasse represented. Several sites on the Isles of Scilly, ranging in date from the prehistoric to medieval periods, have produced fish remains. At Halangy Down, St Mary's (Locker 1996a; 1996b), a small quantity of bird and fish remains was recovered from Romano-British midden deposits although sieving was unfortunately not carried out. However, ballan wrasse dominate the assemblage, indicating, as with Hillside Farm, exploitation of areas of rocky ground in the inshore zone. The list of other species is similar to that for Hillside Farm, with conger eel, whiting, pollack, sea bream and mackerel present. Locker (1996b) notes that although the sample is biased in favour of large fish, it is comparable to that found at Little Bay, St Martin's (Locker 1983), Lower Town, St. Martin's (Ratcliffe 1997), Nornour (Turk 1978) and Porth Killier, St Agnes (Locker 1997), 'indicating a constant exploitation of fish species from the prehistoric to medieval times in Scilly' (Table 13).

Evidence for inshore fishing has frequently been documented at Iron Age and Pictish sites in the Scottish Islands. At Dun Vulcan, South Uist, Hebrides (Cerón-Carasco 1999), a considerable number of fish remains were recovered from Iron Age deposits. The assemblage is comprised predominantly of members of the Gadidae (cod) family, with immature saithe (which are found close to the shore) the main species exploited. According to Cerón-Carasco (1999), the large number of species represented and the range of sizes suggest that the inhabitants practised well-organised exploitation of fish resources to meet the needs of a growing population. In general, comparisons made with other Iron



Age sites on North Uist, such as Sollas (Finlay 1991), Hornish Point and Baleshare (Cerón-Carasco 1999), suggest that the Dun Vulcan assemblage is typical of Iron Age assemblages in the region. The fish remains are interpreted as representing the exploitation of the immediate environment, in particular the targeting of young saithe from 'craig seats' – rocks along the shore suitable for casting a line or using a net attached to a pole (Martin 1995).

## Conclusion

The evidence suggests that the inhabitants of Bryher were practising a food procurement strategy, involving the breeding of domestic mammals coupled with low risk exploitation of inshore fish and seabirds. This pattern is also apparent at coastal sites both on neighbouring islands in Scilly and in Scotland, suggesting that it was common practice for people living in coastal and marginal locations to supplement their protein supply with locally available species of wild birds and fish.

## Overview of the results of environmental analyses

### *Vanessa Straker*

An environmental archaeologist (J Heathcote or V Straker) was present throughout most of the excavation at Hillside Farm to advise on and take samples for geoarchaeological and bioarchaeological analyses. The objectives were to recover data to enhance interpretation of the cist burial (Trench 1) and if possible to place it in a contemporary environmental setting. Sampling from the evaluation trenches aimed to add to the information recovered by demonstrating the potential for survival of environmental evidence and outlining the character of the wider site.

The granite-derived soils of the Isles of Scilly are usually acidic in nature, which means that survival of bone and shell is expected to be poor, if they survive at all. However, in many areas there is a substantial sand component, either added deliberately to increase fertility or blown onto the

**Table 13** Fish: species representation at various sites mentioned in the text (NISP)

	<i>Bryher</i>			<i>Little Bay</i> LBA**	<i>Porth Killier</i> LBA**	<i>Nornour</i> Pre- Roman	<i>Halangy Down</i> 3rd century AD	<i>St. Martin's</i> 10th–13th century AD	
	Trench								
	1	5	8						
<i>Elasmobranch</i>					2		1		
<i>Anguilla anguilla</i>			3	3	3			26	
<i>Conger conger</i>		1	6	7	2	5	present	2	
<i>Pollachius pollachius</i>		6	13	19	2	46	common	1	
<i>Pollachius virens</i>					5				
<i>Gadus morhua</i>					1	1			
<i>Merlangius merlangius</i>			1	1					
<i>Molva molva</i>							common		
<i>Merluccius merluccius</i>									
<i>Gadidae</i>		3	3	6	23	15	?		
<i>Dicentrarchus labrax</i>			3	3			common		
<i>Spondyliosoma cantharus</i>					1			1	
<i>Pagellus bogaraveo</i>			2	2	94			1	
<i>Sparus aurata</i>					1				
<i>Sparidae</i>		2	17	19		23		1	
<i>Mugilidae</i>						13			
<i>Labrus bergylta</i>			1	1	36			8	
<i>Labridae</i>			8	4	12		present	16	
<i>Scomber scombrus</i>	1	2	3	6				2	
<i>Scophthalmus maximus</i>							present		
<i>Pleuronectes platessa</i>						3	present		
Flatfish		1	6	7					
<b>Total</b>	<b>1</b>	<b>23</b>	<b>52</b>	<b>76</b>	<b>165</b>	<b>140</b>		<b>38</b>	<b>128</b>

\*\* = stratified midden deposits only

land, which improves the chances of bone and shell preservation. Additionally, the frequent occurrence of substantial shell middens, visible on many of the islands, has resulted in the creation of local calcium-rich habitats that preserve bone and shell well. The trenches at Hillside Farm proved to contain both middens and sand-enriched soils.

Geoarchaeological analysis was targeted towards identification of buried land surfaces in Trenches 1 and 3 and analysis of occupation deposits and anomalous sediments in Trenches 4 and 5. Sampling of the buried land surfaces and profiles for pollen analysis was informed by geoarchaeological description and complemented the geoarchaeological sampling.

Most bulk sampling for charred plant remains and animal bones concentrated on Trench 1. In this trench c 220 litres of soil was examined. More limited collection of bulk samples was carried out on Trench 5 (c 11 litres) and Trench 8 (9 litres) where limpet middens and other contexts of environmental potential were exposed. In these trenches disturbance was kept to a minimum pending a decision on further excavation. The importance of sieving in the recovery of fish bones was clearly demonstrated by comparison between hand-collected and sieved material (see Tables 6 and 7).

The post-excavation phase included both assessment and, where preservation was adequate, full analysis of a range of types of material as summarised below:

	Assessment	Analysis
Geoarchaeology	*	*
Pollen	*	
Charred plant macrofossils	*	
Mammal bone	*	
Bird bone	*	*
Fish bone	*	*
Marine molluscs	*	
Land molluscs	*	

### Trenches 1 and 3

The fill of the cist in Trench 1 contained occasional crop remains, primarily in the form of charred barley grains with occasional wheat and oats, the last most likely to be crop weeds. The cist fill also preserved a few fish bones; those that could be identified were of mackerel. There is no evidence linking the cereals

or fish bones with the burial; they were mostly in the upper layers of the fill, which had suffered some disturbance, and probably derived from the spreading of domestic waste on fields after the cist was concealed below ground.

Geoarchaeological analysis confirmed the field identification of former land surfaces from which the cuts for the cists were made. Pollen preservation was very poor, however, probably because of the relatively high sand component causing enhanced activity of soil microfauna. This meant that it was not possible to suggest what the environment would have been like in the immediate and local area at the time the burials were made.

### Trenches 4, 5 and 8

Geoarchaeological analysis of a well-sorted, silt-rich deposit (414) in Trench 4, originally thought to be loess, was not able to identify its origin (Fig 37). However, analysis showing *in situ* modification of natural subsoil suggested that the stone drain [543] in Trench 5 had contained water enriched with human or animal manure.

The potential of limpet middens for the recovery of food remains, particularly bird, fish and mammal bone and shell, is well known in Scilly at sites such as Porth Killier, Porth Cressa and Tean (Ratcliffe and Straker 1996). The bone assemblages from the middens in Trenches 5 and 8 provided the most useful information on diet, farming practice and exploitation of wild resources, though interpretation was limited by the small sample size. Breeding of sheep and/or goats could be demonstrated by the presence of neonatal bones and cattle and pigs were also kept. A wide range of birds and fish were collected for food, interpreted as low-risk exploitation of inshore seabirds and fish. The finding of mature red sea bream, usually regarded as typical of offshore waters, raises the question of where this species was caught. The Scillonian batholith is surrounded by deep water, however, and it is likely that the former inhabitants of Scilly were able to catch a range of fish without the need to fish far offshore.

The marine shell from the limpet middens was not fully analysed because it is not relevant to the cist burial, but preliminary examination of the shell suggests that the species present are typical of those found elsewhere in Scilly. Limpets dominate the assemblage with topshells and winkles as ancillary species. There are very few dog whelks present. The

average size of the limpets in the samples appears to be greater than other samples analysed from Scilly such as Porth Killier (Light 2000).

The animal bone evidence in particular compares well with the record for the islands as a whole. In contrast, the evidence for crop husbandry is very slight. This is probably because it was not possible to collect large samples; previous experience has shown that very large samples are required to extract useful crop assemblages from midden contexts (Ratcliffe and Straker 1996).

## The settlement in context

The excavated evidence for the settlement at Hillside Farm is restricted to two evaluation trenches and it is therefore difficult to make useful comparisons with other contemporary settlement sites in the islands. Only two of these have been fully excavated and published. The Iron Age and Romano-British settlement at Halangy Down on St Mary's was excavated during 1950 and between 1964 and 1971 (Ashbee 1996). It comprises a complex of interconnecting houses, which include simple stone-built structures, some with rectangular annexes, and a single courtyard house, a type of dwelling characteristic of the Roman period in West Cornwall. The internal features include stone-lined drains, hearths, door pivot stones, benches, partitions, sanded floors and small chambers, probably stores or cupboards, within the thick walls that sometimes overlay earlier features such as corn-drying ovens. The buildings were modified over a period of some 500 years, the courtyard house representing the last phase of occupation. The settlement is likely to have housed successive generations of the same extended family (Ashbee 1996, Ratcliffe and Johns 2003, 38).

Excavations of the settlement and shrine at Nornour in the Eastern Isles between 1968 and 1973 uncovered a complex of 11 circular buildings that were continually modified during their occupation from the second millennium BC to the fourth century AD, although not all were in use simultaneously (Dudley 1968; Butcher 1978; 2000–1). Internal features included radial stone partitions, stone-lined hearths and pits, stone benches, bowls and querns. During the Bronze and Iron Ages the settlement was probably occupied by a single extended family. During the Romano-British period two of the buildings seem to have served as a shrine, the rest of the site being abandoned by this time. Finds, most

probably votive offerings, included more than 300 brooches and around 90 Roman coins, together with bronze rings, bracelets and bangles, bronze spoons, glass beads, numerous fragments of glass vessels, several miniature pots and pieces of Gallic clay figurines.

It is likely that the cluster of buildings and terraced, curving fields nestling at the edge of the Atlantic at Hillside Farm on Bryher was also occupied by a territorially-based, extended family group, with a pastoral and arable economy supplemented by exploitation of naturally available resources in the form of shellfish, wild birds and fish.

The burial with sword and mirror could indicate a comparatively high-status settlement. This would depend on whether the deceased was a member of that community or came to be buried there in some other way and whether the burial of the objects with the body resulted from their having been the possessions of either the dead person or their family or neighbours. If they were provided as attributes to a special individual nominated to represent a wider group or community in some way, they may have come from further afield and their presence would not give any specific indication of the economic or political status of the settlement itself, although it might reflect that of the wider community or political group.

The two mirrors and the gabbroic pottery in use on Scilly, indicate that Bryher, despite its relative remoteness and isolation, and the St Keveverne area, apparently the centre of a major pottery industry over a long period, were both incorporated within a wider shared culture with continuous trading links. Significant elements in this culture were distinctive field systems associated with nucleated settlements, dominant use of a particular single-source pottery fabric, some access to fine metalwork of innovative design, an element of social differentiation revealed by selective use of cist burial and occasional occurrence of high status items within these burials.

The Hillside settlement is only 1.4km from the broadly contemporary cliff castle on Shipman Head at the northern end of the island. The traditional interpretation of cliff castles as coastal hillforts and places of refuge for the local populace in times of danger is currently being reassessed, particularly as many of them have slight defences and are in extremely exposed, although spectacular, locations and apparently vulnerable to sustained attack. In west Cornwall such defended central places have been interpreted as economic and social centres under the control of tribal chiefs, presiding over and

receiving tribute from surrounding farms, and places where rituals were performed and witnessed (Herring 1994).

There are two other cliff castles in Scilly; Giant's Castle, on the south-east side of St Mary's and a third possible example on Burnt Hill, St Martin's. These three lie roughly equidistant from each other, on the edge of what would then have been three large landmasses, if not one large island. It is tempting to suggest that they reflect community divisions in Iron Age Scilly and that Shipman Head fell under the aegis of the inhabitants of the Hillside Farm settlement.

## Iron Age and Romano-British burial in Cornwall and Scilly

### The south-western cist-burial tradition

The south-western cist-burial tradition was identified through the chance discovery and excavation of a number of small cemeteries and isolated burials

around the coasts of Cornwall and the Isles of Scilly, with a couple of examples in Devon (Fig 39). It was possibly the normative burial rite of the Dumnonii (cf Thomas 1966, 77), although Whimster (1981, vol 2, 74) suggests that the tradition was 'never widely adopted and may instead have emerged only temporarily in peripheral parts of an area with a stronger native cultural preference for a different and archaeologically undetectable method of disposal'.

Only two cemeteries have been formally excavated, Harlyn Bay on the north coast of Cornwall (Bullen 1912; Whimster 1977, 61–88) and two closely adjacent sites on the island of St Mary's at Porth Cressa and Poynter's Garden (Ashbee 1979, 61–80; Dudley 1960–1, 221–231). The other known cemetery sites were discovered in the nineteenth and early twentieth centuries and are poorly documented. These include Trelan Bahow, near St Keverne on the Lizard peninsula, in 1833 (Jope Rogers 1873, 267–272), Trevone, near Padstow, in 1848 (Trollope 1860; Dudley and Jope 1965) and Stamford Hill, close to Mount Batten, Plymouth, Devon, in 1864–5

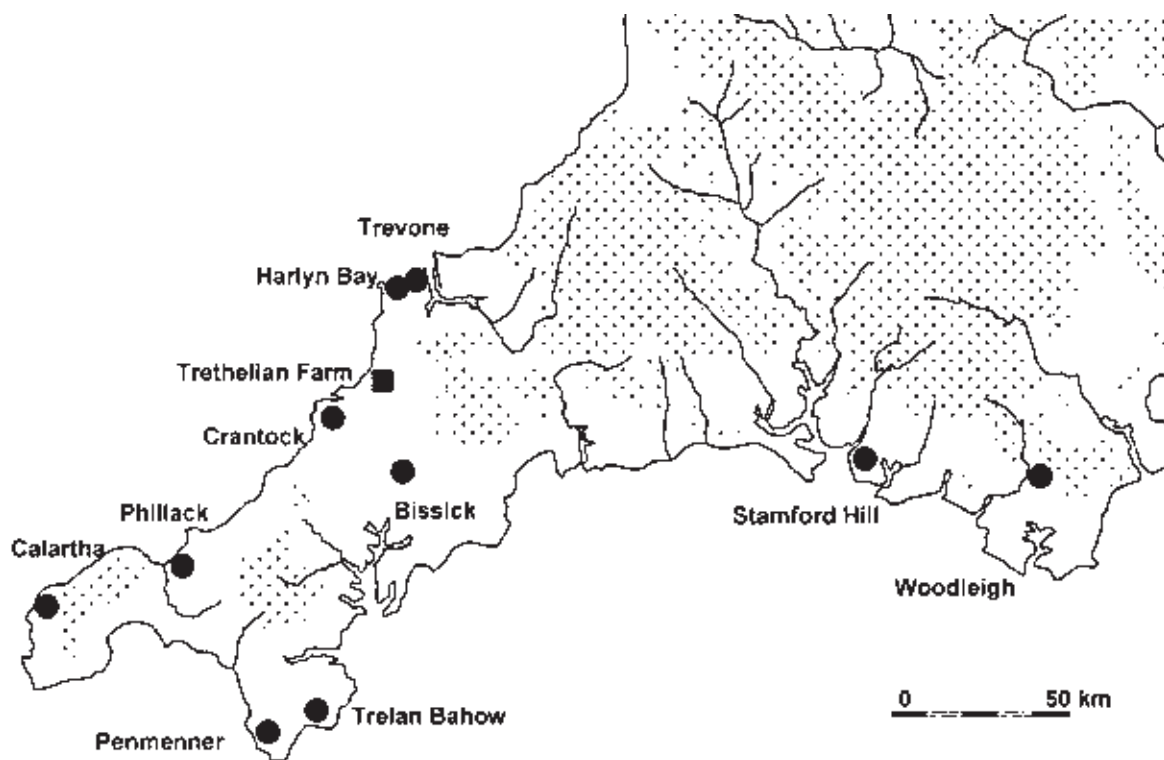


Fig 39 Map of Cornwall showing the distribution of Iron Age and Romano-British cist graves and cemeteries and the uncisted cemetery at Trethellan Farm (source: Whimster 1981 with amendments)

(Bate 1866, 500–510; Cunliffe 1988). Possible cemeteries have also been recorded at Atlantic Road, Newquay (Reynolds forthcoming), and at Phillack (Whimster 1981) and Crantock (Preston-Jones 1984). Seemingly isolated cists have been recorded at Bissick, near Ladock, Penmenner at The Lizard, Calartha in St Just in Penwith and Woodleigh near Kingsbridge in Devon (Whimster 1981).

Following his excavations at Harlyn Bay in 1976, Whimster (1977; 1981) reviewed this distinctive regional tradition, which is characterised by the use of short cist graves, lined and covered by rough granite boulders or flat slabs of slate or, in the case of Stamford Hill, pieces of water-worn limestone (Cunliffe 1988, 87). The bodies within the cists are invariably crouched, the majority placed on their right rather than their left sides and usually interred with the head towards the north or north-east. The east–west oriented Trelan Bahow burials are an exception. Two other recurrent features are the grouping of burials in cemeteries and the occasional provision of grave goods, including items of metalwork. Decorated bronze mirrors are among the repertory of grave goods found in the burials, notably one from Trelan Bahow and parts of three mirrors (now lost) from Stamford Hill.

A La Tène II brooch from Trevone and Iberian-style brooches from Harlyn Bay indicate that the Cornish burials may have begun in the third or fourth century BC. The two southern coastal cemeteries at Trelan Bahow and Stamford Hill have traditionally been considered to date to the first century AD, thus being later than the north coast sites (Whimster 1981, vol 1, 192–3; Cunliffe, 1988, 98; Nowakowski 1991, 229). The reassessment of the Trelan Bahow mirror in the light of the Bryher discovery, however, undermines the previously accepted dating differences between north and south coast cemeteries (see above).

An interesting variation on the south-western theme was investigated at Trethellan Farm, Newquay, in 1987. Here was an Iron Age cemetery consisting of 21 sub-oval or sub-rectangular unlined grave pits with crouched burials, mostly aligned north–south. The cemetery was dated to between the second or first centuries BC and the first century AD on the basis of brooch typology (Nowakowski, 1991, 210–33).

#### *Scillonian cist graves*

The Hillside Farm cists are similar to the 33 or so

Iron Age–Romano-British cists that have previously been discovered at ten sites in Scilly, on St Mary's, St Martin's, Tean, Samson and Bryher (Fig 1). All were in low-lying locations, below, just above or slightly inland of the modern shoreline, having been revealed by coastal erosion, cultivation or modern development.

Generally oval or rectangular in plan, and occasionally coffin- or D-shaped, the cists are set in grave pits and constructed of stone slabs placed on edge, coursed walling or a combination of both building techniques. They are covered by stone slabs set at right angles to the main axis. Cist dimensions range from 900mm to 1.6m in length, 500mm to 1.0m in width, and 200mm to 800mm in depth. The vast majority of cists are aligned north–south; a handful are oriented north–north–west – south–south–east or north–north–east – south–south–west.

Where skeletal remains have survived in the acid soils, they represent the remains of crouched inhumation burials (with the body lying on its side). Grave goods often accompany these and include bronze brooches, pottery vessels, glass beads, and, in one instance, an iron pin. The frequent occurrence of brooches suggests that they played a special role in the funerary rite and may have been used to hold together a shroud or, perhaps, everyday costume.

The type-site for these Scillonian cist-graves is Porth Cressa on St Mary's, where Paul Ashbee investigated ten cists and an uncisted burial in 1949–50 (Ashbee 1954; 1979). The cists were sited in an ancient terraced field and had been positioned equidistantly in lines, possibly indicating the use of surface markers for the graves; one of the cists was overlain by what may have been a cairn. They were oriented approximately north–south. The walls of the cists were built of orthostats or dry stone walling or a combination of the two and each had slab or bolster-shaped cover stones, laid at right angles to the long axis. The floors of the cists were unlined. Few skeletal remains were found, except in one of the cists where there were fragments of skull and long-bones. At the bottom of each undisturbed cist was a deposit of compact yellow or white clay, which Ashbee interpreted as wash-in from the clay mortar, which he termed 'luting', used to seal the joints of the cist walls and capstones. Five more cist graves excavated at Poynter's Garden by Dorothy Dudley (1960–1) might be part of the same cemetery as Porth Cressa or could represent a discrete group, possibly indicating a social distinction between the two (Ashbee 1979, 74).



The Harlyn Bay cemetery on the Cornish mainland may have had an attendant shrine, mortuary house or temple (Whimster 1977, 69–70). A stone Roman altar removed from near Garrison Hill on St Mary's to Tresco by Augustus Smith in the nineteenth century may have been associated with a shrine or temple similarly serving the cemeteries at Porth Cressa and Poynter's Garden (Ashbee 1974, 218–20; 1986, 207; Thomas 1985, 161).

Most Scillonian cists have been found close to settlement sites (Fig 1). For example, a cist was dug into the floor of an Iron Age hut on Par Beach, St Martin's (Ashbee 1974, 179–80), where a possible cist cemetery has also been noted (Ashbee 1979, 74). At Porth Cressa the cists were dug into the soil of an ancient cultivation terrace (Ashbee 1979, 61), and a cist identified in the cliff exposure of a Later Bronze Age settlement nearby was excavated in 1996 (Ratcliffe 1999b). At Halangy Porth, a truncated cist is exposed in the cliff and others have been encountered in the area of the settlement (*ibid*, 74, 76; 1996, 23). Isolated cist graves, possibly parts of cemeteries, have been recorded on St Mary's (Crawford 1928, 420, pl III; Ashbee 1979, 76) and on the islet of Old Man next to Tean, where several large pieces of carbonised oak led to the suggestion that the cist may have had a wooden lining (Tebbutt 1934, 302–3). The nearest cist grave to the Hillside Farm site is the unusual stone-floored example in the intertidal zone at Green Bay, Bryher (Thomas 1977).

#### *A revised date for Scillonian cist graves*

The origin of the Scillonian cist grave tradition is unclear. Scilly has a long tradition of stone sepulchral architecture and the Porth Cressa-type cists could be simply a modification of indigenous traditions. But it is possible that the grouping of graves into cemeteries and the provision of grave goods may have developed in the maritime areas of western Britain as a result of continuing contact with other communities on the Atlantic seaboard. Certainly Brittany, the Scillonian archipelago and the south-west British mainland were 'connected by ties of reciprocal exchange, involving long-distance maritime trade which had begun by the seventh century BC and intensified by the first century BC' (Cunliffe 1996, 114–6).

Typological dates for most of the brooches and pottery recovered from the Porth Cressa cemetery are not earlier than the end of the first century AD. This led Ashbee to consider the graves to be wholly

Roman in date and surmise that 'refugees' from the Cornish mainland may have imported the cist-burial tradition to Scilly sometime after the Roman conquest (Ashbee 1979, 78; 1986, 207). The radiocarbon determination from the Hillside Farm cist signifies that an unequivocally pre-Roman origin for the Scillonian tradition can now be accepted.

#### **Social, structural and ritual aspects**

##### *The Iron Age context*

Later Iron Age British mortuary rites appear to have been used to mark and make social distinctions. This is a process that is more easily discernible in contemporary Continental cemeteries, where variables such as cremation or inhumation, barrow or flat grave and whether burials were sited within or away from the cemetery were used to create distinction in situations where there were emerging elite groups (J D Hill pers comm). In Britain, mortuary rites seem also to have been a significant element in community, regional or tribal differences, so that the dead are buried in a few areas but not in most. The practice of inhumation is found in eastern Yorkshire, central and south-western England, whilst cremation is mainly restricted to south-eastern England. There are scattered examples of both rites in northern and western Britain (Whimster 1981).

The extent to which cist burial was adopted as the customary burial rite of the Dumnonii is uncertain. The known cemeteries and individual cists represent only a tiny proportion of the whole population; distinctions of some kind were therefore being made within local communities by choosing to dispose of some of the dead in cisted or uncisted graves while the majority were treated in some other way, perhaps excarnation. At Trethellan Farm the uncisted graves and 'simple and unpretentious' metal grave goods were thought perhaps to indicate a cemetery 'serving a lower social group within the local Cornish Iron Age'. The sample was too small to allow definite conclusions, however, and many cemeteries of uncisted graves may be undetected and therefore missing from the archaeological record (Nowakowski, 1991, 229–32).

##### *Cist type and status*

Ashbee identified two discrete types of cist at Porth Cressa, 'Type I' and 'Type II'. He suggested that the less frequent but more massively constructed

rectangular 'Type II' cists, of which there were two on the west side of the cemetery, reflected a higher social status than the predominantly oval 'Type I' cists (Ashbee 1954, 7, 23; 1979, 62, 69, fig 29). At Poynter's Garden there was one 'Type II' cist and four 'Type I's' (Ashbee 1979, 74). Bone preservation at Porth Cressa was very poor and orientation of the inhumation was just about discernible in two cases, one a 'Type I', the other a 'Type II'; in both the head was towards the north and faced west. One of the 'Type I' cists at Poynter's Garden contained almost complete skeletal remains, facing east with the head to the south; a body stain in another cist shared a similar orientation (Ashbee 1979, fig 38).

In construction, the excavated Hillside Farm cist is similar to the 'Type II' cists at Porth Cressa, although its sub-rectangular plan resembles one of the 'Type I' cists. In this instance, the head of the inhumation was to the north and faced west, as at Porth Cressa.

The walls of the unexcavated cist, as revealed, consisted of a single course of edge-bedded granite stones, with one surviving *in situ* capstone. It does not appear to be of such substantial construction as the sword burial cist and is more closely comparable to Ashbee's 'Type I' cists.

Charles Thomas has suggested that the chambers or passages and cists within Scillonian Bronze Age cairns are intentionally boat-shaped, crafts for the voyage to the after-world and for periodic return; Thomas points to the example of a particularly boat-shaped slab cist, with its 'bow' to the north, on the Eastern Isle of Arthur (Thomas 1985, 144). The shape of many Porth Cressa type cists, including those at Hillside Farm, could also be interpreted as boat-shaped – funerary monuments of a later millennium, echoing an earlier theme.

#### *Cist location: general and specific*

Islands and coasts are liminal places and the sea is thought to have had a particular significance regarding the dead (Scarre 2002). In this respect, the coastal location of known south-western cist grave cemeteries is unsurprising, particularly if the perception that cists were intentionally boat-shaped is correct. At the same time, it is clearly possible that inland cemeteries have escaped detection. The apparent difference in location between cemeteries, mainly in coastal bays, and isolated cists may itself be significant in some way.

The excavated Hillside Farm cist was built in a pit cut into a pocket of naturally occurring soft clay in the otherwise much harder surrounding *ram*. Obviously this made it easier to dig the pit, but the location may also have been chosen because it was deemed more propitious and an easier point of entry into the 'Otherworld'.

The visual dominance of Samson Hill, rising steeply to the south of the site and the prominent landmark of Great Carn to the north-west could also perhaps be thought of as making the burial site (and perhaps the settlement) distinctive and 'special'.

#### *Cist stones*

The Hillside Farm cist was built of varied granite stones, which were perhaps chosen for their contrasting visual and haptic qualities. All the stones would have been available from the island. Of the five capstones, the three at the southern end of the cist were pale grey in colour and moderately smooth in texture. The next stone, the one dislodged by Paul Jenkins, had a much smoother texture and was reddish brown; the one at the northern end had the roughest texture and was dark grey. The surface texture of the wall stones varies from rough, through medium coarse grained and smooth, to very smooth – almost polished – granite. The colour of the wall stones ranged from pale grey to dark reddish brown.

#### *Luting*

As well as having a practical value in sealing and bonding the tomb, the clay luting may itself have had a ritual aspect. There was no indication of a cairn over either of the Hillside Farm cists but the covering slabs of the newly completed cist(s), capped with fresh luting, may have been intended to be visible at ground surface level. This is reminiscent of the yellow clay layer used to dress Bronze Age barrows on the St Austell granite, although there the clay capping was only an interim stage in a series of ritual activities and was subsequently buried below soil (Miles 1975).

## British warrior and mirror burials

### **Warrior burials**

The burial of weapons with the dead was a long-established and widespread tradition in Europe during the first millennium BC. It was particularly

## AN IRON AGE SWORD AND MIRROR CIST BURIAL FROM BRYHER, ISLES OF SCILLY

common in the third and second centuries BC, continuing in some regions into the first century BC (Cunliffe 1996, 116). In Britain, warrior burials form a distinctive group with a wide geographical distribution, dating from at least the early second century BC to the first half of the first century AD (Table 14 and Fig 40). Their cultural origin and significance is unclear. They are characterised by the rite of male inhumation with weapons in graves,

which is not normative and cuts across existing local burial traditions, marking out the individuals involved as different from the majority of the Iron Age population. Warrior burials do not necessarily indicate war cemeteries.

Not all warrior burials contain swords; some have only shields or spears. Others have full equipment – sword, shield, spearhead, rings from sword belts and belt hooks – and some have additional items, the

**Table 14** Iron Age warrior burials (with swords) in the British Isles; the place-names given are those most commonly used to refer to individual burials

<i>Location</i>	<i>Date</i>	<i>Type of burial</i>	<i>Sex determination</i>	<i>Grave goods</i>
Bugthorpe, E Yorks	Late Iron Age	Possible inhumation?	Unknown	Iron sword in bronze sheath (La Tène III), 2 bronze discs (from shield or brooch), 2 bronze studs
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended (Skeleton 10)	Male	Iron sword
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended (Skeleton 14)	Male	Iron sword and spear
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended (Skeleton 17)	Male	Iron sword and spear
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended	Male	Iron sword
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended	Male	Iron sword
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended	Male	Iron sword and spear
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended	Male	Iron sword
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended	Male	Iron sword
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended	Male	Iron sword
Burton Fleming–Rudston, E Yorks	Late Iron Age	Inhumation, extended	Male	Iron sword
Kirkburn, E Yorks	Middle Iron Age	Inhumation, crouched. Small barrow with circular ditch.	Male	Iron sword, traces of wooden sheath
Grimthorpe E Yorks	Late Iron Age	Inhumation, crouched in grave-pit	Male, adult	Iron sword in scabbard with bronze chape (La Tène III), shield, spear, bronze disc, two studs, rivet, three nails, coral bead with bronze pin, 16 bone points
Thorpe, Rudston, E Yorks	Late Iron Age	Inhumation?	Unknown	Iron sword and scabbard with enamel decoration
North Grimston, N Yorks	Late Iron Age	Inhumation, extended in shallow grave	Male? Adult	Two iron swords, iron scabbard, shield fittings, two suspension rings, belt-hook, amber ring, jet ring fragments, bones of pig
Clotherholme, N Yorks	Middle Iron Age	Doubtful grave	Unknown	Iron sword
Garton Station, E Yorks	60 BC–AD 150?	Inhumation, contracted, in square-ditched barrow enclosure	Male	Sword, shield
Eastburn, E Yorks	Late Iron Age	?	Male?	Sword
South Cave, E Yorks	Late Iron Age	?	Male?	Sword
Wetwang Slack, E Yorks	c 300–100 BC	Chariot burial	Male	Sword
Wetwang Slack, E Yorks	c 300–100 BC	Chariot burial	Male	Sword

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<i>Location</i>	<i>Date</i>	<i>Type of burial</i>	<i>Sex determination</i>	<i>Grave goods</i>
Acklam, N Yorks	Late Iron Age	?	Male?	Sword
Shouldham, Norfolk	Middle Iron Age	Inhumation, extended	Male? Adult	Iron sword with bronze anthropoid hilt
Sutton Courtenay, Oxon	Early–mid 1 <sup>st</sup> century AD	Inhumation, contracted, in a cist or small cavity	Unknown	Possible fragmentary iron sword, suspension ring, shield boss, four bronze brooches, pottery vessel
Lambay Island, Co Dublin	Mid–late 1 <sup>st</sup> century AD	Inhumation, crouched	Unknown	Fragmentary iron sword, bronze scabbard mounts for wooden or leather scabbard
Gelliniog Wen, Anglesey	Late Iron Age	Inhumation, possibly extended and in a cist-grave	Unknown	Iron sword (Late La Tène III type), possible suspension ring
Owslebury, Hants	Early–mid 1 <sup>st</sup> century BC	Inhumation, extended. Grave-pit within a rectangular enclosure.	Male, 40–50 years	Iron sword in wooden scabbard with leather binding, shield, spear, suspension rings, belt-hook
Whitcombe, Dorset	2nd century BC?	Inhumation, crouched. Durotrigian pit burial	Male, c 27 years	Iron sword in wooden scabbard with bronze binding, spear, suspension rings, belt hook, La Tène II brooch, iron hammer, iron tool, bronze fragment, chalk ‘pommel’
Bradford Peverell, Dorset	Late Iron Age	Inhumation	Unknown	Iron sword, pottery sherds
St Lawrence, Isle of Wight	Late Iron Age	Inhumation, probably crouched in an earth grave	Male, adult	Iron sword, sheath with bronze guard, shield, suspension rings, iron disc fragment
Coleford, Forest of Dean, Glos	Mid 1 <sup>st</sup> century AD	Inhumation	Male?	Sword
Kelvedon, Essex (sometimes referred to as Great Brackstead)	Late Iron Age	Burial	Male?	Sword (La Tène III) bent and wrapped in textile, possible dagger, shield and spear (bent), tankard, copper alloy bowl, pottery vessels
Birdlip, Glos	Probably early–mid 1 <sup>st</sup> century AD	Inhumation	Male	Short sword, bronze circlet and plates
Deal, Kent	Probably early 2 <sup>nd</sup> century BC	Inhumation, extended. Grave-pit	Male, 30–35 years	Iron sword in a bronze scabbard, shield boss and fittings, bronze headband, suspension ring, bronze brooch
Bryher, Isles of Scilly	100–50 BC	Inhumation, crouched. Porth Cressa type cist grave.	Not known, c 25 years	Iron sword in bronze scabbard, shield fittings, mirror, suspension ring, brooch, tin object
Brisley Farm, Ashford, Kent	AD 10–50	Inhumation, extended, with coffin. In a square-ditch enclosure.	Male	Iron sword, shield boss, spear, suspension rings, cup, platter, butt beaker, half pig’s head
Brisley Farm, Ashford, Kent	AD 10–50	Inhumation, extended, with coffin. In a square-ditch enclosure.	Male	Iron sword, shield boss, spear, ring, butt beaker
Alloa, Clackmannanshire	200 BC–AD200	Inhumation	Male	Iron sword (in hand), stone pillow, toe rings, copper pin, glass beads

Sources: Bugthorpe, Stead 1965, 67–70; Burton Fleming–Rudston (12 burials), Stead 1991a; Kirkburn, Whimster 1981, vol 2, 348; Grimthorpe, North Grimston, Clotherholme, Stead 1965, 67–70; Garton, Whimster 1981, vol 2, 289–90; Eastburn, *ibid*, 292; South Cave, J D Hill pers comm; Wetwang Slack (two burials), Dent 1985; Acklam, J D Hill pers comm; Shouldham, Stead 1965, 68; Sutton Courtenay, Whimster 1981, vol 2, 350–1; Lambay Island, *ibid*, 351–2; Gelliniog Wen, *ibid*, 353; Owslebury, *ibid*, 346; Whitcombe; *ibid*, 345–6; Bradford Peverell, *ibid*, 345; St Lawrence, Jones 1969; Coleford, J D Hill pers comm; Kelvedon, Sealey forthcoming; Birdlip, Whimster 1981, vol 1, 231, and J D Hill pers comm; Deal, Parfitt 1995; Brisley Farm (two burials), Johnson 2003, Stevenson and Johnson 2004; Alloa, Mills 2004.

AN IRON AGE SWORD AND MIRROR CIST BURIAL FROM BRYHER, ISLES OF SCILLY



Fig 40 Distribution of Iron Age inhumations with swords and mirrors and selected cremations with mirrors (source Whimster 1981; Fitzpatrick 1996 with amendments)



Deal warrior's 'crown', for example (Collis 1973, 124, 130; Whimster 1981, vol 1, 137–8, 142–6; Parfitt 1995, 72–86).

It is possible that many British Iron Age people owned weapons and held the social role of 'warrior', yet most individuals were not buried with their weapons. Some of these may have been passed on as heirlooms to relatives or others, but most of the known British and Irish Iron Age swords, of which there are more than 200, have been recovered from watery contexts such as rivers, lakes or other natural features, and were probably votive offerings (Wait 1985, 17–19).

Of the small number of swords found accompanying burials in the British Isles, Bryher is only the fourteenth to be excavated outside East and North Yorkshire. There 22 have been found, mostly in the main excavated cemeteries of the Arras group (Hill 2000a, 52–3). Indeed, until the mid 1960s it was thought that the British sword burial tradition was confined to the Yorkshire Wolds, with a solitary outlier at Shouldham in Norfolk (Stead 1965, 68). Since then, further examples have been discovered in other parts of Britain, indicating a more widely dispersed distribution than was previously known (Table 14). Since the Bryher find, two warrior burials have been excavated at Brisley Farm, Ashford, Kent (Johnson 2003; Stevenson and Johnson 2004, 490–4), and another in Scotland at Alloa, Clackmannanshire (Mills 2004, 486–9).

## Mirror burials

Mirrors and mirror burials have been discussed above. It is sufficient to reiterate that all previous dating of mirror burials has been by association with other artefacts (usually brooches) and that most decorated bronze mirrors have been dated to the late first century BC or the first three-quarters of the first century AD. The mirror from Chilham Castle, Kent, found with a cremation burial in 1993, is thought to be one of the earliest known and is dated by association with brooches of the mid first century BC (Parfitt 1998). The Bryher mirror is the first to be dated by radiocarbon dating of associated skeletal material as well as by metalwork typology.

Mirror burials, like burials with weapons, are not normative and similarly cut across existing local traditions, with cultural associations and a distribution pattern not dissimilar to the warrior series (Table 15 and Fig 40). They have usually been interpreted as a feminine counterpart to the masculine warrior burial rite, representing 'the standard practices in burying moderately wealthy women' (Cunliffe 1991, 509). While there may be some form of equivalence between mirror burials and sword burials, some commentators have expressed reservations about such a simplistic explanation (for example, Fitzpatrick 1984, 186).

**Table 15** Mirror burials

<i>Location</i>	<i>Date</i>	<i>Type of burial</i>	<i>Sex determination</i>	<i>Grave goods</i>
Arras, Market Weighton, E Yorks	c 300–100 BC	Inhumation?	Unknown	Iron mirror (lost)
'The Lady's Barrow', Arras, Market Weighton, E Yorks	c 300–100 BC	Inhumation, extended, in a barrow with a central circular grave	Assumed to be female	Iron mirror with copper alloy mounts or fittings, 2 cartwheels, 2 horse bits, pig bones
Wetwang Slack, E Yorks	c 300–100 BC	Inhumation	Female	Iron mirror, cart, 'beancan'
Garton-on-the-Wolds, Garton Slack, E Yorks	60 BC–AD 150?	Inhumation, contracted, in square-ditched enclosure	Female	Iron mirror
Lambay Island, Co Dublin	Mid-late 1 <sup>st</sup> century AD	Inhumation	?	Iron mirror
Desborough, Northants	Early to mid-1 <sup>st</sup> century AD	Burial?	Unknown	Bronze mirror
Portesham, Dorset	Mid 1 <sup>st</sup> century AD	Inhumation, Durotrigian burial	Probably female, 26–45 years	Bronze decorated mirror, 2 brooches, toiletry set or chatelaine, pan, iron knife, pottery bowl, pig and sheep bones
The Verne, Portland, Dorset	Late Iron Age	Inhumation in cist	Unknown	Bronze mirror handle
The Verne, Portland, Dorset	1 <sup>st</sup> –4 <sup>th</sup> centuries AD	Inhumation in cist	Unknown	Bronze mirror handle

## AN IRON AGE SWORD AND MIRROR CIST BURIAL FROM BRYHER, ISLES OF SCILLY

<i>Location</i>	<i>Date</i>	<i>Type of burial</i>	<i>Sex determination</i>	<i>Grave goods</i>
West Bay, Bridport, Dorset	Late Iron Age	Inhumation, earth grave	Middle-aged male and elderly female (latter associated with mirror)	Bronze decorated mirror handle
Bulbury, Hants Birdlip, Glos	Early to mid-1st century AD	Inhumation Inhumation	Female?	Bronze mirror Bronze decorated mirror
Holcombe, Devon	Early to mid 1st century AD	Possibly from a burial rather than settlement (H Quinnell pers comm)	Unknown	Bronze mirror
Stamford Hill, Devon (3)	Early to mid-1st century AD	Inhumation, crouched or contracted in south-western cist	Unknown, assumed to be female	Three fragmentary bronze mirrors
Trelan Bahow, St Keverne, Cornwall	Possibly 120–50 BC	Inhumation in south-western cist	Assumed to be female	Bronze decorated mirror, brooch, brooch fragment, 2 rings and fragments of others, 2 glass beads and 'stone implements'
Bryher, Isles of Scilly	100–50BC	Inhumation, crouched in Porth Cressa-type cist	Unknown; presence of sword may indicate male	Bronze decorated mirror, iron sword in bronze scabbard, shield fittings, suspension ring, brooch, tin object
Aston, Herts King Harry Lane, St Albans, Herts	<i>c</i> 1 <sup>st</sup> century BC <i>c</i> 15–10 BC–AD 43+	Probable cremation Cremation cemetery	? Female, one might be male, others unsexed	Bronze decorated mirror, pottery Six Roman style mirrors
Shillington, Beds	<i>c</i> 70–20 BC	Cremation	?	Bronze mirror, La Tène D2 silver brooch
Chilham Castle, Kent	<i>c</i> 70–20 BC	Cremation	Probably female, adult younger than 30 years	Bronze decorated mirror, pot/cinerary urn, La Tène D2 brooches
Lexden, Colchester, Essex	Before 15 BC	Cremation	Female?	Bronze mirror, pedestal urn, biconical bowl, lidded cordoned bowl, bronze and coral cup
Latchmere Green, Hants	<i>c</i> 70–20 BC	Cremation	Female?	Bronze decorated mirror, pedestal jar
Dorton, Bucks	Late 1st century BC	Cremation	Female	Bronze decorated mirror and amphora
Nijmegen, Netherlands	1 <sup>st</sup> century AD	Cremation	Female?	Bronze decorated mirror

Sources: Arras (two burials), Whimster 1981, vol 2, 294–5; Wetwang Slack, Dent 1985; Garton-on-the-Wolds, Whimster 1981, vol 2, 289–90; Lambay Island, *ibid*, 419; Desborough, Fox 1958, 84–112; Portesham, Fitzpatrick 1996; Portland (two burials), Whimster 1981, vol 2, 258; Bridport, *ibid*, 253; Bulbury, Whimster 1981, vol 1, 144; Birdlip, Fox 1958, 84–112; Holcombe, Fox and Pollard 1973; Stamford Hill, Cunliffe 1988, 97–90; Trelan Bahow, Jope Rogers 1873, 267–72; Aston, Rook *et al* 1982; King Harry Lane, Stead and Rigby 1989; Shillington, Hill 2000b; Chilham Castle, Parfitt 1998; Lexden, Fox 1958, 84–112; Latchmere Green, Fulford and Creighton 1998; Dorton, Farley 1983; Nijmegen, Fox 1958, 100–1.

### *The function of mirrors*

*'scry ... Divine, esp. by crystal-gazing or looking in a mirror or water'*

(New Shorter Oxford Dictionary 2001)

British decorated bronze mirrors have traditionally been seen as female cosmetic accessories and, because of the level of artistry and craftsmanship

they display, as symbols of wealth and status (cf Jope 1995, 393; James and Rigby 1997, 39; James 1999, 91–2). However, alone, or in association with other objects, mirrors may indicate more complex levels of social stratification (cf Cessford 1997); it is interesting to reflect that the symbols of the Japanese emperor's legitimacy, the imperial regalia, are an iron sword, bronze mirror and a jewel ([www.japan-guide.com/e/e2140.html](http://www.japan-guide.com/e/e2140.html)).

Mirrors have also had a role in prophecy and foreseeing the future and have been imbued with mystical or magical properties in many cultures, in particular being powerful symbols of liminality. Ancient Chinese mirrors, for instance, were used for magic and meditation; in funerary rites they were placed on the chest of the deceased to light the darkness of the tomb and protect the dead person's soul from evil on its journey to the afterlife (Teague 2000, 44). In Japanese mythology the soul is confronted in the afterlife with its deeds and misdeeds reflected in a vast mirror (Ions 1997, 159). In western Europe mirrors have been believed to absorb part of the viewer's soul, reflecting the past and future as well as the present and representing a mystic portal into a parallel world (Tresidder 1999, 134). E M Jope has observed that as well as being the mark of a civilised society (because primitive people tend to fear their own reflection), 'the British grave mirrors may . . . also have held a deeper significance, a means to conjure up the soul and transport it to the other world' (Jope 2000, 137).

From this perspective, the discovery of the Bryher mirror lends a new import to the description of ancient Scillonians by the Roman geographer Solinus (c 200 AD): 'A rough strait separates the island of *Silura* from the shore which the British tribe of the *Dumnonii* occupy. The inhabitants of this island preserve the ancient customs; they refuse money, give and accept things, obtain their necessities by exchange rather than by purchase, are zealous in their worship of the gods, and both men and women display a knowledge of the future' (Rivet and Smith 1979, 85; Thomas 1985, 60, 154–5). Miranda Green equates Bryher or Tresco with *Sena*, one of the *Cassiterides*, where the early first century AD Roman writer Pomponius Mela described a Gaulish oracle of the first century BC 'attended by nine virgin priestesses who were able to predict the future, cure all illnesses and control the elements' (Green 1997b, 103).

Mirrors were rare objects and it is important to remember that until, perhaps, the mid nineteenth century many country people 'had never so much as seen a mirror' (Hamilton Jenkin 1934, 57). Mirrors continue to have magical and superstitious properties both in folklore – to break a mirror brings seven years bad luck; after a death mirrors were sometimes covered to prevent the soul escaping (J Perry pers comm) – and literature (for example, Carroll 1872). In Cornish folklore mirrors are associated with mermaids, typified by the representation of the

Zennor mermaid (Blight 1861, 220). A Cornish story or 'droll' recounts the legend of 'the Mirror of Ages', an ancient mirror which reflected previous and future lives and could enable the viewer to relive a past life (Curran 2000, 143–7).

Of course, the mirror found in the Bryher cist might simply have been a valuable item deposited as a spontaneous act of grief. It could also have been a male cosmetic aid, perhaps a shaving mirror. Shaving was a popular practice with Celtic warriors. Diodorus Siculus, c 60–30BC, wrote of the Gauls: 'Some of them shave their beard, others let it grow. The nobles shave their cheeks but let their moustache grow until it covers their mouth' (quoted in Allen 2001, 20).

### Gender issues

The discovery of a sword and a mirror in the same grave is unique in the Iron Age, or any other period (with the possible exception of the sword and mirror from Lambay Island, Co Dublin, where the exact context is unknown). The association led to considerable speculation about the gender of the Bryher individual; because it was not possible to determine the sex of the buried individual this remains an unresolved issue.

On balance, it is probable that the buried person was male, if only because the majority of European Iron Age burials with weapons are biologically male, although the possibility that it was a woman cannot be ruled out and the presence of the mirror in the grave allows for multiple interpretations. If it is assumed that mirrors are women's objects and swords those of men, the Bryher mirror could be interpreted as a gender indicator qualifying the otherwise male equipment. Equally, if this assumption is true, the mirror could have been included deliberately as a symbol of ambivalence or duality (cf Green 1997a).

Very few British Iron Age mirror burials have positive sexual identifications of the skeletal remains. Most are cremations, where sexing is difficult. Where sex determination has been possible, the burials are biologically female, although the sample is small, only five or six. However, it has been speculated that the Birdlip mirror burial may have been that of a male shaman rather than a wealthy woman (M Atkin pers comm) and a Roman-style, small, silvered mirror was found with a possible male cremation burial in the Iron Age–Romano-British cemetery at King Harry Lane, St Albans (Stead and Rigby 1989, 103).

Gender is a little researched area of the British Iron Age, despite the vast amount of evidence in the archaeological record. Apart from a few contemporary Greek and Roman literary sources and the Irish sagas, written down only during the early Christian period, there is little written evidence for the roles of women. In battle women were described as observers and supporters, but also as negotiators and sometimes, although not directly, as fighters. A number of women in Iron Age Britain are known to have been tribal leaders, and some may have enjoyed high status as prophets and priestesses (Ehrenberg 1989, 143, 151–5, 157, 162–7; Hill 2001, 2). There are, however, considerable problems in using any of these literary sources, even those which purport to be direct descriptions or accounts of particular societies.

## The Bryher burial

*‘Some key themes in Celtic beliefs include the concept of a familiar Otherworld of the dead, who possibly become ‘ancestors’ and possibly become associated with the gods. This may be reflected in the practice of providing grave goods; the use of objects symbolising social relationships of power and authority in this world is most likely to indicate that those relationships derived legitimacy by being linked to the Otherworld. The belief in an Otherworld to which the dead go also has another ramification in practice. Many Celtic societies were divided according to both social and religious precepts and access to the Otherworld was based upon those precepts. The elite were sent to the Otherworld with their symbols of worldly power; the ordinary Celt went as an ordinary soul . . . .’*

(Wait 1995, 509).

The Bryher sword and mirror burial is the richest of the 100 or so south-western cist-burials so far investigated, and the only one containing warrior equipment. For some reason, the Bryher individual was special, singled out from amongst his or her contemporaries not only to be buried in an elaborate cist but also to be buried with these artefacts.

Let us briefly consider the artefacts themselves. The sword was already broken when found and had been placed facing downwards (as was the case with the Deal warrior). The mirror showed signs of previous heavy use: the handle had been replaced

and a hole had been pierced through the mirror plate. The shield would have been broken when placed in the grave and lacks a binding clamp. The catch-plate of the brooch is missing. The tin object is shattered beyond recognition. The inclusion of, perhaps deliberately, broken or incomplete artefacts must surely have had a ritual significance, perhaps rendering objects no longer serviceable for this world but fitting for the Otherworld.

The mirror and sword were placed in the Bryher grave because they were important symbols for this particular funeral. It seems likely that weapons and mirrors had a ritual significance in Iron Age Britain as well as forming part of the material culture of a social elite, and it may be significant that La Tène insular artwork is largely confined to decorated bronze mirrors and items of warrior equipment and chariot gear. Within the traditional model of a heroic, hierarchically organised Celtic society these objects would signify an individual of high status and it has been suggested that warrior burial could be indicative of an elite class, warrior heroes who were perhaps comparable to medieval knights (Johnson 2003, 17; Stevenson and Johnson 2004, 494).

Alternatively it may be that these individuals were buried with warrior equipment not because of their heroic achievements in life but because they were intended to play a magical or protective role after their deaths, perhaps as supernatural guardians of the community, keeping watch and ready to arise in times of great danger – the choice of high points with views and of coastal areas and islands for the location of warrior burials may have been significant in this. The bronze crown of the Deal warrior is thought to be the ceremonial head-dress of a priest rather than a warrior’s helmet (James and Rigby 1997, 24) and the Brisley Farm graves, also in Kent, were a focus for ritual feasting for at least 100 years after the warriors were laid to rest (Johnson 2003, 17). With its possible mystical and talismanic properties, the Bryher mirror could have been perceived as an extra weapon or powerful magic for the warrior in the Otherworld, which the early vernacular myths of Ireland and Wales represent, perhaps significantly, as a mirror-image of earthly existence (cf Green 1997b, 68).

Bryher and other recently discovered warrior burials have extended the known geographic distribution of such burials. It seems unlikely that all of these individuals were incomers to the local communities of the areas in which they were buried and, whilst they might not be a unified group, there

is perhaps an emerging indication of a broader geographical and cultural significance of this burial rite within the British Isles in the Late Iron Age.

## Towards a south-western school of Celtic art

Remarkable though the other objects are, the Bryher mirror is the most important artefact in the assemblage. Its discovery challenges the concept that decorated bronze mirrors were an innovation produced in other parts of southern Britain that slowly diffused or were imported to peripheral, ‘backward’ areas such as the south-west.

Sir Cyril Fox held that the manufacture of bronze mirrors began in southern Britain in ‘the area of Dobunic [*sic*] influence’; that is, ‘parts of Gloucestershire, upper Thames valley and Somerset . . . possibly associated with the Durotriges of Dorset’, the products of western schools of Celtic art. The Trelan Bahow mirror and other bronzes, of a ‘debased’ or ‘outmoded’ pattern, were then exported from these centres to the remote tin-producing communities of Cornwall (Fox 1958, 53–57, 84, 126).

The Trelan Bahow mirror has been reassessed in the light of the Bryher discovery. The two mirrors are now thought to be the earliest known British decorated bronze mirrors. Both are likely to be of local manufacture, possibly made in the same workshop, perhaps by the same metalworker.

Lady Aileen Fox occasionally referred to the western schools as being south-western, observing that ‘more than one centre for the production for mirrors and other engraved metalwork existed in western England, and certainly more than one craftsman was at work’. She commented on evidence for metal working at Castle Gotha, St Austell, and at St Mawgan-in-Pydar in Cornwall as well as at Dobunnic centres in Gloucestershire and Somerset (Fox and Pollard 1973, 21, 36–7).

Hencken had observed earlier that some Iron Age ornamental bronzes found in Cornwall were probably made in Cornwall itself (1932, 110), while Cunliffe is very positive that the early brooches from Harlyn Bay and the Mount Batten midden are locally manufactured imitations of Iberian types rather than actual imports (1988, 64, 98n, 103). More recently he has suggested that knowledge of La Tène art styles may have been introduced from the Continent

to Britain during the fourth century BC by way of two sea routes: to western Britain via Brittany and to the east coast by way of the southern North Sea (Cunliffe 2000, 326–7). If this model is correct, Scilly and Cornwall, occupying a pivotal position on the Atlantic façade, were geographically well placed to be at the forefront of developments, with the mineral resources – copper and tin – to hand and the technology to exploit them. It may now be possible to identify a chronologically early and stylistically distinct south-western mirror group and school of Celtic art that is characteristically Dumnonian. The region did not need to rely on the diffusion of ideas and styles from other parts of southern Britain; rather the Bryher and Trelan Bahow mirrors suggest that Dumnonian metalworkers played a leading role in the development of insular La Tène art.

The distinctive features of these south-western mirrors – small size, simple loop handles clasped by a moulding, decorated picot bands around the edge, unusual main designs and the ‘solar circle’ on the Bryher example – can be seen as products of a distinctive local tradition and attest to their early date. Most mirror designs are variants of designs based on three interconnected roundels. The Trelan Bahow mirror has two isolated roundels containing a flowing design set across the middle of the plate, which may be similar in character to the Bryher design. The only other mirror with isolated circles as elements of design is that from Stamford Hill, which has three isolated roundels containing the design. This mirror is later than Trelan Bahow, but emphasises the stylistic difference between south-western mirror designs and those from the south and south-east.

The similarities between the south-western mirrors and other early mirrors such as Chilham Castle and Shillington has already been noted. Cyril Fox considered the unprovenanced ‘Mayer’ mirror, perhaps retrieved from the river Thames, to be the earliest bronze mirror. He noted that the design of this mirror, comprising three connected roundels, and the form of its handle are closely related to the Trelan Bahow mirror, which he considered to be a debased, later copy (Fox 1958, 85, 98; Megaw 2001, 212–13). It now seems quite likely that the ‘Mayer’ mirror is another early product of the south-western school.

The distinctive picot edges around the plate edge of the Bryher and Trelan mirrors are a striking feature of the design. Another Cornish example of this type of circumferential triangular geometric



ornament appears on the bronze collar found in 1793 or 1802 in a tin working at Trenoweth, in St Stephen-in-Brannel, near St Austell (Hencken 1932, 109–10, fig 29; Megaw 1967, 5–6). Like the Trelan Bahow mirror, this was considered by Fox (1958, 126) to be an import from elsewhere in southern Britain but can now also be seen to be the product of a local workshop. A picot-edged shield mount decoration from Tal-y-Llyn, Gwynedd, Wales, possibly dating to the early first century BC, may also have been made by the south-western school (Megaw 2001, fig 358).

Bronze spiral rings, such as the one found in the Bryher grave, may be another local product with a mainly south-western distribution. Many decorated finger rings were found at Nornour (Dudley 1967, 21–25) but the only comparable ring from Scilly is an Iron Age spiral bronze ring found during the Porth Cressa excavations in 1949 but now lost (Ashbee 1983, 120–1). On the Cornish mainland bronze spiral rings have been found at Carloggas, Harlyn Bay and Trelan Bahow (Threipland 1956, 42, 72, figs 35.1, 35.3; Whimster 1981, vol 1, 66–7, fig 26.10; Jope Rogers 1873, 271). Other bronze spiral rings have been found at Glastonbury and Meare and at Maiden Castle (Gray and Bulleid 1953, 208–12, pl XLVIII; Wheeler 1943, 278, figs 92, 1–3). Thin spiral rings such as the one from Bryher are conventionally interpreted as toe-rings (Ashbee 1983, 120), but analysis of mineral preserved fibres around the Bryher ring indicates that it could be a fastener for a cover or garment, perhaps similar to the iron spiral ring covered in mineralised textile from the Later Iron Age cemetery at Trethellan Farm (Nowakowski 1991, 226–7).

A bronze shield or scabbard mount from the Iron Age enclosure at Carloggas, St Mawgan-in-Pydar, is also likely to have been produced locally (Fox 1973, 149–50; Stead *et al* 1981, 73). The Bryher sword belt ring is similar to a bronze so-called ‘miniature terret ring’ from Trevelgue. As well as Castle Gotha and St Mawgan-in-Pydar, possible evidence of Iron Age bronze working in Cornwall has been identified at Carloggas near St Austell and perhaps also at Trevelgue Head (Threipland 1956; Saunders and Harris 1982; J Nowakowski pers comm). Two examples of possible moulds for producing bronze mirror blanks have been found on Iron Age sites in Cornwall: a two-part greisen mould which would produce a flat oval of comparable size to the mirrors is known from Castle Pencaire on Tregonning Hill, near Germoe, and part of a similar granite mould

came from Castle Dore, near Fowey (both Royal Cornwall Museum).

Recent work on pottery supports the model of Cornwall as a culturally innovative area during the Iron Age. Pottery styles were previously thought to have filtered in from the east but the general perception is now that South-Western Decorated styles start earlier in Cornwall than elsewhere (Quinnell 1986, 113–4). At Carn Euny decorative beginnings, with Breton affinities, have a suggested fifth- or possibly fourth-century date; similar sherds occur at Trevelgue. Virtually all South-Western Decorated pottery contains minerals derived from the gabbroic rocks of the St Keverne area and it is thought that during the Later Iron Age, from c 400 BC, during which the decorated styles were introduced, pottery manufacture in Cornwall became the exclusive preserve of groups resident on the Lizard, with gabbroic pottery being distributed through increasingly sophisticated and extensive exchange networks (*ibid*, 114). Cornwall’s cross-channel contacts during the Later Iron Age are highlighted by the imported Dressel 1A amphora, dating to the later second to earlier first century BC, from Carn Euny (Fitzpatrick 2001, 86) and the similar amphora recently found in an unenclosed Iron Age settlement at Higher Besore, Threemilestone, near Truro (J Gossip pers comm).

Aileen Fox pointed out that the variety of high-quality decorated metalwork from the south west indicated that it was a far from impoverished area in the late Iron Age (Fox and Pollard 1973, 37), while Paul Ashbee has suggested that representations of Iron Age and Romano-British settlements in Cornwall and Scilly as universally materially poor might be misleading, a consequence of the modest scale of most past excavations of sites of this period (Ashbee 1983, 120–1). The Bryher evidence seems to support this hypothesis. Clearly neither Cornwall nor Scilly were marginal at this time: here were people who could commission or obtain local works of fine metalwork, people who were tied into wider sets of trade and ideas and who were located at a pivotal point between the English Channel distribution of weapon burials and mirrors and those around the Irish Sea. They had their own vibrant tradition of La Tène art, similar to other parts of Britain but with apparently distinctive elements. Not only vibrant but also innovative, for the decorated bronze mirrors from Bryher and Trelan Bahow, original masterpieces of a south-western school of

Celtic art, are the earliest known examples from the British Isles.

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# Excavation of an Early Christian cemetery at Althea Library, Padstow

PRU MANNING and PETER STEAD

*In 2001 Exeter Archaeology carried out archaeological recording at Althea Library, 27 High Street, Padstow (SY 9150 7543). Seventeen graves were exposed, arranged in two rows. They were all lined and capped with slate, and aligned broadly east–west. Most had been disturbed, their capstones either having been removed or broken and collapsed into the graves. Three graves were excavated and the skeletons removed for analysis. Radiocarbon determinations indicate an eighth- or ninth-century date for the cemetery. The investigations also produced a small but significant pottery assemblage including a sherd of Hamwic fabric 127 and a sherd of a rare class of micaceous pottery from north-west France.*

The Althea Library (Listed Grade II) is situated at the north-western edge of Padstow on south-east sloping ground at between 20m and 25m AOD. The site lies in the garden to the rear (south) of the building, between High Street and Church Street (Fig 1).

In 2001 North Cornwall District Council granted planning permission to the owners, Mr and Mrs Beare, for the construction of a bungalow in the rear garden (NGR SY 9150 7543). A condition attached to the permission required archaeological attendance during groundworks in order to ensure the investigation and recording of any exposed archaeological deposits. The site was regarded as potentially archaeologically sensitive because of its location within the historic core of Padstow and particularly its proximity to the parish church of St Petroc. The site is situated just beyond the northern boundary of the churchyard, separated from it by Church Street (Fig 2).

The underlying geology consists of Palaeozoic slaty mudstone and siltstone (Soil Survey 1983).

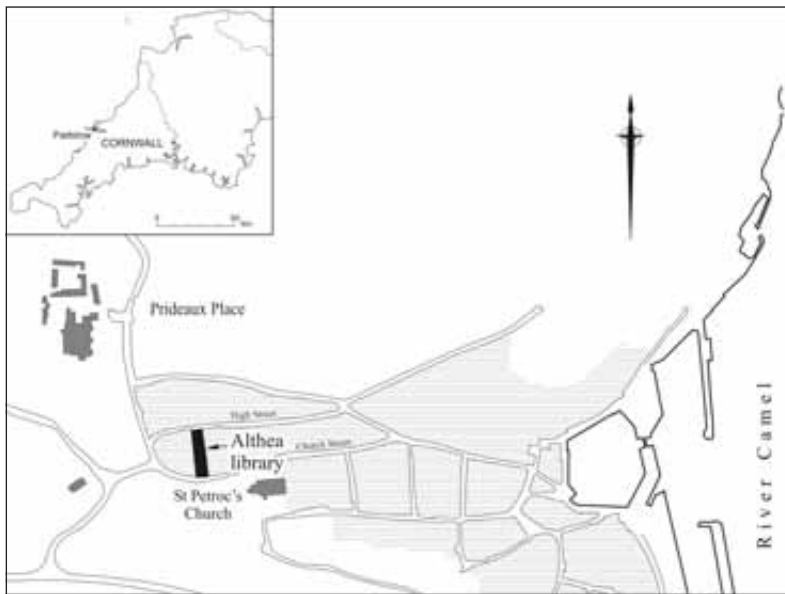
## General historical background

The origin of Padstow as a settlement appears to relate to the early foundation of a monastery

associated with St Wethinoc, who was supplanted by St Petroc, probably in the sixth century (Olson 1989, 67). By the eleventh century the monastery had moved to Bodmin but the monks of St Petroc continued to own the manor. After the Reformation the manor passed to the Prideaux family (Henderson 1958, 374–5) who built the Elizabethan mansion of Place. The site of the early monastery was formerly believed to be to the south of Place, where there was also a chapel (dedicated to St Sampson). However, it is now thought more likely that it was located close to the present parish church.

Domesday Book records the earlier name for Padstow as *Lanwenehoc* (Thorn and Thorn 1979, 4.4), the name deriving from *lann wethinoc*, the enclosed Christian site associated with the founder (Olson 1989, 67). Other early names are variants of ‘Petrocs stow’ (for example, *Sancte Petroces stow* in 981) and ‘Old stow’ (*Eldestowe* in 1201), with early derivations of the present name being seen in, for example, *Patristowe* in 1318 and *Paderstowe* in 1347 (Gover 1948, 354).

Padstow is situated within the ancient Hundred of Pydar. Until the 1820s the parish was divided into Padstow Town, in the Archdeaconry of Cornwall,



*Fig 1 Location of Althea Library*

and Padstow-in-Rure, a Peculiar of the Bishop and part of his Peculiar Deanery of Pawton (Henderson 1938, 52, 56). This division appears to date from the mid ninth century when the West Saxon King Egbert gave the manor of Pawton, usurped from the Celtic monks of St Petroc, to the Saxon Bishop of Sherborne, leaving only the town and monastic demesnes in the hands of St Petroc's (Henderson 1958, 372).

Before the Reformation Padstow abounded in chapels and holy wells. The most important chapels (Henderson 1938, 56) were St Cadoc, the chapel of ease for Padstow-in-Rure, and St Sampson, a chapelry at Lellizzick, north of the town on the east side of Stepper Point (Gover 1948, 355).

## The development of the Althea Library site

The land north of the church is believed to lie within the area of Padstow's medieval settlement (Sheppard 1980, fig 22), although it is not certain at what date Church Street and High Street were developed. A court leet record of 1553 refers to a tenement in 'le church strete' and a house in 'Church Strett', and there is a reference to a tenement in 'le Hye street' in 1565 (RIC Henderson Calendar, vol 6, 422, 428). Both streets are shown at small

scale on Thomas Martyn's map of 1748. The western end of the present Church Street appears to have been called St Samson's Street in 1841 (see below), with the Althea Library plot lying at its junction with Church Street. There is a change in the alignment of Church Street at this point.

The earliest detailed map of the site area is the 1842 Padstow Tithe Map (Fig 3). This shows buildings and property boundaries between Church Street and High Street, the latter being marked as 'High Street or Pound Lane'. No buildings are depicted on the Althea Library site, which comprises two separate plots. In the Tithe Apportionment (1840) the main plot (848) is described as a 'garden', owned and occupied by Thomas Tremain Esq, and the smaller plot to the north (847) as 'pound', owned by Charles Prideaux-Brune Esq of Place. If the present Althea Library is the structure depicted on the first edition of the Ordnance Survey 1:2500 map of 1881 (Fig 4), it was built at some time between 1842 and 1881.

## The project

### Method

All pre-construction works involving ground disturbance were monitored. These consisted of an initial topsoil strip over the footprint of the new



*Fig 2 The excavated area (toned)*

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building, an area of approximately 20m by 8m, and excavations for foundations and service connections. Following the removal of topsoil and the initial exposure of the graves, a site meeting was held with Mr and Mrs Beare and John Gould, Senior Archaeologist, Development Control, Cornwall County Council. It was agreed that the foundations for the new building would be modified and the floor level raised to avoid or minimise disturbance to the burials. Where damage to the graves could not be avoided, they would be excavated. The Coroner's Office was informed and the appropriate licence in respect of the disturbance of human remains obtained from the Home Office. Following removal of topsoil, the site was cleaned back to establish the number of burials present. Of 17 graves identified, three were excavated; the remainder were left undisturbed.

A number of research aims were implicit in the original project brief and were adapted following the

discovery of the graves. The principal aims were to establish the nature and date of the graves and the extent of the burial ground, and to place the burials within their local and regional context. The human remains recovered provide too small a collection to permit any meaningful statistical analysis in respect of the wider burial ground. However, the remains were crucial for achieving an absolute date for the burial ground and for establishing its likely context. Scientific dating of the remains was undertaken by English Heritage's Centre for Archaeology (CfA) and a programme of analysis and reporting on the associated ceramics was commissioned (see Appendices 1–3).

## Results

Initial groundworks involved the removal of garden soil over the footprint of the new building using a wheeled



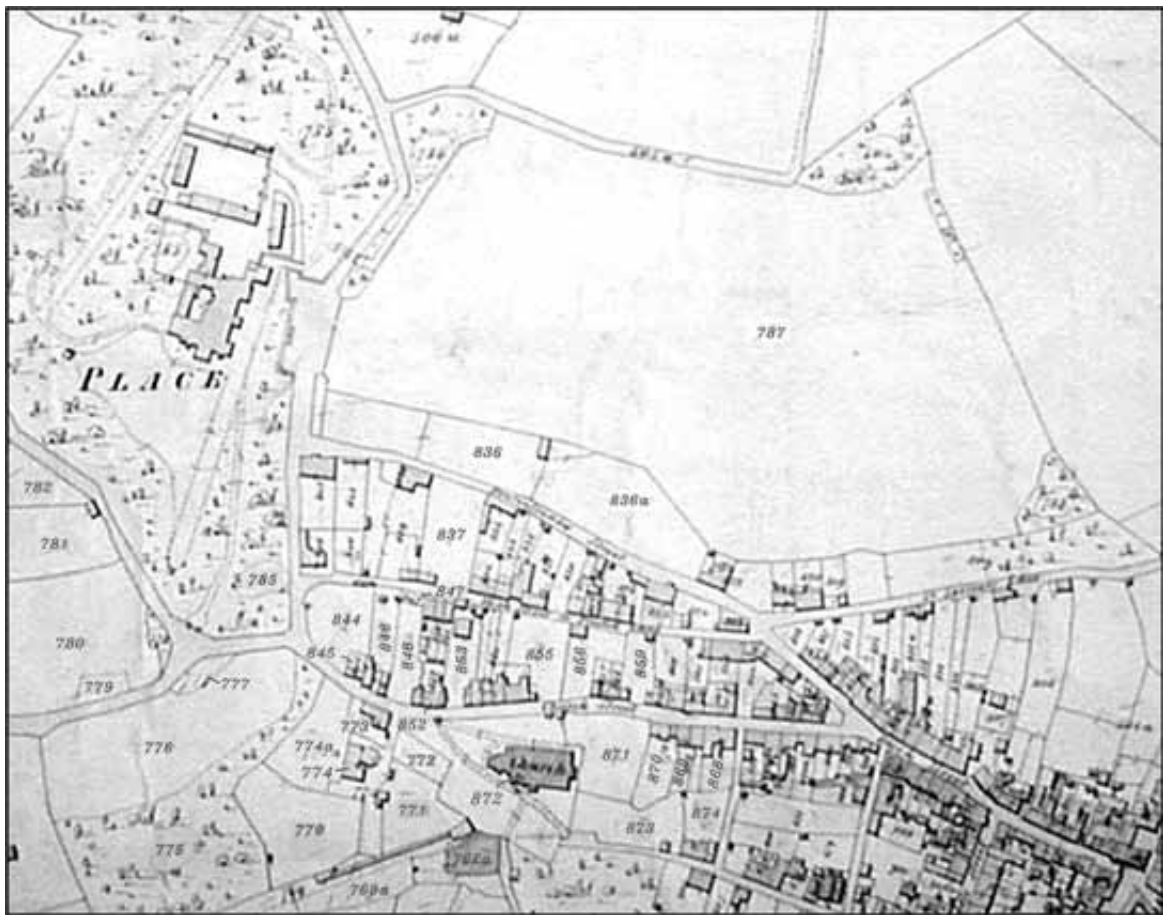


Fig 3 Extract from 1842 Padstow Tithe Map; the site forms part of plot 848 (CRO TM/170)

digger fitted with a toothless grading bucket. This material was in excess of 0.5m thick and contained a mix of nineteenth- and twentieth-century pottery, and one residual sherd from a post-medieval Cornish coarseware jug or jar. Removal of this homogeneous soil exposed weathered slate over the western half of the site. In the eastern half, topsoil overlay a spread of redeposited slate, removal of which was not required as part of the groundworks programme.

Seventeen graves were identified, although not all were fully exposed as the majority lay beneath the redeposited slate. The graves were all broadly orientated east to west and were arranged in two rows about 11m in length and set around 0.5m apart. None of the graves intercut. Both rows were distinctly curved or fan-shaped in plan (Fig 5). The western row probably marked the westward limit of the burial ground as no further graves were identified

beyond it. It is quite likely, however, that the burial ground continues further to the east.

Within the rows, the graves were set between 0.2m and 0.8m apart, with a distance of approximately 0.4m being the more usual. The graves were all in the cist burial tradition, that is slate-lined and capped. In all cases the upper edges of a number of vertical side stones were visible, projecting through the grave fills. Although the majority of the graves were not excavated, the exposure of these side stones demonstrated that the graves had been disturbed and that the capstones had either been removed or had been broken and fallen into the graves. Where seen, the side stones comprised rough-hewn slate fragments up to 0.04m thick and between 0.4m and 0.7m long. The capstones were also rough-hewn and measured between 0.45m and 0.65m. None of the stones were bonded.

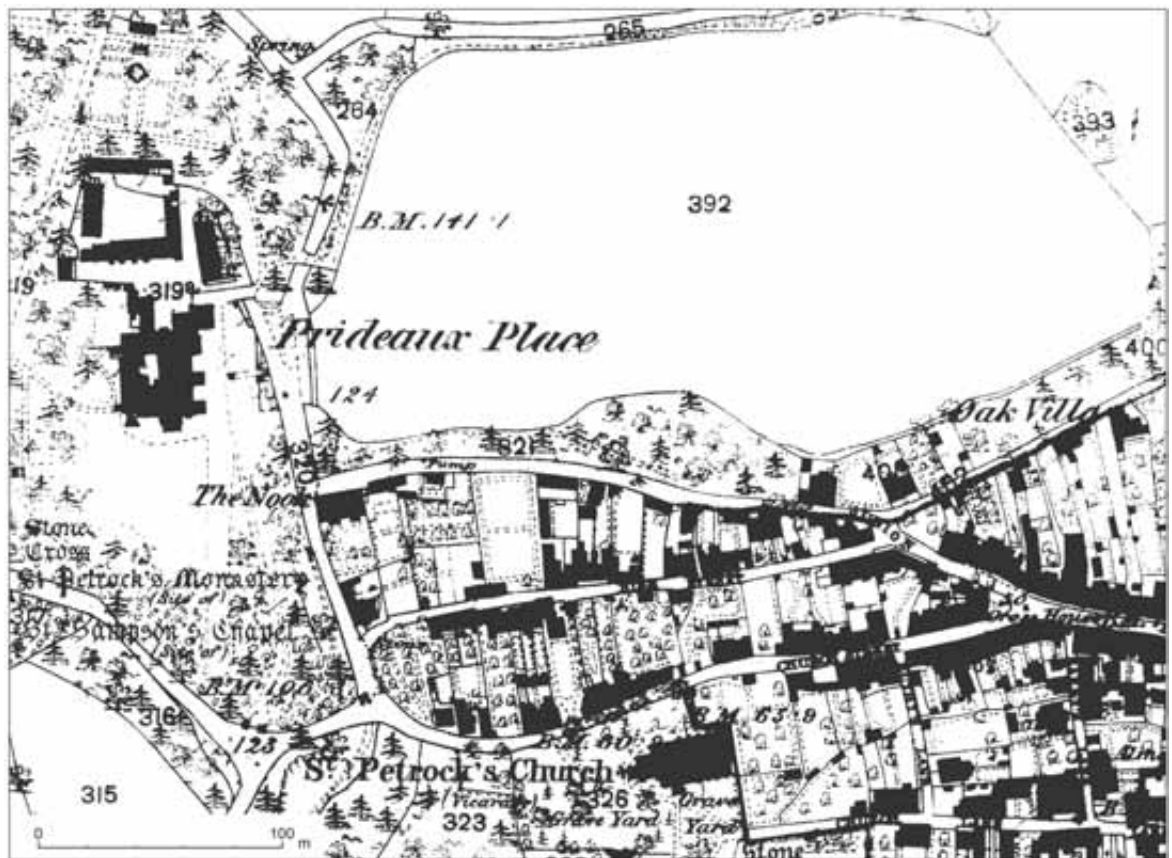


Fig 4 Extract from Ordnance Survey 1:2500 map of 1881

The tops of the vertical side stones were generally flush with the present surface of the natural subsoil, suggesting a degree of truncation of original ground level; this is consistent with the known historic use of the site as a garden. Within the western half of the site, nineteenth-century pottery was recovered at the horizon between topsoil and subsoil. In several cases, garden soil had found its way into the collapsed grave chambers.

The majority of the graves were sealed beneath a 0.1m–0.4m thick layer of redeposited slate, which was virtually indistinguishable from the natural ground. This material was also found within those graves where capstones had been disturbed. It is unlikely to have been spread in recent times as it underlay the topsoil; it may represent a combination of the original backfill of the graves and the disturbance of natural ground by weathering or deep cultivation. The only significant post-cemetery feature was a slate-lined well, which cut through the slate layer.

#### *The graves: summary descriptions*

<i>Grave</i>	<i>Description</i>
1	Straight, broadly parallel sides. Tops of four side stones visible through fill. Length 1.8m. Width 0.4m.
2	Straight tapering sides. Four vertical side stones visible. Capstones partially exposed. Others may survive beneath fill. Length 1.8m (approx.). Width 0.5m at east, tapering to 0.3m at west.
3	Straight, fairly parallel sides. East end obscured by fill. Three <i>in situ</i> side stones. Between these, tops of vertically stacked slates visible through infill. Probably disturbed capstones. Length 1.95m (approx.). Width 0.7m.
4	<i>Excavated, see below.</i>
5	Fairly straight sided. Appears disturbed. Length 1.6m. Width 0.5m.

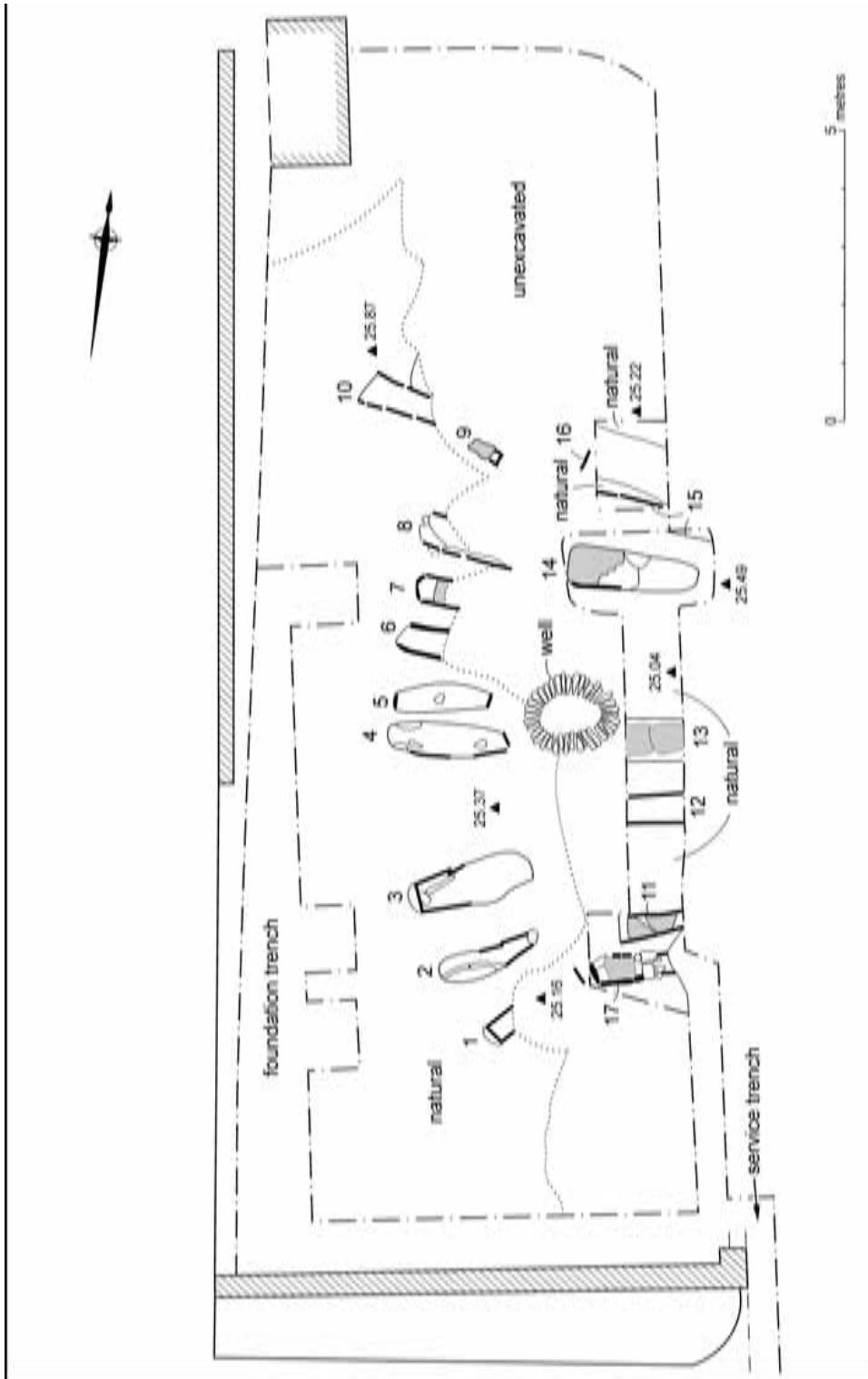


Fig 5 Plan of graves prior to excavation of 4, 14 and 17, showing partially exposed lining and capstones. *In situ* capstones toned.





Fig 6 Graves exposed after removal of topsoil

- |    |   |    |   |
|----|---|----|---|
| 6  | Only west end visible; obscured by overlying deposits to east. Top of side stone visible projecting through fill but no capstones present. Grave disturbed. Length > 0.8m. Width 0.5m.  |    |   |
| 7  | Straight sided. Only west end exposed; obscured by overlying deposits to east. One <i>in situ</i> capstone visible. Westernmost capstone collapsed into void beneath. Tops of side stones visible. Length > 0.5m. Width 0.5m. | 11 | Straight sided, tapering from west to east. Two undisturbed capstones (centre). East end of grave disturbed. Length > 1.1m. Width 0.4m. |
| 8  | North side of grave obscured by overburden. Only west end and part of south side exposed; three side stones visible, no capstones. Grave appears disturbed. Length > 1.6m. Width 0.55m.                                       | 12 | Only central section exposed. No capstones present. Top of side stone visible to either side. Length > 1m. Width 0.5m.                  |
| 9  | Rectangular. Single <i>in situ</i> capstone over west and centre. Tops of side stones exposed at east end where infilled. Dimensions of grave indicate infant burial. Length 0.65m. Width 0.25m.                              | 13 | Two undisturbed capstones. East and west ends not exposed. Length > 1m. Width 0.5m (approx).  |
| 10 | Straight sided tapering slightly from west to east. Square cut at west end; east end  | 14 | <i>Excavated, see below.</i>  |
|    |   | 15 | Only north side visible. Tops of two side stones exposed. Length > 1.1m.  |
|    |   | 16 | Only east end of grave exposed.   |
|    |   | 17 | <i>Excavated, see below.</i>  |

*The excavated graves*

GRAVE 4 (Figs 8–10)

This grave was 2.2m long and 0.6m across at its widest point. It had fairly straight and parallel



Fig 7 Grave 9. Scale 0.25m

sides and slightly rounded ends. The grave was shallow (approximately 0.2m deep). Capstones were still in place at the east end and, when they were removed, a void was exposed. At the west end the capstones had been removed allowing soil, consisting of loam with a high slate content, to enter the grave. The side stones had also been disturbed.

The grave contained two skeletons, 1001 and 1002. Skeleton 1001, an adult, was in a poor state of preservation with the exception of the larger leg bones. The upper body was covered with soil, which extended as far as the pelvis. Excavation revealed that there had been some damage to the skull, which had rolled forward over the scapula, with the orbits pointing down along the line of the body. Most of the rib cage and cervical and thoracic vertebrae were absent. The body had been placed on its back with the hands over the pelvis. The pelvic girdle was in a very poor state of preservation, the bones being soft and crumbly. The legs were well preserved although featured numerous breaks resulting from the pressure of the capstones, which had fallen in. The left patella lay adjacent to the left knee, but the right patella lay near to the feet. A radiocarbon date of cal AD 660–810 was obtained for skeleton 1001 (see Appendix 2).

Skeleton 1002 was that of an infant. It lay adjacent

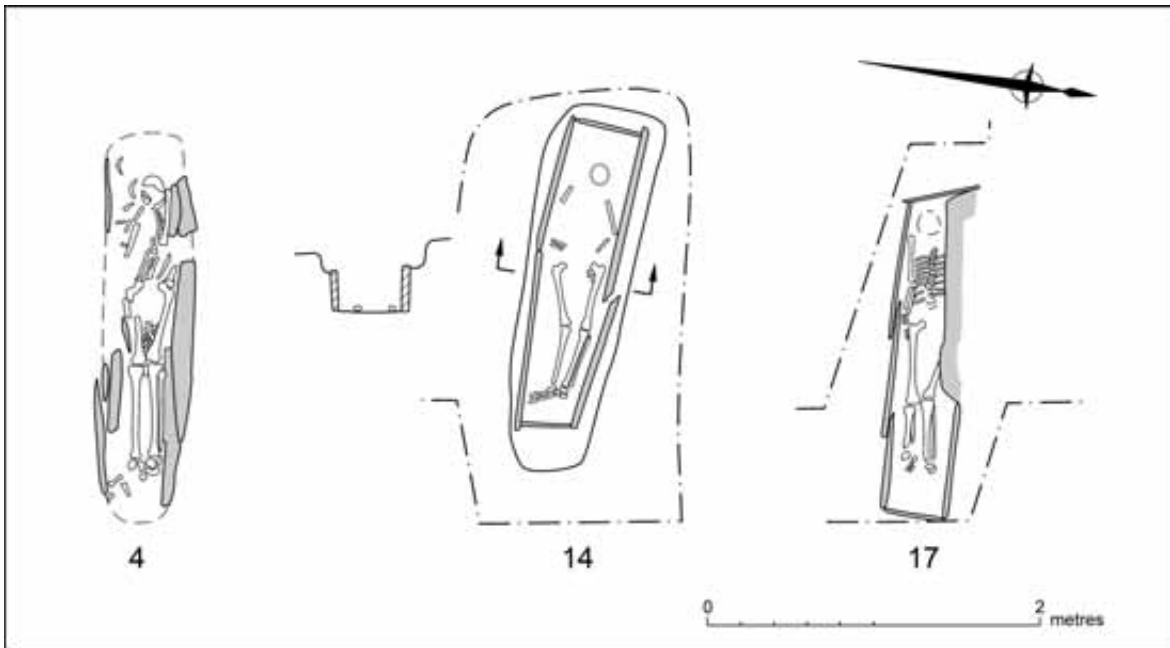


Fig 8 The excavated graves





*Fig 9 Grave 4 showing skeleton 1001. Scales 1m and 0.25m*

to the head and left shoulder of 1001. The survival of this individual was generally poor. Fragments of skull were found right up against the slate on the south side of the grave. Mandible, rib and upper arm bones were found adjacent to the left side of the mandible of skeleton 1001. Leg bones were found over the area of the left rib cage of 1001.

#### GRAVE 14 (Figs 8 and 11)

This grave was 2.1m long, 0.6m wide and 0.45m deep. The sides were vertically cut, straight and tapered slightly from west to east. The west end was square cut, the east end slightly rounded. The capstones were removed to reveal a central void defined by two slates on each side and containing a single adult skeleton (1003). The body had been placed on its back with the hands over the pelvis. The skull and upper body were badly decayed but the lower part, particularly the legs, was generally in a



*Fig 10 Detail from grave 4 showing disturbed infant skeleton 1002 to left of skull 1001. Scale 0.25m*

good state of preservation. The pelvis was very fragmented and poorly preserved. A radiocarbon date of cal AD 680–890 was obtained for skeleton 1003 (see Appendix 2).

#### GRAVE 17 (Figs 8 and 12)

This grave was 1.9m long, 0.5m wide and approximately 0.6m deep. The sides were straight, parallel and vertically cut, although part of the north edge was obscured. The capstones were intact apart from at the extreme east end where the slate had collapsed. The south side of the chamber was formed by three overlapping slates. The grave contained the skeleton of an adult (1004) that had been placed on its back with the arms to the side. Preservation of the upper body was very poor and of the lower body fair. A radiocarbon date of cal AD 680–890 was obtained for skeleton 1004 (see Appendix 2).

A further quantity of human bone (1005) was



*Fig 11 Grave 14 after removal of skeleton 1003. Scale 1m*



*Fig 12 Grave 17 showing skeleton 1004. Scale 1m*

recovered from a deposit of soil which overlay the collapsed capstone within the east end of this grave. This skeletal material was very mixed but appeared to represent a single individual.

### **Monitoring at 68 Church Street**

A watching brief was maintained during the construction of a garage within the adjacent plot to the west of the rear garden of Althea Library. Here the groundworks entailed clearance to the level of the subsoil over an area measuring approximately 10m north–south by 4m east–west. This clearance extended to the boundary with Althea Library.

The sequence of deposits consisted exclusively of rubble over natural ground, which was exposed very close to the surface. Any former stratified archaeological deposits had been removed and no cut features were detected.

## **Discussion**

### **The tradition of long-cist burial**

The Althea Library graves fit into a wider tradition of east–west orientated long-cist burials. A gazetteer of known long-cist cemeteries in Cornwall by Preston-Jones (1984, 169) reveals a marked concentration on the north coast between Perranporth and Tintagel, with a small cluster around the estuary of the Hayle River and one isolated example at Merthereuny on the Lizard peninsula. Elsewhere, long-cist burials are found mostly in northern and western Britain, although they also occur, rather less frequently, in the south and east. Many such burials have been identified as Early Christian because of their association with inscribed stones, chapels or enclosures of Early Christian type. However, there are some extensive rural cemeteries, often undated and with no associated structures, which are also

assumed to be Early Christian (*ibid*, 165). Isolated burials are also found.

Numerous long-cist cemeteries are found in Scotland, Wales, Ireland and the Isle of Man, and coastal locations are common. A particular concentration of long-cist cemeteries in south Wales is of interest in that it faces the Cornish sites across the Bristol Channel. Wales has been suggested as the source for other aspects of Cornish pre-Norman Christian culture (*ibid*, 172–3). Indeed, there are indications that early monasticism in Cornwall derived principally from south Wales (Olson 1989, 105). In some areas cist burials took place until relatively recently, as in Scotland at Ness, Lewis (until the end of the eighteenth century), and on the Isle of Man as late as 150 years ago (Preston-Jones 1984, 165–6).

A number of long-cist cemeteries on the north coast of Cornwall lie on or close to the sites of cist cemeteries of Iron Age or Romano-British date, suggesting possible continuity of the tradition. At Trevone Bay, near Padstow, in the nineteenth century, a long-cist cemetery attached to a chapel was found to overlay cists on a north–south alignment (Thomas 1971, 56–7). It seems probable that the use of orientated long-cists was introduced in the Early Christian period, probably influenced by the earlier tradition, but they were not an invariable accompaniment to Early Christian activity as they are notably absent from the areas of greatest activity during this period in West Penwith and the estuaries of the south coast (Preston-Jones 1984, 170–73).

Long-cists are found in three principal forms: parallel-sided; tapering at one end; and coffin-shaped (broad near mid-length and tapering towards both ends). In some instances differences between forms, and/or different levels of sophistication in construction, appear to (and in some cases can be demonstrated to) represent different phases within a cemetery, as at Carnanton (Preston-Jones 1984) and St Endellion (Trudgian 1987, 145–50). However, at Parkburn, Midlothian, and Balladoole, Isle of Man, rows of parallel-sided, coffin-shaped and tapering cists seem to have been indiscriminately mixed, suggesting that shape was not related to date in these cases (Preston-Jones 1984, 166). The Althea Library graves appear to have been of mixed tapering and parallel-sided forms, indicating that, in this part of the cemetery at least, both forms were in use at the same time during the eighth and ninth centuries (see Appendix 2 for details of dating). However, it should be borne in mind that most of the graves were not

fully exposed and, to a large extent, their true form remains undetermined; once they had been discovered, the priority was to ensure minimum disturbance.

### **Possible contexts for the cemetery: the documentary background**

Three possible historic contexts for the cemetery have been identified: the pre-Conquest monastery of St Petroc, the parish churchyard of St Petroc and the former St Sampson's Chapel.

#### *St Petroc's monastery*

The eleventh or twelfth-century *Vitae Sancti Petroci* records that Petroc and his band of monks arrived in Cornwall via the Camel estuary (Olson 1989, 67). There, Petroc found a hermit named Samson who had a dwelling by the shore, and a Bishop Wethinoc who had a *cella* (seemingly a monastery). Wethinoc and his people left the *cella*, making way for Petroc and his followers, but asked that the place be named after him, thus *Landwethinoch* (*ibid*), the earlier name for Padstow (various spellings). The place-name element *lann* refers to the monastic enclosure or the estate in which it stood (*ibid*, 105).

During the period AD 500–800, the monastery of St Petroc seems to have acquired dominion over a very large tract of land on both sides of the River Camel, extending west as far as Portreath near Redruth, north east as far as Tintagel and inland to Lanhydrock and Bodmin (Henderson 1938, 52). Doble (1965, 157) asserts that, with the exception of St German's, Padstow was the chief monastery in Cornwall.

In the mid ninth century, West-Saxon King Egbert gave three great Cornish estates to the Saxon Bishop of Sherborne. One of these estates was Polton, or Pawton, which embraced all the northern part of Pydar Hundred, excepting only the town and immediate surroundings of Padstow. As a result the monks of St Petroc were cut off from the bulk of their estates (Henderson 1938, 52). The Anglo-Saxon Chronicle records that in AD 981 'Sancte Petroces stow' (generally accepted to refer to Padstow) was ravaged by the Danes (Olson 1989, 70).

The date of the relocation of St Petroc's monastery from Padstow to Bodmin is not certain but may have taken place by the early part of the eleventh century (*ibid*, 71n). A record of manumissions in the margin



of the Bodmin Gospels includes two entries for ‘Petrocys stow’, again probably referring to Padstow, dating from the second half of the tenth century and the late tenth or beginning of the eleventh century (*ibid*, 71–2), indicating that the monastery was still there at that time. Olson suggests that the loss of lands in the ninth century may have prompted the monastery’s administrative centre to transfer to Bodmin, a more central position within their remaining lands, but that it is probable that a religious community and the body of the patron saint remained in Padstow until the Danish attack of AD 981 (*ibid*, 73).

Domesday Book (Exchequer version) recorded that ‘The Church holds Lanwenehoc [Padstow]’; notes in the Exeter version refer to the holders in 1066 as ‘The Canons of St Petroc’s’ (Thorn and Thorn 1979, 4.4 and Exon notes).

The monks of St Petroc at Bodmin continued to hold the manor of Padstow until the Reformation, after which it passed to the Prideaux family (Henderson 1958, 372–5). The manor included the whole town, the advowson of the church and rectorial tithes, rights over the River Hayle from the quay to the mouth (possibly an earlier name for the River Camel; Padel (1988, 131) records that the estuary at Padstow was once called *Haegelmutha*), the island of Gulland and the demesne lands of Lellizzick, Reen and Tretharrap, being the whole of the Stepper Point peninsula. The remainder of Padstow parish constituted a Peculiar of the (Saxon) Bishop (Henderson 1958, 373). The priory grange or farm is believed to have been on the site now occupied by Place, and there is evidence from elsewhere for an association between the name ‘Place’ and a former monastic residence (Henderson 1938, 53–4).

#### *St Petroc’s parish church*

The earliest fabric identified in the present parish church of St Petroc is of the early twelfth century (DCMS) or the thirteenth century (Pevsner and Radcliffe 1970, 129); the church was substantially rebuilt in the fifteenth century. It has been suggested that the shaft and base of a large cross in the churchyard is of early eleventh-century date (HER PRN 26353), indicating an earlier phase of the site. Most pre-Norman crosses in churchyards are at sites with evidence of early medieval origins and generally seem to be found at the larger, more important sites (Preston-Jones 1994, 92).

Until the Reformation St Petroc’s Church and an area of surrounding land had Privilege of Sanctuary, perhaps dating from the reign of King Athelstan in the early tenth century (Henderson 1958, 372). Such extended sanctuaries are not common and are an indication of importance. The extent of the sanctuary is uncertain: Henderson (1938, 53) describes it as the houses and land immediately adjoining the church, whereas Charles Cox (1911, 223) writes that a sanctuary commonly comprised a *leuga*, or a mile and a half from the church in all directions. At a later date the rights were said to embrace the whole of the ‘liberty’ of Padstow; it is not known if this equated to the manor (*ibid*). The extent of the sanctuary at St Buryan, depicted on an Elizabethan map, enclosed the whole village around the church (Preston-Jones 1994, 90). The protection of the sanctuary at Padstow was claimed as late as 1521 (Henderson 1958, 376).

The present churchyard boundary has not changed since at least 1881 (Fig 4). In 1842 (Fig 3) the boundaries were the same as at present other than in the south-western corner, which was then occupied by a garden (772) and part of a larger plot (771) described as orchard and garden in the 1840 Tithe Apportionment. A court leet of 1535–6 refers to a ‘close’ in the south part of the *cimiterium* (RIC Henderson Calendar vol 6, 422). It is not known if the close was an area defined for special burials or whether it perhaps signified an area being used for other purposes.

#### *St Sampson’s chapel*

The former chapel to the south of Place was marked as ‘St Sampson’s Chapel (site of)’ on the 1881 OS map (Fig 4) and referred to by this name by early nineteenth-century writers including Gilbert (nd, 651 and footnote), Hitchins (1824, vol 2, 524) and probably Lysons and Lysons (1814, 253). It has been suggested that the evidence for this dedication is late and doubtful (Olson 1989, 67n; Henderson 1938, 56n; Jankulak 2000, 7n), seemingly because a chapel of St Sampson has also been identified near Lellizzick (CRO PB 9/1, Survey of 1694; also Tithe Apportionment nos 445, 446). However, further research suggests that this dedication may be valid. Various documents of the seventeenth to nineteenth centuries refer to properties in ‘St Sampson’s Street’ (CRO PB 4/79, /83, /97, /102). Using data from the 1841 Census and the Tithe Apportionment it appears that the far western end of the present Church Street

was then called 'St Samson's Street'. Richard Griffin and Nancy Davis, recorded on the Tithe Apportionment in the two dwellings immediately to the west of Althea Library (nos 846, 845), appear in the 1841 Census (7, fo 7; 8, fo 8) as living in 'St Samson's Street', whereas the name of the occupant immediately to the east (Tithe Apportionment no 852), Henry Mitchell, appears in the Census (15, fo 11) as living in Church Street. This strongly supports identification of the dedication of the chapel to the south of Place to St Sampson.

It has been suggested that this chapel was associated with the grange of Bodmin Priory and was therefore of thirteenth century or later date and not associated with the earlier monastery (HER PRN 26356). However, the existence of a burial ground in relation to a chapel has been cited as an indication of an early foundation (Adams 1957, 49). A number of graves were found in the late eighteenth century, when the chapel was demolished during works within Place grounds. It is unclear whether the burials were in long cists or rock-cut graves. Neither is it known how far the burial ground extended eastward. However, as no graves were found in the plot to the west of the Althea Library it seems unlikely that the Althea Library graves are associated with a burial ground around the chapel.

#### *A monastic connection?*

The identification of an ordered burial ground of at least the eighth or ninth century, possibly earlier, so close to the site of the parish church, would support the currently prevailing view that the monastery was located in the vicinity of the parish church (Sheppard 1980, 64; Preston-Jones 1994, 90). It is thought that the churchyards of churches with a *lann* place-name element (*Lanwenehoc* being the early name for Padstow) may reflect the form of original, purpose-built Christian enclosures. Such enclosures are a feature of early Christianity in Wales and Cornwall and are associated with settlements of people dedicated to a religious life; the form of the enclosure, usually curvilinear or sub-rectangular, reflects that of contemporary embanked settlement sites or 'rounds' (Preston-Jones and Rose 1986, 160, 156). It has been suggested that such sites may have begun as enclosed cemeteries, becoming 'developed' by the addition of a chapel and housing (Thomas 1971, 67). Surviving structures and excavated remains found within early monastic enclosures show that they contained at least one church, a

cemetery for the community and individual living cells (Thomas 1997, 150). In the early days of Christianity, burial within a *lann* may have been a privilege reserved for clerics and important lay persons (Preston-Jones 1994, 91, quoting Wendy Davies).

The evidence for an association of the Althea Library graves with what is now the parish churchyard is not limited simply to the proximity of the two sites. The westernmost row of graves is distinctly curved and it has been established that this row marks the western limit to the burials, implying a (removed) former boundary which the burials once respected. A boundary in this position would form a continuation of the western boundary of the churchyard, suggesting strongly that the graves were once part of the same burial ground although now separated by Church Street. Possible further evidence for a northern continuation of the churchyard boundary here is that the Althea Library plot appears to be at the junction of Church Street and the former St Sampson's Street (now also part of Church Street). The phenomenon of contracting or shrinking cemeteries, shown in some instances to be related to the former existence of a monastic enclosure, is not uncommon and has been suggested for Crantock, St Stephen's-by-Launceston and perhaps St Buryan and St Neot (Olson 1989, 107). The explanation for such a development is that the enclosed sacred ground, which provided living space and a burial ground for the religious community, was larger than that needed solely for the cemetery of the later small lay settlement (Olson 1982, 178). Recent research suggests that in some cases the phenomenon may reflect changing patterns in the use of burial grounds rather than a decline in population (Zadora-Rio 2003, 18–19); in one study related factors included the nucleation of the burial ground around the church, as part of the development of the parochial system, and the exclusion of domestic activities from the churchyard (*ibid*).

The particular characteristics of St Petroc's community and its monastic complex are not known and would undoubtedly have developed and changed considerably between its foundation, possibly in the sixth century, and its removal to Bodmin by the eleventh century. The term 'monastery' in the early medieval period covers a great diversity of forms, even within the Celtic tradition (Radford 1973, 136), and most communities were probably not rigidly ordered like those of the central medieval period. Thomas defines an early Celtic monastic community



of the sixth century and later (at its ideal) as a group of persons of the same gender, sharing a life of prayer and contemplation and adhering to a 'rule' handed down by its founder (Thomas 1997, 132). Olson (1989, 106) writes that the early monasteries of Cornwall 'ended up as groups of priests serving and sharing the lands and revenues of a church'. As one of the most important Christian foundations in Cornwall and a major landholder, it seems reasonable to assume that the monastic complex at Padstow would have been of considerable size by the tenth century. In addition to at least one church, the cemetery and communal buildings and housing for the monks, there would also have been a sizeable supporting lay population.

As the buried individuals at the Althea Library site include women and a child, they may represent lay members of the monastic community, or perhaps members of the wider community if the monastery had the pastoral responsibility for burial at this time. Family plots of external secular families have been identified in monastic cemetery plans (Rahtz 1973, 125). Irish documentary sources suggest that at major monastic sites cemeteries were divided internally, or separate cemeteries provided, to cater for different groups of people (Edwards 1990, 129). Excavations on early monastery sites seem to indicate that the burial grounds were not delineated by a physical boundary prior to the eighth century, and there is evidence to suggest that these areas could fall in and out of use and did not remain sacrosanct. From the eighth century the internal layout of monasteries appears to have become more complex, with boundaries within the outer enclosure defining the cemetery and other areas of occupation, craft and industry (Petts 2002, 30–2).

A number of Early Christian sites display evidence for the existence of one or more outer boundaries. The proposed lines of several possible concentric boundaries (following existing roads and field boundaries, including the boundaries of the deer park) have been identified at Padstow (Preston-Jones 1994, 89), any or all of which may be related to the monastic complex. The function of such outer boundaries is not clear, and they are not restricted to high status sites. At Padstow and St Buryan they may have defined the ecclesiastical estate boundary, or limit of sanctuary, but in other cases they may simply have marked the area of enclosed agricultural land around the settlement (Preston-Jones 1994, 90).

Early medieval documents make reference to the monastic boundary or *vallum monasterii*. In Britain

such features appear to have consisted of earthen banks and outer ditches enclosing the monastery, providing a spiritual and legal boundary (Thomas 1971, 29). The *Life* of St Petroc refers to an outer enclosure at Padstow consisting of 'very long ditches in the manner of a rampart, the ruins of which even now are apparent' (Jankulak 2000, 45). In a tract of woodland to the west of the church Lynette Olson discovered stretches of ditches that could perhaps represent a section of the monastic boundary; she concluded that the area all around the church, including some low-lying land to the south of the stream, may have been important in this context (Sheppard 1980, 64). Jankulak (2000, 45 and footnote), however, has described the earthwork found by Olson as a raised bank which seems to 'be on the outside of where the churchyard might have run, instead of on the inside, which is where one would expect the raised *lann*-enclosure to be'.

## Appendix 1: The human skeletal remains

### *Hildur Gestsdóttir*

Three graves (4, 14, 17) were excavated. These contained five individuals. Grave 4 contained an articulated adult and infant (Sk1001, Sk1002), grave 14 an articulated adult (Sk1003), and grave 17 two adults (Sk1004 and Sk1005), one articulated and the other disturbed. In addition, ten unarticulated human bones were recovered during the excavation and, after the excavation had been completed, the landowner removed a further 45 human bones which are therefore unstratified.

### Method

The sexing of the adult skeletons was based, where preservation allowed, on sexually diagnostic characteristics of the cranium and pelvis (see, for example, Schwartz 1995, and Buikstra and Ubelaker 1994) and measurements of the width of several articular surfaces compared to standards presented by Bass (1995) and Brothwell (1981). Age at death of adult skeletons was determined using dental attrition (Miles 1963) and cranial suture closure (Meindl and Lovejoy 1985), as the preservation of each skeleton allowed. The preservation of the material did not allow for any other adult ageing techniques to be used. The calculations of the living

stature of adult skeletons were based on measurements of complete long bones compared to standards devised by Trotter and Gleser (1958), and in those cases where the long bones were fragmented, on standards developed by Steele and McKern (1969). It is not possible to determine the sex or stature of juvenile skeletons. However, the age at death can usually be accurately estimated using the development of the dentition (Ubelaker 1989), by assessing the state of fusion of the secondary ossification centres and epiphyses of long bones (see for example Schwartz 1995) and by measurement of long bones compared to standards by Hoppa (1992). Any palaeopathological changes and non-metric traits were recorded.

The main aim of the analysis of the commingled human remains excavated or removed from the cemetery was to ascertain the minimum number of individuals (MNI) represented. To attain this the bones were sorted by element and, where applicable, right and left side. Where possible, bones from the same individual were identified, whether by matching up articular surfaces or the right- and left-side bones. Similarly, bones which obviously belonged to different individuals – indicated, for example, by difference in size or robustness – were separated. Where possible, the age and sex of bones were recorded. The MNI was achieved by counting the most frequently occurring bone. Comparisons were made of the age and sex of the various bones present in each collection.

## Results

The small number of individuals represented in this collection means that a statistical analysis of the remains is not viable. Therefore the results of the analysis are presented as a summary of each individual grave.

### *Skeleton 1001 (grave 4)*

*Preservation:* Most of the skeletal elements were present, and although they were quite fragmented, the cortical bone was well preserved. Fair (50–75%).

*Sex:* Sexually diagnostic characteristics of the skull, pelvis, as well as measurements of epiphyses, indicate that this was a male. Male.

*Age:* Dental enamel wear indicated that this individual was aged between 35–45 years. Older middle adult (35–45 years).

*Stature:* The stature was estimated using both the right and the left tibia, which were complete. Approximately 182cm.

*Palaeopathology:* One left rib (3rd–10th?) had a well-healed, long-standing fracture at an angle, with a 3mm displacement superiorly. All the mandibular incisors had slight calculus formation on the lingual side.

### *Skeleton 1002 (grave 4)*

*Preservation:* Cranial fragments, five ribs and fragments of all the long bones. All the epiphyses of these were missing, and the metaphyses broken. All the bones were broken, but the cortical bone was preserved. Poor (35–50%).

*Age:* Dental development and estimated lengths of the long bones suggested the age to be between 0–3 months. Neonate (0–3 months).

*Palaeopathology:* No palaeopathological changes were recorded.

### *Skeleton 1003 (grave 14)*

*Preservation:* Poorly preserved fragments of the cranium, pelvis and upper limb long bones were present, as well as lower limb long bones and bones of the hands and feet. Poor (35–50%).

*Sex:* Sexually diagnostic characteristics of the skull, as well as measurements of epiphyses, indicate that this was probably a female. Female?

*Age:* Age analysis of this individual produced conflicting results, as the suture closure indicated an age of 35–45 years whereas dental enamel wear placed it rather younger, between 25 and 35 years. However, the suture closure age estimation was based on only two sutures, and the greater accuracy of dental enamel wear age estimation suggests that the latter age is correct. Younger middle adult (25–35 years).

*Stature:* The stature was estimated using both the right and left tibia and the left fibula: 159.2 ± 3.1cm.

*Palaeopathology:* Some changes were recorded on the cranium. However, the poor preservation of the material made it difficult to assess if these were pathological or represent post-mortem damage. Subsequent radiograph examination of the cranium by Simon Mays (CfA) established that that there was

no evidence of disease, only post-depositional damage. All the teeth present were found to have slight lingual calculus formation. Two sessemoid bones were found in the feet of the individual. These are usually seen as indicators of occupational stress, the result of excessive stress on the feet.

*Skeleton 1004 (grave 17)*

*Preservation:* Most skeletal elements were represented, but were very fragmented with severe damage to the cortical bone. Poor (35–50%).

*Sex:* Measurements of epiphyses indicate that this individual was probably male. Male?

*Age:* Enamel attrition, and the partial epiphyseal fusion of the femora and tibiae, indicated that this individual was aged between 18–25 years at the time of death. Young adult (18–25 years).

*Stature:* The stature could be estimated using partial remains of the right femur:  $169.2 \pm 0.7\text{cm}$ .

*Palaeopathology:* Flecks – slight calculus recorded on the lingual side of all the molars present.

*Skeleton 1005 (grave 17)*

*Preservation:* The remains of SK1005 were disarticulated, but analysis showed them to be one individual. Most of the skeletal elements were represented, and although they were fragmented, the bone itself was well preserved. Fair (50–75%).

*Sex:* Sexually diagnostic characteristics of the cranium and pelvis indicated that this individual was male. Male.

*Age:* Dental enamel attrition indicated that this individual was aged 35–45 at time of death. Older middle adult (35–45 years).

*Stature:* Preservation of the long bones did not allow for calculation of the stature. Unknown.

*Palaeopathology:* Slight calculus recorded on the buccal and lingual side of all the mandibular incisors. Two left ribs (3rd–10th?) had a possible fracture near the neck (broken *post mortem* through fracture). One of these had a 15mm long bony growth, extending distally. There was also some damage to the left elbow, with a long-standing well-healed fracture with non-union of the olecranon process. This has resulted in sclerotic new bone formation on the superior surface of the coronoid fossa, and inside the

olecranon fossa of the left humerus. There is also a long-standing fracture with reunion of the medial surface of the right femur, superior to medial epicondyle, at the insertion point of vastus medialis. This would probably have resulted from a forceful extension of the knee, probably resulting from landing on the leg after jumping or falling from a height. The long-standing nature of the fractures to the ribs, left elbow and right femur suggest that these could be the result of the same traumatic event.

*Commingle remains*

The commingled remains from the Althea Library site were divided into two separate groups: those recovered during the excavation and the bones removed by the landowners. The material recovered during the excavation consists of ten bones or bone fragments representing at least three individuals. This includes at least one adult, possibly female, based on measurements of the distal epiphysis of a left humerus, and at least two neonates, under one year of age, based on the two right femora recovered.

The material removed by the landowners after the excavation consists of 45 bones or bones fragments, representing at least two individuals, based on fragments of at least two left ulnae, two left tibiae, fragments of two fibulae, two left taluses and two left and right calcanei. The similar size and state of preservation of the bones makes it difficult to identify which bones belong to which individual, but at least one is probably female and they were probably aged between 18 and 25, young adult (based on dental enamel wear), and 25–35, a younger middle adult (based on suture closure). In addition, stature could be measured from a complete left femur (approximately 160cm) and one complete left tibia (approximately 166cm), indicating that they probably belong to two different individuals.

Some palaeopathological and non-metric traits were recorded on this material. The cranium had a retained metopic suture (a non-metric trait which would not have had any affect on the individual), and bilateral cribra orbitalia, a change usually associated with iron deficiency anaemia during childhood (Roberts and Manchester 1995). There were also abnormal dental developments of the mandible and maxilla, with the left third molar being impacted, suggesting that they belonged to the same individual.

## Conclusion

The collection consists of at least ten individuals. Four of these are articulated skeletons from three different graves and one disturbed skeleton. The preservation of these has been graded from poor (35–50%) to fair (50–75%). The other five represent the minimum number of individuals (MNI) of the commingled skeletal remains. Included in this collection are at least three females, or probable females, at least three males, or probable males, and at least one adult of an unidentifiable sex. The age at death of these individuals is three neonates, one of which was aged 0–3 months at the time of death, two young adults (18–25 years), two younger middle adults (25–35 years), two older middle adults (35–45 years) and at least one adult of an undetermined age.

Although, as already stated, these results are not statistically viable, it can be pointed out that the distribution of sex is as would be expected in a cemetery, while the distribution of age has a higher percentage of young adults than would be expected in a normal cemetery population. Palaeopathological changes recorded were four cases of slight calculus, most commonly involving the incisors, and one case of impacted third molars, indicating poor dental hygiene. There was one case of *cribra orbitalia*, indicating iron deficiency anaemia. Two individuals had fractured ribs, and one of these also had a fractured elbow and femur. One individual had sessemoid bones in the feet, indicating excessive stress on the feet. The fractures and sessemoid bones would suggest that most of the people represented in this population would have led physically stressful lives.

## Appendix 2: Radiocarbon dating

*Alex Bayliss*

A total of five samples, two from skeleton 1001 and one each from skeletons 1003, 1004, 1005, were submitted to the English Heritage Centre for Archaeology (CfA) for radiocarbon determination. Bones suitable for radiocarbon dating were selected by Hildur Gestsdottir, Exeter Archaeology's consultant osteologist, with supplementary guidance provided by Alex Bayliss, EH Scientific Dating Co-ordinator. Three samples were dated by Liquid Scintillation Spectrometry at the Scottish Universities Research and Reactor Centre, according to procedures described by Stenhouse and Baxter (1983) and Noakes *et al* (1965). Two further samples were dated by Accelerator Mass Spectrometry (AMS) at the centre for Isotope Research at the University of Groningen, The Netherlands, as outlined in Aerts-Bijma *et al* (1997; 2001) and van der Plicht *et al* (2000).

The calibrated date ranges were calculated using the program OxCal v.3.5 (Bronk Ramsey 1995; 1998) and the INTCAL98 data set (Stuiver *et al* 1998), with the end points rounded outwards to ten years. The results are presented in Table 1. The probability distributions were calculated using the probability method (Stuiver and Reimer 1993) and the same data.

The two results on skeleton 1001 are not statistically different, and so a weighted mean has been taken before calibration; this is  $1286 \pm 33\text{BP}$ .

The  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  values suggest a largely terrestrial diet with a relatively insignificant marine component. The radiocarbon measurements are therefore unlikely to be influenced by any reservoir effect and the calibration of these results provides an accurate estimate of the calendar age of the samples.

**Table 1** Radiocarbon dates

Laboratory Code	Skeleton	$\delta^{15}\text{N}$ (‰)	$\delta^{13}\text{C}$ (‰)	Radiocarbon age (BP)	Calibrated date (95% confidence)
GrA-22554	1001	8.0	-20.5	1270±40	Cal AD 660–810*
GU-5975	1001	9.6	-20.0	1320±60	Cal AD 660–810*
GrA-22419	1003	7.3	-20.2	1245±35	Cal AD 680–890
GU-5921	1004	9.7	-19.9	1200±50	Cal AD 680–980
GU-5923	1005	9.7	-20.3	1290±50	Cal AD 650–890

\*based on weighted mean of two statistically consistent results from skeleton 1001

## Appendix 3: The pottery

*John Allan and Graham Langman, with contributions by Roger T Taylor and Michael J Hughes*

### Introduction

Only 21 sherds were recovered from this excavation, most of them of late post-medieval date, but there are two fragments of exceptional interest among them. The first, a sherd of Hamwic fabric 127, belongs to a type of pottery believed to have been made in the lower Seine valley; sherds of this sort are regarded as indicators of Anglo-Saxon trade with Normandy, especially with the area around Rouen (Hodges 1981, 19–21, 70–5). The second vessel belongs to one of the rare classes of micaceous pottery imported from Brittany which, it is suggested, is datable to the thirteenth or fourteenth centuries. A third point of

interest in the collection is the presence of a type of post-medieval coarseware whose body resembles North Devon wares but whose inclusions differ from the typical North Devon fabrics. In an attempt to determine whether this is a Cornish product the vessel has been subjected to thin-sectioning; it is reported on by Dr Taylor (see below).

### Catalogue (Fig 13)

1. Bodysherd of a North French white ware cooking pot showing the typical features of Hamwic fabric 127. Characteristic sandy white fabric and sooted exterior; the inclusions are discussed by Dr Taylor (below). (Context 530, unassociated.)

This kind of pottery was first recognised in Britain at Hamwic, the Middle Saxon predecessor of Southampton; its high quality contrasted with contemporary local pottery and it was presumed to be of continental origin. In his classification of such

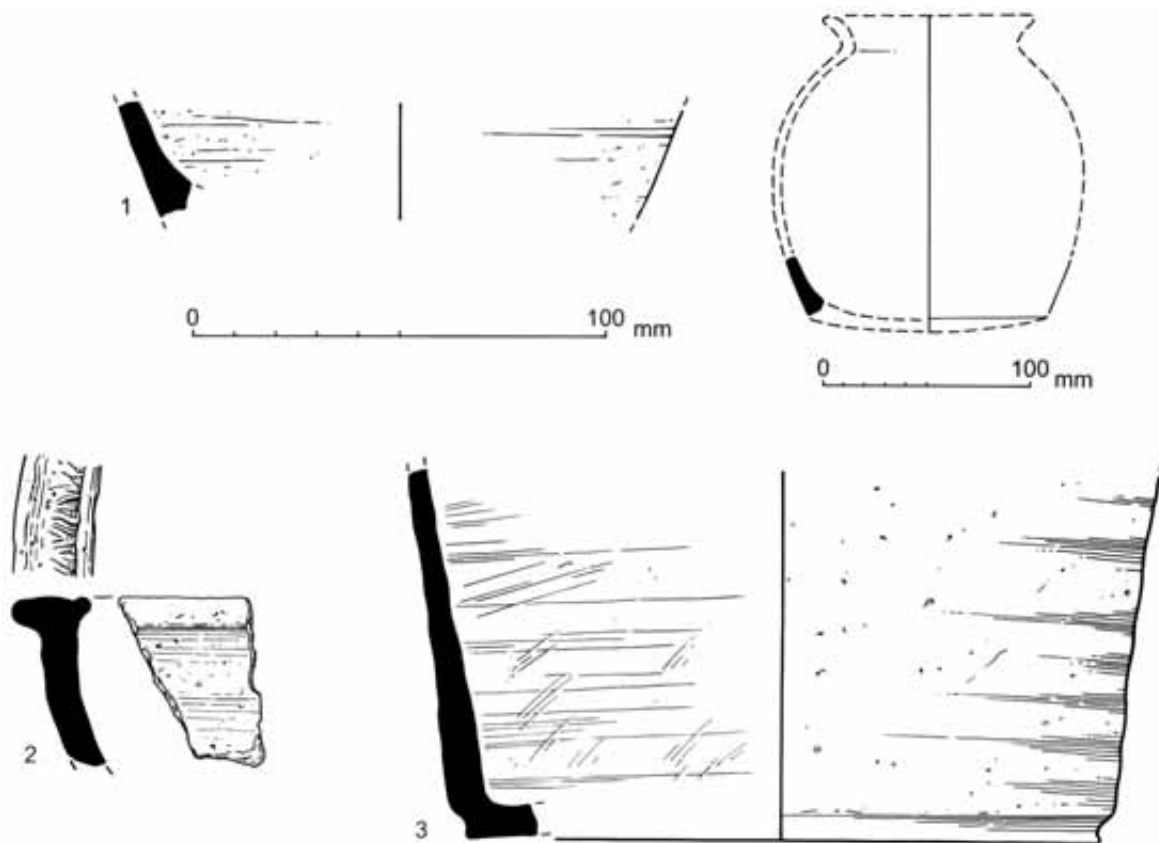


Fig 13 The ceramics



wares Hodges (1981, 19–20) named this ware ‘Hamwih class 11’. With a larger sample available from excavations in the 1980s J R Timby reconsidered many of Hodges’ initial groupings and developed a more precise classification; this ware is now described as ‘Hamwic fabric 127’ (Timby 1988, 91–3). Most of the known vessels are wheel-thrown cooking pots with simple rims, the bases being characteristically flat with concentric ‘cheese-wire’ lines on their undersides.

The fabric appears to have been made over a long period. It appears throughout the sequence of deposits at Hamwic (*ibid*, 114), which begins in the first quarter of the eighth century. Vessels of this type were still in circulation in late Saxon Southampton (Platt and Coleman-Smith 1977, vol 2, 123–5, nos 858–63, etc).

Although present in many contexts in both settlements at Southampton, this is quite a rare class of imported pottery elsewhere in Britain. There are only a few examples of the general type from London (Vince 1991, 106–7: within the general category North French Unglazed Whitewares). The other English port with more than a handful of sherds is Exeter, from where 11 examples of North French Whitewares are recorded (Allan 1984, 13–18). Two further unpublished sherds, from different vessels, have recently been recognised by the writers among sherd collections from Barnstaple; no examples are known elsewhere in south-west England. The type was still in circulation in the tenth and eleventh centuries. At Exeter, for example, there are three finds (including Allan 1984, nos 17 and 680) in tenth- or eleventh-century deposits, and only one sherd (? residual) among the substantial series of imports of the twelfth century.

2. Rim of wheel-thrown bowl. Fabric with prominent quartz inclusions and smaller white mica fragments, described by Dr Taylor below, oxidised to orange-pink, the surfaces unglazed and the same colour as the body, with patches of rust-colour. Shallow rouletting on the rim top in the form of parallel notches. Sooted exterior. (Context 549, unassociated.)

The fabric is clearly derived from an area with a metamorphosed geology: Cornwall and Brittany are the only likely sources. This sherd is very different from the pottery of Cornwall, however, where there is no tradition of rouletting, and medieval vessels are generally hand-made. A source in Brittany therefore seems probable, and rouletted sherds are indeed known in much of northern France. A few thirteenth- and fourteenth-century sherds from Exeter (Allan

1984, fabrics 103–4) are broadly similar, but no specific match to the Padstow sherd was found among them. Some of the Exeter sherds contain mica schist fragments (Williams 1984). It may perhaps be significant that the sherd matches superficially a sherd of *céramique à oeil de perdrix*, a type of pottery produced at Laval in the *département* of Mayenne. In particular, the fabric texture and creamy-orange rust wash of that type are present on the Padstow sherd (cf Dornier and Woods 1984). That type is dated to the thirteenth and fourteenth centuries.

3. Basal angle and lower part of wall of a glazed vessel form (? jar), superficially close to North Devon gravel-tempered ware but with different inclusions, described by Dr Taylor below. Light fawn-brown surfaces, unglazed. Probably seventeenth century or later. (Context 500, unassociated.)

### The petrography of the temper of selected sherds from Padstow

*Roger T Taylor*

The temper of three sherds was examined, both in thin-section and as hand specimens, under a binocular microscope at  $\times 20$  magnification. Inclusions are listed in approximate order of abundance.

**Sherd 1: Hamwic class 127.** Basal angle sherd with pale off-white body with very light cream oxidised core and blackened outer surface. Texture compact with a few small voids; the temper forms about 20% of the body.

#### *Temper*

Quartz: angular to rounded with several of the larger grains composite. The grain size is variable; much is around 0.05mm but the large grains range from 0.5 to 1.5mm. Rare rounded grains. Mainly translucent colourless with a little ferruginous staining. A few white milky grains. One composite grain with inclusion of white altered ?feldspar.

Mica: muscovite flakes, as sparse laths, generally less than 0.1mm but up 0.2mm.

Ferruginous grains: a few terracotta-coloured sub-rounded fragments.

Tourmaline: rare black angular grains, *c* 0.3mm. A single yellow- and blue-zoned grain 0.2mm across seen in thin-section.

Feldspar: sub-rectangular untwinned grains, probably orthoclase, seen in thin-section.

Zircon: rare grains, less than 0.1mm.

*Comment:* The body clay has a very low iron content. The rather nondescript predominantly quartz sand temper is probably from a stream source with a sedimentary rock hinterland remote from an igneous-metamorphic source. A source in Normandy would be acceptable; the clay is similar to those of the Tertiary of the Hampshire Basin in England. The presence of fine laths of muscovite is a potentially diagnostic component of the fabric.

**Sherd 2: probable Breton sherd.** Rim sherd with roulette ornament on the flat top. Hard, compact texture with voids, variable in size and distribution. Coarsely tempered oxidized ware, the temper forming c 30% of the fabric.

*Temper*

Quartz: very irregular and angular fragments up to 2mm. Sparse rounded and polished quartz grains up to 0.75mm occur; some are orange-brown in colour. Some grains are angular, composite, sutured and strained. One examined in thin-section encloses muscovite.

Mica: abundant but narrow laths of muscovite throughout the fabric, sizes from very fine flakes up to 0.75mm, but mainly less than 0.5mm, much 0.1 to 0.2mm long. Also rare brown-green laths of biotite, partly chloritised, up to 0.25mm.

?Feldspar: two soft, white sericitised rectilinear fragments, possibly altered feldspar, seen under binocular microscope.

*Comment:* The irregular shape of some of the quartz fragments, some of which have inclusions of white mica, the abundance of white mica in the body, and the possible altered feldspar fragments, all point to an altered granitic gneiss source for both clay and temper. The temper indicates that the source is not in south-west England; this would accord with John Allan's identification of the find as a probable Breton sherd. No specific match can, however, be offered at this stage to the published fabric descriptions of sampled Breton sources in Fichet de Clairfontaine (1996). The presence of rounded and polished grains indicates some minor addition of beach sand, suggesting a potting site near the coast.

**Sherd 3.** Bodysherd. Hard oxidized ware with faint grey reduction in thicker sections.

*Temper*

Rock fragments: soft, white, pale cream to pinkish, rounded to sub-angular, with some small quartz grains visible, set in a matrix of fine irregularly orientated muscovite laths. These are probably hornfelsed sediment. Two fragments seen in thin-section are composite, associated with very fine-grained quartz aggregates. One fine-grained, quartzitic sandstone fragment was also seen.

Quartz: fairly sparse angular to sub-rounded white translucent grains, 0.2–2.5mm across, with fine-grained quartz in the matrix.

Mica: muscovite flakes up to 1mm but mainly 0.1–0.2mm; much very fine-grained white mica in the matrix. A single rounded grain of micro-folded muscovite laths approximately 0.25mm long was seen in thin-section.

Quartz / mica aggregates: three sub-rounded grains of quartz intergrown with muscovite, 0.5 and 1mm, were seen in thin-section.

Tourmaline: a few black angular grains and composite quartz tourmaline grains.

A single fragment of fine-grained quartz biotite schist, 1.0mm long, is also visible in thin-section.

*Comment:* The temper is relatively sparse (10%) and rather indeterminate, but if the identification of the rock and mineral fragments is correct then the ware is of Cornish rather than North Devon origin but not local to the Padstow area. The matrix is a fine-textured refined clay.

**Analysis by Inductively-Coupled Plasma Atomic Emission Spectrometry (ICP-AES) of imported northern French pottery, including a sherd found at Althea Library, Padstow**

*Michael J Hughes*

A new find of a sherd of Hamwic fabric 127, formerly 'Hamwih class 11', from Althea Library, Padstow, has allowed an initial chemical examination of this ware which is believed to date to the eighth to eleventh centuries and to originate in Normandy, probably in the lower Seine valley

around Rouen. It seems likely that vessels of this class have a common origin but this is far from certain. This type of investigation aims to provide information about the chemical relationships between groups of pottery, leading to possible assignments of origin of the clays used for manufacture. Pottery from different clay sources will reflect differences in local geology in the chemistry of their clays. Depending on geology, even fairly closely-spaced sources may show subtle chemical differences. Such provenance studies are well established in archaeology (Hughes 1991; Lambert 1997).

Chemical analysis was carried out by Inductively-Coupled Plasma Atomic Emission Spectrometry (ICP-AES), which has become routinely established for this type of work, replacing neutron activation analysis which is now restricted to very few laboratories. The technique of ICP-AES provides rapid analyses for major, minor and trace elements in the same sample and is widely available, being much used in geological laboratories (Potts 1987; Thompson and Walsh 1989). The technique used here measures 29 elements simultaneously, to a high accuracy, and is therefore suitable for detecting subtle differences in clay composition between pottery from different origins even when apparently similar in fabric.

It is necessary to establish a database of analyses of pottery of known origin, or at least recognisably similar in type and manufacture. For comparison with the sherd from Padstow, three other sherds of Hamwic fabric 127 identified on sites in south-west England were analysed, together with five North French Whitewares from Southampton. A further comparative group was of Normandy Gritty Ware of the eleventh and twelfth centuries, thought to be the successor to Hamwic fabric 127; all the sherds of this last type were from Exeter.

#### *Chemical analysis*

Powdered samples were obtained from each sherd using a hand-held 12-volt drill fitted with a 2mm diameter solid tungsten carbide drill bit. During drilling it was evident that all were of hard fabric, some close to stoneware, some containing quartz temper, and all of a predominantly grey fabric. The powders were analysed for 29 elements by ICP-AES at the Department of Geology, Royal Holloway, University of London, by Dr J N Walsh, using the department's routine technique (Thompson and

Walsh 1989). In all, 13 sherds were analysed, plus one standard reference material of known chemical composition, a standard clay NBS679 produced by the National Institute of Standards and Technology, Washington DC, which has been repeatedly included as an 'unknown' in ICP-AES projects on ceramics as a batch-to-batch check on analytical quality. The list of samples analysed is given in Table 2 with the full ICP-AES results.

#### *Statistical interpretation of the chemical analyses*

It was immediately evident that all the ceramics are relatively rich in alumina and low in lime, iron and other fluxes (Table 2). This is entirely to be expected from the greyish fabric colour, indicating low iron content, and the hardness, indicating a low level of fluxing elements. Silica, the main element, cannot be measured by the particular sample preparation technique used for these analyses, but an approximate indication of its concentration can be obtained by difference (subtracting the sum of all the elements measured from 100%). The silica percentage ranged from 63–83% for the 13 sherds (most are in the range 75–80%), with the Padstow sherd having one of the lowest silica contents (approximately 69%), mainly because it contains the second highest alumina of the whole group analysed (nearly 25%). Other notable features of the analyses include the low levels of fluxing elements: lime is less than 1.3% and the majority below 0.5%; magnesia is about the same. The alkalis show interesting behaviour in that the Hamwic sherds from south-west England (except Padstow) and the Normandy Gritty Wares (except Exeter no 431) all have over 3% potash, whereas the samples from Southampton have less than 3% (and two less than 1%). These are major elements in the clays, representing different mineral suites present. It is evident from the foregoing that while all the sherds analysed are of the high alumina/low-flux elements type, there are clear chemical differences in some major elements between groups within the set as a whole.

Full interpretation of the analyses presented in Table 2 requires multivariate statistical techniques which examine a large number of element results simultaneously. A variety of such computer programs are available to archaeologists (Orton 1980; Baxter 1994) and, as the number of analyses in this study were relatively few, principal component analysis was chosen as the most appropriate method.

## EXCAVATION OF AN EARLY CHRISTIAN CEMETERY AT ALTHEA LIBRARY, PADSTOW

**Table 2** List of samples of North French pottery analysed in this project, and full analysis results by inductively-coupled plasma atomic emission spectrometry (ICP-AES)

sample code	description	location	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	TiO <sub>2</sub>	P <sub>2</sub> O <sub>5</sub>	MnO	Ba	Co	Cr	Cu	Li	Ni
1	sa.1 SQU254 T2 466	N French Whiteware	17.19	1.57	0.15	0.62	0.12	0.65	1.99	0.72	0.02	253	41	95	69	21	23
2	sa.2 SQU4 F65 127A	N French Whiteware	17.11	1.27	0.17	1.24	0.25	0.54	0.88	1.66	0.20	455	32	92	18	21	20
3	sa.3 SQU142 BI V 3 915B	N French Whiteware	15.72	2.71	0.83	0.28	0.30	2.26	0.99	0.14	0.01	383	69	57	33	59	36
4	sa.4 SQU142 BI V 3 918	N French Whiteware	16.93	2.81	0.51	1.88	0.17	2.10	1.07	4.07	0.01	812	26	78	18	52	25
5	sa.5 SQU142 BI V 3 915A	N French Whiteware	13.45	1.86	0.29	0.37	0.17	0.65	2.01	0.30	0.00	177	30	95	18	25	19
6	Exeter no. 17 1973	Hamwhil class 11	16.05	1.99	0.66	0.30	0.61	3.42	0.94	0.18	0.02	459	33	64	37	101	52
	251 300 1988.17																
7	Exeter no. 680 1979 360 300	Hamwhil class 11	17.12	2.73	0.73	0.45	0.66	3.76	0.94	0.58	0.02	805	32	103	19	111	45
	1988.680																
8	Barnstaple no. 2049 1985	Hamwhil class 11	16.58	2.33	0.67	0.36	0.73	3.19	1.06	0.24	0.02	448	53	78	26	129	55
	BAA85 2049																
9	Padstow no. 530 2001	Hamwhil class 11	24.48	3.28	0.36	0.46	0.22	1.52	1.43	0.61	0.01	436	46	64	18	40	18
	CPAL01 530																
10	Exeter no. 124 charcoal burial	Normandy Gritty	17.82	3.26	0.94	0.44	0.24	3.83	0.90	0.04	0.02	388	130	76	33	146	41
	45 300 1988.124																
11	Exeter no. 670 156 300	Normandy Gritty	18.61	3.23	0.99	0.43	0.28	3.40	0.87	0.04	0.03	399	151	63	33	194	44
	1988.670																
12	Exeter no. 671 300 1988.671	Normandy Gritty	21.34	2.43	0.65	0.43	0.23	3.23	0.92	0.06	0.01	460	102	64	33	349	40
	L10 mixed																
13	Exeter no. 431 1977 431	Normandy Gritty	27.77	5.36	0.52	1.07	0.26	1.25	1.49	1.11	0.03	406	53	79	40	101	19
	1988.17																
1	sa.1 SQU254 T2 466	N French Whiteware	12	98	63	21	112	242	53	92	53	6.5	0.8	4.1	2.3	62	Pb
2	sa.2 SQU4 F65 127A	N French Whiteware	12	263	51	25	123	123	72	114	73	9.4	1.3	5.8	2.6	57	
3	sa.3 SQU142 BI V 3 915B	N French Whiteware	18	101	136	29	59	149	63	114	64	8.9	2.1	5.8	3.4	39	
4	sa.4 SQU142 BI V 3 918	N French Whiteware	14	262	61	19	143	154	50	80	50	5.5	1.1	3.2	2.2	44	
5	sa.5 SQU142 BI V 3 915A	N French Whiteware	12	61	83	18	58	177	42	67	43	4.6	0.8	3.6	2.4	47	
6	Exeter no. 17 1973 251 300	Hamwhil class 11	19	201	118	26	58	131	63	112	64	11.2	2.2	5.8	3.3	37	
7	Exeter no. 680 1979 360 300	Hamwhil class 11	20	210	125	28	92	145	57	108	59	9.6	2.0	5.4	3.2	36	
	1988.680																
8	Barnstaple no. 2049 1985	Hamwhil class 11	20	210	132	32	72	125	64	112	66	12.0	2.5	6.7	3.3	83	
	BAA85 2049																
9	Padstow no. 530 2001	Hamwhil class 11	19	157	73	25	59	204	61	96	61	7.6	1.3	4.5	2.5	72	
	CPAL01 530																
10	Exeter no. 124 charcoal burial	Normandy Gritty	14	80	135	26	32	160	50	83	51	4.5	1.5	4.8	3.2	39	
	45 300 1988.124																
11	Exeter no. 670 156 300	Normandy Gritty	15	83	146	24	36	131	51	86	52	6.0	1.4	4.5	2.9	37	
	1988.670																
12	Exeter no. 671 300 1988.671	Normandy Gritty	18	84	155	21	45	149	57	98	58	5.8	1.5	4.6	3.1	84	
	L10 mixed																
13	Exeter no. 431 1977 431	Normandy Gritty	20	123	129	20	109	118	53	89	54	4.8	1.4	4.2	2.4	58	
	1988.17																

**Key:**

Al<sub>2</sub>O<sub>3</sub> aluminium; Fe<sub>2</sub>O<sub>3</sub> iron; MgO magnesium; CaO calcium; Na<sub>2</sub>O sodium; K<sub>2</sub>O potassium; TiO<sub>2</sub> titanium; P<sub>2</sub>O<sub>5</sub> phosphorus; MnO manganese; Ba barium; Co cobalt; Cr chromium; Cu copper; Li lithium; Ni nickel; Sc scandium; Sr strontium; Y yttrium; Zn zinc; Zr zirconium  
 Rare earth elements: La lanthanum; Ce cerium; Nd neodymium; Sm samarium; Eu europium; Dy dysprosium; Yb ytterbium; Pb lead  
 The results from Al<sub>2</sub>O<sub>3</sub> to MnO inclusive are given as the oxide, in weight percent; all the rest are given as the element, in parts per million.

This extracts the main features of chemical differences among the whole set of analyses, which provide a chemical 'fingerprint' for each sherd. As is customary, the analyses were first converted to logs before using principal components. This reduces the undue influence on the outcome by elements whose concentrations have significantly larger absolute numbers than others.

A selection of 17 of the 29 elements was used to represent the chemistry of the pottery. A representative cross-section of elements across the Periodic Table was made. The computer program SPSS version 10 was used for the statistics. Elements were omitted which had poor analytical precision or which may be subject to leaching from the pottery fabric by the groundwater in the soil. Cobalt was also omitted because the drill bit used contained significant amounts of cobalt; the very hard fabric made abrasion of unacceptably high amounts of the cobalt into the powder very likely.

The analytical data for many elements is conveniently summarised by a plot of the first two principal components arising from the application of the statistical technique. Such a plot is a type of

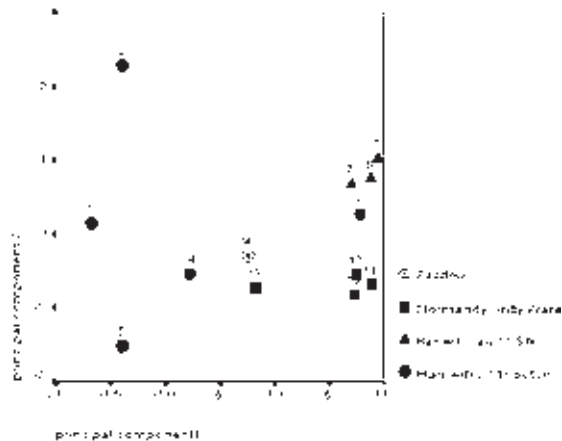


Fig 14 Plot of the first two principal components arising from ICP-AES analyses of northern French pottery analysed in this project. The first principal component is associated in decreasing order of contribution with: potassium (loading = +0.93); magnesium (+0.92); vanadium (+0.88); lithium (+0.81); nickel (+0.84) and titanium (-0.68). The second component is associated with: lanthanum (-0.88); cerium (+0.85); manganese (+0.70); yttrium (+0.61); iron (-0.54); and sodium (+0.49)

chemical map, so that sherds with very similar chemical analyses will plot close together. Such close groupings suggest a common clay origin and may be used to suggest the source of clay for sherds which are of unknown origin, by their position on such a plot.

The plot of the first two principal components is shown in Figure 14. Different symbols are used to indicate the sherd from Padstow; the other pottery in Hamwic fabric 127 from south-west England, North French White Wares from Southampton and the sherds of Normandy Gritty Ware from Exeter. The elements which contribute to the position on the plot are shown in the caption to Figure 14. Potassium is the primary contributor to the first component (that is, one of the elements that distinguishes between items in the horizontal axis of the figure), closely followed by magnesium, vanadium, lithium (another alkali) and nickel. (Items with high amounts of these elements tend towards the right of the figure.) The second component (the vertical axis of Figure 14) has major contributions from the two rare earth elements lanthanum and cerium, followed by manganese, with iron and sodium contributing rather less. (Items with high amounts of these elements tend towards the top of the figure.)

Some division of the pottery into groups is evident: the three sherds of Hamwic fabric 127 from the south west (except Padstow) form a very close-knit composition group in the top right of the figure. Although these sherds are from two different towns in the south west, they are of closely similar clay composition (see Table 2) and must share a common origin. The Padstow sherd does not fall within this group, however.

The Southampton sherds were chosen to represent a range of North French Whitewares; they are widely scattered around the plot, indicating several different production centres. It is likely that the Southampton sherd on the right (sample 3, a North French White Gritty Ware) had a similar kiln origin to the three south-west English finds of Hamwic fabric 127. The other Southampton sherds are in three different fabrics (Hamwic fabric 127; Red-painted Whiteware 918, Beauvais; and Red-painted Whiteware 915, Beauvais) and we may discern three chemical groups (Table 3).

These show a satisfactory correlation between fabric and chemistry: the two Hamwic fabric 127 sherds from Southampton are similar chemically and differ from the two Beauvais fabric sherds.



## EXCAVATION OF AN EARLY CHRISTIAN CEMETERY AT ALTHEA LIBRARY, PADSTOW

**Table 3** Chemical composition of fabrics

<i>Samples</i>	<i>Alumina</i>	<i>Iron</i>	<i>Alkali</i>
1 and 2: both Hamwic fabric 127	Moderately high (around 17%)	Low (under 2%)	Low (potash less than 1%)
3: N French White Gritty Ware;	Median (15–17%)	High (2.7–2.8%)	High (2.1–2.3% potash)
4: Red-painted Whiteware 918, Beauvais			
5: Red-painted Whiteware 915, Beauvais	Low (13.5%)	High (2.8%)	Low (potash less than 1%)

Compared to these, the three Hamwic fabric 127 sherds from the south west contain similar levels of alumina and iron but higher alkali:

*median alumina*    *median to high iron*    *high alkali*  
 (16–17%)                    (2.0–2.7%)                    (3.1–3.8% potash)

Three of the Normandy Gritty Ware sherds have very similar analyses (Table 2 and Fig 14, samples 10–12):

*high alumina*                    *high iron*                    *high alkali*  
 (17–21%)                    (2.4–3.3%)                    (3.2–3.8% potash)

This suggests a common origin for these three Exeter sherds, while the fourth (Exeter no 431) shows similarities to the Padstow sherd in chemistry, including very high alumina (over 24%), high iron, similar moderate alkali (approximately 1.5% potash) and very similar minor and trace elements across many elements. There are some differences in other elements between this sherd of Normandy Gritty Ware and the others. In wider terms, there are general similarities in clay composition between the Hamwic fabric 127 and Normandy Gritty Wares, which suggests a continuity in the use of similar clays.

While the ICP-AES technique has been applied to a number of chemical analysis projects on pottery from south-west England (Hughes 1998, 2002 and 2003), there do not appear to have been any published analyses carried out in the UK on imported northern French pottery. However, Alan Vince (unpublished) has analysed 17 examples of such pottery, including sherds from Rouen itself, and compared them with Whiteware sherds from Ludenwic that proved to be North French from their analysis. He has also compared his analyses with

those of the present study using principal components analysis on normalised data by dividing by the alumina percentage for the sherd to eliminate the effects of varying amounts of temper. This showed one large cluster of sherds which included all those from Rouen and Ludenwic, together with the Padstow sherd, and two of the North French Whitewares from Southampton (1 and 2). The two Beauvais sherds from Southampton (4 and 5) and one of the Normandy Gritty Wares (no 13) plotted on the fringe of this cluster. The Hamwic fabric 127 sherds from the south west and the other Normandy Gritty Wares formed two separate clusters. The Hamwic cluster contained the sherd of North French White Gritty ware from Southampton (no 3). This interpretation agrees with that arising from the principal components used in the present study: on Figure 14 sherd no 3 falls among the Hamwic fabric 127 sherds; three of the Gritty Wares form another cluster and the rest of the whitewares are on the left of Figure 14. The most significant point from this comparison is that the Padstow sherd has the chemical composition of Rouen whitewares. Recent ICP analyses by Vince of early whitewares from the kilns at La Londe in the Rouen arrondissement are very similar to the Padstow sherd, and strongly suggest its origin there. Analytically, later wares from Rouen have similar chemistry, but since the La Londe kiln is contemporary it must be a strong possibility as the source.

French laboratories active in pottery analysis, such as the Laboratoire de Céramologie, Université de Caen, have used a related analytical technique, X-Ray fluorescence spectrometry (XRF), for provenance studies. Chemical analyses of Rouen wares of the 13th century, including finds from Bergen, Norway, have been carried out (Deroeux *et al* 1994). Sherds from Rouen of highly decorated type were found to be comparable in chemistry to two groups among the French pottery analysed from Bergen (*ibid*, 192, table III).

We need to add the necessary caution that the analyses of the two laboratories have not been intercalibrated, but may still assume for the present that major differences are unlikely. To ensure that the analyses of Normandy wares are directly comparable to those by ICP-AES, it would be necessary to establish inter-laboratory standardisation factors.

The published results for five elements (*ibid*, 192, table III) for the Rouen reference group and Bergen group G1 are:

	<i>Rouen ref group (4)</i>	<i>Bergen group G1(20)</i>
alumina	22.15±2.4%	23.3±1.45%
iron oxide	1.58±0.23%	1.65±0.22%
titanium oxide	1.65±0.27%	1.98±0.20%
magnesia	0.19±0.06%	0.15±0.05%
potash	0.51±0.16%	0.42±0.03%

(numbers of samples in each group shown in brackets)

Comparing these analyses with the ICP-AES results, only ICP-AES analyses 1 and 5 show similar analyses for four elements – iron, titanium, magnesium and potassium – but the alumina for the ICP-AES samples are about 25% lower in relative terms. This cannot be regarded as a match in analytical results. The French groups show quite a narrow chemical range, comparable in degree to the two ICP-AES groups of Hamwic fabric 127 from south-west England and Normandy Gritty Wares. However, there are two ICP-AES analyses with high alumina, similar to the Bergen results (nos 9 and 13). The authors of the Bergen report also suggest that their group G2 of French sherds found at Bergen may be related geologically to the Seine valley, and these have alumina concentrations which are similar to most of the ICP-AES results. Group G2, however, shows significant differences to the ICP-AES analyses in other respects, with significantly lower iron and potash in the Bergen group. Deroeux *et al* (1994) suggest that there is a geological relationship between G1 and the reference wares from Rouen, and a chemical similarity between G1 and G2, even though the pottery is not morphologically similar to Rouen pottery. We conclude that there is evidence from the Bergen analyses of several different clay composition groups associated with the Seine valley (of pottery later than Hamwic fabric 127, but similar in date to the Normandy Gritty Wares analysed here).

The presence of French pottery made with high alumina–low iron clays in the Seine region has emerged from both the Bergen and present studies. We hope that publication of the current analyses may lead to further fruitful collaborations in the future, making analytical databases on medieval French pottery more widely available.

## Conclusions

The Padstow sherd shares a common clay chemistry with whitewares made at Rouen, including the contemporary kilns at La Londe which are its

most probable source. It shares a similar chemistry with whiteware exports found in Ludenwic and Southampton. Three of the Hamwic fabric 127 sherds from south-west England have very similar analyses indeed and suggest a common origin, although apparently not the same as the Padstow sherd. On the other hand, the two Hamwic fabric 127 sherds from Southampton also have the Rouen chemical composition. The two Beauvais sherds from Southampton (nos 4 and 5) show chemical differences to the Rouen pottery. The later French pottery of the Seine valley, Normandy Gritty Wares, shows one group of three sherds with very similar analyses, suggesting a common origin; these are different in composition from the sherds of Hamwic fabric 127 although similar to the North French White Gritty ware from Southampton (no 3). Another sherd of Normandy Gritty Ware (no 13) shows quite close chemical similarity to the Hamwic fabric 127 sherd from Padstow and is on the fringes of the chemical group established for Rouen whitewares by Alan Vince.

There is an overall similarity in chemistry between the group of three of the Normandy Gritty Wares and the Hamwic class 127 pottery from the south west which would be consistent with production within the same general area, although not from the same source, and neither apparently from Rouen.

Even the very limited numbers of samples in this project have generated a number of interesting conclusions. The identification of a series of composition groups among northern French pottery has emerged from this research, and this indicates the benefits which would be gained from analysing a larger number of such wares. This would better define the chemical groups, link with pottery morphology and could lead to identification of the original sources within France.

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DCMS Department of Culture, Media and Sport

Listed Building records

RIC Courtney Library, Royal Institution of Cornwall, Truro

Henderson Calendar vol 3, vol 4 (Pydar topography), vol 6 (compiled 1920–2)

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# Journeys to the Rock: archaeological investigations at Tregarrick Farm, Roche, Cornwall

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

*During archaeological fieldwork at Tregarrick Farm, Roche (NGR SW 9902 5977), a group of ten pits was recorded to the north of Roche Rock. The pits were found to contain structured deposits of Neolithic date, which included pottery, flints, a small saddle quern and charred hazelnuts.*

*Radiocarbon determinations ranging over the period 3790-3370 cal BC were obtained from six of the pits, suggesting that the site was in use over several centuries. Analysis of charred environmental material indicated that oak and hazel woodland with some clearings existed nearby.*

*It is suggested that the pits were the result of ritualized activity associated with seasonal gatherings close to a prominent landscape feature. The investigation has given a rare insight into Early Neolithic activity in lowland Cornwall and confirms the significance of Roche Rock as an important place in the landscape several millennia before the construction of the iconic fifteenth-century chapel.*

Cornwall County Council Historic Environment Service (HES) was commissioned by David Alcock of RS Developments Ltd to undertake archaeological fieldwork at Tregarrick Farm, Roche (SW 9902 5977), in advance of housing development. The fieldwork was undertaken during the winter of 2004. During the course of the fieldwork ten Neolithic pits were discovered and recorded. These were of regional importance and therefore required analysis and publication.

The original aim of the investigation was to assess the character and development of the historic landscape in the area to be affected by development, identifying areas of archaeological potential and dating the major stages of enclosure. These objectives were to be addressed by a desk-top study and inspection of an area which had already been

stripped of topsoil in advance of the construction of housing (Cole 2004).

Following the re-stripping of the area by a swing-shovel, inspection revealed ten pits, identified as being of Neolithic date. The pits were rapidly excavated by two HES archaeologists. Each of the pits was plotted onto a site plan, planned and sectioned. Soil samples were taken from all of the pits for palaeoenvironmental analysis. Most of the flints identified were recovered from the samples during flotation (see Lawson-Jones below).

The discovery of Neolithic artefacts within the pits prompted a revised project design which included analysis and publication of the excavated artefacts and deposits. Given the importance of the ceramic assemblage to Early Neolithic studies in the county, the opportunity has been taken to discuss it in detail.



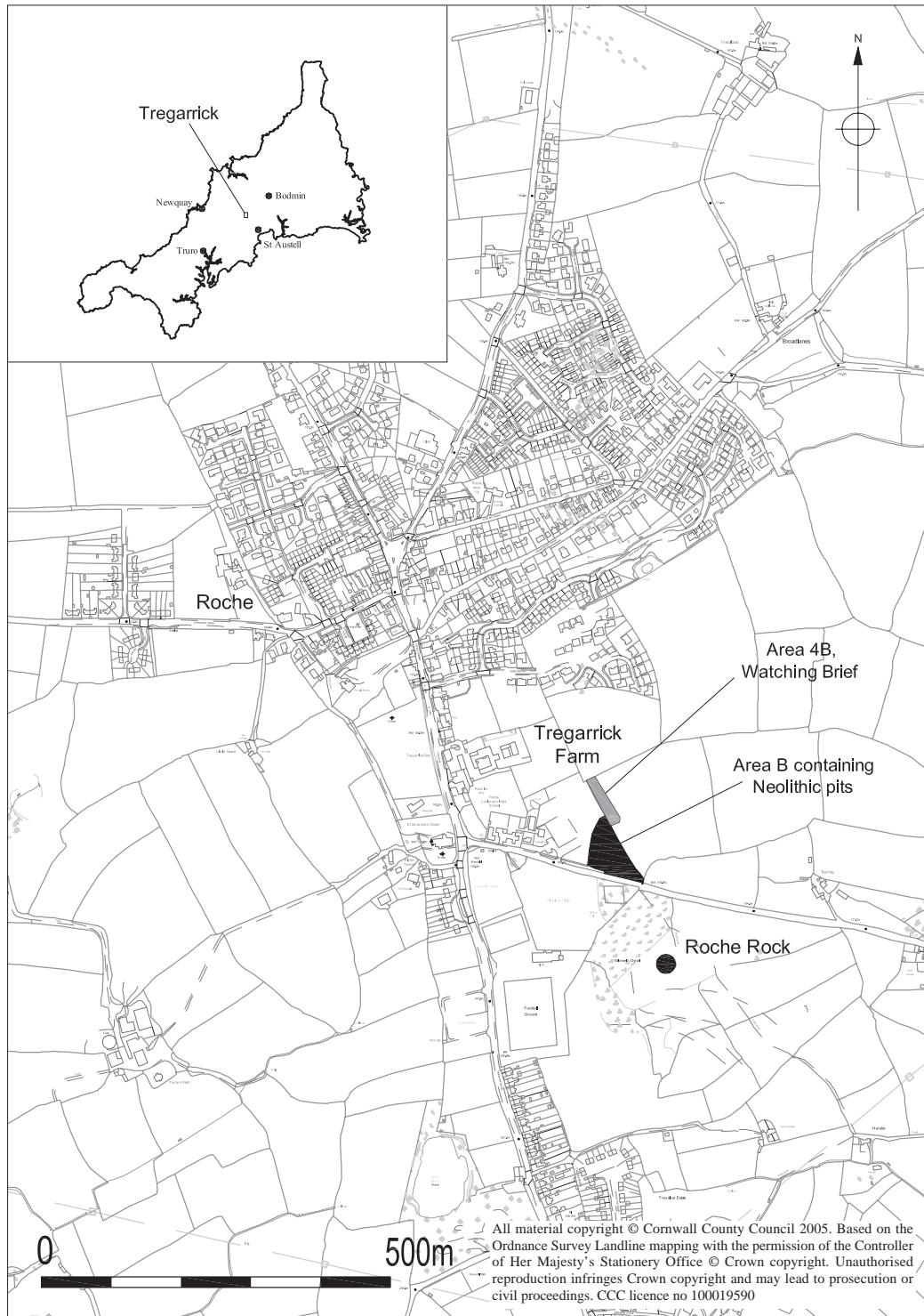


Figure 1 Location map showing the study area

## Location and setting

The site lies on a slight eminence east of the historic churchtown of Roche. It is flanked by open farmland to the east and lies close to the local landmarks of Roche parish church and Roche Rock, the latter situated approximately 180m to the south east (Fig 1). The Rock is a prominent isolated outcrop of jagged granite (Selwood *et al* 1998) which rises dramatically out of the surrounding terrain. The topography falls gently to the north into the Goss Moor basin and rises unevenly to the south towards the granite massif of the Hensbarrow Downs. Prior to the construction and expansion of the village to the north and west, and the development of the china clay industry to the south, the Rock would have formed a major visual focal point in the landscape. The underlying geology of the area investigated by the project is the clays and slates associated with the Devonian Meadfoot Beds (Geological Survey of Great Britain 1973, Sheet 347).

The settlement of Tregarrick was first recorded in 1251. The name is derived from the Cornish place-name elements *tre*, 'farmstead', which suggests an origin in the pre-Norman period, and *karrek*, 'rock' (Padel 1985, 223–232), no doubt referring to its proximity to Roche Rock. St Michael's chapel is situated on top of the Rock. It was built around 1400 and consists of a lower and upper room (Pevsner 1970). The natural rock forms the floor and parts of the walls. The chapel is a Scheduled Monument.

The surrounding farmland was originally associated with the medieval manor of Tregarrick and is characterised as 'Anciently Enclosed Land' (Cornwall County Council 1996). This is made up of farming settlements documented before the seventeenth century AD and field patterns of medieval or earlier origin. Tregarrick is one of a large number of medieval farms in Roche parish, surviving within their associated field groups (Cole 2004).

The prehistoric landscape is less well understood. A handful of round barrows of probable Early Bronze Age date (2000–1500 BC) are documented in the general area and isolated finds of Bronze Age metalwork, including two Middle Bronze Age (1500–1000 BC) spear heads and a tin ingot of uncertain date, have been found to the north of Roche in Goss Moor (Penhallurick 1986, 198–9, 229). No site associated with prehistoric ritual activity has previously been recorded in the immediate vicinity of the Rock, although some activity in the area is indicated by flints found

eroding out of the pathway leading to the Rock (P Rose pers comm). In short, the Rock does not appear to have formed a focal point for the development of a prehistoric monumentalized ceremonial landscape in its near vicinity. If this is the case it is somewhat surprising, given the importance of prominent natural rock formations for the siting of ceremonial monuments elsewhere in Cornwall throughout the Neolithic and Bronze Age periods (Tilley 1995; Tilley and Bennett 2001; Jones forthcoming a). It is possible, however, that the agricultural activity which has taken place in the Anciently Enclosed Land around the monument over the past three millennia and more has masked or removed evidence of such monuments. It may also be that there are monuments at some distance which make visual reference to the Rock. At the same time, however, the context and character of the Tregarrick finds (see below) suggests that there is a 'hidden' prehistoric ceremonial landscape in the near vicinity of the Rock, formed by small-scale structured depositions of artefacts and other deposits within pits.

## The excavations

The area which had been stripped of topsoil in advance of the archaeological assessment was re-stripped under archaeological supervision in January 2004 (Cole 2004). The southern part of this area (Area B) was a single triangular field, recorded as 'Three Corners' on the 1841 Tithe Map for Roche (Fig 1). This area was found to contain ten pits of Early Neolithic date (Table 1). There were also two parallel ditches, [15] and [17], which represented a post-medieval Cornish hedge, a short length of a shallow ditch [36], and a possible post-hole [38]. It is clear that the upper portions of the various pits were truncated to a degree by the topsoil strip.

Most of the subsoil had been removed before the area was subjected to archaeological monitoring, which may account for the lack of unstratified finds. However, although subsequent soil stripping in Areas B and 4B (Fig 1) was closely monitored, no artefacts were recovered from the remaining subsoil.

The pits were located at a distance of around 180m from Roche Rock. A watching brief was carried out subsequently to the north east of Area B (Fig 1, Area 4B), but no further artefacts or features were recovered (Thorpe 2005), suggesting that Neolithic activity was concentrated in the area nearer to Roche Rock. Further pits may exist between the excavated

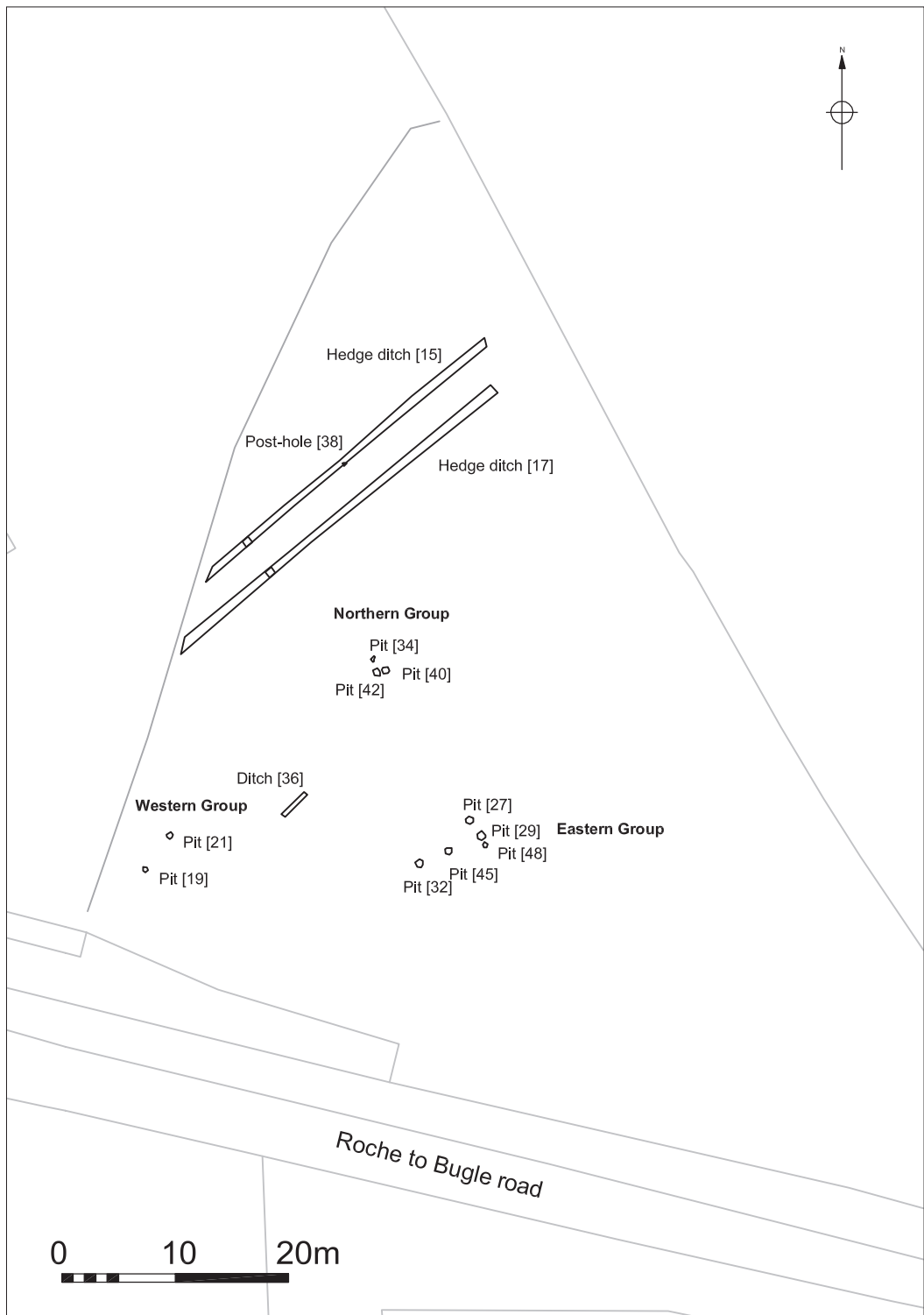


Figure 2 Plan showing excavated pits and features

area and the Rock and it is possible that the Rock is surrounded by similar groups.

The pits were circular and, in consequence of the truncation caused by two topsoil strips, survived only as relatively shallow features. They were clustered in three discrete groups (Fig 2):

- A western group comprising two equally sized pits, [19] and [21].
- A northern group of three pits, one of which, [34], was very truncated. The remaining two, [40] and [42], were quite substantial and positioned immediately adjacent to each other.
- An eastern group of five pits of varying sizes and depths: [27], [29], [32], [45] and [48].

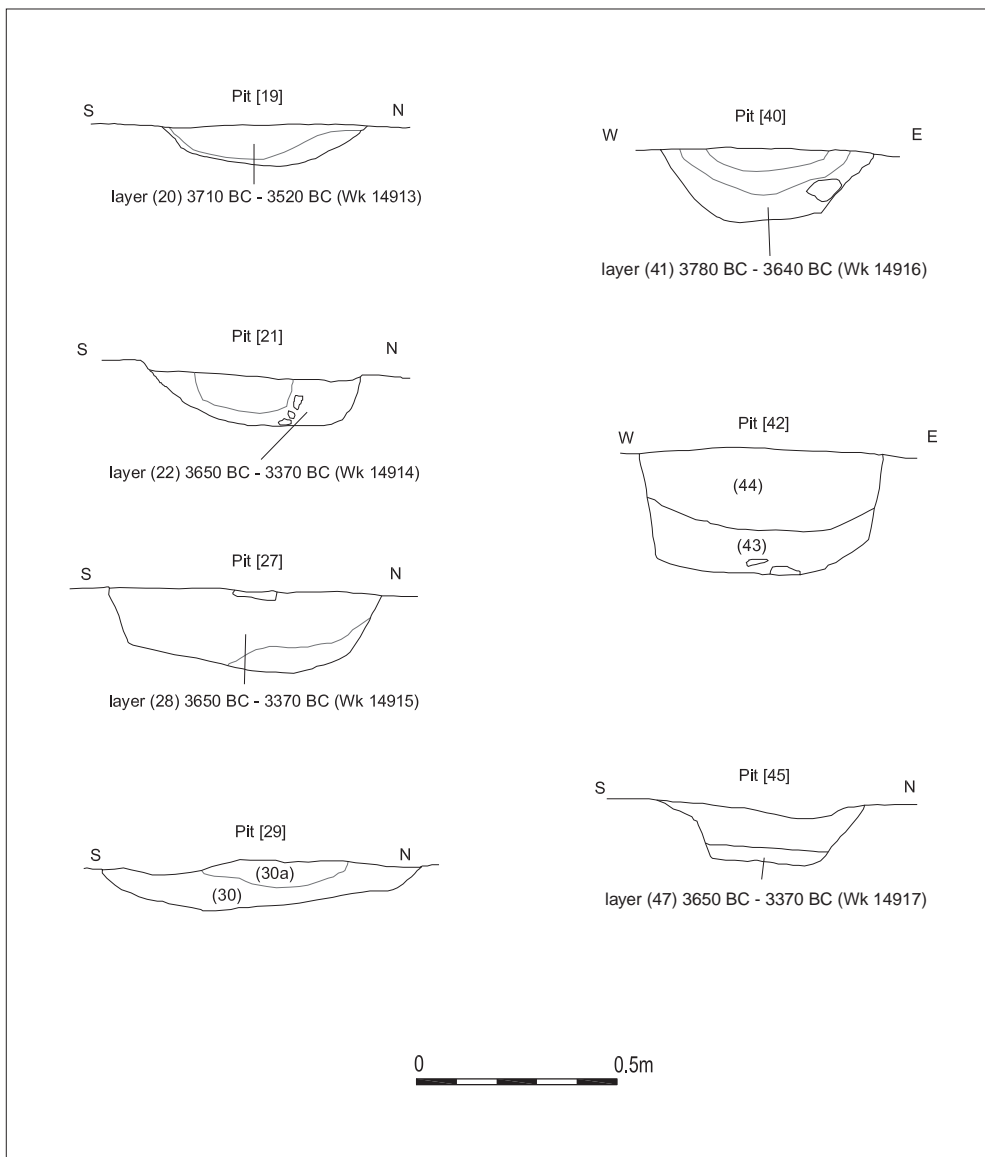


Figure 3 Plan showing sections through excavated pits

**Table 1** Description of Neolithic pits in Area B

<i>Western group</i>	
<b>Pit [19]</b> Filled by (20)	Circular, with a concave base and shallow sloping sides. Diameter 0.52m; depth 0.11m. It contained fill (20), a dark-brown/black silty clay, which appeared redder where it met the base of the cut, perhaps indicating <i>in situ</i> burning. Pottery (P1), a saddle quern (S1) and worked flints were recovered. A radiocarbon determination of 4839±42BP (Wk-14913), 3710–3520 cal BC, was obtained from fill (20).
<b>Pit [21]</b> Filled by (22)	Circular, with a concave base. Diameter 0.49m, depth 0.13m. The western edge had a pronounced slope. The pit was filled by (22), a dark-brown silty clay which contained a large number of slate fragments. There was a considerable amount of charcoal in the eastern part of the pit. A radiocarbon determination of 4775±44 BP (Wk-14914), 3650–3370 cal BC, was obtained from fill (22).
<i>Eastern group</i>	
<b>Pit [27]</b> Filled by (28)	Circular, with a sloping concave base and steeply sloping sides. Diameter 0.78m, depth 0.2m. It contained fill (28), a mid-brown plastic clay which appeared slightly darker at its base and included occasional fragments of charcoal and slate. Sherds of pottery, worked flint, an unworked beach cobble (S2) and a cobble (S3) from a stream were recovered. A radiocarbon determination of 4776±44 BP (Wk-14915), 3650–3370cal BC, was obtained from fill (28).
<b>Pit [29]</b> Filled by (30)	Circular, flat-bottomed pit with gently sloping sides. Diameter 0.8m, depth 0.11m. It contained fill (30), a mid-dark brown plastic clay, and included frequent fragments of charcoal. A pocket of darker soil was visible in the upper part of the pit fill. Worked flints were found.
<b>Pit [32]</b> Filled by (33)	Circular; maximum diameter 0.69m, maximum depth 0.11m. It contained fill (33), a mid-brown silty clay with a number of large pieces of slate. The pit had been greatly disturbed by machinery; most of the fill had been dispersed and had become waterlogged.
<b>Pit [45]</b> Filled by (46) and (47)	Circular, flat-bottomed probable pit-hearth with steeply sloping sides. It had a diameter of 0.52m at the top, decreasing to 0.28m at its base. Maximum depth 0.14m. It contained two fills: top fill (46) and bottom fill (47). Fill (46) was a mid-brown sticky clay with occasional charcoal fragments, 0.10–0.12m deep. Fill (47) was a dark-brown/black plastic clay with frequent charcoal fragments, 0.03–0.04m deep. Fills (46) and (47) contained sherds of pottery (P5, P6, P7) in the upper levels of the deposit, the largest individual assemblage from any of the pits. Flints were recovered from fill (46) and context (47) contained a single quartzite cobble (S4). A radiocarbon determination of 4768±43BP (Wk-14917), 3650–3370 cal BC, was obtained from fill (47). Three small stakeholes were recorded around this pit, suggesting that a structure had been constructed over it. Each of the stakeholes was 0.05m in diameter, tapering to a point less than 0.1m below the ground surface.
<b>Pit [48]</b> Filled by (31)	A very slight, flat-bottomed circular pit. Diameter 0.45m, depth 0.06m. It contained fill (31), a mid-greyish brown firm silty clay containing occasional fragments of charcoal. Sherds of pottery and flints were recovered. A radiocarbon determination of 4908±47BP (Wk-14918), 3790–3630 BC, was obtained from fill (31).
<i>Northern group</i>	
<b>Pit [34]</b> Filled by (35)	A rough, irregular, truncated hollow, which was probably the remains of pit. It measured approximately 0.3m by 0.2m, and was less than 0.1m deep. The fill (35) was a mottled mid-brown silty clay which contained sherds of pottery (P2).
<b>Pit [40]</b> Filled by (41)	Circular, with steeply sloping sides and a flat bottom. Diameter 0.54m, depth 0.18m. It contained a single fill (41), a mid-greyish brown plastic clay containing fragments of charcoal. The pit also included pockets of darker brown clay. Artefacts recovered included worked flints and sherds of pottery (P3). A radiocarbon determination of 4914±40BP (Wk-14916), 3780–3640 BC, was obtained from fill (41).
<b>Pit [42]</b> Filled by (43) and (44)	Circular, with a concave base and near-vertical sides. The most substantial of the ten pits, it was 0.60m wide and 0.32m deep. It contained two fills: the top fill (44) was a dark-brown/black silty clay, containing frequent fragments of charcoal, while the bottom fill (43) was a mid-brown firm clay containing slate fragments. Both layers contained sherds of pottery (P4) and worked flints were found in the bottom layer.

Three small stakeholes (not illustrated) were recorded around pit [45], suggesting that a structure had been present over it. Similar arrangements may have occurred around other pits, the evidence for which was destroyed by removal of the topsoil.

Seven pits contained sherds of Neolithic pottery and flints were found in another seven. Other artefacts included worked stone and rounded stones (Quinnell below).



## Early Neolithic pottery

*Henrietta Quinnell, with petrographic comment from Roger Taylor*

The assemblage (Table 2) consists of 125 sherds weighing 2256g and probably representing some 27 vessels in three fabrics. Fabric 1, gabbroic from the Lizard, has 47 sherds, 626g, from 16 vessels. Fabric 2, ferruginous/vein-quartz locally sourced, has 77 sherds, 1621g, from ten vessels. Fabric 3, granitic derived and locally sourced, has a single sherd, 9g. Fabric 1, gabbroic, therefore forms 37.6% of the assemblage on sherd number and 27.7% on weight, Fabric 2, local ferruginous/vein-quartz, 61.6% on sherd number and 71.8% on weight. However, on vessel count the percentage changes to 59% Fabric 1, gabbroic, and 37% Fabric 2, local ferruginous/vein-quartz; Fabric 3, local granitic derived, has a single vessel (4%).

### Fabrics

#### *Fabric 1 Gabbroic*

All the illustrated vessels in this fabric, that is those with good surviving formal features, are in well-made fabric with sparse or moderate, usually fine, inclusions; some non-illustrated vessels are of similarly well-made fabric. Less well-made fabrics with common and sometimes coarse inclusions are only represented by body sherds. Some vessels appeared to contain vein-quartz which is not a component of gabbroic clays. Two sherds were examined under a  $\times 20$ –40 binocular microscope by R Taylor:

SHERD FROM P3: inclusions *c* 5%

*Feldspar*. Unusually sparse soft white grains 0.1–1.1mm. Some translucent cleaved grains. Fine-grained feldspar occurs in the matrix.

*Magnetite*. Black glossy magnetic grains 0.1–0.5mm.

*Quartz*. Translucent and white angular grains 0.1–1mm.

*Amphibole*. Rare greenish-grey and dark-greenish cleaved grains up to 0.4mm.

*Composite*. Feldspar/amphibole one grain 0.8mm.

*Mica*. Muscovite flakes in the matrix up to 0.1mm.

*Comment* A sparse, fine-grained gabbroic fabric. The matrix appears to contain a lot of fine sand/silt suggesting that this is a loessic gabbroic variant.

BODY SHERD FROM FILL (43) OF PIT [42]: inclusions 10–15%, coarser grains unevenly distributed

*Feldspar*. Altered, soft white angular to rounded 0.1–4mm.

*Magnetite*. Black glossy, magnetic grains 0.1–0.3mm.

*Quartz*. One sub-angular grain of white vein-quartz 4mm, one clear, colourless, angular grain 0.6mm. A few sub-rounded grains about 0.3mm.

*Rock fragments*. Two soft dark angular grains, possibly serpentinite, 0.7mm and 1.5mm.

*Comment*. A gabbroic fabric, Lizard source.

The presence of angular vein-quartz may be noted. While not a component of gabbro, quartz is present in the overlying Crousa Gravels. However, the angular nature of the fragments suggests deliberate crushing and addition. The frequent presence of angular vein-quartz in a range of gabbroic fabrics from Carn Brea has been noted on examination of the assemblage in the Royal Cornwall Museum in Truro.

Gabbroic fabrics accounted for 24% of the vessels at Helman Tor (Smith 1997, 31). A study of the petrology of these fabrics by thin-section by Williams (1997) refers to the presence of quartz and serpentinite (serpentinite) and lays out clearly the current data which allow confident sourcing of gabbroic fabrics to the Lizard.

#### *Fabric 2 Ferruginous/vein-quartz*

These contained varying amounts of ferruginous material, vein-quartz and some rock inclusions. Five sherds were examined under a  $\times 20$ –40 binocular microscope by R Taylor and two subsequently thin-sectioned. Details of the sherds not described below are included in the archive and support the general conclusions about the fabric.

SHERD FROM P1: inclusions *c* 5%

*Quartz*. White to translucent angular fragments of vein-quartz, some partly crystalline 0.5–7mm.

*Rock fragments*. Micaceous slate with silvery sheen, some reddish-brown stained. Tabular fragments mainly with angular to rounded edges 0.25–7mm. There may be very small micaceous slate fragments in the matrix, which are difficult to distinguish from individual muscovite flakes.

*Mica*. Muscovite flakes 0.1–0.3mm. Much fine-grained mica in the matrix.

*Mica*. Biotite as rare brown flakes 0.25mm.

*Comment.* The quartz is very angular and may have been crushed for use as temper. The slate fragments appear to grade in to the clay matrix and could be an original component of the clay. The presence of biotite indicates a source outside but fairly close to the margin of the St Austell granite although there are no other obvious granitic components present.

BODY SHERD FROM PIT [27], FILL (28).  
THIN-SECTION 1: inclusions c 25%

*Microscope examination*

*Ferruginous fragments.* Red hematitic rounded to angular, 0.25–7mm.

*Kaolinised feldspar.* Soft white fragments 0.1–0.5mm.

*Quartz.* Sparse translucent angular and granular grains 0.1–0.8mm. One vein-quartz fragment 0.4mm.

*Rock fragments.* Aplite 0.75–8mm. Micaceous slate, one rounded grain 3.5mm, one angular grain 0.5mm.

*Mica.* Muscovite, mainly fine flakes in the matrix with a few flakes up to 0.25mm.

*Mica Biotite,* one flake 0.2mm.

*Thin-section 1*

*Ferruginous fragments.* Opaque to reddish-brown and orange-brown, angular to sub-rounded 3mm.

*Kaolinised feldspar.* 0.3–0.7mm.

*Quartz.* Angular grains 0.1–0.7mm. Some grains are stained indicating a sedimentary origin.

*Rock fragments.* Fine-grained quartzitic sandstone 8mm. Hornfels 0.5–6mm, micaceous slate 0.5–1.75mm. Fine-grained quartz feldspar (aplite), one grain 0.6mm.

*Mica.* Flakes in the matrix 0.05–9.1mm.

*Comment.* A form of granite-derived temper with a kaolinised granite source. The sparse quartz and mica content is unusual. A local source with material derived from the St Austell granite is likely. The rock fragments and minerals identified are all likely to have been present within the clay. The hematitic fragments probably result from the oxidation of limonite fragments during firing.

SHERD FROM P4. THIN-SECTION 2:  
inclusions c 10%

*Microscope examination*

*Ferruginous fragments.* Soft red hematitic, angular to rounded 0.1–4mm, mainly less than 1mm.

*Feldspar* Altered soft white angular grains 0.2–1mm.

*Quartz.* Sparse, irregular, angular, translucent colourless grains, 0.2–0.8mm.

*Rock fragments.* Micaceous slate, a few tabular rounded grains, up to 1.2mm. Fine-grained aplitic granite, some altered, a few angular to sub-angular fragments, 1–4mm.

*Mica.* Muscovite flakes up to 0.2mm, mainly in the matrix.

*Thin-section 2*

*Ferruginous fragments.* Reddish-brown, opaque to translucent. Irregular, angular to sub-rounded 0.1–2.5mm. One encloses quartz grains.

*Feldspar.* Sericitised/kaolinised sub-rounded grains 0.1–0.3mm.

*Quartz.* Angular grains 0.05–0.3mm.

*Rock fragments.* Fine-grained quartzose hornfels, with interlocking grains and biotite hornfels 0.2–0.75mm.

*Mica.* Muscovite, scattered laths 0.3mm.

*Amphibole.* Three 0.5mm aggregates of light brownish green grains.

*Comment.* A form of granite-derived clay, although the sparseness of mica is unusual. The ferruginous fragments were probably limonite grains associated with the clay. Inclusions predominantly derived from hornfels of the St Austell granite aureole with a minor granitic input.

Fabric 2 appears to be sourced from around the edge of the St Austell granite and therefore local to the site. The petrological examination revealed that the sherds studied in fact had two slightly different sets of inclusions: ferruginous material only accompanied by small quantities of vein-quartz, and large quantities of vein-quartz without the ferruginous fragments. However, re-examination of all sherds with a hand lens has confirmed the general appearance of the fabric as a single broad range which it is not possible to separate with any confidence. Occasional vein-quartz is present in ferruginous vessels such as **P4** and tiny oxidized flecks occur on **P1**.

Study with a hand-lens of material from Helman Tor in the Royal Cornwall Museum indicated that Fabric B with ferruginous inclusions and Fabric C with vein-quartz (described as quartzite: Williams 1997) overlapped, with both types of inclusions occurring, as at Tregarrick Farm, in the same sherd. The general appearance of these Helman Tor fabrics appeared similar to the Tregarrick Farm Fabric 2. Williams' description of Helman Tor Fabric B is virtually identical to that of thin-sections 1 and 2; a possible source for this fabric on Red Moor, to the north east of Helman Tor, was suggested as a possibility but there seems no reason why the Helman Tor material should not originate from the edge of the St Austell granite. Williams' description of Helman Tor Fabric C is compatible with that of **P1** from Tregarrick Farm. A source in the contact metamorphic zone to the east of Helman Tor was tentatively suggested but again the fabric could come

from the edge of the St Austell granite. It is possible that the distinction at Helman Tor resulted from sherds at either end of the broad fabric range being selected for thin-section examination. Fabric B accounted for 65% of the vessels at Helman Tor and Fabric C 7%, as opposed to the 37% of Fabric 2 vessels at Tregarrick Farm.

### *Fabric 3 Granitic derived*

SINGLE SHERD FROM PIT [42] FILL (4),  
THIN-SECTION 3

*Microscope examination.* Inclusions very common; proportions cannot be adequately estimated because of the high mica content.

*Feldspar.* Soft white grains, probably partly kaolinised 0.1–0.5mm, mainly around 0.1mm.

*Rock fragments.* Sparse greyish-green, sub-angular, indeterminate, up to 1.5mm

*Quartz.* Rare angular grains 0.25mm.

*Composite.* Quartz/feldspar, a few sub-angular grains 0.5–1mm.

*Mica.* Muscovite flakes up to 2.5mm abundant in the matrix.

*Mica.* Biotite flakes up to 0.5mm common in the matrix.

### *Thin section 3*

*Feldspar.* Orthoclase as sericitised angular grains 0.3–0.6mm. Some kaolinised feldspar grains. A single angular grain of fresh plagioclase seen.

*Rock fragments.* Very fine-grained angular quartz, probably hornfels, rare 0.3mm.

*Quartz.* Relatively sparse angular grains 0.05–0.1mm.

*Mica.* Biotite, very fine brown pleochroic laths in the clay matrix 0.05–0.15mm. Biotite aggregates composed of grains of similar size to those in the matrix, sub-rounded, irregular 1.2mm. Biotite laths altered to colourless chlorite some bent and distorted 0.6–0.75mm.

*Chlorite.* Colourless laths 0.1–0.3mm.

*Mica.* Muscovite

*Amphibole.* Bluish-green angular grains 0.15–0.2mm. One composite amphibole/quartz/feldspar grain 0.5mm.

*Comment.* A mica-rich temper of granite-derived type. The high mica and low quartz content may indicate that altered mica-rich hornfels is incorporated in the clay body, although no sedimentary fragments are apparent. A local source is probable.

The thin section shows that the mineralogy is complex and derived from sources which include granitic material and a biotite-rich hornfels with some input from a probable calc silicate hornfels. All these sources are available in the metamorphic aureole to the west of the Tregarrick site. The variety

and overall very fine grain size of the mineral components suggests that these were originally present in the clay rather than added as temper.

The granitic-derived Fabric D at Helman Tor has a slightly different mineral suite with prominent tourmaline and was suggested as having a source fairly local to that site (Williams 1997). It represents the same proportion of the assemblage there, 4%, as Fabric 3 does at Tregarrick Farm.

### **Pit groups**

In *vessel number estimation* (Table 2) it has been assumed that sherds of each fabric from the separate pits come from separate vessels as there are minor fabric differences in all cases and no specific linking features to support the presence of parts of a vessel in more than one pit.

*Abrasion* varies very much. In some cases very fresh breaks indicate the likelihood that conditions prohibited retrieval of all material present. The discolouration and slight appearance of wear around the edge of sherd groups which have cracked *in situ* provide a useful indication of the amount of *in situ* alteration caused by ground water movement and bioturbation processes. Where sherd edges are described as abraded, the alteration is greater than this and appears to indicate that sherds were not freshly broken when deposited.

All pits which contain ceramics have sherds in both principal fabrics. Fabric 1 gabbroic sherds are generally more abraded than the local Fabric 2 material. This and the fact that more vessels are represented by a smaller collection by sherd count and weight in Fabric 1 than Fabric 2 may indicate factors of curation which retained more of the non-local gabbroic Fabric 1 than the local Fabric 2.

*Pit [19] fill (20)* Wk-14913, 3710–3520 cal BC (95.4% confidence)

**P1** (Fig 4). Simple small bowl, Fabric 2 local, with pointed rim, finger modelled in places. Exterior 5YR 5/6 yellowish-red, interior and core 5YR 4/1 dark grey. Interior preserves smoothing marks; exterior surface less well-preserved, almost certainly because this has been laid uppermost and exposed to *in situ* degradation processes. Six joining sherds have fresh breaks from *in situ* cracking; two sherds with a similar fresh break between them join this block but their edges and spaces between the two groups when joined indicate deposition as two separate sherds.

**Table 2** Details of pottery from pit fills (\*\*Pit 42/43 contains one Fabric 3 sherd)

Pit/fill	Fabric 1			Fabric 2		
	Sherds	Weight (g)	Vessels	Sherds	Weight (g)	Vessels
[19]/(20)	1	2	1: abraded	9	47	1: <b>P1</b> deposited as three fresh sherds
[27]/(28)	1	8	1: slightly abraded	3	79	2: two fresh sherds from one vessel; sherd with lug fragment from second vessel
[34]/(35)	2	9	2: <b>P2</b> lug abraded; fresh sherd from second vessel	2	29	1: two fresh sherds, one with lug fragment
[40]/(41)	7	33	3: <b>P3</b> one abraded sherd cracked into five: two others, abraded, from separate vessels	11	67	2: four sherds including possible rim from one vessel; seven sherds from second; all deposited fresh
[42]/(43)**	5	54	3: one with abraded sherd cracked into two; others fairly fresh body sherds	9	155	2: <b>P4</b> , two sherds abraded, remainder fresh, both lugs present; also abraded Fabric 3 sherd
[45]/(47) lower	14	292	3: <b>P5</b> Pot D deposited as one fresh sherd cracked into ten; <b>P6</b> three slightly abraded non-joining sherds; Pot A abraded sherd	6	333	1: <b>P7</b> Pots B, C, E join; one other non-joining sherd, deposited as three slightly abraded sherds
[45]/(46) upper	9	63	2: two body sherds from separate vessels, one abraded, one fresh	34	891	1: one vessel with four slightly abraded sherds; remainder almost certainly from <b>P7</b>
[48]/(31)	8	165	1: <b>P8</b> rim and body sherds, all fairly fresh	3	20	1: slightly abraded sherds
<b>Totals</b>	<b>47</b>	<b>626</b>	<b>16</b>	<b>77</b>	<b>1621</b>	<b>10 + 1 Fabric 3</b>

The ninth sherd does not join and its fabric is mostly yellowish-red throughout; this appears to be a non-joining sherd from further down the vessel. Three fresh sherds from the same vessel were deposited together.

Also a single abraded Fabric 1 gabbroic sherd.

*Pit [27] fill (28)* Wk-14915, 3650–3500 cal BC (84.1% confidence)

Two vessels in local Fabric 2 represented by two fresh body sherds from one and a fresh sherd with part of a lug from the second; the lug was imperforate, elongated with a rounded profile.

Also a single slightly abraded Fabric 1 gabbroic sherd.

*Pit [34] fill (35)*

**P2** (Fig 4). Trumpet lug, Fabric 1 gabbroic well-made, abraded. Generally 5YR 5/6 yellowish-red but some core 5YR 4/1 dark grey; traces of black coating survive on lug surface. Fabric is distinctive in that it shows very few inclusions. Lug is the narrowest

version of trumpet lugs as classified by Smith (1981a, fig 66) in the study of the Carn Brea assemblage.

Also another fresh sherd indicates a second vessel in Fabric 1 gabbroic.

Also vessel in local Fabric 2 represented by two fresh sherds; one sherd has the end of an elongated imperforate lug with rounded angular profile and possible traces of black coating or residue.

*Pit [40] fill (41)* Wk-14916, 3780–3640 cal BC (95.4% confidence)

**P3** (Fig 4). Bowl, Fabric 1 gabbroic well-made, deposited as one abraded sherd but cracked into five. Generally 5YR 5/6 yellowish-red but patches of exterior 5YR 4/1 dark grey. Pointed rim with slight finger-modelled groove beneath on interior. Smoothed surfaces with black coating well-preserved on exterior, less well on interior; definite wear on rim. Vein-quartz inclusions very sparse and less than 2mm.

Also similar rim, Fabric 1 gabbroic, rather thicker, abraded, and abraded body sherd from third gabbroic vessel.

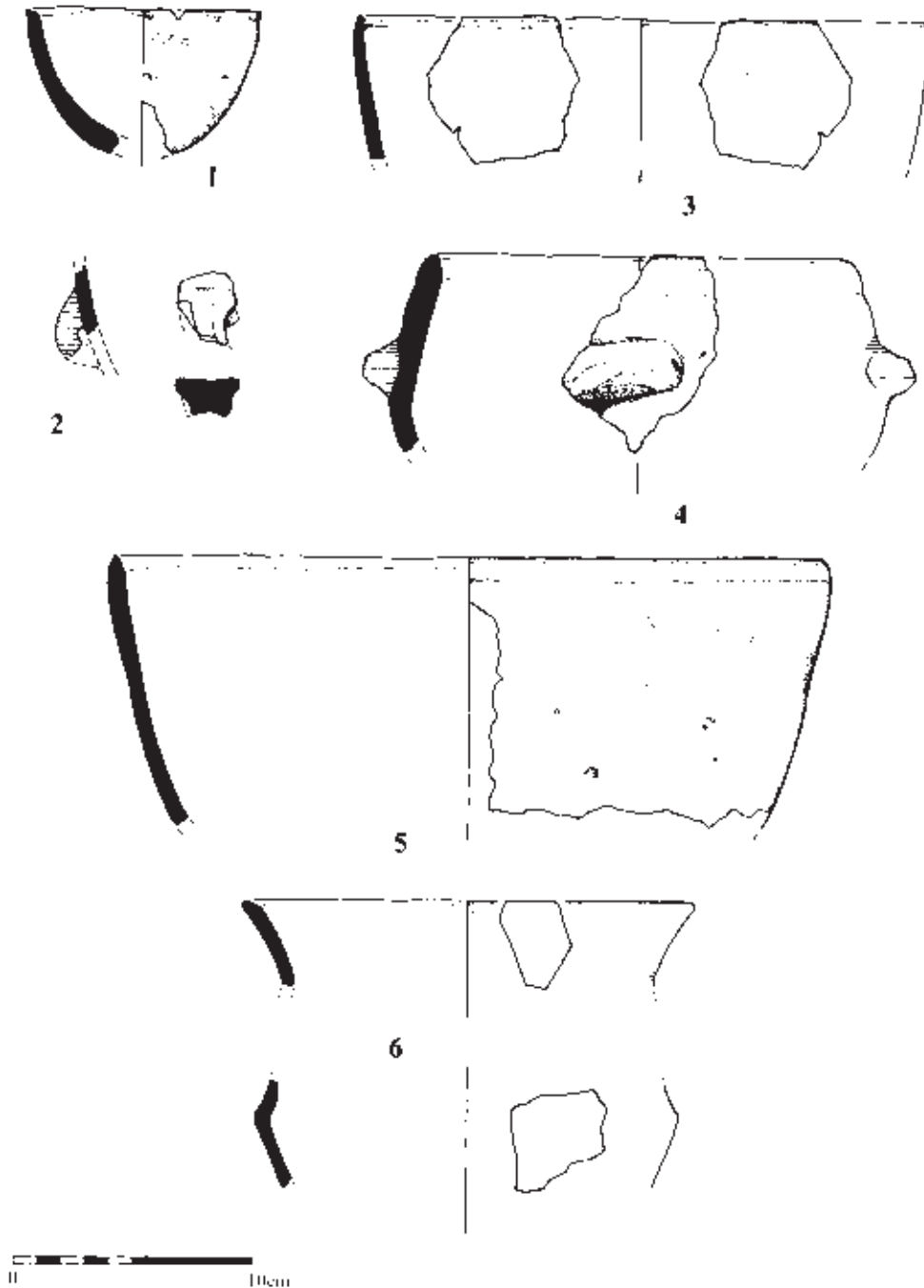


Figure 4 Early Neolithic pottery. Scale 1:3. Drawing C Thorpe. **P1** pit [19] Fabric 2 local; **P2** pit [34] Fabric 1 gabbroic; **P3** pit [40] Fabric 1 gabbroic; **P4** pit [42] Fabric 2 local; **P5** and **P6** pit [45] Fabric 1 gabbroic.



Also two local Fabric 2 vessels represented by four and seven fresh body sherds respectively.

*Pit [42] fill (43)*

**P4** (Fig 4). Closed bowl in local Fabric 2, irregularly modelled rounded rim, both lugs represented. Generally 5YR 5/6 yellowish-red but parts of exterior 5YR 4/3 reddish-brown with 5YR 6/4 light reddish-brown patches beneath. Very poorly finished. One sherd has rim and oval lug with irregularly rounded profile. Second sherd has rim only. Third sherd has parts of second lug; several other sherds have broken off from this. All these sherds appear fresh but one sherd, similar in fabric, is abraded in parts, possibly due to position in ground.

Also abraded Fabric 1 gabbroic body sherd cracked into two pieces, and four rather fresher body sherds probably from two separate vessels.

Also single abraded sherd Fabric 3.

*Pit [45] lower fill (47)* Wk-14917, 3650–3500 cal BC (82% confidence)

The presence of different vessels was apparent during excavation and the positions of the larger sherds were recorded, designated Pots A–E.

**P5** (Fig 4). Pot D Side of well-made Fabric 1 gabbroic bowl, pointed rim. Deposited as one sherd but cracked into ten, external edges very slightly abraded with slight colour change to 5YR 3/2 dark reddish-brown. Exterior 5YR 3/1 very dark grey with light burnish and patch of black coating: consistent zone of wear just below rim. Interior 5YR 5/6 yellowish-red at top changing to 5YR 3/1 very dark grey at surviving base, good burnish at top; core 5YR 3/1 very dark grey.

**P6** (Fig 4). Three non-joining sherds from rim, neck and angle of a neutral carinated bowl, well-made Fabric 1 gabbroic, all with slight but varying degrees of abrasion. Generally 5YR 4/4 reddish-brown throughout. Exterior has good burnish and patches of black coating, interior burnished below rim. Traces of wear on rim.

Also Pot A abraded Fabric 1 gabbroic body sherd.

**P7** (Fig 5). Large bag-shaped lugged vessel with slightly inflected shape, local Fabric 2. The five joining sherds were deposited as two slightly abraded sherds: Pot E has cracked into three; the second has cracked into Pots B and C. The arrangement of sherds in the pit makes it clear that

this was deliberate separation: Pot E and Pots B/C had been placed so that the edges representing the lowest part of the vessel were opposite each other. The non-joining sherd is allocated on fabric similarity. The vessel has a flat but irregular finger-modelled rim and one surviving prominent elongated oval lug with an irregular pointed profile. Exterior surface roughly smoothed with traces of black coating or, just possibly, charred organic residue. Top of rim slightly worn. 5YR 5/6 yellowish-red with 5YR 4/1 very dark grey core in lower part of vessel.

*Pit [45] upper fill (46)*

*Fabric 1 gabbroic*, nine body sherds from two vessels, one abraded, one fresh.

*Fabric 2 local*, 18 fairly fresh body sherds appear on fabric to belong to **P7**; 16 slightly abraded sherds come from a second vessel.

*Pit [48] fill (31)* Wk-14918, 3790–3630 cal BC (95.4% confidence)

**P8** (Fig 5). Five rim and three body sherds from bowl, Fabric 1 well-made gabbroic. Generally fresh but edges slightly altered as in **P5**. (Fresh breaks indicate that not all this vessel was retrieved). Generally 5YR 4/1 very dark grey, interior 5 YR 4/3 reddish-brown. Rim pointed with finger-modelled groove on part of interior; joining sherds indicate irregularities with slight external bevel. Both surfaces burnished with black coating on exterior. Body sherd, probably towards base of bowl, shows wear.

Also three slightly abraded sherds from same vessel in local Fabric 2

## Discussion

Tregarrick Farm is the fifth Early Neolithic assemblage to be published from Cornwall. The others are those from the tor enclosure at Carn Brea (Smith 1981a), which is entirely gabbroic, from the tor enclosure at Helman Tor (Smith 1997), with gabbroic, ferruginous, vein-quartz and tourmaline/granitic derived fabrics, from a group of three pits at Poldowrian (Smith and Harris 1982, 47, fig 18) and from surface collection at Polcoverack (Smith 1987, 51–6, fig 22), both of which have only gabbroic fabrics and come from within the gabbro outcrop area of the Lizard. Small assemblages from pit groups awaiting publication at Trenowah, St Austell

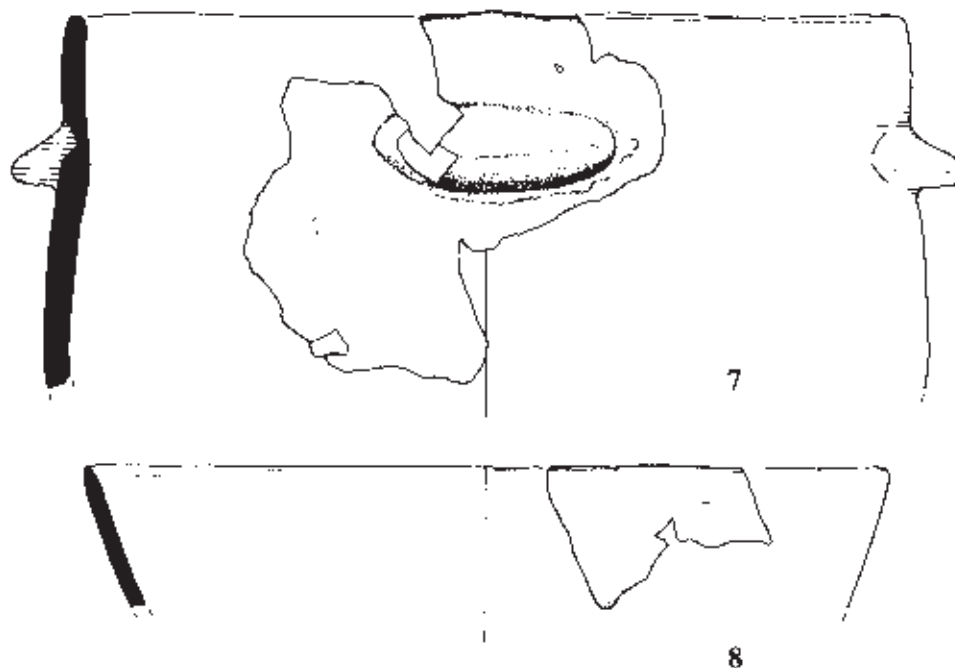


Figure 5 Early Neolithic pottery. Scale 1:3. Drawing C Thorpe. **P7** pit [45] Fabric 2 local, **P8** pit [48] Fabric 1 gabbroic

(Quinnell in Johns forthcoming), and Penhale, Indian Queens (Quinnell in Nowakowski 1998), show the presence of other fabrics: vein-quartz sourced to the Gramscatho Beds between St Austell and Truro at the former, and a slate-tempered fabric together with gabbroic vessels at the latter. While the use of gabbroic fabric for the best-made vessels and those exchanged over the greatest distance continues to present a consistent pattern, the identification of additional fabrics with probable limited areas of exchange may be expected to increase with the recognition of new sites. From this may come the identification of more complex patterns of fabric use and deposition.

A number of other sites in Cornwall also have Early Neolithic ceramics, which may be usefully listed here to emphasise the rich scope of material becoming available for study. Most of this is awaiting analysis or full publication. The gabbroic sherds from Gwithian have been long known and are now in the process of analysis (Nowakowski 2004). A gabbroic sherd has been identified at Tremough (Quinnell 2002) and a group of pits at Portscatho, near Gerrans, has produced both gabbroic material and local fabrics with slate and vein-quartz (Quinnell

2003). Small groups of sherds have come from Church Close, Mitchell (Quinnell 2004), and from Trelvague Head (Quinnell in Nowakowski 2003), both in vein-quartz fabric. Finally, there is material in granitic fabric from the Isles of Scilly: simple bowls from East Porth on Samson and Old Quay on St Martin's and body sherds from five other separate locations (Quinnell 1994).

Cleal (2004) has recently suggested that the spread of gabbroic ceramics across southern Britain may be a feature of the expansion of Neolithic activity around 3650 BC which included the development of causewayed and tor enclosures. In the same paper she argues cogently that the radiocarbon determinations from both Carn Brea and Helman Tor are best interpreted as covering several centuries of activity after 3650 BC. The radiocarbon determinations from Tregarrick Farm suggest that its pits may date in two groups, from the 38th to 37th centuries BC and from the 37th century to 3500 BC. The presence of abraded gabbroic **P3** in pit [40] with a determination of 3780–3640 BC (Wk-14916) and fresh **P8** in pit [48] dated to 3790–3630 cal BC (Wk-14918) provides a fair probability that gabbroic vessels were circulating within Cornwall during the

38th century BC, the earliest reliable date we have for any forms of Neolithic material culture within Cornwall. These dated pit groups also show that the local Fabric 2 was in use by this date alongside gabbroic material.

The forms at Tregarrick Farm from pits [40] and [48] with early radiocarbon determinations are restricted to the simple but very well made gabbroic bowls **P3** and **P8**; the unillustrated material from these pits gives no real indication of vessel form in either gabbroic or local fabrics. These thin-walled gabbroic bowls are therefore the only form securely dated to before 3650 BC. These bowls also occur later both at Carn Brea (Smith 1981a, fig 71) and Helman Tor (Smith 1997, fig 7), and are also represented at Tregarrick Farm by **P5** from pit [45] with a radiocarbon determination of 3650–3500 BC (Wk-14917). Pit [45] also contains the gabbroic carinated bowl **P6** and the local fabric, lugged, bag-shaped vessel **P7**. Carinated bowls in gabbroic fabric occur at Carn Brea (Smith 1981a, fig 68) and at Helman Tor in both local and gabbroic fabrics (Smith 1997, fig 7, 31–2). The form of **P7** again occurs both at Carn Brea and Helman Tor, at the latter in local fabrics. Pit [42] with lugged bowl **P4** does not have a radiocarbon determination but the form occurs at both the tor enclosure sites. There is no date for the trumpet lug **P2** from pit [34]. This feature, so distinctive of the Early Neolithic south-western ceramic style, can therefore not be dated at present before around 3650 BC. There are numerous gabbroic examples at Carn Brea and these lugs with simple bowl sherds are the only distinctive components of the Poldowrian (Smith and Harris 1982, fig 18) and Polcoverack (Smith 1987, fig 22) assemblages. At Helman Tor the only examples are in the local ferruginous Fabric B (Smith 1997, 32). The remaining illustrated vessel from Tregarrick Farm, the small cup **P1**, comes from pit [19] with no radiocarbon determination; there are many gabbroic examples at Carn Brea and some in both gabbroic Fabric A and ferruginous Fabric B at Helman Tor (Smith 1997, 29), the latter including some with even smaller diameters than **P1**.

The black coating on several of the Tregarrick Tor vessels is a regular feature at both Carn Brea and Helman Tor. The report on Carn Brea includes a detailed study (Smith 1981a, 170) which concluded that it was ‘most likely a carbon paint of the type that can be obtained from concentrated plant extract or some other organic substance which will char when heated’. The presence of black coating on **P3** from

pit [40] demonstrates that the practice of using this paint was already present in the 38th century BC.

This discussion has concentrated on identifying forms and traits which can be assigned with reasonable confidence to the 38th BC; that is, the fine open bowl form in gabbroic fabric, the presence of local ferruginous fabric and the use of black ‘paint’. (It should be noted that the carinated bowl **P6** does not fall into this early group, despite the arguments put forward by Herne (1988) for its primacy in the Early Neolithic ceramic sequence in much of Britain, extensively adopted but now refuted by Cleal (2004)). It is not suggested that these features represent any kind of ‘early horizon’, simply that they are features which can be assigned an early date. It is likely that at least some of the wider range of forms represented in the other pits, some with later dates and some undated, were already in use by the 38th century BC, and that the south-western pottery style so well represented a little later at Carn Brea had already developed by this time. Any further conclusions must await further dates from other sites yet to be identified or studied. It cannot be too strongly stressed, given the amount of print used arguing about developments within Early Neolithic ceramic styles, that, to be useful, future dates need to be very carefully considered for potential accuracy. Broad-brush dating to somewhere within the fourth millennium BC is no longer helpful.

The Tregarrick Farm radiocarbon determinations indicate that its later pits may well have been contemporary with at least the earlier use of Helman Tor. It has been suggested above that the ferruginous Fabric B and the vein-quartz Fabric C from that site may be identical with material in the range of Fabric 2 at Tregarrick Farm. Implicit in this suggestion is the production of Helman Tor material from clays sourced on the edge of the St Austell granite and exchanged over a distance of 7–10km. These fabrics formed 72% of the Helman Tor assemblage, as opposed to 37% at Tregarrick Farm. If further study demonstrates that the fabrics from these two sites do not come from the same sources, the visual similarity between the fabrics from the two sites surely indicates the selection of sources for materials which would produce the same results – it seems unlikely that such similarity in appearance in pottery deposited at two sites so close together could have been a matter of chance. The symbolic importance of ceramic inclusions has recently been highlighted, especially by Woodward (2002), and the mixture of

red and white, the ferruginous and the vein-quartz, and perhaps the feldspar in gabbroic fabrics, may have had significance beyond basic practicalities. A similar visual appearance with mixed white and red was a feature of the Carboniferous vein-quartz fabric which was the principal component of pottery from the Raddon causewayed enclosure in Devon and also a major feature of the Hembury assemblage from over 20km further east (Quinnell 1999).

Despite the sequence of dates, the Tregarrick Farm assemblage is too small for conclusions to be drawn about changes in vessel form or in depositional practice. Comment can only be made regarding similarities in practice which may have extended over the three centuries from the 38th to the 36th BC. It is surely not a matter of chance that all the pits with pottery contain both gabbroic Fabric 1 and ferruginous/vein-quartz Fabric 2. However, much more of gabbroic Fabric 1 than local Fabric 2 was abraded, indicating that more broken vessels were curated, whether stored in middens, in containers in the home or in some other way. Gabbroic Fabric 1 represents more vessels than Fabric 2, 16 as opposed to 10, but has fewer sherds, 47 as opposed to 77. Therefore a smaller part of each gabbroic vessel present was retained to be deposited than was the case for the local vessels, and this may be telling us that, for gabbroic vessels, longer and more complex curation procedures were in place than for those in local fabric. This appears to be an appropriate difference in treatment for finely made vessels procured from some 60km away and for those manufactured from local materials. The single sherd of granitic derived Fabric 3 is abraded although locally made, and of course some of the local Fabric 2 material was abraded. The significance of this with regard to curation and structured depositional practices is unclear.

With regard to the possible symbolic aspects of ceramic inclusions and appearance referred to above, a vessel with sparkling micaceous appearance may have been regarded differently to those with only noticeable white or red inclusions. Here the small quantity of granitic-derived vessels from Helman Tor, 4% or four vessels, may be relevant (Smith 1997), as may the 5% at the Devon causewayed enclosure of Raddon with 6% gabbroic and 89% vein-quartz. Again there is a broad tripartite representation of fabric groups, gabbroic, vein-quartz/local, and granitic, in a range of Devon sites west of the Exe (Quinnell 1999).

Another aspect of structured deposition is evidenced by the deliberate placing of sherds from

**P7** in pit [45] so that the sherd edges representing the lower parts of the vessel faced each other.

Closed pit groups provide ideal conditions for the study of depositional practices, their contents not subsequently disturbed and, where the materials involved have not been subject to decay, preserving intact the material culture evidence for these practices. The difference in conditions makes comparison with practices at the tor enclosure at Helman Tor difficult, because the longer use of the enclosure site with resultant complex accumulating stratigraphy creates difficulties with the identification of specific events. Comparison is also complicated by its probable longer and certainly rather later stratigraphy. The proportions of gabbroic vessels present, 24% at Helman Tor as opposed to 59% at Tregarrick Farm, certainly indicates one broad difference. A detailed comparison, based on an extensive examination of the Helman Tor archive, is beyond the scope of the present report but might well be undertaken with profit. The whole question of potential behavioural differences at enclosure sites and at locales only marked by pit deposits will form a useful and important subject for future research.

## Stone artefacts

*Henrietta Quinnell, with petrographic comment by Roger Taylor*

### *Pit [19] fill (20)*

**S1** (Fig 6). Small quern. Flat slab, maximum thickness 30mm, used for grinding on both sides. Broken across when wear reduced thickness to less than 3mm. On one side part of a worn oval survives, 5mm deep and 80mm across and at least 120mm long, with facets around edge and some striations. On the other side, part of a much larger hollow 25mm deep and surviving 160mm in length and 70mm in width, again with striations, not all of which appear to follow irregularities in the rock. The size of the more complete hollow is very much smaller than that found on saddle querns used for grinding cereals. As hazelnuts have been found in the flots, **S1** might have been used in their preparation.

*Petrographic description.* Medium-grained reddish-brown micaceous sandstone showing small-scale cross bedding.

*Petrographic comment.* The sandstone is relatively soft: this, and the small size of the object and the depressions, suggests that it could have been used for processing items

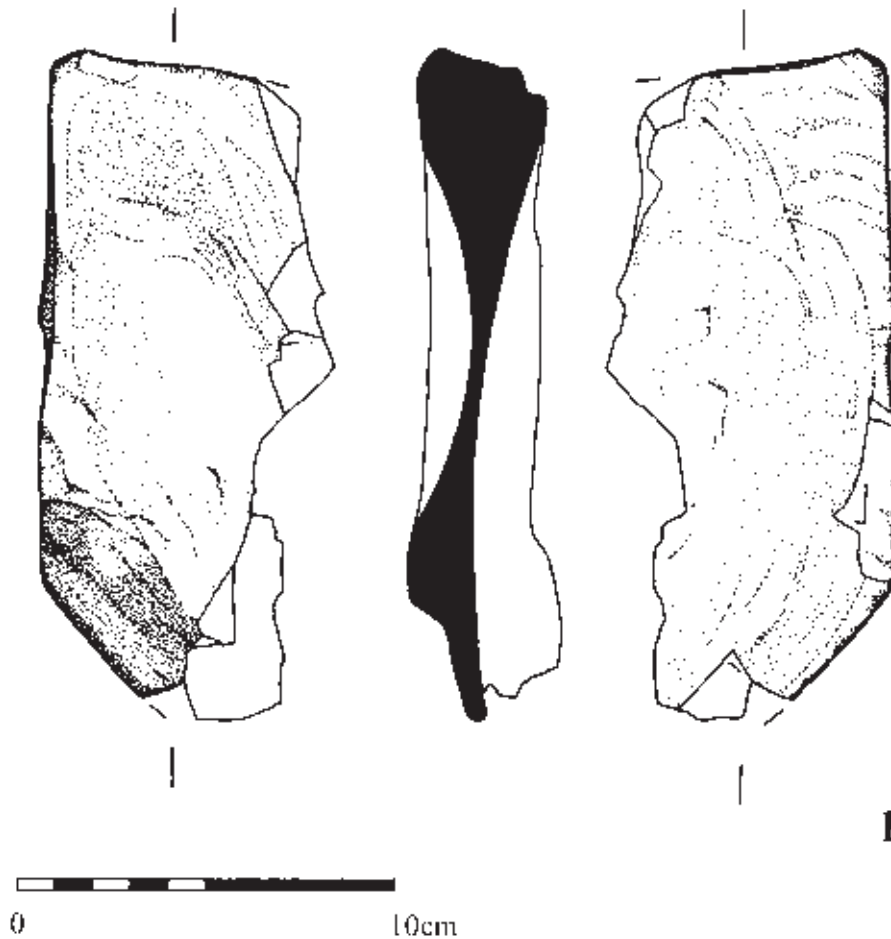


Figure 6 S1 double sided small quern, pit [19]. Drawing C Thorpe

such as herbs rather than harder materials. A possible source is the Dartmouth Group exposed in Watergate Bay, some 15km to the west.

*Pit [27] fill (28)*

**S2** (not illus). Oval cobble of aplite with narrow quartz veins, 105mm by 65mm by 50mm; flattened patches on both surfaces appropriate for use in smoothing leather or similar task rather than grinding. It could have had a little use, despite showing no use-wear signs, or could have been selected for use but never used.

*Petrographic description.* Very fine-grained quartz, feldspar, muscovite and a scatter of black tourmaline grains.

*Petrographic comment.* Cobble of local origin with no indications of use-wear. The high degree of rounding is

unusual for the locality and presumably indicates that, despite the petrology, it derives from a beach rather than a stream.

**S3** (not illus). Oval cobble of rough textured schorl rock, 85mm by 55mm by 50mm. Surface rough and disintegrating due to the character of the rock so that no use-wear, if ever present, survives.

*Petrographic description.* An aggregate of prismatic crystalline brown to black tourmaline (schorl) in translucent to clear granular quartz.

*Petrographic comment.* A cobble of local stream origin with no surviving use-wear.

*Pit [45] fill (47)*

**S4** (not illus). Hammer-stone with limited use. Rhomboidal beach quartz cobble 90mm long, 75mm



wide and 38mm thick. Small areas of battering at both ends and just possibly on the sides.

*Petrographic description.* Vein-quartz beach cobble.

*Petrographic comment.* In addition to the areas of battering the cobble retains 'chatter marks' from damage in high-energy water; that is sea waves, which can easily be confused with marks from use as a hammer-stone.

#### *Comment*

The stonework indicates contact with the coasts of Cornwall. While **S2** and **S4** could have come from the nearer south coast about 10km from the site, **S1** is likely to derive from the north coast some 15km away. The lack of use-wear on **S2** and **S3** need not mean they had never been used, only that any use was extremely limited and not of a nature to cause damage such as that from percussive action. Very short episodes of use for actions such as the working of hide for leather would be entirely possible. The presence of three beach and stream cobbles is of interest. The enclosure at Helman Tor seven kilometres to the east did not produce any (Roe 1997) and they are not a major presence among the much larger assemblage from Carn Brea (Smith 1981b, 156).

Small querns are occasional finds in Early Neolithic contexts. Two were found at Carn Brea (Smith 1981b, 159, pl XIX) but none from Helman Tor. Smith (1965, fig 52, 122–3) provides useful illustrations of the material found at Windmill Hill and comments that the examples there conform to the saucer quern category, first identified for the Neolithic in 1937 by E C Curwen, in which the grinding moved freely in any direction. Both hollows on **S1** appear to conform to this definition of saucer quern.

## The flint

*Anna Lawson-Jones*

Seven of the ten Early Neolithic pits – [19], [27], [29], [40], [42], [45] and [48] – produced variable amounts of worked flint, the majority of which was recovered from the soil samples. In total, 30 worked flints were found.

### Results

The results are presented below in numeric pit order, in the form of tables and concise discussions.

Specific comments on the characteristics of the assemblage follow under separate headings.

Varying quantities of the pit fills were sampled. It is possible that where fills were not 100% sampled artefacts were missed. Reference is made to the number of flint finds retrieved during soil sample processing (28 out of 30) at the start of each pit section. The remarkably similar ratio of finds to pits, regardless of the quantity of fill sampled, might suggest that more lithic material was originally present.

In this report, most flakes have been classified as primary, secondary or tertiary according to the extent of the cortex on the dorsal surfaces: primary, 50–100%; secondary, 0–50%; tertiary, no cortex. All weights can be found within the site archive.

Comments on colouration, presence of visible macroscopic use-wear and hard or soft-hammer use are to an extent subjective, but recording them does allow for a comparison between the pieces within this specific assemblage, and as such these details have been presented within the tables.

#### *Pit [19]*

The fill, (20), produced four pieces of worked flint. All had been burnt and had undergone varying degrees of change (crazing, discolouration, blistering or fragmentation). The total fill of the pit was sampled.

Pit [19] was the only pit in which the entire assemblage was of burnt flint. It included two non-shattered blade-like fragments (see **L13**) (Fig 7), a fractured and partially shattered core and a pendant (**L4**) (Fig 7). The two blade-like pieces have suffered less substantial heat damage, implying that they were not subjected to the same level of heat as the core and pendant and may have been burnt under different circumstances.

The selection and deposition of the pebble pendant (**L4**) is unusual. The piece is a flattish, near-circular pebble with an off-centre naturally formed hole that has been artificially reworked and enlarged (C Thorpe pers comm) to form a piercing suitable for the threading of a strand.

The fractured but conjoining multi-platformed flake core represents the only core found within the entire assemblage. Cores often occur in pits but are more frequently blade or long-flake producing cores. Reduction has removed virtually the entire cortex. What remains of the cortex along with the flint itself has been distorted by heat in terms of appearance. It is possible that the core was nodular in origin;

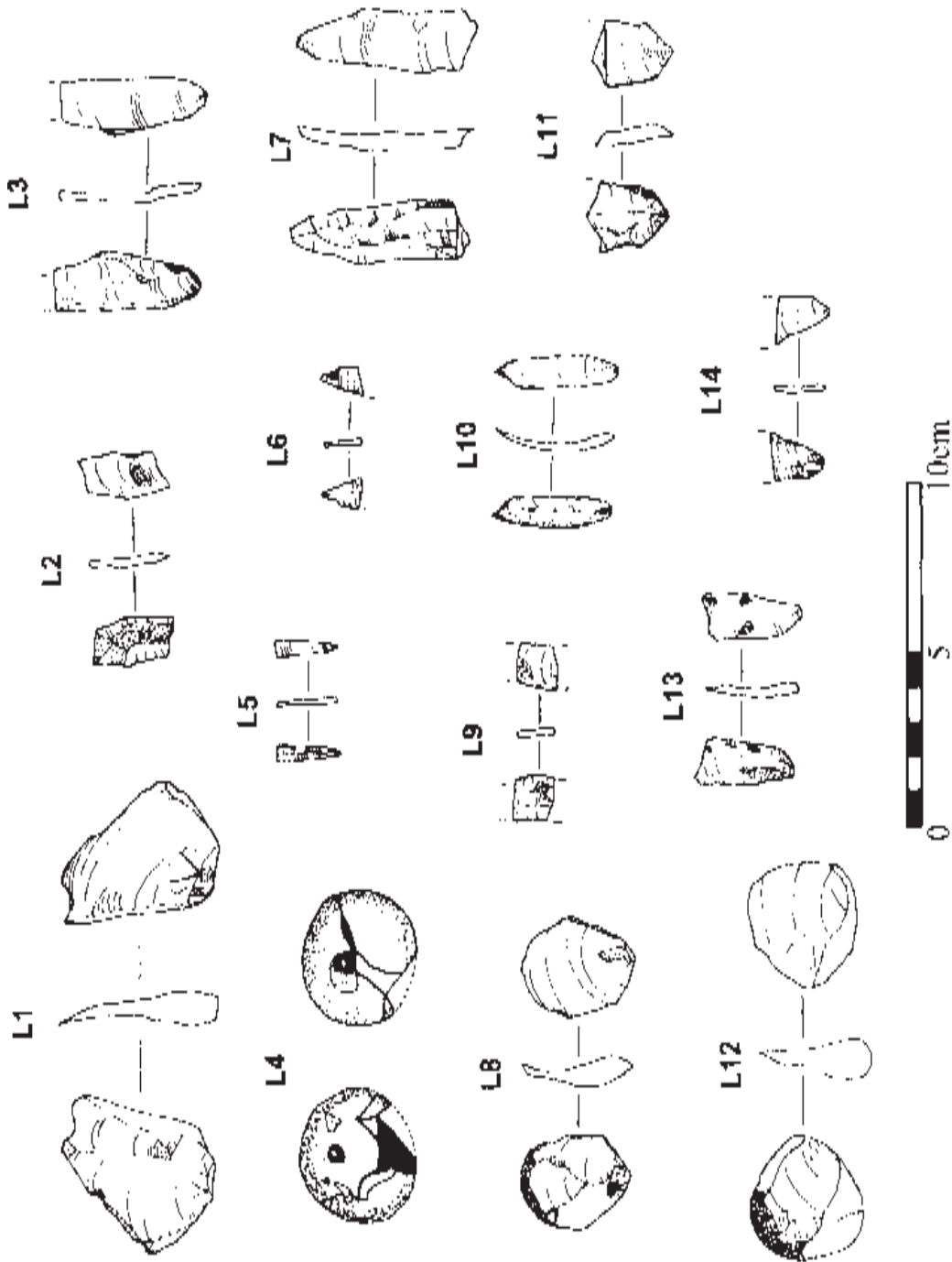


Figure 7 Neolithic flints from Tregarrick Farm. Scale 1:2 Drawing by A Lawson-Jones. L1 pit [42], L2 pit [29], L3 pit [27] L4 pit [19], L5 and L6 pit [29], L7 pit [42] L8 pit [48], L9 pit [42], L10 pit [40], L11 pit [45], L12 pit [48] L3 pit [19], L14 pit [40]

**Table 3** Flint from pit [19]

<i>Context (SS = soil sample)</i>	<i>Nodular/ Pebble</i>	<i>Primary Secondary Tertiary</i>	<i>Burnt</i>	<i>Tool/Type</i>	<i>Comment</i>
<b>Fill (20) SS</b>	P	-	Yes	Pendant?	Heat-shattered, conjoining, ovoid pebble with artificially enlarged natural hole ( <b>L4</b> ).
<b>Fill (20) SS</b>	?	T	Yes	Core	Heat shattered (five pieces), conjoining flake and bladelet producing, multi-platform core.
<b>Fill (20) SS</b>	?	T	Yes	Blade	Complete, heat-blistered small blade from bipolar blade core with near parallel sides and feather terminal. No visible use-wear ( <b>L13</b> )
<b>Fill (20) SS</b>	?	T	Yes	Flake/blade	Burnt bulbar end of broad probable blade, diagonally split (before heating). Deliberate break? No visible use-wear

**Table 4** Flint from pit [27]

<i>Context (SS = soil sample)</i>	<i>Nodular/ Pebble</i>	<i>Primary Secondary Tertiary</i>	<i>Burnt</i>	<i>Tool/Type</i>	<i>Comment</i>
<b>Fill (28) SS</b>	N	S	-	Waste	Snapped bulbar end of a probable long flake. Unused. Same mottled/speckled grey core as below?
<b>Fill (28) SS</b>	N	S	-	Waste	Hinged complete flakelet. Unused. Same mottled/speckled grey core as above?
<b>Fill (28) SS</b>	N	S/T	-	Blade	Blade, with a fresh matt appearance. Distal end missing/snapped. Slightly mottled grey flint. From a bipolar blade core. Minimal edge damage with minor glossing indicative of use ( <b>L3</b> ).

certainly, the altered flint shows a distinct uniformity in colour and texture, a characteristic more frequently seen in nodular than pebble flint. A series of very small multi-directional flakes had been removed, forming a near-spherical core of Early Neolithic appearance.

#### *Pit [27]*

The fill, (28), produced three worked pieces of flint from the 25% soil sample.

The pit fill included three pieces of nodular flint. Two were classified as waste, made on a slightly cherty textured dark-grey flint with mottling and banding, suggestive of some of the non-Bear Head nodular flint sources in Devon (Newberry 2002).

The larger, broken blade piece (**L3**) (Fig 7) is made from a good-quality, fine-grained grey flint with large, pale, amorphous mottles. It contrasts starkly with the two waste pieces. Made on a bipolar blade core by soft-hammering, it shows bulbar faceting and represents a true blade. The remaining

edges show only limited damage or use-wear. The apparent snapped removal of the distal end strongly suggests deliberate or accidental breakage immediately prior to inclusion within the pit fill.

The lithics from this pit could represent flint from different nodular sources or perhaps selection for inclusion on the basis of colour (possibly in conjunction with use/form). Apparent deliberate snapping of flint objects as a part of the pit-filling process has been noted at other prehistoric sites (Jones forthcoming b).

#### *Pit [29]*

The fill, (30), produced seven flints, the largest of which was located during excavation and the remaining six in the 30% soil sample.

Pit [29] produced the largest number of flints. Two pieces were burnt and five were strikingly fresh and unburnt. In addition to the flint the pit contained moderate amounts of charcoal, suggesting a blending of burnt with unburnt material.

The two pale, burnt pieces include a mid-blade

**Table 5** Flint from pit [29]

<i>Context (SS = soil sample)</i>	<i>Nodular/ Pebble</i>	<i>Primary Secondary Tertiary</i>	<i>Burnt</i>	<i>Tool/Type</i>	<i>Comment</i>
Fill (30) SS	?	T	Yes	Blade tip	Burnt, broken bladelet tip. Triangular in section. Discoloured and pale with darker blister.
Fill (30) SS	?	T	Yes	Blade	Blistered, discoloured/pale mid-blade section.
Fill (30) SS	?	T	-	Waste	Faulted, probable thinning flakelet. Uniformly dark grey-brown, fine-grained.
Fill (30) SS	?	T	-	Blade tip	Broken, very narrow bulbar tip of a probable bladelet. Dark grey-brown (L6).
Fill (30) SS	P	P	-	?Mid-blade	Double snapped, mid-blade section with markedly battered or abraded dorsal surface. Mottled grey. Probable limited lateral use-wear (L2).
Fill (30) SS	?	T	-	Narrow rod-like bladelet	Complete. Very narrow/distal hinge at mottle. Mottled pale grey. Not retouched. No sign of use (L5).
Fill (30)	P?	S	-	Thick flake	Thick, unmodified flake. Cutting flake? Minimal use. Dark mottled grey.

section and the distal tip of a triangular sectioned bladelet. Neither piece shows clear evidence for use. The five unburnt pieces include a short and thick mid-blade section with both ends snapped off (L2) (Fig 7) and a distinctively battered, naturally abraded dorsal surface, a larger, thick unmodified flake with minimal (probable cutting) use-wear, and three smaller pieces. One of these smaller pieces had a rod-like appearance (L5) (Fig 7), superficially akin to a microlith.

This pit produced a blade-orientated collection of unmodified material, including deliberately broken fresh material and burnt pieces.

#### *Pit [40]*

The fill, (41), produced three worked pieces of flint, two of which came from the 30% soil sample.

This pit has produced three tertiary pieces of uncertain raw material source. On the basis of flint colour, quality, size and core type all the pieces could have been made from the same core.

The assemblage consists of a small bulb rejuvenation piece, the bulbar end of a snapped thin blade (L14) (Fig 7) and a complete, utilised plano-convex blade (L10) (Fig 7) with a tapered (distal) pointed end. The snapped blade is so fine that it could have been either deliberately or unintentionally broken. The short surviving edges of this piece did not show any macroscopic sign of use-wear. The complete blade showed a series of tiny use-related removals running along both edges. The point appeared to have seen limited use-wear.

#### *Pit [42]*

Basal fill (43) produced five pieces of flint, together with charcoal and pottery, all from the 50% soil sample.

The five pieces of flint from this pit come from at least two, and possibly three different cores. The two largest flakes come from a very dark, nodular flake core with a thin creamy-coloured granular cortex. They do not join but are so similar in terms of raw material and flake removals that they look as if they should. They are in notably fresh condition with a lack of obvious cutting flake use-wear and display probably accidentally damaged razor-sharp edges. The larger piece (L1) (Fig 7) has a thick platform and an unmodified bulb, contrasting strongly with the blade and many of the other pieces within the assemblage. The thinning flake appears to be made from very similar flint and as such may be nodular in origin. This piece represents production waste. It may well be associated with the dorsal thinning and shaping of, for example, a leaf-shaped arrowhead. Although none were found at Tregarrick, leaf-shaped arrowheads and axes, or parts of them, have been found in Early Neolithic pits elsewhere (for example, Barrett *et al* 1991a, 34).

The blade (L7) (Fig 7) comes from a single-platformed blade core and although nodular consists of a very much more mottled and partially faulted parent material than the flakes. Its bulbar end is missing. Like the flakes, the edges do not show any sign of use, are pristine and razor sharp. The very thin mid-blade (L9) (Fig 7) section has been burnt and exhibits a blistered dorsal and ventral surface. The

**Table 6** Flint from pit [40]

<i>Context (SS = soil sample)</i>	<i>Nodular/ Pebble</i>	<i>Primary Secondary Tertiary</i>	<i>Burnt</i>	<i>Tool/Type</i>	<i>Comment</i>
<b>Fill (41) SS</b>	?	T	-	Blade end	Bulbar end of a thin snapped blade from a blade core. Unused. Mottled pale grey ( <b>L14</b> ).
<b>Fill (41) SS</b>	?	T	-	Blade waste	Narrow, thin rejuvenation waste piece. Mottled pale grey. Unused.
<b>Fill (41)</b>	?	T	-	Blade	Small plano-convex blade from a blade core. Tapered distal end with possible light use-wear. Mottled pale grey ( <b>L10</b> ).

**Table 7** Flint from pit [42]

<i>Context (SS = soil sample)</i>	<i>Nodular/ Pebble</i>	<i>Primary Secondary Tertiary</i>	<i>Burnt</i>	<i>Tool/Type</i>	<i>Comment</i>
<b>Fill (43) SS</b>	N	S/T	-	Blade	Moderately long blade. Bulb broken/snapped off. From a blade core. Mottled/speckled brownish-grey with coarse/pale inclusions. Unused, razor-sharp edges (despite flint quality) ( <b>L7</b> ).
<b>Fill (43) SS</b>	N	S	-	Flake (Possible Cutting flake)	Comparatively large flake with thick bulb, thinning rapidly at distal and lateral edges; slight distal loss. Not modified. Unused. Very dark grey brown/black with speckles, near-transparent thin edges ( <b>L1</b> ).
<b>Fill (43) SS</b>	N	S	-	Flake	Not modified or used. Comfortable for right handed use. Dark grey/brown and speckled.
<b>Fill (43) SS</b>	?	T	-	Waste/ thinning flake	Small flake with multi-directional dorsal flake scars. Pale speckled/mottled grey.
<b>Fill (43) SS</b>	N?	T	Yes	Mid-blade	Blistered, broken, thin, mid-blade section from a blade/bladelet core ( <b>L9</b> ).

breaks at either end may have been deliberate. They could reflect damage from burning. This blade piece is very similar to those found in pits [19] and [29].

This pit produced a range of flintwork, including three good-sized pieces suitable in their unmodified form for use as cutting flakes or blanks. The thinning flake is the only piece of its type in the entire assemblage. The inclusion of a single burnt piece with charcoal and four clearly pristine, non-burnt flint pieces is potentially significant and possibly akin to pit [29].

#### *Pit [45]*

The upper fill (46) produced two pieces of flint from the 30% soil sample. The basal fill (47) produced a single quartzite cobble from a 100% soil sample.

The two pieces of worked flint from context [46] are similar in size and, on the basis of the significantly different flint colouration and form,

come from different cores. The short, thick, complete, probable pebble flake has seen slight lateral use on one side and has a ventral removal ideally suited to making the flake a more usable tool in terms of handling. It has a series of bladelet removals from its slightly convex dorsal side.

The blade piece could potentially be nodular on the basis of its uniformly dark, blemish-free colouration. The distal end of this moderately thick blade (**L11**) (Fig 7) has been snapped off, either deliberately or perhaps accidentally during use. There are differential signs of wear along each surviving edge. One side shows unifacial edge damage, the other side shows less uniform, semi-bifacial removals. In the absence of microscopic analysis it is uncertain whether these differences relate to different types of use, or to use with opposing backing or lateral hafting. Unfortunately, only a very short length of either edge survives.

This pit produced two flints and the only hammerstone **S4** in the assemblage. No flints were found in



**Table 8** Flint from pit [45]

<i>Context (SS = soil sample)</i>	<i>Nodular/ Pebble</i>	<i>Primary Secondary Tertiary</i>	<i>Burnt</i>	<i>Tool/Type</i>	<i>Comment</i>
<b>Fill (46) SS</b>	?	T	–	Blade end/knife	Good-quality snapped bulbar end of a thick utilised knife blade. From a bipolar blade core. Very dark with occasional pale mottles. Bi-lateral use-wear/uncertain retouch ( <b>L11</b> ).
<b>Fill (46) SS</b>	P?	S	–	Thick flake	Small, thick flake with many dorsal bladelet removals and a single ventral removal. Mottled speckled pale/mid-grey. Possible notched/use-wear.

**Table 9** Flint from pit [48]

<i>Context (SS = soil sample)</i>	<i>Nodular/ Pebble</i>	<i>Primary Secondary Tertiary</i>	<i>Burnt</i>	<i>Tool/Type</i>	<i>Comment</i>
<b>Fill (31) SS</b>	N	S	–	Knife	Fine, unifacially worked knife on a thick round flake, with narrow shallow-angled removals on a moderately short convex edge bounded by cortex. No/uncertain use-wear. Very dark speckled blackish grey. Fits most comfortably in the left hand ( <b>L12</b> ).
<b>Fill (31) SS</b>	N	S	–	Knife/scraper	Near circular, unifacially worked, moderately thin flake with short, steeper-angled fine retouch along a short convex edge. No/uncertain use-wear. Dark speckled grey. Fits most comfortably in the left hand ( <b>L8</b> ).
<b>Fill (31) SS</b>	N	P	–	Waste	Small broken, mottled/speckled grey waste piece.
<b>Fill (31) SS</b>	N	P	–	Waste	Small broken, mottled/speckled grey waste piece.
<b>Fill (31) SS</b>	N	S	–	Waste	Small mottled/speckled grey, broken waste.
<b>Fill (31) SS</b>	N?	T	–	Waste	Tiny, mottled/speckled grey waste.

association with the hammer-stone, despite the 100% soil sample, suggesting deliberate separation of the two artefact types.

#### *Pit [48]*

The fill, (31), produced six pieces, all potentially from the same thin-cortexed nodule, from a 100% soil sample.

The flint pieces fall into two categories: two larger finished tools and four very small pieces of knapping waste or debitage associated with tool modification. All six pieces could have come from the same nodule.

The two tools, a scraper (**L8**) and a knife (**L12**) (Fig 7), have been very finely retouched with fine, narrow, regular removals (shallow on the knife and steeper on

the scraper). They represent the only two such retouched pieces within the entire assemblage. Their similarity in terms of fine retouch, flint source, colour and size is significant. These two pieces stand out very clearly in comparison to the rest of the assemblage. They seem to represent a deliberate pairing of objects, presumably made with a single event in mind, probably at the same time and perhaps by the same person. Their linked deposition implies that they form a planned component for a single pit fill. This would seem to support the idea that each of the Tregarrick pits contained different, structured, pit-specific assemblages.

#### **Raw material**

The assemblage contains both imported nodular and 'local' pebble flint. No chert was found. Of the 30

pieces, 18 had an identifiable cortex, of which 11 were found to have come from an imported nodular source. The importation of flint into the far south west represents a frequently-cited element in Early Neolithic assemblages (Healy 1985, 18–20; Healey and Robertson-Mackay 1983, 21). The best-known source of mined nodular flint is Beer Head on the south-east Devon coast (Tingle 1998; Berridge and Roberts 1986, 15). However, research by Newberry (2002) has shown that there are other sources of good-quality nodular flint, some of which are closer to Cornwall. There are also other secondary sources for flint, nodular and otherwise, in the head and gravel deposits of western Devon (Wainwright and Smith 1980).

Nodular material often provides predictably larger and better-quality pieces of flint in comparison to pebble flint (but see Lawson-Jones forthcoming), making its use less restrictive in terms of core size, core type and core reduction (use of anvils). At the same time use is frequently more expedient and less wasteful; presumably due to the effort involved in acquiring this material. Nodular flint use in Cornwall is often associated with finely worked, larger artefacts, often within ritualized domestic contexts, as for example at Tremough (Lawson-Jones 2002; 2003, 126). The Tregarrick Farm assemblage appears to fall into this category. Analysis of flint from the Bear's Down to Ruthvoes pipeline (Lawson-Jones 2001, 100) found a clear differentiation in the size, tool type and location of nodular material in comparison to the pebble flint.

In contrast to nodular flint, pebble flint was collected from relatively local beaches. It is often cited as being of poorer quality than nodular flint, but this is not always the case. Cornish beaches provide an abundant, surprisingly rich, and varied range of flint. Of the 30 worked flints from Tregarrick, only three definite and two probable pebble pieces were identified. However, some of the other non-corticated pieces may also be of pebble origin.

Just under half of this assemblage can be classified in terms of raw material or core source. As with many flint assemblages from Early Neolithic pits, the majority of the pieces are tertiary or so close to being tertiary that sourcing the parent material is not possible. A similarly high proportion of tertiary flint has been recorded, for example, from early pits found along the Dorchester by-pass in Dorset (Bellamy 1997, 140).

## Technology

The Tregarrick flint assemblage consists of a flake- and blade-based technology. Of the 30 flints, 10 were flakes, 13 blades, two long flakes and five were unidentifiable. The pieces vary in size, ranging from small and thin to larger, thick butted, well-formed pieces suitable for blanks or unmodified use. Distal scarring resulting from anvil use during core reduction was not a major characteristic within the assemblage. This is probably partly a reflection of the small amount of pebble material present. The long flakes and true blades have near parallel or parallel sides, frequently with uniformly arranged dorsal blade scars. The scarring indicates bipolar blade core use and reduction, plus, less frequently, single-platform core use. These core types are typical of the earlier Neolithic (Edmonds 1995, 36). Bipolar cores are quite frequent in Cornwall, at Poldowrian, for example, where the breakdown of cores dating to the Later Mesolithic and the Earlier Neolithic shows a high number of opposed bipolar and single-platform cores (Smith and Harris 1982, 39). No specific blade cores were found within this assemblage, but they often feature in Early Neolithic pit assemblages elsewhere (for example, Healy 1983, 28).

When present, the blade bulbs frequently show bulbar preparation. A single rejuvenation piece from pit [40] reflects a desire to produce tightly controlled pieces seen throughout much of the assemblage. The careful preparation and maintenance of specialised cores is a characteristic of this period. Cores were required to produce a maximum number of predictably useful pieces which were light in weight and generated minimum wastage (Healy 1988, 36).

In common with Early Neolithic pits elsewhere exhibiting patterns of structured deposition, Tregarrick produced an apparent over-emphasis on tools, primarily blades, plus a tapered blade point and a fine knife and scraper. A similar bias towards implements was found in Neolithic pits on Cranborne Chase with a similarly low level of waste and debitage material (Barrett *et al* 1991a, 82–83).

A characteristic of much of the flint seen in this assemblage is the apparent use of soft-hammering, producing classic diffuse bulbs and indistinct conchoidal rippling. Interestingly, pit [45] produced a piece that appears to show both soft and hard hammering (perhaps a reflection of

initial percussive preparation followed by soft hammer use). Soft hammer dominated Early Neolithic flint assemblages have been recorded elsewhere, for example at Flagstones, Dorset (Bellamy 1997, 140).

In Cornwall, the frequent use of pebbles as a raw material often results in high primary and secondary pebble flake counts. This is not represented within the primarily nodular Tregarrick pits assemblage. A similar pattern of tertiary to primary and secondary flake counts has been noted elsewhere within Early Neolithic pit deposits (*ibid*), suggesting selective inclusion.

### Condition

The flint in this assemblage ranges from fresh, matt-surfaced material with razor-sharp edges, thin and fine enough to be transparent when held to the light, to thicker, chunky pieces. Only a minority of the pieces show any signs of concentrated use. Very fresh material has been noted elsewhere as a characteristic of pit assemblages of this type. Healy (1988, 106) describes flint from pits at Spong Hill as macroscopically 'conspicuously fresher, and more matt...', while Bradley (in Healy 1988) cites an absolutely pristine scraper appearing '...as if made yesterday'. Reference has been made above to conspicuously fresh material, from pit [42], for example, where a blade and two flakes with matt surfaces and markedly sharp edges were found. A similar pattern was found at Cranborne Chase, where fresh lithics occur in pits with selected bone material (Brown 1991, 111). The freshness of the flint strongly suggests rapidity in the production of the deposit and the subsequent filling of the pit. This freshness, in conjunction with material probably deriving from the same cores denotes the undisturbed nature of some of the Tregarrick pit deposits. Contrastingly, apparently deliberately separated and broken flint was found in other pits.

The snapped tools were frequently found to only exhibit slight (if any) signs of use. The same very limited level of use was noted for the few complete tools seen within the assemblage. The meticulously worked, conspicuously fine knife and scraper found in pit [48] appeared macroscopically to be virtually unused, while many of the other pieces saw only limited use. This would seem to hint at the production, use and purpose of these pieces having been focused on a specific, short-term event.

### Burnt material

At Tregarrick approximately a quarter of the pieces found were burnt. Some of the flint pieces display the tell-tale hair line fractures of material exposed to heat while others have been so heavily fired that blistering or wholesale fracturing has occurred. Pit [19] produced a 100% burnt flint assemblage, including a pendant (L4), while single burnt pieces came from unfired pits [29] and [42].

The presence of burnt flint as a constituent part of some Early Neolithic pits has been noted elsewhere (Bellamy 1997, 140; Guirr *et al* 1989, 117). Tregarrick pits [19] and [45] may represent pit-hearths, but the others did not contain *in situ* burning. For example, in the non-hearths [40] and [29], burnt and unburnt deposits, including flint, were found together. Sites elsewhere have produced a more marked pattern of pits filled with a range of material that had been burnt elsewhere (for example, Healy 1988, 106).

### Discussion

A number of characteristics of the Tregarrick flint assemblage have been recorded at other Neolithic pits associated with structured deposition. Similar patterns have been seen at Spong Hill, Norfolk (Healy 1988), for example, where five discrete clusters of pits were found, at Flagstones, on the Dorchester by-pass (Bellamy 1997, 140), and at Tattershall Thorpe, Lincolnshire (Healy 1983).

Edmonds (1999, 116–117) refers to the special treatment of lithics during the earlier Neolithic, including the deposition of finished objects, nests of knapping debris and non-local lithic material. A similar pattern is hinted at by the Tregarrick flint assemblage, where pits contained a mix of imported and local flint, snapped and complete pieces, fresh and abraded material, waste and beautifully worked tools, plus a range of other material.

The chief characteristics of this assemblage include use of nodular flint, the fresh character of some of the flint, the lack of use-wear, apparent deliberate breakage, the presence of burnt pieces in burnt and unburnt deposits, a low primary and fully secondary flake count and the pairing of a knife and scraper, which was very much at variance with the rest of the assemblage. Thomas (1999, 64) describes the range of lithic material frequently associated with contexts of this type as being out of place in terms of everyday household waste and storage, noting a high

ratio of tools to waste. This is also the case at Tregarrick, where the flint assemblage lacks several elements, including conjoining pieces, arrowheads (although it is possible that the thinning flake in pit [42] symbolises an arrowhead) and the limited overall quantity of flint compared with many other similar sites.

The selection and inclusion of different types of flint with different types of fill in the various pits appears to have been far from spontaneous. The limited number of lithic pieces and the possibility that this is an incomplete assemblage hampers interpretation, but does not necessarily negate the preceding observations or the apparent similarities with pit lithics assemblages found elsewhere. The flint represents an interesting and significant element of the pit fills, suggesting that different groupings of lithic material referenced various specific activities and associations.

## Charred plant remains

*Julie Jones*

Of the nine samples examined, four contained charred hazel (*Corylus avellana*) nut fragments, as shown in Table 10 below.

Three of the pit fills included only a few shell fragments, although feature [21], fill (22), included one whole nut, plus 12 half shells. Many of the 70 other fragments counted were almost half-nuts, so it may be possible that 30 or more whole nuts were represented in this fill. Hazel charcoal was the predominant charcoal identified from this feature, as indeed from the other pit fills examined (R Gale below). The nutshells could have been attached to the branches of hazel when they were placed into the hearths for use as fuel, or may represent discarded food debris. In either case their presence may suggest a seasonal use of the site, with local hazel wood and nuts being gathered in the autumn.

**Table 10** Charred plant remains from the pits

Context	Feature	Charcoal fragments	Other plant remains
(20)	[19]	41	<i>Corylus avellana</i> (hazel) 17 fragments
(22)	[21]	40	<i>Corylus avellana</i> 1 whole + 12 half nuts + 70 fragments
(28)	[27]	15	<i>Corylus avellana</i> 12 fragments
(47)	[45]	22	<i>Corylus avellana</i> 4 fragments

## Charcoal

*Rowena Gale*

*In situ* burning was evident in a number of these features and associated charcoal was interpreted as the remains of fuel debris. The charcoal was well-preserved and sufficiently abundant to warrant species identification. This was undertaken to indicate the character of the fuel and to obtain environmental data. Charcoal was examined from eight of the pits: [19], [21], [27], [29], [48], [40], [42] and [45].

### Methodology

Bulk soil samples were processed by flotation and sieving using 1mm and 0.5mm meshes. The charcoal was firm and well-preserved. A few of the samples included segments with intact cross-sections of narrow roundwood.

Standard methods were used to prepare the samples for examination (Gale and Cutler 2000). The anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400. The taxa identified were matched to prepared reference slides of modern wood. When possible, the maturity of the wood was assessed (heartwood/sapwood) and stem diameters and the number of growth rings recorded. It should be noted that charred stems may be reduced in volume by up to 40%.

### Results

The taxa identified are presented in Table 11. Classification follows that of *Flora Europaea* (Tutin *et al* 1964–80). Group names are given when anatomical differences between related genera are too slight to allow secure identification to genus level, as, for example, members of the Pomoideae (*Crataegus*, *Malus*, *Pyrus* and *Sorbus*). When a genus is represented by a single species in the British flora this is named as the most likely origin of the wood, given the provenance and period, but it should be noted that it is rarely possible to name individual species from wood features (Godwin 1956). The anatomical structure of the charcoal was consistent with the following taxa or groups of taxa:

Betulaceae. *Alnus glutinosa* (L.) Gaertner, European alder; *Betula* sp., birch

Corylaceae. *Corylus avellana* L., hazel

Fagaceae. *Quercus* sp., oak

**Table 11** Charcoal from the pits

Feature	Context	Alnus	Betula	Corylus	Pomoideae	Quercus
[19]	(20)	–	6r	15	–	1h, 21s
[21]	(22)	1	–	10	2	2h, 6r, 3s
[27]	(28)	2	–	8	1	–
[29]	(30)	–	–	1	2	1h, 3s
[48]	(31)	–	–	6	19	7h, 4s
[40]	(41)	–	–	11	–	3h
[42]	(43)	–	–	10	–	2r, 1s
[45]	(46)	–	–	2	–	2h, 3s
[45]	(47)	–	–	1	–	12h, 2s

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

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

The charcoal from the eight pits assessed was identified as predominantly hazel (*Corylus avellana*) and oak (*Quercus* sp.) (Table 11). Hawthorn-type charcoal occurred in pits [21], [27], [29] and [48] and there was some evidence for the use of alder (*Alnus glutinosa*) (pits [21] and [27]) and birch (*Betula* sp.) pit [19]). Intact segments of roundwood were scarce, although narrow fragments of birch measured <7mm in diameter and several twiggy pieces of oak (pit [21]) were about 5mm in diameter. A piece of hazel from pit [40] measured 15mm in diameter and included three growth rings of fairly fast-grown wood. Oak from wider roundwood (that is, probably considerably wider than 20mm in diameter) was represented by both sap- and heart-wood.

## Discussion

The charcoal assemblage was recovered from eight of the ten pits in Area B. The pits were shallow and most contained well-preserved remains of the fuel. A relatively narrow range of taxa was identified from the charcoal and indicated that hazel (*Corylus avellana*) and oak (*Quercus* sp.) formed the bulk of the firewood. Much of the hazel was probably from fairly narrow roundwood, although the samples were usually too fragmented to record stem diameters. The frequency of hazel in these contexts correlates with the abundance of nutshells found in several of these pits (J Jones above.). Although, stems and or branches of hazel gathered in the autumn may have been piled into the pits with the nuts still *in situ*, it is more likely that the shells were discarded into the hearth after the

nuts had been consumed. The charcoal indicated the use of oak wood of various dimensions, including both largewood and twiggy material. Firewood was also collected from alder (*Alnus glutinosa*); birch (*Betula* sp.) and the hawthorn/*Sorbus* group (Pomoideae), although much more sparingly.

## Environmental evidence

The site is located inland, more or less halfway between the north and south coasts, on acid soils. The frequency of hazel (*Corylus avellana*) and oak (*Quercus* sp.) in the fuel residues suggests that these species featured prominently in the environment and that oak, in particular, formed the major component in the climax woodland of this region during the Early Neolithic. In the present day, oak is typically the dominant taxon in Cornish woodland, although Cornish oaks, unless growing in sheltered situations, rarely attain the large dimensions of trees growing elsewhere in England (Marren 1992).

Although we cannot estimate the density of the Neolithic oak woodland at Tregarrick Farm, it is probable that some part of the area in the immediate vicinity of the site was cleared or open, as suggested by the frequency of hazelnut shells in the fuel deposits (hazel requires sunlight in order to fruit). Other local species included alder (*Alnus glutinosa*), commonly found on damp or waterlogged soil, birch (*Betula* sp.) and the hawthorn/*Sorbus* group (Pomoideae), probably hawthorn (*Crataegus* sp.). Both hawthorn and birch colonise open or marginal woodland, although both also tolerate fairly shaded conditions.

## Conclusion

This report includes the analysis of charcoal from eight Early Neolithic pits. The pits formed part of a discrete group and may have been associated with



seasonal and perhaps ritual gatherings. Identification of the fuel debris indicated the use of firewood predominantly composed of oak (*Quercus* sp.) and hazel (*Corylus avellana*), although some use was made of wood from the hawthorn group (Pomoideae), alder (*Alnus glutinosa*) and birch (*Betula* sp.). The high ratio of oak and hazel in the fuel deposits probably reflects the dominance of these taxa in the contemporary environment.

## Radiocarbon dating

The principal aim of the dating strategy was to obtain a series of precise dates from a large proportion of the pits, which were believed to date from the Early Neolithic period. The lack of stratigraphical relationships between the pits meant that any finer grained understanding of the site's chronology would be dependant upon obtaining a good series of radiocarbon determinations, taken from sealed layers.

### The dating strategy

Six samples for radiocarbon determinations were

taken from sealed contexts within six of the pits. Four of the samples comprised hazel nut shells (20), (22), (28) and (47), and two were derived from charcoal from short-lived species (31) and (41). All were submitted for accelerator mass spectrometry dating (AMS). This method of dating can be carried out on very small amounts of material and gives a high precision date. All of the samples were sent to the University of Waikato in New Zealand.

The probability distributions (Table 12 and Fig 8) have been calculated using OxCal (v3.10). The 95% level of probability has been used throughout this report.

## Discussion

The results from the radiocarbon dating went some way to resolving the chronological questions. The range of determinations from the individual pits has also allowed an outline model to be put forward for the use of the site. The determinations have provided a significant set of results, which overlap with the dates from tor enclosures such as Carn Brea and Helman Tor, as well as a growing number of determinations

**Table 12** Results from the radiocarbon dating

Pit	Context	Lab. no	Age BP years	Calendrical years 68%	Calendrical years 95%
[19]	(20)	Wk-14913	4839±42BP	3700–3530 BC	3710–3520 BC
[21]	(22)	Wk-14914	4775±44BP	3640–3620 BC	3650–3370 BC
[27]	(28)	Wk-14915	4776±44BP	3640–3520 BC	3650–3370 BC
[40]	(41)	Wk-14916	4914±40BP	3715–3645 BC	3780–3640 BC
[45]	(47)	Wk-14917	4768±43BP	3640–3520 BC	3650–3370 BC
[48]	(31)	Wk-14918	4908±47BP	3760–3640 BC	3790–3630 BC

Atmospheric data from Reimer et al (2004), OxCal v3.10 Bronk Ramsey (2005), cub r 5 sd 12 prob usp [chron]

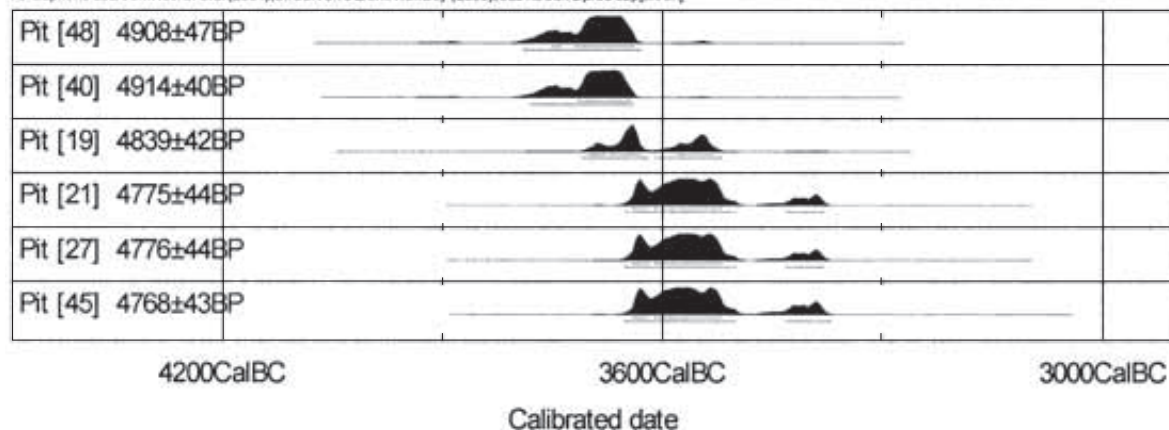


Figure 8 Date ranges from Tregarrick pits

from lowland pit sites, including Tremough and Portscatho (see Jones and Taylor 2004, 98–9).

The determinations from the pits cluster in two groups (Fig 8), with overlapping date ranges. The earliest group consists of three determinations ranging between 3790 cal BC and 3520 cal BC. Two are virtually identical: pit [48], fill (31), 4908±47 BP, 3790–3630 cal BC (Wk-14918), and pit [40], fill (41), 4914±40 BP, 3780–3640 cal BC (Wk-14916). The third determination, from pit [19], fill (20), may be a little later: 4839±42 BP, 3710–3520 cal BC (Wk-14913). The second group consists of three determinations which produced identical date ranges between 3650 cal BC and 3370 cal BC. Pit [21], fill (22), produced a determination of 4775±44 BP, 3650–3370 cal BC (Wk-14914), pit [27], fill (28), 4776±44 BP, 3650–3370 cal BC (Wk-14915) and pit [45], fill (47), 4768±43 BP, 3650–3370 cal BC (Wk-14917). The determinations suggest that activity associated with the pits occurred during the four centuries between 3790 cal BC and 3370 cal BC.

The dates did not relate to any one part of the site, which is significant because it indicates that repeated visits were made to favoured spots over a long span of time. Importantly, the determinations indicate that a recurring artefactual assemblage consisting of flint, pottery and charred hazel nutshells was deposited into the pits over this time. This suggests that there was a tradition associated with the site which was followed over several centuries.

## Interpretation

The discovery of the Early Neolithic pit group at Tregarrick Farm is significant on a number of grounds. At a simple spatial level the discovery extends the known range of Neolithic sites into an area where activity might have been expected but was hitherto unknown. Another ‘dot’ is thereby added to distribution maps, further expanding our knowledge of activity in the Cornish landscape beyond the small number of enclosures such as Helman Tor, located to the east of Roche Rock, the chambered tombs and a growing number of pits and flint scatters (see below). The site is also of value because it provides the best current authenticated carbon dating for the 38th to 37th centuries cal BC in the south west, in a period before the recently suggested horizon for causewayed enclosure development (Cleal 2004). However, we would argue that it is the discovery of a pit group in this particular ‘place’ and the distinctive artefactual

assemblage which was chosen for incorporation within the pits which represent the most significant aspects of the group. In this light, the remainder of this paper is concerned with discussing three aspects of the group: the pits and their content, their landscape setting in the vicinity of Roche Rock and finally their place in the wider scheme of things.

## Delving into the earth

The digging of pits and the burying of artefacts and other deposits, including pottery, stonework, flint, charcoal, hazelnut shells and other materials, is neither unique to Cornwall nor to the Early Neolithic. The Tregarrick artefactual assemblage is typical for the period (cf Cleal 2004) and groups of Neolithic pits are found across southern Britain (Healy 1988; Thomas 1999; Mullin 2004; Peterson 2004) and along the Atlantic facade (Darvill 2004a). In temporal terms they feature as places of deposition from the earliest to the latest Neolithic (Barrett *et al* 1991a; Bradley *et al* 1993; Richards 1990). Julian Thomas has suggested that the act of pit digging and deposition may have been intended to render activity memorable and fix a connection between people and place (Thomas 1999, 72, 87). However, it has also been argued that the character of pit deposition altered over time with deposits becoming more formal, the contents possessing more ‘exotic’ or ‘aesthetic’ qualities and the digging of the pits themselves becoming more crafted (Pollard 2001, 325).

Within Cornwall, the pattern is similar, although despite the inclusion of Grooved Ware in the later pits, there is perhaps less evidence for the pits becoming more carefully dug or having noticeably more ‘exotic’ contents over time (Jones forthcoming a; Gossip and Jones forthcoming). Indeed, the shape of the pits and the repertoire of materials which were deemed suitable for inclusion within them appears to have been rather conservative, with little apparent recognisable variation in content (other than changing ceramic types) from the onset of the Neolithic into the Bronze Age (Jones forthcoming a). However, we are not suggesting that meanings associated with pits necessarily remained constant, or that they all performed the same function, rather that what was deemed appropriate for burial within a pit did. In short, it is possible to argue that although Early Neolithic Cornish pits were undoubtedly originally related to similar features elsewhere, they quickly became intermeshed with local traditions and cosmologies. Therefore, they need to be considered

within the context of meaning specifically associated with the locale in which they were dug (see below).

At Tregarrick ten pits arranged in three spatially discrete groups were dug and a range of deposits, including pottery, flint, worked and unworked stone, hazelnut shells and charcoal were placed inside them. It is very probable that other forms of organic material such as bone was also included but this has not survived in the prevailing acidic soil conditions. All of the pits were less than 1.0m in diameter and, although truncated by the topsoil stripping, were probably originally less than 0.30m deep. As we have seen, this activity probably unfolded over several centuries between 3790 and 3370 BC. None of the pits was intercutting and the radiocarbon determinations do not indicate that the three groups were sequential. Instead, it seems likely that after they had been infilled the pit sites were still visible on the ground and were avoided during subsequent visits to the locale. Unlike pit groups or the ditches of causewayed enclosures in southern Britain (Healy 1988; Mercer 1980; Smith 1965; Whittle *et al* 2000), pits in Cornwall do not appear to have been cut by later features during subsequent episodes of pit digging. This might indicate that once objects and deposits had been placed into the ground it was not considered appropriate that they should be disturbed again. In other words, they had become dedicated objects which were permanently removed from the realm of human engagement.

Only two of the pits, [19] and [45], had traces of *in situ* burning. The latter was also the only pit to have stakeholes associated with it, which conceivably could have been associated with a structure used to suspend food or vessels over a fire pit during cooking. The remainder of the pits were apparently not used as hearths but instead were excavated and quickly backfilled with objects which were carefully placed within them. Although the site appears to have been used for around four centuries, there was no apparent variation in the morphology of the pits or their contents over time.

The majority of the deposits found within the pits – charred hazelnuts, charcoal, quern, pottery and flint – would not be out of place on a domestic site. We would argue that the reason for this is that the materials chosen for deposition at Tregarrick were in fact associated with domestic activity, but rather than being casually discarded were treated in a ritualized way (cf Humphrey and Laidlaw 1994; Bradley 2003a). In other words, during the Early Neolithic period the disposal of particular objects associated

with the domestic world was given a particular emphasis. A growing number of similar pits is being found across Cornwall, including those at Tremough, Trenowah, Portscatho and Poldowrian (Gossip and Jones forthcoming; Smith and Harris 1982; Jones and Taylor 2004). However, although the Tregarrick pits clearly belong to a wider continuum, the particular setting in which they were excavated perhaps makes it likely that their contents were deposited with more care and formality than at other sites. This formality is indicated by the treatment of the artefacts which were placed into the pits and the way that deposits and artefacts were selectively intermixed or separated from one another.

The flintwork shows several indications of deliberate selection, including the placing of burnt flint into pits which had not been used as hearths, the deposition of freshly snapped tools and the burial of unused complete tools (Lawson-Jones above). The burning or knapping of the flint would also have caused transformations of the colour of the nodules and pebble sources. Burnt flint would have become paler or white in colour, whilst the newly knapped pieces would have had an aesthetically pleasing lustrous quality. Given that flint in Cornwall had to be obtained either through exchange with communities outside the county or from a visit to the coast, the knapping and making of new tools which were never used and immediately deposited, the breakage or burning of others, including a pendant which may have been a treasured possession, must have been highly memorable and could be argued to represent the sacrifice of a valued resource.

Likewise, the stonework assemblage from the pits is also distinctive, in terms of its colour and the locales from which it was taken. Three of the stone objects, **S2**, **S3** and **S4**, were more or less unworked but were all derived from watery sources; two from the beach and one from a stream (Quinnell above). All three objects contained quartz: cobble **S2** had narrow quartz veins running through it and **S3** quartz crystals, whilst **S4** was a vein-quartz cobble. The inclusion of unmodified quartz pebbles within archaeological contexts has been recorded elsewhere. Darvill (2002; 2004a, 50–51) has identified a series of sites scattered throughout Britain and especially along the Atlantic seaboard where the selection and inclusion of quartz and pale pebbles within a variety of contexts, including Early Neolithic pit deposits, has been found. He argues that quartz pebbles were imbued with a widely understood set of meanings, and that the white colour may have been associated

with the human spirit. The fourth stone object, **S1**, a quern, was also distinctive in terms of its sandstone texture and red colour. It too derived from the coast and is likely to have had an extended biography of use. In common with the flints and the other stonework, its deposition cannot be considered to be accidental. Its red colouration may also have been considered to possess symbolic qualities.

The pottery assemblage displays a similar pattern in terms of the colours of the materials used in the inclusions. In common with the larger stonework, the ceramic Fabrics 1 and 2 had noticeable white or red inclusions, whilst Fabric 3 had a sparkling micaceous appearance (Quinnell above). The study of colour associations and symbolism in prehistory is at an early stage. However, analyses of monuments and artefacts (Bradley 2000a; Owoc 2002; Cooney 2002) suggest that some of their constituent materials may have been selected for their colour. It is likely that particular colours were associated with places in the landscape, or were perceived as having symbolic properties and for these reasons were deliberately incorporated into monuments or transformed into artefacts. It is possible, therefore, that similar considerations were applied to the selection of ceramic inclusions.

Evidence was also found for formal deposition in the way that the ceramics were deposited. For example, **P7** in pit [45] was arranged so that the sherd edges representing the lower parts of the vessel faced each other (Quinnell above). Assessment of sherd condition revealed that some vessels may have been curated before deposition, sherds of gabbroic Fabric 1 being more abraded than the sherds of local Fabric 2 (Quinnell above). This would imply that vessels made from fabrics which had a more distant source were retained for much longer periods of time than those which were locally made. Again, the biography of a vessel resulted in it being treated in a particular way before it could be deposited. The deposition of a curated vessel may also have given the moment of deposition more resonance and made the event more memorable to the community.

In summary, we have argued that although the Tregarrick pits and their contents were related to a wider set of Early Neolithic practices which were found across Britain, they were also interpreted within a local framework of meaning. It has also been suggested that the range of artefacts incorporated within the pits represented the ritualization of certain aspects associated with domestic activity, but that there was a high degree of formality in the range and intermixing of artefacts

which were placed in the pits. This is evident in the conservative character of the assemblages over several centuries. Finally, we have argued that the objects and deposits which were placed into the pits may have been selected in order to make the event memorable and because they were considered to incorporate certain properties, through their colour, biography of use, or the landscape they were derived from. In the case of Tregarrick, the motive for burying these objects may have been to forge a link between the community and the place in what may have been intended as sacrificial acts to propitiate or obtain favours from the spirits or gods who dwelt within the Rock (Bradley 2000b, 8–11; Mulk 1994).

### Spirits in the Rock

Several writers have highlighted the probable importance of natural features, including mountains, hills, woodland and the sea, to Early Neolithic communities (Bradley 2000a; Tilley 1994; Cummings and Whittle 2004; Cummings 2004; Field 2004; Mullin 2004). In Cornwall rocky outcrops have been identified as particularly important places in the landscape, which were frequently referenced or transformed by monuments (Bradley 1991; 1998; Tilley 1995; 1996; Jones forthcoming a and b). However, although anthropological studies have demonstrated the importance of unmodified natural features such as rock formations in sacred cosmologies (Mulk 1994; Theodoratus and LaPenna 1994), discussions of apparently unmodified 'natural places' that are not obviously associated with monuments of prehistoric communities are less common. Yet, as Tilley and Bennett point out (2001, 344), the modern separation of nature and culture would not have been recognised in prehistory. People are likely to have regarded the landscape as being the creation of spirits, gods or ancestors and it is likely that stories, myths and legends would have grown up around landscape features. Significant natural features may have been considered to be the homes of spirits, ancestors or gods, or gateways which acted as a means of communication with other worlds, or the place of the creation (Rose 2000–1; Tilley 1999; Whittle 2004). It is argued here that Roche Rock constitutes one of those significant landscape features.

Although the Rock is not of the same proportions as most of the Cornish moorland tors; reaching only



a little over 30m high, it makes a much more significant impact in the wider landscape than its modest dimensions would suggest. This is because of its position on the edge of a shallow basin which throws it into relief. It is the only prominent rock outcrop in the area and possesses a visually distinctive shape (Fig 9) which can be seen from several kilometres away.

Although the area of the Rock is quite small, and is now surrounded on three sides by development, on a quiet day it still maintains a feeling of separation from the wider landscape, a feeling which would probably have been very much greater in the Neolithic. On approaching the Rock one perceives firstly that it is contained within its own island of rock. Secondly, when viewed from the north or the south east, the eastern end of the Rock appears to have the profile of a stone head, which to modern eyes resembles an Easter Island statue (Figs 9 and 10). This petrified face residing on its own island above the edge of what may have been a damp wooded carr is unlikely to have gone unnoticed by visitors to the Rock in prehistory and may well have been associated with myths and legends. Once among the rocks themselves, the smooth texture of the rock and the vertical element of the place becomes evident: large rocky, menhir-like pillars

seem to erupt from the earth in an almost organic manner, creating the impression of living rock. Others lie flat like the capstones of ancient fallen dolmens (Fig 10). Neolithic visitors who were familiar with the raising of stones to form dolmens and other monuments would surely have noticed the similarities and may well have attributed them to the work of other beings (cf Tilley 1996; Bradley 1998). Indeed, it is perhaps because the Rock was a place which was considered to be the home of powerful beings or spirits who had already left their mark on the place that it was not monumentalized, but was instead a suitable place for making offerings. Tilley (1999, 205) has argued that ritual performance at certain places in the landscape provided a physical form for myths that explained the world. We would add that places such as Roche Rock were also perceived as powerful, liminal points, where spirits or beings from other worlds could affect the lives and well-being of the community.

#### **Between the Rock and a hard place**

The study of Neolithic settlement is currently divided between those who view the Neolithic as being associated with the development of stable sedentary societies with defined territories (for example,



*Figure 9 Roche Rock from the north, viewed from close to the site of the pits*





*Figure 10 Roche Rock from the south east*

Cooney 2000; Darvill 2004b) and others who argue that the change was more ideological and that communities continued to be peripatetic, following a seasonal round (Edmonds 1999; Thomas 1991; Whittle 1997). In reality these models need not be mutually exclusive, as they are to a large extent based on evidence from different regions (Bradley 2003b; Whittle 2004); it is very probable that there was a high level of regional variation across Britain and Ireland.

Along the Atlantic façade as a whole, there appears to be evidence for an exchange of material culture with Continental Europe during the Neolithic (Sheridan 2000; 2004) and, where preservation of human bone has allowed stable isotope analysis, there appears to have been a rapid switch to a

terrestrial meat-based diet (Richards 2003; Schulting 2004). However, although there is evidence that people moved around the landscape during the Neolithic (Budd *et al* 2003), the exchange of material culture does not necessarily equate with migrant populations *per se*. There is also not enough skeletal material from either the Mesolithic or Neolithic period in the south west to be certain about dietary strategies or the implications which the adoption of a diet based on domesticated animals might have had upon Mesolithic-type lifestyles.

Until recently, aside from flint scatters, evidence for the Neolithic period in Cornwall was largely confined to upstanding monuments in the form of chambered tombs or dolmens and tor enclosures. Whilst the former were argued to be associated with

disposal of the dead (for example, Barnatt 1982; Mercer 1986), the latter were assumed to be residential settlements associated with a sedentary population (Mercer 1981; 2001; 2003). However, there are difficulties with this scenario (Jones forthcoming a; Jones and Taylor 2004). None of the dolmens have produced an inhumation burial or any readily identifiable Early Neolithic pottery; indeed, the majority of diagnostic finds are of a Bronze Age date (for example, Thomas and Wailes 1967). The lack of burials can be explained by the acidic soils on which the dolmens were constructed, but the lack of diagnostically Neolithic artefacts could be taken to suggest that the monuments were of a later date. However, although it is probable that the dolmens are of an Early Neolithic date, it is possible they were not primarily intended as tombs, but instead were monuments where symbolic stones were raised into the air (Richards 2004; Whittle 2004).

The interpretation of tor enclosures is also beset by problems. These have been outlined elsewhere (Jones and Taylor 2004, 98–100) but, put simply, if the Early Neolithic tor enclosures really were settlement sites there is a suspicious dearth of evidence for cultivation or food processing, and the structures inside them appear rather too insubstantial to be permanent houses. Neither is there evidence for permanent settlement elsewhere: with the exception of one possible rectilinear structure at Penhale, there are currently no known Neolithic long houses in the county (Nowakowski 1998). Neither is there substantial evidence for cultivation or for large-scale clearance of woodland.

This is not to claim that there is an absence of evidence for Neolithic occupation in Cornwall. In fact, there are a large number of small flint scatters (Gould 1994) and a growing number of pit sites associated with Neolithic artefacts and/or radiocarbon determinations. At Poldowrian on the Lizard, two Neolithic determinations – 5180±150 BP, 4350–3650 cal BC (HAR-4323) and 4870±130 BP, 4000–3350 cal BC (HAR-4052) – were obtained from two pits containing sherds of Early Neolithic pottery and flints (Smith and Harris 1982, 49). The pits were associated with a group of features which included a further pit and a gully made up of small pits or postholes (*ibid*, 30). At Tremough, near Penryn, two fourth millennium radiocarbon determinations are associated with a site which contained a large flint scatter and charcoal-rich deposition pits. A determination of 4850±55 BP, 3662–3542 cal BC (AA-44601), was obtained from

a charcoal pit on part of the site where there was a scattering of charcoal-rich pits, a low-density flint scatter and a greenstone axe. A ditch in an area of the site where there was a high-density Neolithic flint scatter gave a determination of 4995±50 BP, 3907–3707 cal BC (AA-44604) (Gossip and Jones forthcoming). At Trenowah, on the St Austell Distributor Road, a Neolithic date of 3330–2910 cal BC was obtained from a pit within a group of charcoal-rich pits and another contained a sherd of Neolithic pottery (C Johns pers comm). At Metha, near St Newlyn East, a pit containing flints within a charcoal-rich fill produced a Neolithic determination: 4505±68 BP, 3400–2900 cal BC (Wk-12676) (Jones and Taylor 2004). Finally, at Portscatho, on the south coast, a group of four pits were filled with charcoal and contained sherds of Early Neolithic pottery. Four fourth-millennium radiocarbon determinations were obtained from these pits: 4818±48 BP, 3710–3510 cal BC (Wk-13256), 4805±51 BP, 3700–3500 cal BC (Wk-13257), 4952±45 BP, 3810–3640 cal BC (Wk-13258) and 4713±45 BP, 3640–3370 cal BC (Wk-13259).

Most of these pit sites are clearly similar to those at Tregarrick, but some are associated with flint scatters, as at Poldowrian (Smith and Harris 1982), and may not have been produced with as much conscious formality. In other words, some of the pit sites in Cornwall may have been produced as a kind of ritualized clearing up, part of an accepted way of behaving or a routine way of occupying the landscape.

If we accept that tor enclosures were not settlement sites and that pit sites represent domestic settlements but were not associated with long houses or extensive cultivation and fields, it becomes necessary to consider an alternative model for the Cornish Neolithic. It is argued here that tor enclosures were sited at iconic natural features in the landscape and that occupation within them was seasonal or occasional rather than permanent. It is suggested that they were associated with the periodic gathering of scattered groups of people, who normally inhabited and moved through the lowlands with their animals, for the purpose of exchanging artefacts and the ritualized deposition of stonework and pottery during public ceremonies. By contrast, the lowland pits which may be associated with the flint scatters represent activities which occurred within the clearings made by smaller groups of people as they passed through the landscape.

However, both types of site are related and are part of a continuum which involved seasonal gatherings and dispersals of small communities.

We would argue that the Tregarrick pits represent a third type of site within this continuum. Helman Tor lies just seven kilometres to the east of Tregarrick and, despite the very limited area excavated, produced evidence of a stone enclosure wall and a large artefactual assemblage, typical of tor enclosures, including ceramics, stone axes and flintwork and arrowheads (Mercer 1997). It did not, however, produce any evidence for permanent domestic structures. If the character of the activity identified within the excavation area extends across the summit of the tor, it would be on a far greater scale than what was occurring at Tregarrick. By contrast, the nearest known evidence of lowland Neolithic activity to Tregarrick consists of discrete, low-density flint scatters found between Bears Down and Ruthvoes (Lawson-Jones 2001) to the north and isolated pits further away to the west, as for example at Metha, and to the south at Trenowah (Jones and Taylor 2004). The Tregarrick pits are also clearly different from these kinds of occupations.

The relatively low density of pits at Tregarrick, ten pits over four centuries, together with the apparent absence of Neolithic flintwork or pottery outside the pits, suggests that this was probably not a normal occupation site. Indeed, even allowing for further pits beyond the excavated area around the circumference of the Rock, it may have been a place which was only visited on an intermittent or seasonal basis by quite small groups. The ubiquity of hazelnuts in the pits indicates that the Rock might have been visited around harvest time (J Jones above). The limited environmental evidence suggests that there were open areas in the vicinity of the Rock, within the background vegetation of scrub and more substantial woodland (Gale above).

From current evidence it is possible to argue that the Early Neolithic landscape of Cornwall was fully exploited, with varied types of occupation in different locales. Thus, in some places there may have been established clearings in the woodland where people stopped and grazed their animals and undertook the daily routines of preparing food, pot making, knapping flint, making axes and looking after their animals. Before they departed pits were dug and some of the occupation debris was gathered together and returned to the ground. Some newly-made objects were kept for personal use, or

for exchange or public consumption at the tor enclosures. A few treasured items, including old pot sherds, an amulet, a quern and some of the best flints were set aside for another purpose, for burial at the Rock. We can imagine a small group setting off towards the Rock which loomed in the distance above the trees. It is possible that this journey was made by elders, ritual specialists, to venerate the spirits of the Rock, or was carried out as a rite of passage by the young who wished to enter adulthood, or by some other group. After they arrived, small pits were dug at a respectful distance from the Rock and offerings of flint, pottery and hazelnuts were placed within them. Some of the visits may have been made at night and fires were lit inside pit-hearths. In the morning the pit-hearths were also filled, incorporating similar offerings, and the group departed.

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## Chariots of fire: symbols and motifs on recent Iron Age metalwork finds in Cornwall

ANNA TYACKE

The Portable Antiquities Scheme (PAS), established in Cornwall in 2003, has brought more metalwork finds into the Royal Cornwall Museum in the past two years than in the previous 13 years during which I was Curator of Human History. Four unusual recent items, all from the Late Iron Age (first century BC–first century AD) and all metal detector finds, are reported on here. These artefacts have been acquired by the Royal Institution of Cornwall, thanks to the generosity of the landowners and the willingness of the finders to report them. All finds reported under the Portable Antiquities Scheme are recorded and entered on a national database. This is available online at [www.finds.org.uk](http://www.finds.org.uk) and Cornish material can be searched using the PAS reference numbers (in brackets below) or via an interactive map.

Evidence from other parts of southern Britain, particularly Wessex, suggests a change in the significance of the horse in later Iron Age Britain, associated with the emergence of new elite groups. These groups were themselves linked with the construction of new types of enclosures, some of which have revealed substantial quantities of horse remains as well as horse gear and chariot fittings (Creighton 2000, 15–18). Representations of horses and chariots, sometimes in abstract form, also appeared on coinage and metalwork. No work has yet been done to identify parallels for these developments in the south west, but some recent metalwork finds suggest that there may be potential for investigation on these lines.

One of these is a gold *stater* (CORN-DE0E02; RIC Acc. No. 2005.10) (colour plate 3), the first to be reported to the Royal Institution of Cornwall since the eighteenth century. The coin was found by Dave Edwards in August 2004 in the parish of Ludgvan and is 19mm in diameter, 2mm thick, and weighs 5.23g. It is a Dobunnic D-type gold *stater* of the ruler ANTED (10 BC–AD 10). The obverse has a leaf or tree-like object made up of ten branches, which occurs on other Dobunnic coinage and may have been an emblem of the Dobunni. The reverse reads ANTED...RIG, with the D of ANTED in the form of a Greek theta above the horse and RIG in front of the horse and around the legs. RIG may be the title 'king'. The horse's tail has three strands with pellets on the ends, the ears are elliptical and there is a six-spoked wheel, representing a chariot, beneath it. (For similar examples, see Hobbs 1996, 168, plate 96–7, nos 3023 and 3028, and Van Arsdell 1989, 276, nos 1066–1.) The Dobunni territories spread from Warwickshire to North Somerset and from Avon to West Oxfordshire, based on a tribal centre at Bagendon near Cirencester in Gloucestershire. The Roman town established nearby in the first century AD was known as CORINIVM DOBVNNORVM.

Coins were initially minted in Britain in the first century BC and early first century AD, although over much of the previous two centuries coins had been brought in from the Continent, particularly from Belgic Gaul. The images of horses used on early coinage derived directly from Gallic prototypes,

## CHARIOTS OF FIRE: SYMBOLS AND MOTIFS ON RECENT IRON AGE METALWORK FINDS

where the three-tailed horse motif seems to have come from a coin of the Sussions, produced around 60 BC (Cunliffe 1991, 110–3, 123). One of these imported Belgic coins (see below) was supposedly found near Penzance in 1888 (Evans 1890). Exchange and trade are likely to have been as much a process of social interaction as commercial transaction at this time and the functions of early coinage in Britain are obscure. The later pre-Roman Iron Age, however, was a time when social and political links with the European mainland were consolidated and strengthened, perhaps to counteract the expansion of the Roman empire into Gaul during the first century BC (Dr Richard Hobbs, British Museum, pers comm). Adoption of coinage in Britain may therefore have been at least in part a matter of emulation and the assertion of distinct regional political groupings and identities (Haselgrove 1996).

The Dumnonii of Cornwall and Devon did not mint their own coins and Iron Age coins are generally extremely rare in Cornwall. Prior to the recent discovery of the ANTED *stater*, only two finds of British Iron Age coins from Cornwall had been reported to the RIC. These were two early first-century silver *staters* of the Dobunni, found in 1990 beside the Camel estuary near Padstow. One of these was loaned to the RIC by the Prideaux-Brune Estate in 1991. The only other gold Iron Age coins definitely to have been found in Cornwall were a hoard of 50 gold *staters* found at Carn Brea in 1749 (Borlase 1769, 159f, pl xxiii, nos i–xvii). The earlier

coins from this group, dating to c 125–100 BC, were minted by the Ambiani tribe of Gaul (Penhallurick 2000, GAZ5), centred around modern-day Amiens, and the Bellovaci, who lived north of Paris. The later examples, c 75–60 BC, were minted by the Atrebatas, whose lands covered Berkshire, Sussex and north Hampshire (Sills 2003, 357). The originals went to the Ashmolean Museum in Oxford and copies are on display at the Royal Cornwall Museum. A Dobunnic *stater* of Catti, probably a successor to Anted, was reportedly found ‘at Camborne, in about 1865’ (Evans 1890, 488), but has been lost. Evans also refers to a hoard made up of one Belgic coin with triple-tailed horse on the reverse (Van Arsdell 1989, 6) and five gold Atrebatian type B *staters* with the triple-tailed horse above a spoked wheel (*ibid*, type 222–1, 116), like the ANTED *stater*. This hoard was reputedly found in the vicinity of Penzance in 1888. However, D F Allen was of the opinion that the coins may have come from Wallingford in Berkshire in 1890 (Allen 1961, Appendix II, 199), and it is suspicious that they came to the British Museum as two lots in different years (Penhallurick 2000, GAZ6).

Another rare item is a cast copper alloy ‘cheekpiece’ (CORN-B50AA7; RIC 2005.8), probably part of the gear associated with the harnessing of a horse and chariot (Fig 1). It was found in the parish of St. Ewe in December 2002 by Jonathan Clemes. The object is 96.4mm long, 13.3mm wide, 11.8mm in depth and weighs 48.53g. It has expanded terminals and waisted arms on either



Fig 1 The copper alloy cheekpiece from St Ewe. Length: 96.4mm. Copyright of the Royal Institution of Cornwall.

side of a defined and flattened central section, perforated centrally by a rectangular slot to receive a strap. Only about 30 cheekpieces of this period have been found in Britain, and this is the first reported in Cornwall. It is unusual in that it is plain; others are embellished with *champlevé* enamel or decorated with incised patterns, like the St Ewe find's nearest parallels in the large hoard of horse gear recovered from Polden Hill in Somerset (Spratling 1972, 122–125, fig 237). A similarly shaped example was found on the Folly Lane site in St Albans (Nisblett 1999, 138, fig 52).

The contexts of the known southern British examples, as well as their ornament, suggest that they were current at the time of the Roman Conquest. Their general distribution indicates that they were a fairly standard piece of equipment, although their original function is difficult to determine. Hoard finds such as the one from Polden Hill, which included a pair of iron cheekpieces and a set of four bronze examples, suggest that they may have been connected with the harness of chariot ponies and were used in pairs. The 'cheekpieces' were

previously thought to have slotted onto the end of the mouthpiece of a bit, with which they are often found in association. An alternative explanation is that they were used as a toggle, 'to link the trace leathers on a chariot onto the body of the vehicle, having the function that buckles were later to assume' (Nisblett 1999, 137). This would have made the attachment stronger but also easier to 'decouple'.

Also associated with chariots is a cast 'vase-headed' linch pin head (NARC-37A496; RIC 2005.5.1), the outer terminal of a linch pin used to secure the wheel hub (Fig 2). It was found in the parish of St Goran in September 2003 by Ralph Norton of Rugby. The head is 31mm long (61mm long with the iron shank), 33.4mm in diameter and weighs 122.38g. The upper face of the linch pin head is decorated with two roundels containing a 'lobe and circle' motif. One side of the head is worn away where it has rubbed against the edge of the nave, the central block of the wheel which held the axle and spokes. A section of the iron shank survives but half of it is missing, together with the foot of the pin. The head is perforated to allow for a string to be threaded through. This would have been attached at one end to the foot of the pin, and at the other end to a miniature terret, which would have been placed along the shank and under the head (see Stead 1985, 13, fig 12, and Stead 1991, 46, fig 38, for a reconstruction from an Iron Age burial at Kirkburn, East Yorkshire, of how this set of objects fitted together).

A decorated bronze linch pin with a miniature terret was found during the 1939 excavations at Trelvague Head, Newquay (Ward Perkins 1941; C Thorpe, pers comm). An anthropomorphic linch-pin head from Castle Gotha, St Austell (Henig 1982, 145–7, fig 18), previously thought to be Iron Age, has recently been reassigned to the early Roman period (Dr J D Hill, British Museum, pers comm).

The most unusual artefact presented here, in terms of shape and decoration, is a scabbard mount (CORN-AC1453; RIC 2005.1) (Fig 3, colour plate 4). This was found in the parish of Padstow in January 2005 by Chris McLoughlin. It is cast in copper alloy with a squared-off upper section and a lower section tapering to a point. The mount is 55mm long, 35mm wide and 1.7mm in thickness. It weighs 16.77g. Two rivets remain at the top of the mount and two others remain on the left side as part of a group of four within the decoration. The two rivets on the right side of this group are missing.

The mount is of a similar width to other Iron Age

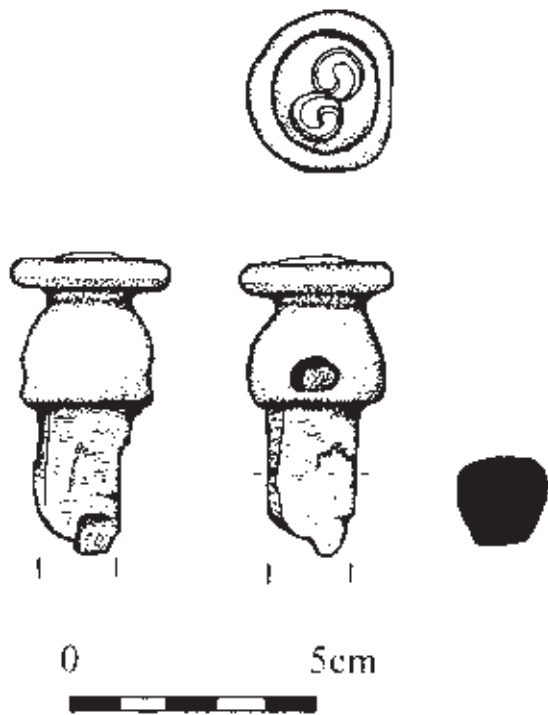


Fig 2 The linch pin head from St Goran. Drawing by Carl Thorpe.

metal scabbards, such as those from Wetwang in East Yorkshire, and Lisnacrogher and the River Bann in County Antrim (Stead 1985, 30–1, fig 30), which generally range in width from 35 to 50 mm (J D Hill, pers comm). The rivets would have attached the mount to a hide cover for a wooden scabbard wider than itself, just below the mouth; the scabbard may have also been lined. Scabbards of organic materials are more common than those of bronze or iron, which often have decorated front plates running the whole length of the scabbard, but all are very rare finds in Britain.

The decoration is in the form of two ‘S’ curves, back to back, crowned by a *palmette* or mushroom-like motif which originates at the pointed end of the mount. This arrangement, with the top two rivets as ears, and the curves surrounding the eyes, may have been intended to suggest horse head-gear, like the pony-cap from Torrs, Dumfries and Galloway (Stead 1985, 84, fig 91). Opposed ‘S’ designs are found on a number of British Iron Age scabbards, often just below the mouth of the scabbard. The ‘S’ shape is formed, under the curl of the *palmette*, by a dished ‘trumpet void’ at the top of the ‘S’, which then curves around to meet a ‘lobe and circle’ motif at the bottom, facing in the opposite direction. Sections of the motifs are highlighted using hatching, to give the decoration depth. In this case, the voids at the top and base of the design are picked out with dots, a tradition peculiar to the south west (J D Hill, pers comm).

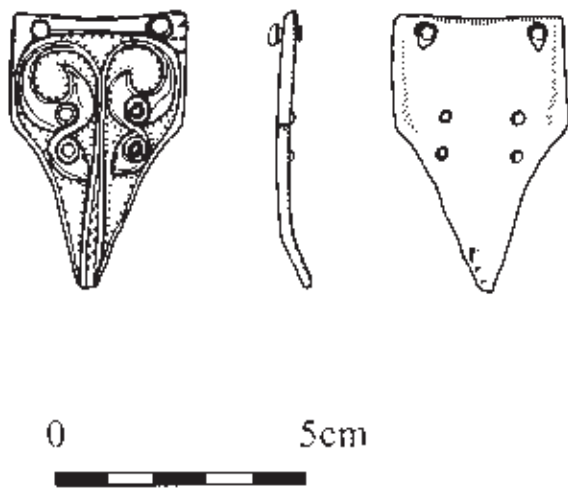


Fig 3 The copper alloy scabbard mount from the parish of Padstow. Drawing by Carl Thorpe.

This design uses elements that are commonly found on a number of British Iron Age objects, including the well-known decorated mirrors. It falls within Style V in Ian Stead’s classification of British La Tène art (Stead 1985), or the ‘Mirror Style’ in Cyril Fox’s terminology (Fox 1958). This style was common from the first century BC to the first century AD, but probably started in the second century BC (J D Hill, pers comm). Although the design of this object is not directly paralleled on any other example, it has broad similarities to motifs found on a number of British sword scabbards, including those on the La Tène III examples from Hammersmith (Stead 1985, 28, fig 27) and Meare in Somerset (Taunton 1930, 154; Piggott 1950, 8, fig 3, no 3); the latter, however, is not symmetrical at the top of the design. The mount also shares motifs with the earlier La Tène II scabbards from Fovant, Wiltshire (Stead 1985, 32, fig 32), and Hunsbury, Northamptonshire (Fell 1936, 64, fig 4). All these scabbards are decorated in Style V, apart from Fovant which has a Style IV motif (Jope 2000).

A decorative mount from Carloggas, St. Mawgan-in-Pydar, on display at the Royal Cornwall Museum, illustrates the sort of scabbard mount that might have been found below the Padstow find. The Carloggas mount is a narrow, spatula-shaped piece of *repoussé* bronze sheeting with a similar lobe and circle motif at the top of the strip and a palmette curving around towards the central stem in the base section of the decoration. The continuous coil on the Carloggas mount, incorporating *pelta* shapes and trumpet voids (Fox 1956, 80), is also found on other scabbard mounts such as that from Deal in Kent (Parfitt 1995, 60, figs 15 and 201, plate VIII). The mount was originally identified, however, as ‘almost certainly part of the decorative bronze-work on a shield’ (Fox 1956, 80).

These four finds are exciting additions to the corpus of Iron Age metalwork known from Cornwall and demonstrate the success of the Portable Antiquities Scheme in bringing new material to light and providing a means whereby it can be recorded. In particular, the Scheme is enabling a wider and more comprehensive picture of artefact finds to be pieced together and offers new opportunities for their significance to be assessed. Taken with the re-examination of the south-western school of metalwork which has been spurred by the Bryher mirror find (C Johns, this volume), these objects raise important questions about status, material



wealth and display in Cornwall during the late Pre-Roman Iron Age. They undoubtedly further undermine perceptions of Cornwall as an area of limited material prosperity at this period.

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# Archaeology and the media:

## Cornwall Archaeological Society–Devon Archaeological Society joint symposium

PETER GATHERCOLE, JANE STANLEY  
and NICHOLAS THOMAS

Cornwall Archaeological Society held its biennial symposium jointly with Devon Archaeological Society at Saltash Community School on 18 October 2003. The subject, one of broad and topical concern (who can avoid television these days, especially viewers with strong archaeological interests?), attracted about 100 participants and obtained a wide diversity of views from both the five invited speakers and contributions from the floor. There was no unanimity of opinion but general concern that there remains much room for improvement in the presentation of archaeology in the media, especially television.

In addition to the presentations and discussion, there was an exhibition in the hall of 39 archaeological reconstruction paintings and preparatory studies by Jane Stanley, representing five prehistoric sites in mid Cornwall. These works demonstrate that painstakingly researched artwork can make an emphatic contribution to public understanding of archaeology and our ancient heritage. The artist's notes explained the works and also the process by which she, as illustrator, arrived at the finished products (see *Postscript* below and colour plates 5 and 6). Their inclusion in this report has a wider significance. As is evident below, much discussion during the symposium focused on the extent to which the visual image, especially that on television, was prone to exaggeration and distortion of what could be construed as evidence of past life. These reconstructions have no such intention or

impact. They are wholly faithful to the evidence within the terms of her artwork.

In our invitations to the symposium speakers we wrote:

We are defining 'media' as public communication on archaeology through radio and television, newspapers, magazines, popular books and information technology. We include site and excavation presentation to the visiting public. What we want to do is to examine the aims, methods and degrees of success of the media in their presentation and interpretation of archaeology.

In this report we summarise the remarks of the contributors, based on extensive notes taken by Jane Stanley, together with material subsequently supplied by the speakers and others taking part. We conclude with some comments of our own.

The first speaker, **Professor Peter Fowler** (emeritus professor of archaeology, University of Newcastle; World Heritage advisor to UNESCO), gave an address provocatively entitled 'Not archaeology and the media'. As the organizers had hoped, he got us thinking, and subsequently talking, through a series of sometimes outrageous, always heartfelt, statements about archaeology, the media and modern society. Professor Fowler wanted it clearly understood that media and archaeology are separate entities, worthy of consideration on their own. But whereas the past is of relatively little interest to the media, the latter, within the concept of 'communication' is the lifeblood of archaeology.

After all, why should it be thought necessary to support two learned societies in Cornwall if we do not consider it worthwhile to broadcast our subject as widely as we can?

Professor Fowler was delighted by the amount of archaeology there is on TV nowadays, but observed that, following the demise of Mortimer Wheeler and Glyn Daniel (each a 'TV Personality of the Year'), the sad fact is that the next generation of archaeological presenters has failed to build upon that fine start. By the 1980s, TV was serving an audience of double figure millions but, because of the need for mass entertainment, archaeology had to satisfy the demands of TV instead of taking the lead and showing the subject as something worthwhile for its own sake. Individuals like David Attenborough, a genuine 'personality', had, on the other hand, enabled 'nature' to become central to TV. Professor Fowler recalled the period when he fronted an archaeology series using the famous Natural History Unit at Bristol, who were resting between Attenborough-led forays into Amazon jungles and the like. His local newspaper, *The Morpeth Herald*, picked up the news with a headline, 'Morpeth Man Keeps TV Star [David Attenborough] Waiting'!

Today, archaeology has provided a genuinely commanding TV archaeologist, Mick Aston, a man greatly respected within his profession. It has been Channel 4 which has espoused him, and his subject, to bring a growing amount of their concept of archaeology to our screens. Some of Channel 4's work is good: Francis Pryor's *Britain BC* was interesting. Whatever you think of Aston's *Time Team*, it is interesting sociologically and attracts millions. Aston feels justified in this approach because he is reaching a huge audience of different people in a way that no other teaching could. There is, however, a price to pay: archaeology, as a serious subject, has been compromised. It is said that 'fresher' students reading the subject at university now sometimes have to undergo a crash course in archaeological reality before they can begin its study seriously. Professor Fowler deplored the lack of awareness of the conservation ethic in *Time Team*'s approach, especially when they ignore the profession's acceptance that preservation *in situ* is the best strategy for the nation's archaeological resource. *Time Team*'s so-called 'Big Dig' in 2003, was a disaster, conceptually and in practice.

Professor Fowler then considered the journalistic media, newspapers and magazines. Much of it brought us good archaeology. Of course, newspapers

like the *Daily Mail* delivered their share of aliens marking out crop circles, etc, but this must be set against Norman Hammond, for instance, whose contributions in *The Times* give accurate archaeological reports, now augmented by the excellent coverage across 'the heritage' by Maeve Kennedy.

The record in the magazine field is not so good. Professor Fowler thought that, while admitting the quality of *Current Archaeology*, and provided that you accepted its often idiosyncratic right-wing propaganda and recognised that it had cornered the market in terms of committed archaeology readers, it had failed to take the word to a wider world. It was therefore good news that the Council for British Archaeology (CBA) was reaching out further with its *British Archaeology*, which can now be seen on the shelves of W H Smith. Meanwhile, the CBA website must, surely, be having a major effect on our subject and its workings.

It was, however, the impact of TV on society, with archaeology occupying the fuzzy zone between the two, which troubled Professor Fowler. He is deeply concerned that the price we have to pay for the undoubted popularity of our subject as TV material is programmes like the BBC2 series *Hidden Treasure*. How can it be that a corporation which once brought us *Chronicle* and *Animal, Vegetable, Mineral?*, now offers entertainment based on greed, ignorance and damage to a national resource, fronted by a young woman forever on the run? Professor Fowler has been inveighing against metal detectorists since the 'get rich quick' hobby was introduced to East Anglia by the American armed forces in the 1970s. His scholarly hatred of this activity was directed, as an example, at the man whose rape of a Roman villa near St Albans, was rewarded by £31,000 of taxpayers' money for needlessly digging out two rare sets of grave goods. The assessor explained, on television, that it could not be more because of the ensuing cost of the objects' conservation. Where are our priorities when museum collections everywhere already require more urgent conservation than we can afford? Yet the TV museum curators were seen drooling over the acquisition of this new set of problems in preservation. Professor Fowler wondered why treasure hunters were not made to devote some of their rewards to cover the costs of excavation and publication resulting from their depredations.

In one respect, the BBC has redeemed itself: it gave us *Landscape Mysteries* on BBC2 (BBC / Open

University, 2003). Here was knowledge, well-researched, unassumingly presented and relevant to what we as archaeologists are trying to reveal about our past. No breathless haste and glamour here.

Museums are one of archaeology's principal means of communication. The National Curriculum gave museums a meaningful focus, particularly for children up to 12–13, and museum responses were often superb. Current political demands for 'access' have undone much of that good work. Professor Fowler quoted his own experience when watching a class of inner city children at St. Paul's church, Jarrow, the very church in which the venerable Bede worshipped. The 7–8 year olds were so ignorant of their Christian heritage that they could not even identify the altar. Museums, English Heritage and the National Trust are all needed to meet the challenge posed by ignorance of our very roots. If our museums can rise above the triteness of programmes like *Hidden Treasure*, then their contribution in ideas and in approaching basic questions like 'how did our environment develop?' and 'who are we?' could be immense.

Professor Fowler then turned to art as archaeology and archaeology in art. Time allowed only passing reference to the significance of photography, cinema (shall we ever lose the pernicious vision of 'cowboy and injun' as a version of early USA western history?) and sculpture, especially the elegant body of Barbara Hepworth's legacy and Andy Goldsworthy's comments on landscape. Instead, Professor Fowler concentrated upon his recent personal inspiration, painting, and the following paragraphs are recorded, largely verbatim, from his paper.

His heightened awareness of this dimension came from several sources. First, Colin Renfrew's recently published book, *Figuring it out* (Renfrew 2003), 'to my mind, an inspirational discussion of relationships between art and archaeology. I just wish I'd had something like it in my hands as a young man – it would have made my conduct of archaeology very different from the fairly rigid and straight-laced process I have taken it to be. *Figuring it out*: Colin has; I didn't. Read it, particularly if you're young and starting out in archaeology.'

'Secondly, one of the major interrelationships Renfrew explores is obviously that of 'landscape art', and the work of Richard Long in particular. There is a whole body of work and thought here, now well-established and, in part, publicly funded; for example, the 'field terraces' built over the last 20 years along the coast in Dorset.'

'And thirdly, I have discovered to my complete surprise that I can paint. I have consequently become acutely aware of this hitherto largely unexplored medium of communication not only between art and archaeology but between our present understanding and that of our predecessors. I am an innocent here, but of course this is well-known territory to some of our long-term artistic archaeological colleagues like Chris Chippindale, and, from the other end of the perspective, was glimpsed artistically but without academic knowledge by Paul Nash and, with the knowledge of a good local historian, above all by Peter Lanyon. A fortnight ago I spent the whole day in the Tate Liverpool at the Paul Nash retrospective, and in particular much of the afternoon in one room where, under the title 'Megaliths and menhirs', were collected all his Avebury paintings and similar works. Hundreds of thousands of people, if not millions over the years, see such works and we should not overlook their contribution to the 'archaeology and the media' debate. Painting is indeed a powerful medium of self-expression and of communication. In the case of real artists, we as archaeologists should recognize that powerful messages about our material and our subject are beaming out daily through artistic media from artists to people.'

The matrix in which archaeology is embedded is social rather than material. Today we face threats to our academic discipline from populist versions of it such as treasure hunting and BBC's *Hidden Treasure* and more general social trends like impatience with serious archaeology if it takes too long, and its requirements of professional training and discipline. Media such as the web seem to be reflecting rather than causing what is happening. We have to consider whether it is better to communicate at least something of our subject to the many who previously had known nothing of it or else to continue with accepted norms of teaching the culturally and educationally privileged. And, as if this were not a large enough issue for debate, today we have a society changing rapidly in ethnic and demographic terms, for whom 'the countryside' does not figure. The urbanized do not need it, or, if they do, they are too poor to be able to get out into it. How do we communicate with whom, about what, at such a time of fundamental social change?

**Dr Tim Schadla-Hall** (Reader, Institute of Archaeology, University College London) then spoke on the theme 'What's history if you can't bend

it a bit?' Moving immediately and unashamedly to his belief that history was, is and always will be a matter of interpretation, the speaker began by regaling his audience with comments made by the Chief Executive of the 1988 500<sup>th</sup> anniversary Armada celebrations, *Fire over England*. Questioned about the inaccurate location of some beacons, Bruno Peek said, 'If you've got a good product, then you package it and sell it – and what is history if you can't bend it a bit?'

Archaeology is a very good product, which both feeds, and feeds off, the media. The press love what we do; we cannot escape from TV, nor can we turn the clock back. When Dr Schadla-Hall was excavating at Star Carr in the Vale of Pickering some years ago, his discovery of worked wood more than 7000 years old provoked the local press into such headlines as 'Cradle of Civilization Found In Yorkshire', 'Nowt So Clever As Stone Age Yorkshire Folk' and 'Civilization Began In Yorkshire'. Laugh though we may at these sensationalist claims, they sell newspapers. And at the same time they promote a form of identity, even nationalism. Nevertheless, Dr Schadla-Hall believed that today's relatively educated public can see through sensational headlines.

In our increasingly affluent society, the ever-present media are bound to cause problems, suggested the speaker. It would be nice to think that within our ever more liberal (as well as wealthy) society, openness and thoughtfulness would go hand in hand with debate and desire for improvement. That such accessibility to programmes like those on the History Channel, BBC 3 and 4, and all the new commercial channels is now available could be considered democratic and desirable. But in allowing so many voices to be heard, we have lost the critical capacity to distinguish good from bad. Look at the number of websites whose contents are unscientific and indigestible! We are witnessing the rise of pluralism and, indeed, lunacy, where information and facts are replacing knowledge. Dr Schadla-Hall reported one senior TV professional he had met recently who admitted that in programming all that mattered was that there was material to televise. Its often poor quality mattered not, because media people are increasingly undemanding in terms of content. However, he believed that rather than moulding society, the media were influenced by what society wanted. Viewers are given undemanding, academically questionable TV programmes on world archaeology because the

popular taste is for travelogues with no more than a dash of thought. He also feared that several archaeological publications aimed at the popular market were going in the same direction.

The speaker believed that archaeologists' distrust of the media, of TV in particular, stemmed from recognition of their power. The media are there both for the dissemination of propaganda and, of course, for profit. Principally, the profit motive leads them to broadcast material at the lowest possible level because what the viewing or reading public wants, above all, is entertainment rather than education. Dr Schadla-Hall set out a startling picture of the growth of television in Britain from its inception in 1936. There were 130,000 TV sets by 1948, 10.5 million in 1959; by 1975 90% of all households possessed a TV and by 1990 95% had at least one set. Overall, TV is considered to be as ubiquitous as radio and twice as effective.

Because of its perceived power British TV has been regulated by government from its inception (unlike, for example, the USA). The appearance of ITV in 1955 was a huge triumph for the forces of capitalism, but it started the long run towards deregulation, which now exists *de facto* and is slowly destroying all quality TV. In its early years, ITV tried to match the cultural output of the BBC, whose programmes such as *Animal, Vegetable, Mineral?*, *Buried Treasure* and *Chronicle* were seen more as education than entertainment (and owed much to the scholarly vision of one producer, Paul Johnstone). For ITV, Sir Kenneth (later Lord) Clark, who served on its board, saw competition with the BBC as an opportunity, through his eye-catching *Civilization* series, both to infuse a cultural element into ITV products and to generate wealth. But the explosion in numbers of people owning a TV set, increasing post-war wealth and latterly the growing number of TV channels, has been paralleled by a declining cohesion within society. The number of viewing hours has increased enormously over the past 25 years and inevitably quality has suffered.

Dr Schadla-Hall then considered some recent TV programmes that enjoy wide public demand. *Time Team* he saw as superficial and misleading, but its success was undeniable, with three million-plus viewers. He wondered what the TV producer and writer on TV archaeology, Paul Jordan, would have thought of *Time Team*. Jordan suggested in 1981 that 'programmes which set out to tell an established story have some advantages over the ones that follow the course of discoveries. The end is known and the shape established before production begins' (Jordan



1981, 212). Such ‘story programmes’, he noted particularly in the form of multi-part series, are strongly educative; ‘their power to enlighten the public as to the best thinking of the archaeological specialists must prove to be not only a valuable source of entertainment and information but also a needed antidote to the slapdash irrationalism of the “ancient gods and spacemen school”. The very popularity of the latter indicates the desirability of some more missionary work in that direction’ (*ibid*).

Programmes such as the *Meet the Ancestors* special ‘King of Stonehenge’ (BBC, 2003), with its demonstration of a battery of archaeological techniques, were racy and thought provoking. Early TV programmes such as *Animal, Vegetable, Mineral?* centred on expert infallibility, which left the audience uninvolved. Today, producers prefer a different approach: ‘Let’s try and solve this mystery; here is some evidence, you are part of it.’ *Hidden Treasure*, a BBC2 series, and other programmes have seen the appearance of the non-archaeological presenter, provoking its own anguish about who controls what. This series, which rides on the back of the Portable Antiquities Scheme (see below) is conducted at a breathless pace, is obsessed by monetary valuation, glorifies treasure hunting and lacks archaeological control. The involvement of the British Museum in order to add credibility is unacceptable – locked doors, dark secret corridors, metal detectorists taken to have their finds identified and valued – and gives grounds for complaint at a high level. Dr Schadla-Hall also warned his audience to beware of a forthcoming Channel 4 series, *Extreme Archaeology*, where ever-more bizarre subjects and situations were to be provided.

Archaeology can suffer much from unsupervised and worthless programmes. For example, *Mysteries of the Mummies* (Channel 4, 2000) resurrected the hyper-diffusionism of the 1920s, long since discredited. Yet TV allows no discussion; viewing figures are what count. In *Quest for the lost civilization* (Channel 4, 1998), Graham Hancock appears to involve the viewer by using words like ‘surely’, and with visual tricks such as standing in front of an Olmec statue, whose negroid lips he would then claim as proving African origins for early South American settlement, for which there is no convincing evidence. Worse still was the more recent series *Underworld* (Channel 4, 2002). This was potentially racist, superficial and intellectually sloppy, although it demonstrates the power of the medium. Again from the Graham Hancock stable, it centred on the idea, harking back to the notion of Atlantis, that there was a (now drowned) civilization existing before 10,000 BC. It was accompanied by a best-selling book.

It is possible, however, said Dr Schadla-Hall, to end on a high note because of archaeologist Francis Pryor’s series, *Britain BC* (Channel 4, 2003), based on his previously published book of the same title (Pryor 2003). Here a scholarly, well-informed presenter offers powerful discussions on the origins of the British people in order to get viewers to think about such matters, not simply as entertainment. The book, usefully presaging the series, scored over so many of its kind by not needing to incorporate (often inappropriately) imagery used in associated TV programmes. The speaker thought it a tragedy that Julian Cope’s massive, beautifully designed work, *The modern antiquarian* (Cope 1998), which with

The first programme of *Extreme Archaeology* appeared on 20 June 2004 (Channel 4). From the *Time Team* stable, it was extreme only in the depths the production plumbed to enhance its viewing figures. The archaeology was not unreasonable, since it proved that the footings of a bridge pier just visible in the treacherous mud (and tidal race) of the River Wye at Chepstow were probably early Roman in date. However, to submit the team (three junoesque young women, described in the *Radio Times* as latter-day ‘Charlie’s Angels’) to the evident dangers of the operation was irresponsible. And their strongly emphasised claim of ‘national importance’ for the results of their work was not critically assessed.

What is deplorable is the principle by which the validity of a new archaeological series is made dependent on little more than a handsome female team put in positions of at least apparent danger for dubious scholarly motives. The viewing figures may be high (higher than if the team had been composed of handsome males?), but this is a series in which archaeology has become a bizarre arrangement of pegs on which to hang programmes where the main appeal has much to do with female good looks, physique and an element of masochism. It is media exploitation of a serious subject at its very worst.

*Nicholas Thomas*

80,000 copies sold was one of the best-selling books of its year, was reviewed in *The Guardian*. Here was a book which promoted all sorts of lunatic ideas (for example, the chambered tomb of Hetty Pegler's Tump as a womb) which sold on a scale far outweighing more acceptable and scholarly works such as *Britain BC*, and was again accompanied by a television programme.

Dr Schadla-Hall concluded by saying that the TV medium, despite all its manifold problems for the archaeologist, is nevertheless with us for good, and that it is up to us to make the best use of it rather than decrying the strange and often dangerous ideas that appeared from time to time.

**Dr Mike Heyworth**, then Deputy Director (now Director) of the Council for British Archaeology (CBA), spoke on 'Messages and messengers', focusing on two sources of archaeological information with which the CBA is currently closely concerned: websites and journal publication. He also invited the meeting to consider the impression of archaeology conveyed through computer games and multimedia presentations aimed at young people.

Taking the latter first, Dr Heyworth stressed that the impression of archaeology conveyed by popular characters such as Lara Croft and Indiana Jones was barely recognisable to archaeologists, but that this was how many people still thought of archaeology. In the early days of archaeology on television, the programmes often centred on scholarly personalities such as Glyn Daniel and Sir Mortimer Wheeler (both winners of the TV personality of the year award in the mid 1950s). This more scholarly approach has been replaced by a more superficial approach, with some honourable exceptions. Even children's toys, such as the Play-mobil archaeologist, convey an impression of the archaeologist as a treasure hunter or a tomb robber.

Dr Heyworth felt that the fact that many archaeology programmes on television now use a non-archaeologist as the main presenter often led to a reduction in the archaeological quality of the programme. Where the presenter was an archaeologist it was less likely that the programmes would convey the impression that archaeology was just to do with spectacular locations, adventure, a hunt for treasure, etc. Of course 'real' archaeology can be all those things, but doesn't need to be 'sexed up' to the detriment of the archaeological content of programmes.

The speaker stressed, nevertheless, that archaeologists should embrace and work with new

media, such as the use of computer games and digital technology. They should learn the skills of working with the media in order to bring their experience and scholarship to bear in this area, with an appropriate mixture of education and entertainment. He was not concerned that many, indeed most, archaeology students do not end up working as archaeologists. This meant that knowledge and appreciation of the subject was spread throughout other disciplines, helping to counter any misleading impressions conveyed through the media.

As to magazines on archaeology, a glance at what is on the shelves of most High Street stores which stock magazines shows that there has been a significant growth in the range of titles covering history, but not yet archaeology. We need to try and get more of the existing archaeology magazines on the shelves to promote our subject to a wider audience. The CBA's own magazine, *British Archaeology*, edited by Mike Pitts, is now available through an increasingly wide range of shops, including W H Smith. It is to be hoped that others can join it and offer a broader 'shop window' for archaeology.

Whereas Tim Schadla-Hall had been highly critical of the often unedited, unreferenced data made available on the Internet through various web sites, Dr Heyworth pointed out that the CBA reached a far wider audience through its evolving web site than via any of its print publications. The CBA site also provided internet links to some amazing resources, available to all free of charge, such as the Megalith Map, which has high quality information on all the megalithic tombs in Britain. Most users will apply their own critical faculties to the use of web sites, just as they would for any other source of information.

In conclusion, Dr Heyworth noted the comment made in March 2003 by *Times* columnist Joe Joseph, that archaeology and journalism have much in common; archaeology, however, has a 'much, much longer deadline, although with almost as much chance of actually pinpointing the truth'.

**Dr Christopher Chippindale** (Curator of British Archaeology, Cambridge University Museum of Archaeology and Anthropology; former editor of *Antiquity*) chose as his subject: 'Showing Stonehenge. What do visitors to Stonehenge want to see? What do archaeologists want to show them?' Within the broad remit offered to speakers, his paper brought together the concerns of archaeologists, traditionalists and untutored visitors in an effort to decide how best (and how acceptably) to present Britain's most famous and

arguably most significant monument. A World Heritage site, altered, damaged and repaired since its construction over 4,000 years ago, its landscape ploughed up relentlessly since before the Second World War, Stonehenge poses a challenge which English Heritage must consider how to meet.

An important element in Dr Chippindale's discussion was that perceptions of the uses and significance of an ancient location like Stonehenge change. He presented the example of Wimpole Hall, a stately home near Cambridge. In earlier years this architecturally splendid building had been presented to visitors as a hymn of praise to its former aristocratic owners. Today, as elsewhere all over the UK, public interest in such houses has moved below stairs, perhaps prompted by TV as much as by egalitarianism. Domestic facilities and ways of life have assumed special significance. But what do visitors to Stonehenge now want?

Facts and theories about Stonehenge conflict. From the archaeologists comes a reasonably convincing view of the sequence of events, with an older earthwork re-used to contain the extraordinary series of stone structures which give the monument both its uniqueness and its world fame and status. The orientation of its earthwork entrance and the stone structures within *suggest* – no more than that – a concern with sunrise and sunset and perhaps with the changing seasons upon which the farming activities of its society depended. Further than that no interpretation can be justified. We do not, *and never can*, know what it was for, nor how it was used.

Of Stonehenge's assorted visitors, midsummer sunrise draws an annual gathering on the longest day, usually of the order of 25,000 people, tactfully corralled by a heavy police presence and led, for no historically or archaeologically justifiable reason, by the Ancient Order of Druids. To artists since Constable, and to photographers since the invention of that medium, the place inspires romantic, moody views. For those who believe in such things, Stonehenge overlies concentrated ley lines. The farming community, however, has generally had little time for the setting of the monument: the Avenue and the two cursus, which must have been of great significance within its long history, have been all but ploughed out; the incomparable cemeteries of barrows strung out along the rim of the slight hollow in which Stonehenge lies are still being clipped and nibbled by the plough. Only the Army and Royal Air Force have done relatively little damage to Stonehenge. The few signs of their activity over the

period since just before World War I have added latter-day interest to the long history of this place.

To meet the demands of managing the countryside for the archaeology and catering for large visitor numbers, the National Trust and to a greater extent English Heritage and its forebears, have struggled to provide what they feel necessary. A harsh car park and disgracefully ugly buildings provide on-site facilities of equally poor quality. Unable to compete with the adjacent main road (the A344), a concrete tunnel takes visitors to a pathway around Stonehenge from which closer access is prevented by wiring, fierce notices and uniformed wardens. Respect for the monument is demonstrated by mowing the interior until it is lawn-like, and by gravelling the area immediately around the bases of the stones.

A more enlightened English Heritage has been struggling for many years to achieve a public and political consensus that will bring Stonehenge and its surroundings back to a state where visitors will be able to gain at least an impression of what it was like originally, without attempting to move or restore any more of the stones. The present A303 will be tunneled – which, however, will deprive millions of tourists and other users of the road of a cherished view – and the A344 will be removed, along with all concrete structures and the car park. New facilities will be provided in a visitor and heritage centre to be located at the Countess Farm roundabout, out of sight of the monument and its surroundings. It will be possible to get to the stones and their surrounding barrows and other prehistoric features by walking from the visitor centre or by using a special form of transport, details of which are yet to be defined. The walk route will have to traverse difficult and sometimes wet downland.

Archaeologists visualise the return of the Stonehenge World Heritage Site region to something resembling its appearance in prehistory. For all we know, however, the latter could have been a natural scruffiness, which to today's visitors might not be wholly acceptable. Moreover, over more than 2000 years of prehistory, uses of the monument changed, as did the treatment of its landscape. Which of these episodes should we select for visitors? Dr Chippindale's conclusion was that archaeologists have a hard task in presenting what is known of Stonehenge and its setting in a dignified, practical and attractive way.

Finally, **Andrew Selkirk**, founder and editor of *Current Archaeology*, described the history of this

ground-breaking and influential archaeological publication, which has been a best-seller for 35 years and has now reached a circulation of some 17,000 subscribers. The year 2003 saw the launch of a new magazine, *Current World Archaeology*, from the same publishing house.

A recent survey of the readership of *Current Archaeology* found that the age profile is very similar to that of English Heritage and National Trust membership; most readers are 50-plus. More subscribers read the *Daily Telegraph* than *The Guardian*, with the *The Times* in between; they do not read the *Sun*. Readers take one or two holidays a year, often to culturally interesting and historic places. Discussing these results, Mr Selkirk concluded that archaeologists should aim at the 40-plus age group, and accept that most of those interested will inevitably be middle aged and middle class. He believed that, as with gardening, people develop an interest in history and culture in later life; it begins about the age of 40.

Mr Selkirk has also conducted research on other publications. He found that *SALK*, a Danish-language archaeological magazine, is, *pro rata*, the most popular of its kind in the world, while *National Geographic* has a worldwide readership of about 10 million. Perhaps surprisingly, the great expansion of the circulation of *Current Archaeology* came in the early 1990s, before the advent of *Time Team*.

From his experience, Mr Selkirk expressed a number of concerns about the current state of archaeology in this country. He believes that archaeology is 'hollowing out': professionals are increasing in number while at the other extreme a vague popular interest is increasing, but there is a dangerous decline in the middle, of those with a serious amateur interest in archaeology. Membership of societies appears to be in decline, dramatically illustrated by the relatively small audience at the symposium. In commercial surveys of hobbies, archaeology does not appear.

Mr Selkirk contrasted the present high profile of treasure hunters, who now appeared to be accepted by the Government and had been highlighted by the BBC in the recent *Hidden Treasure* programme, with the low profile of amateur archaeologists and members of archaeological societies. He believed that amateurs should be encouraged to dig. He suggested that below-ground archaeological sites were likely to suffer more from the artificial lowering of water tables than from the depredations of amateur archaeologists, even if some were

occasionally incompetent. The latter were, in practice, subject to adequate control by having to obtain permission from landowners before beginning their excavations.

After the tea break, a panel of the speakers and others was set up under the chairmanship of Peter Gathercole which considered the points raised at the symposium. (For a general discussion of many of the issues raised, see Skeates 2000). It was noteworthy that, despite the contribution from Andrew Selkirk, there was very little comment on any aspect of the media aside from television. Moreover, although many comments were, to a greater or lesser degree, critical of *Time Team* (especially in its earlier forms), there were some who welcomed its verve and topicality. Martin Read, for instance, maintained that some of the criticisms of its programmes were much overdone. A strong feature in its favour was its quest for answers, as specific as possible, to the questions posed.

Some of the symposium speakers had voiced criticisms of the Portable Antiquities Scheme. Anna Tyacke, Finds Liaison Officer at the Royal Cornwall Museum, was unable to stay for the final discussion but has subsequently provided comments defending the scheme and emphasising the disappointment arising from its association with the BBC2 *Hidden Treasure* series. Her contribution is reproduced at the end of this report.

During breaks in the symposium proceedings, two early BBC TV programmes of archaeological interest were shown. Both produced by Paul Johnstone, they were *Animal, Vegetable, Mineral?*, from May 1956, and *The Million Pound Grave* (August 1965). The latter was reissued in the early 1970s, with the jewellery re-photographed in colour, to coincide with the beginning of a major research programme at Sutton Hoo by the University of York.

It should be remembered that in the 1950s and 1960s, panel programmes like *Animal, Vegetable, Mineral?* were broadcast live. In this programme, objects submitted by a challenging museum were produced one by one to a panel of three experts and identified secretly only to viewers. The chairman, Glyn Daniel, awarded marks according to the accuracy of the experts' opinions, and, at the end of the 30-minute programme, he decided whether the challenger or the experts had won. The speakers were wine and dined first, often somewhat to excess, then swept straight into a studio where, after cursory attention from the make-up department, they were allowed a practice run with one object. Then they were on the air. Much depended on the verve of



the chairman and on the personalities of the panel, especially the flamboyant Sir Mortimer Wheeler. The significance of the objects and the seriousness of the particular museum's challenge came last. The principal purpose was to entertain, coupled with a varying amount of scholarship. Viewing figures were impressive for their day and many viewers longed for the challengers to catch Sir Mortimer Wheeler out. They seldom did.

*The Million Pound Grave* was a straightforward documentary, the more notable for its cast of speakers, all of whom had helped to rescue the remains of the ship and its unique grave offerings in August 1939, just as the country lurched towards war. These archaeologists, great men and women of their day, are all now dead, and the film is one of very few to provide such a record of leading British archaeologists whose best work was done in the decades either side of World War II, speaking to camera.

Some of the audience were critical of the unambiguously middle-class, professional voices heard in this programme (that was the way it then was!). It was felt by many present, however, that, by careful casting, current TV producers are seeking to avoid any impression of class-biased condescension in the accent and demeanour of their presenters. By choosing characters like Tony Robinson, they try not to imply that knowledge and good taste emanate primarily from a group of privileged people from the Home Counties. Admirable as early films on archaeology may be, they cannot be used as models for contemporary practice.

Had *Time Team* made a programme on Sutton Hoo, craft techniques used in the production of the jewellery and other metal work would no doubt have been explained and re-enacted. Likenesses of the Saxon kings thought to have been involved would have been attempted, and viewers would have been given some idea of the geography and settlement patterns of the area containing the royal barrow cemetery. Probably the programme would have been better, and certainly more popular, than its predecessor for such an approach.

Archaeology and the media have had a long and varied relationship since at least the mid nineteenth century; in the case of Stonehenge from even earlier. The onset of TV, however, has both enhanced and traduced that relationship. Entertainment and education vie for viewing numbers. But this confrontation is only one element of a general problem now facing television and the media more generally: numerous commentators have warned that

ever fiercer ratings and circulation wars are responsible for sensationalism and simplification and a consequent 'dumbing down' of content.

Today archaeology is in competition with two other major subjects demanding (and getting) high viewing numbers: history and natural history. Each has its own style, its own specific source material. From the viewers' perspective, each draws on more compelling, less limited, more satisfying material than archaeology; each has more questions and more answers. Although archaeology often comes last in this competition, all three subjects now suffer from the same overall malaise: overkill and sensationalism. The well-known BBC journalist, John Humphrys, has observed how history programmes have suffered from the reality craze (increasingly equated with 'celebrity' presentation): 'The influence of reality programmes has been out of all proportion to their number. They have infected the mainstream of the medium. History is one small example – always it has to be "living" history. Commissioning editors have less of the schedule to play with; they become risk-averse. Originality suffers' (*The Guardian*, 28 August 2004).

Richard Mabey, who has written prolifically on British and worldwide natural history (for example, Mabey 1994), has made a similar point regarding programmes in that area: 'It was depressing to see red teeth and claws coming to the forefront again. During the [TV] series I had sensed an entire nation sighing at yet another sequence of big cats chasing antelopes to the death. These things happen and are crucial parts of all creatures' lives. But in the hands of documentary film-makers they have become central, dominating motifs, as sensational as distorting portrayals of life in the wild as scenes of human violence are in the tabloids. For the record, predators, like human hunter-gatherers, spend only a small part of their lives hunting. Mostly they are up to less spectacular business, sleeping, resting, reflecting, grooming, playing and gazing back at camera lenses' (*Guardian Review*, 15 March 2003). We hardly need to be reminded that TV archaeology programmes also often turn to sensationalism to attract viewers. Their makers are not always shy to involve blood, gore and brutality (with suitable noises off). One thinks, for example, of the endlessly repeated moment of killing in Michael Pitts' programme on the Stonehenge Anglo-Saxon execution victim shown on Channel 4 in 2000 ('Murder at Stonehenge', in the series *Secrets of the Dead*).

When archaeology began on British television



there was scope for much originality. Today, in truth, originality can suffer. The reason is not hard to find. What is now deemed suitable for portrayal on television as ‘archaeology’ is an extremely limited selection from a very much larger pool of activity; from long-term research projects to brief, hastily organised rescue digs. Moreover, for television purposes the activities shown must involve a story – indeed, must represent an historical enquiry that poses a question requiring an answer. Within these finite rules, therefore, one might suggest three possible modes of action:

1. A *Time Team* or similar programme featuring a small-scale dig over three to five days, carefully oriented to answer certain questions.
2. A more lengthy planned programme based on one piece of research, but lacking the excitement and spontaneity of *Time Team*.
3. A planned sequence of programmes explaining the history of one area over time, as revealed by archaeological and other data (Francis Pryor’s programmes provide good examples).

Under these proposals ‘revisionist’ interpretations would emerge as earlier orthodoxies were reassessed in the light of new data and new techniques.

Originality is not necessarily the essential ingredient of all media-inspired archaeology. But original ideas, rather than routine thinking, on content as well as form, could help create, if not a new archaeologically-minded public, at least one critically aware of the need to marry education and entertainment better in media presentations of the subject.

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## A postscript

*Jane Stanley*

These notes, with the accompanying illustrations, explain my philosophy as both an artist and a student of archaeology, stressing the rigorous criteria controlling the making of such paintings. The introductory statements below elaborate my beliefs concerning the place of reconstruction painting in our interpretation of the past and the advantages it offers.

1. Reconstruction painting attempts to create a holistic view which puts artefacts and structures back into their ancient setting, integrated into their landscape environment.
2. It can present a lot of information at a glance.
3. It can evoke emotional, sensual and cultural responses.
4. It can clarify ideas about the scale, visual impact and aesthetic qualities of structures no longer in existence.
5. It can make archaeological sites attractive and accessible to the public, and correct previous misconceptions.
6. No reconstruction can do more than illustrate the state of knowledge on the day it was created, but can also echo current social concerns and attitudes which are part of the fabric of archaeology and will be interesting in the future.
7. Good illustration, well executed, can enhance the reputation of archaeology, but the quality of the work needs to match the scholarship of the text.
8. Visual imagery can be powerful and memorable, which is both to its credit and disadvantage, but to pretend that we, or our ancestors, were not visual as well as verbal creatures is a misconception.

It may also be pointed out that archaeology can lead visual art in a socially responsible direction, an aspect which it is otherwise in danger of losing.

TV films and static art works have different limitations and strengths, so it is not always possible to compare them. One of the problems for an artist is juggling with, on one hand, the understandable reluctance of archaeologists to make too definite a statement and, on the other, their need for scientific

and factual accuracy, which favours visual realism. Compared with the moving medium of television, the permanence of painting or drawing invites detailed scrutiny, so unless there is enough pictorial interest in each piece of work, it seems a trivial addition to verbal archaeological accounts. Neither can static forms of art fill time, or supplement their inadequacies by adding smoke, flames, presenters running to the next trench or persuasive atmospheric music. They must rely on the formal elements alone to carry the audience into the visual myth they are creating. Without a great deal of research and a lot of discussion with professional archaeologists, these works would have been impossible.

*Two examples of Jane Stanley's reconstruction paintings are reproduced as colour plates in this volume. Her commentaries on these works follow.*

Colour plate 5 *The building of Zennor Quoit, an early Neolithic portal dolmen, c 3700 BC*

The creation of an imaginative scene like this, rather than being didactic, can form the basis for discussion about the origins of the stones, the probable construction methods and social organization of the builders. In an experiment near Niort, France, in 1979, 230 workers were able to pull a 32-ton block on rollers, with some of the team using wooden levers.

Other team members are implied off stage. I include a sensitive youth with hair beads in the foreground to suggest that every seemingly secular activity in prehistory would have been blessed, sanctioned and permeated by spiritual insights and practices. Not everyone's contribution would have been muscular. It was my hope that this suggestion of a shamanistic presence served the purpose better than the inclusion of a sensationally dramatic 'witch-doctor'.

(Acrylic on canvas, 20 × 30 ins.)

Colour plate 6 *Neolithic rawhide rope making*

This is just one of the rope-making studies which accompany the Zennor Quoit painting. Other studies depict the processing of lime bark fibre and wild honeysuckle stems. We don't know exactly what ropes the Penwith builders used, but that doesn't mean that we can have no ideas on the subject. Multiple visual suggestions can propose other layers of understanding, for example, the quantity of rope needed and the industry of ordinary Neolithic people. Archaeological reconstruction painting can celebrate the thousands of unsung artisans upon whose efforts our prehistoric culture was founded, and put back some suggestion of a human presence among the inanimate artifacts and data with which archaeologists deal.

(Acrylic on paper, 20 × 16 ins.)

## A response to criticisms of the Portable Antiquities Scheme

*Anna Tyacke*

As Finds Liaison Officer (FLO) for Cornwall under the Portable Antiquities Scheme (PAS), I feel it necessary to respond to some of the negative comments made during the 2003 symposium about the Scheme and its involvement with the BBC production of *Hidden Treasure*. In the aftermath of the series the officers of the PAS met Ian Potts, the programme's producer, to discuss its ramifications and our reactions to it. The PAS team was undoubtedly very disappointed about the approach that had been taken, and that we were cut from six of the ten episodes. We had hoped that our input would balance the programme, giving it more integrity and taking away a little of the sensationalism. The PAS Education Officer, Ceinwen Paynton, a former FLO who has worked

with *Time Team* and Channel 4, was involved from the start of the *Hidden Treasures* project and was most dissatisfied with the result, but accepted that we have to make sacrifices if we court the media.

The PAS team is endeavouring to help archaeologists to see that many metal detectorists are not financially driven but instead have a very real interest in the past, linked with the experience of discovery in an atmosphere of increased public interest and support for archaeology. This is associated with the wider presentation of the subject on TV and in the media generally, including publicity for discoveries of local and national importance through the PAS. A Roman bowl mentioned at the meeting, found in Staffordshire and connected by its inscription to four forts on Hadrian's Wall, is a case in point. It was not declared Treasure, but it is clearly of immense importance and a lot of positive publicity came from its launch through the hard work and extensive efforts of Sally Worrell, one of the PAS Finds Advisors. It is

interesting that most of the newspapers which ran the story made no mention of value whatsoever.

There is genuine interest in history and archaeology nationally, which the PAS is helping to build on. Opportunities for public involvement in archaeology are far more limited now than was once the case and metal detecting has been taken up as an alternative and interactive method of accessing the past. Most finders are keen to research their finds and read around their subject and visit museums, which they might not otherwise have done. Their contact with their local FLO enhances and perhaps focuses

their interest in the subject. Locally, a number of metal detectorists have gone on to take an HND or Foundation degree in archaeology at Truro College.

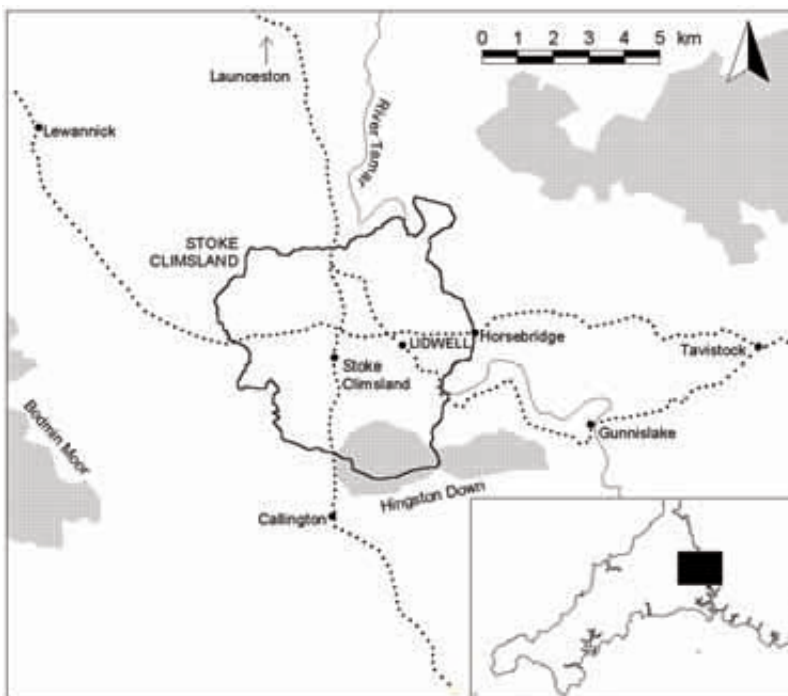
The data recorded by the PAS represent an educational resource at a variety of levels. The Scheme operates by actively engaging with a group having a strong interest in the past which had previously been marginalised. It establishes relationships with finders to create and make accessible a previously largely untapped archaeological resource for the benefit of our common heritage. This fact at the very least should be remembered.

# A medieval cross from Lidwell, Stoke Climsland

SAM TURNER

In summer 2003 part of a granite cross of medieval date was recognised by the author leaning against a wall in a private garden at Lower Lidwell, Stoke Climsland (SX 3800 7435). It is not visible from the road and there is no public access. The cross is presently the only example known in the parish.

The monument is rather irregular in form and has suffered considerable damage. It appears to have been a Latin cross, probably with protruding arms of approximately equal lengths. The surviving cross has a maximum length of 0.62m and maximum width of 0.49m. Both the shaft and head have suffered significant damage, to the extent that it is no longer

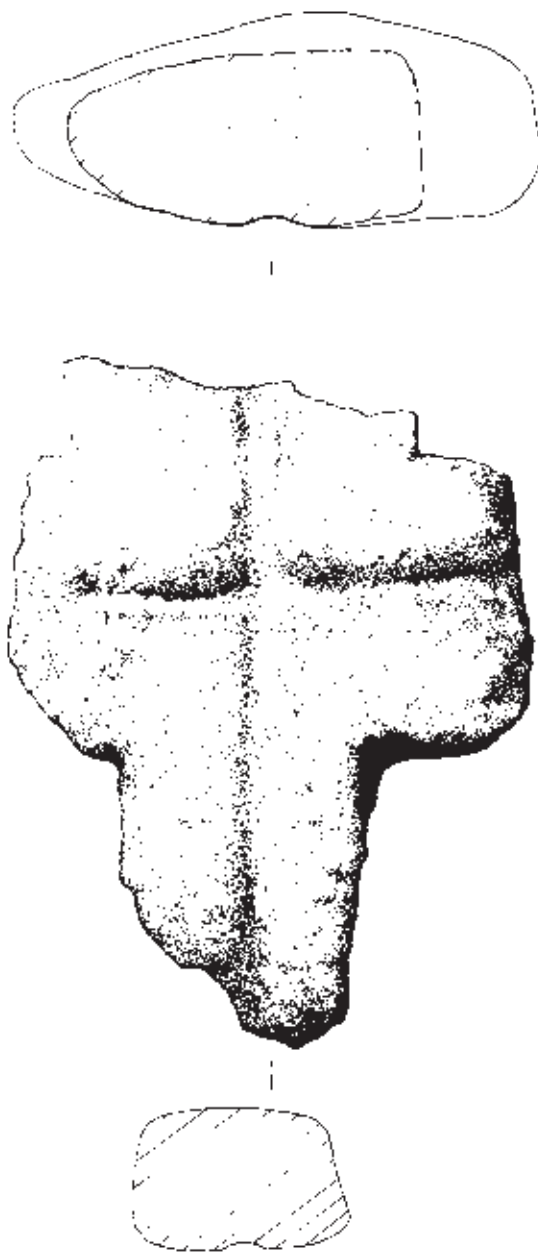


*Fig 1 The location of the Lidwell cross*

entirely clear which is which. The orientation illustrated is probably not the correct one; the narrower but longer (surviving) vertical limb was almost certainly the head, although it should be noted that both the shaft and head appear to have been broken off. One of the cross's arms appears to be largely intact, but the other arm also seems to have been damaged and is probably now slightly shorter than when it was first made. The front of the monument bears a shallow incised cross with limbs approximately 0.04m wide. Whilst the arms of the incised cross terminate just before the ends of the monument's arms, both the head and foot appear to have continued along the now missing vertical limbs. The back of the cross has been worn almost completely smooth and no decoration is visible. This regular wear is consistent with a previous use as a paving slab or a step for some considerable time.

There is little in the form of the monument to suggest when it was made. In general, so-called 'Latin' crosses of this kind are considered to date to between the twelfth and fourteenth century (Preston-Jones and Langdon 1997, 119). There is a small group of similar monuments from other places in east Cornwall, including three from the parish of St Neot, which have similarly irregular limbs and simple incised crosses on both faces (Langdon 1896, 254–5; Langdon 1996, 44–6). In Temple, the neighbouring parish to St Neot, a group of crosses was discovered when the church was rebuilt in the late nineteenth century. Four of these crosses have strong stylistic similarities to the Lidwell and St Neot crosses, although they are much smaller and may have acted as grave markers (Langdon 1996, 57). Since the church was a twelfth-century foundation, it seems likely that these stones should be dated to the twelfth century or later. There are also a number of monuments with incised crosses on Dartmoor, some of which are also rather similar to the Lidwell fragment; for example, Marchant's Cross, Meavy (Starkey 1989, 22–24). Lidwell itself is roughly equidistant between Dartmoor and the St Neot – Temple area of Bodmin Moor.

Andrew Langdon has noted that crosses were used in a range of contexts in medieval Cornwall. Some marked boundaries of various sorts, some stood by roads as wayside crosses, and others were set up in sacred places like churchyards, chapels, and holy wells (Langdon 1996, 1–2; Preston-Jones and Langdon 1997, 110–5). As discussed below, the Lidwell cross had been re-used as building material prior to its discovery, so its original context is



*Fig 2 Lidwell Cross (drawn by Dr Sarah Semple); the original orientation of the cross is uncertain but was probably the inverse of that shown in the illustration. (Scale 1:7.)*

uncertain. The place-name Lidwell, which is English, was first recorded in 1296; according to Gover it means 'the well of Leofgyth' (Gover 1948). Although





*Fig 3 Lidwell Cross: front  
(photograph by Andrew  
Piper)*

there may have been holy wells in Stoke Climsland parish at St Mollett's well (approximately 4km to the west of Lidwell) and Holwell (1km to the north), none is known in the immediate vicinity of the hamlet. However, Lidwell lies on one of the north–south routes leading through Stoke Climsland to Launceston from the Tamar crossings at New Bridge (Gunnislake) and Calstock. It is also only a few hundred metres south of an important east–west routeway that runs across the parish before entering Devon at Horsebridge some 2.25km to the east. It therefore seems likely that the monument may have functioned originally as a wayside cross.

There are no known documentary sources that

explicitly mention the Lidwell cross, although there is one medieval record that could possibly include a reference to it. The manorial court roll for 1466–7 records that in February 1466 a violent attack occurred at 'Leydewyll Crosse,' when a man was alleged to have been assaulted by three others using a club and dagger (the court roll (Public Record Office SC2 158/32) has been translated by Peter Mayer; a copy is kept in the Stoke Climsland Parish Archive). As is usually the case with English 'cross' place-names, it is not possible to know whether this means a road junction or a cross like the monument from Lidwell, although the latter is at least possible.

The Lidwell cross seems to have been re-

discovered during the conversion of a late eighteenth-century farm building into residential accommodation during the early 1990s. The fabric of this building includes several visible architectural fragments of probable seventeenth-century date (including window jambs and lintels), and other straight-chamfered architectural fragments have been re-used as garden features nearby (including a section of hood moulding). The farmhouse at Lower Lidwell includes sixteenth- and seventeenth-century fabric with many later alterations, and it can be suggested that much of the material in the surrounding farm buildings and modern gardens could have resulted from one or more episodes of rebuilding at the farmhouse during the seventeenth or eighteenth centuries. Although it is not known when the cross ceased to fulfil its original role, it is possible that it had once been used in the fabric of the farmhouse. If so, the Lidwell cross would share a similar history with many other crosses in Cornwall and elsewhere in Britain, re-used as building stone or for some other agricultural purpose during the early modern period (Langdon 1896; Moreland 1999).

### Acknowledgements

I am grateful to the owners of the cross, Andrew and Carole Piper, for allowing access to the monument, and to the former for photographing it. I am particularly grateful to Dr Sarah Semple for her drawing of the cross which is published here. My thanks are also due to Andrew Langdon, Ann Preston-Jones and Caroline Vulliamy for their comments on the cross and on this note.

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## Recent work by Cornwall County Council Historic Environment Service (formerly Cornwall Archaeological Unit)

2000–2001

### **Heritage management in the planning process**

#### *TA Centre, Falmouth*

C Company 6 Light Infantry moved out of the Territorial Army base in Bar Road, Falmouth, and Defence Estates proceeded to dispose of the site. The base began as a barracks in the late nineteenth century for the ‘submarine miners’ defending the harbour entrance with explosive mines, and employing quick-fire guns and defence electric lights. Planning approval was given for total demolition of the site, in advance of which a historic building survey was carried out by consultant Mike Heaton of Archaeological Site Investigations.

During the course of this investigation it was discovered that one building at the base, known as the ‘Dome’, was of special architectural and historical importance. It was erected *c* 1939 and is more accurately described as a geodetic barrel. The construction method was similar to that of the Wellington bomber and R80/100 airships designed by Barnes Wallis of Vickers. However, it subsequently came to light that the Dome was a ‘Lamella’ construction developed in Germany in the 1920s for factories and aircraft hangars by the German company, Junkers. Originally known as *Lamellendach* (segmental roof), British rights to manufacture were acquired in 1929 by the Horsley

Bridge and Engineering Co Ltd of Birmingham who marketed the design as Lamella Construction. Sixteen buildings were built in England, at least nine of which were in Cornwall. The Dome was architecturally important because it appears to have been an early application of geodetic construction to buildings rather than aircraft and predated the first known barrel-shaped geodesic buildings erected in Detroit by the American architect R Buckminster Fuller.

#### *Transco spine main gas pipeline, Indian Queens to Maudlin*

Following an archaeological assessment and a geophysical survey, a programme of archaeological recording was agreed with Transco and their archaeological contractors, Network Archaeology. From the assessment a probable post-medieval settlement was identified along the route through fieldwalking. The pipeline crossed a streamworks and another nineteenth-century settlement and ran through a ‘round’ field adjacent to Holwell Cottage.

#### *Mineral planning advice, De Lank granite quarry, St Breward, North Cornwall*

A proposed area of extraction and mineral permission was located adjacent to the De Lank Neolithic tor enclosure, considered to be of national importance. The quarry is important for the local economy and an area which did not affect the enclosure was selected.

### Monuments Protection Programme

The Historic Environment Service continued to work with English Heritage on an 'Additional Scheduling Project' to produce documentation for sites to be given statutory protection as Scheduled Monuments. This was part of a major review of scheduling throughout Cornwall and England. Work in 2000–2001 focused on the Carrick District area.

- Project officer: Cathy Parkes.

### Conservation surveys

A number of properties were surveyed for the National Trust to identify the historic resource and provide guidance on management and presentation. Among these were **Rosewall Hill** and **Little Trevalgan Hill**, in the parishes of Towednack and St Ives. There are references to mining operations on Rosewall Hill as early as the seventeenth century and mining may have begun even before this. Wheal Ransom was in operation by 1775, and saw alternating fortunes through much of the nineteenth century; closure was finally forced in 1876 as a result of the low price of tin. Many of the nineteenth-century mining features on Rosewall Hill are particularly well preserved and include buddles, tanks, shafts, leats, wheel pits and remains of an engine house. There are also surface quarrying remains. Prehistoric activity in the area is represented by a Bronze Age cairn on Rosewall Hill and a possible cairn on the summit of Little Trevalgan Hill, around the slopes of which the low banks of possible prehistoric or medieval field systems were also recognised.

A rapid archaeological and historic assessment was also carried out on the Trust's holdings in the parish of St Just in Roseland: **Turnaware Point**, **Tregear Vean / Churchtown**, **Newton Cliffs**, **Nancorras** and **Messack**. Other areas in St Just in Roseland parish not owned by the Trust were also studied through a desk-based assessment. Recommendations were made for land use, repair and maintenance of field boundaries and buildings, access and interpretation, as well as for future archaeological and historical work (including a comprehensive oral history project).

Another rapid assessment of archaeological sites and the general historic environment was carried out on Trust properties at **Chynhalls Cliff**, **Black Head** and **Beagles Point**, near Coverack on the Lizard peninsula. The historic landscape character of this dramatic stretch of coastline is coastal rough ground

with some recently enclosed farmland. The archaeological sites identified include a possible Romano-British saltworking site on a cliff platform above Ebber Rocks, extensive medieval cliff-top ridge and furrow cultivation and an adit and shafts associated with the eighteenth – early nineteenth century Downas Valley copper mine. Much of the cliffs between the **Lizard** and **Poltesco**, on the eastern side of the tip of the Lizard Peninsula are in the ownership of the National Trust. A rapid assessment of this stretch of coastal rough ground and medieval-derived farmland identified many sites associated with the pilchard fishing industry and maritime rescue and extensive quarrying associated with the local serpentine industry.

Sir Ferrers Vyvyan commissioned an archaeological assessment of the park, grounds, and buildings at the Carlyon family home at **Tregrehan, St Blazey** (SX 051 536). The assessment helped inform an historic landscape survey and restoration plan intended to guide the preparation of a Countryside Stewardship application by Tregrehan's present owner. An inventory included descriptions and discussions of all earthworks and structures located during the survey. These included pre-park fields and tin streamworks as well as the eighteenth and nineteenth century park and grounds and all buildings and walls

- Project officers: James Gossip, Dick Cole, Charles Johns, Peter Herring. Project manager: Peter Herring.

### Brea Downs and Dowran Common, St Just

An archaeological watching brief was carried out along the 1.8km route of trenching for a fiberoptic cable between Brea Downs and Dowran Common, St Just, in September 2000. Identified features and finds included Mesolithic and Neolithic flints and two ditches and unstratified pottery sherds dated to the Iron Age–Romano-British period. Medieval and early post-medieval artefacts were recovered within the vicinity of Dowran and evidence of mining, such as the streamworks at Dowran and Numphra, and the remains of part of Wheal an Vor.

- Project officer: Dick Cole. Project manager: Peter Rose.

### Reskadinnick – Portreath pipeline and Kieve Mill water treatment works

As part of the new sewage treatment works for the

Camborne area, a watching brief was carried out at the treatment works site at Kieve Mill and on the route of the transfer pipeline running between Reskadinnick and Portreath. Former field boundaries as well as existing boundaries were recorded along with isolated pits and ditches. A large and deep oval pit containing well-preserved carbonised seeds and charcoal, together with prehistoric pottery, flints and stone objects, was excavated on the North Cliffs.

- Project officer: Ann Reynolds. Project manager: Peter Rose.

### **Godolphin**

In June 2000, boundary recording was carried out at Godolphin following a request to the National Trust for a number of gateways to be widened to allow access for modern farm machinery. Recording took place at five locations and included two sections of the deer park pale and three early post-medieval boundaries; one of these is believed to have been extant by 1786, another was constructed between 1661 and 1786 and the third may have originated in the medieval period. In most cases there was evidence of repair and rebuild, with some suggestion of reuse and 'bulking up' of earlier boundaries at two locations. Field boundaries near Godolphin House underwent a process of enhancement into impressive stone-faced and oak-lined features.

A watching brief was also carried out over two kilometres of trenching for water pipes during 2001, on behalf of the National Trust. Features recorded included a number of ditches and a series of pits and hollows, none of which contained artefactual evidence to provide dates. Some of the hollows were quite irregular and may not be archaeological in origin. A spread of granite pieces was recorded in Little Carslewye, close to a single sherd of Iron Age or Romano-British pottery. Given its location near to Carsluick Round, the stone spread may represent activity contemporary with the enclosure. A total of 20 unstratified artefacts were also recovered from spoil along the trenching. Most were post-medieval in date, but there was a single sherd of thirteenth-century pottery and a second sherd of probable prehistoric origin.

- Project officers: Dick Cole and Ann Reynolds. Project manager: Peter Herring.

### **Pendennis and St Mawes**

The Hornworks Eastern Traverse at Pendennis

Headland was surveyed at 1:200 scale in 2000 for South West Water, as a condition attached to the planning permission for a new sewage treatment works at Falmouth. The Eastern Traverse is the best surviving remnant of the Hornworks defences built in 1627 and refurbished during the Civil War. It consists of an earthen rampart fronted by a defensive ditch with the remains of a gun platform (demi-bastion) above the low cliff at the eastern end. The Eastern Traverse is a site of national significance and part of Pendennis peninsula fortifications Scheduled Monument Area, which, together with Pendennis Castle and the other Fal defences, form a site of international archaeological and historic importance.

Other work at Pendennis included recording during upgrading of the fire alarm system and a watching brief during the excavation of trenches to discover the causes of a leak in the water supply to the castle and a leak in the moat.

At St Mawes work included investigation of a sealed underground magazine associated with the 1898 6-pdr quick-fire battery and recording the World War II searchlight emplacements on the rocky foreshore, which are gradually being eroded by the sea.

- Project officer: Charles Johns.

### **Bear's Downs**

An archaeological watching brief, funded by National Wind Power, took place during the construction of a wind farm on Bear's Downs in 2001. Although new access tracks passed close to two Bronze Age barrows, virtually no finds or features were discovered, probably reflecting the traditional use of this upland area as heathland, from prehistory to the eighteenth or nineteenth centuries. Features of the World War II radar station on the site were recorded. These included the concrete pedestal bases for a wooden receiving tower or gantry, and an air raid shelter. A rectangular area of compacted shillet connected to the radar receiving tower by communication cable was recognized as being the footprint of a removed building, possibly of wood, which may have been the radar-receiving block.

- Project officer: Carl Thorpe. Project manager: Andy Jones.

### **Alma Place, Redruth**

A programme of archaeological and historical investigations and recording was carried out at Alma



Place, Redruth, in advance of a redevelopment scheme which included the new Cornwall Centre. The site consisted of two historic areas: the Alma Place frontage, formerly a bank and Post Office, built in 1880 on the site of an early nineteenth century Baptist chapel, and behind them the former meat market, built in 1878 on the site of an earlier (1829) market house and later used as a furniture warehouse. The buildings were gutted by fire in 1982. Following historical research and compilation of a photographic record, three trial trenches were excavated in the former meat market, which showed that the granite carriageway, drains and pillar bases of the 1878 building survived below the existing concrete floor of the furniture warehouse. A large sample area of the meat market floor was uncovered and photographed. A watching brief was maintained during removal of the remaining modern concrete floor and the meat market levels, which indicated that any earlier stratigraphy had been truncated during the market's construction.

- Project officers: Charles Johns and James Gossip. Historic buildings consultant: Eric Berry. Project manager: Peter Rose.

### **20 Lower Bore Street, Bodmin**

A house at 20 Lower Bore Street, Bodmin, was acquired by Cornwall Buildings Preservation Trust with a view to its sensitive refurbishment as a dwelling. Rehabilitation works and a historic buildings survey were grant aided through the Bodmin Townscape Heritage Initiative. Temporary removal of exterior render revealed that the seventeenth-century core of the house had been concealed by renewal of its façade in the eighteenth century. Further changes in the nineteenth and earlier twentieth centuries included repositioning of the principal doorway from the left-hand side to the centre and replacement of the windows. The property was reopened after refurbishment in July 2001.

- Project officers: Nigel Thomas and Eric Berry. Documentary research: Dr Joanna Mattingly.

### **Virginia china clay works**

Archaeological recording of a disused waterwheel at Virginia china clay works was carried out in advance of pit expansion. It had been proposed that the wheel, originally manufactured by Harveys Foundry of Hayle, would be dismantled and returned to Hayle for eventual display at a museum. The 35ft diameter

overshot wheel was formerly used for pumping slurry from the clay pit, with the drive from the wheel transferred by a short run of flatrods to a nearby shaft. The waterwheel was originally designed with a crossed pattern of spokes which were bolted and tensioned onto cast iron hubs. Wear of the hubs led to a rebuilding of the wheel, with more conventional replacement T-section iron spokes bolted to the exterior of the hubs.

- Project staff: James Gossip. Volunteer: Peter Dudley. Project manager: Nigel Thomas.

### **Penberth**

The National Trust commissioned recording of historic features at Big Cellar, Penberth Cove, in advance of consolidation and repair works. This former pilchard cellar, built in the middle years of the nineteenth century, contains an unusual wooden floor with channels to collect the fish oil (most pilchard cellars had cobbled floors) and a press beam supported on iron stanchions. Detailed recording of the interior revealed that at least two lines of hogsheads containing pilchards could be accommodated, with weighted beams to press the fish pivoted under an overhang in the rear masonry wall or under the fixed press beam. Oil from the pilchards ran along channels in the wooden floor to be collected in a sump, probably located at the southern corner of the building.

After the decline in the pilchard industry in the later nineteenth century, the building continued in use as a fishermen's store. A tar boiler, formerly used for treating ropes, was also recorded. Penberth Cove has a rare surviving example of a capstan, formerly used for hauling fishing boats up the granite paved slipway. CAU and National Trust staff had surveyed the granite capstan platform in 1998; in 2000 the restored wooden mechanism was measured and details added to the plan.

- Project staff: Nigel Thomas and James Gossip. Project manager: Jeanette Ratcliffe.

### **Goonvean**

China clay companies in mid Cornwall have been assessing the future impact of their work in terms of the Environment Act, 1995, with regard to ROMPs (Renewal of Mineral Permissions). As part of this, assessments have been undertaken to identify the character and importance of archaeological and historical features. Such an assessment was carried

out within Goonvean Area 4C, near St Stephen, which contains two listed engine houses and associated processing complexes. Some mitigation recording of buildings which may be under threat in the near future has already been undertaken, including a measured survey of Goonvean's Belowda engine house, constructed in 1889.

• Project officer: Dick Cole. Project manager: John Smith.

### **Cornwall and Isles of Scilly Mapping Project**

The Cornwall and Isles of Scilly Mapping Project (COMP), in its eighth year in 2001, forms part of the English Heritage National Mapping Programme (NMP), which aims to map all archaeological sites visible on air photographs. During 2001 some 500 square kilometres were mapped. More than 60% of Cornwall has now been mapped, including the whole of west Cornwall and virtually the entire northern coast. More than 500 SMR records were updated and more than 1600 new SMR records were created.

The project continued to record large numbers of Cornish rounds (Iron Age and Romano-British enclosed settlements), many of them previously unknown. Numerous destroyed field boundaries, many medieval or earlier in date, were mapped, as were military features surviving from World War II, all of which were new records to the SMR. Of particular interest was the mapping of several extensive multi-period relict landscapes, including the first survey of Tregonning Hill, near Porthleven. There, in addition to the small hillfort on the summit, the project plotted two Iron Age–Romano-British rounds, an extensive area of strip fields and ridge-and-furrow cultivation, probably medieval in origin, and remains of later quarrying and mining activity.

An important aspect of the mapping was the recording of four of Cornwall's principal mining districts. Many new features, including tin streamworks, prospecting pits, and lode-back pits, have been plotted using 1946 RAF photographs of land that has been improved since the war. Much information about mining remains is contained in early map and other documentary sources but overall, COMP is adding around a third as much data again. Work was carried out on seven 1:10,000 map sheets in west Devon (Devon does not have an NMP project), to complete the Tamar valley mining district, and on four sheets in the Minions area of

Bodmin Moor to record the extensive industrial landscape. COMP also aided the Carrick Additional Scheduling Programme. The scheduled areas around 22 sites, including barrows, cliff castles, multiple enclosures and rounds, were revised on the basis of COMP mapping.

• Project officers: Carolyn Dyer (English Heritage), Emma Taylor, Andrew Young.

### **Countryside Advice Service**

A successful Historic Environment Countryside Advice Service (HECAS) was established during 2000–1, with funding from English Heritage. HECAS works proactively with partner organisations on behalf of the County Archaeologist to raise awareness of historic environment issues and ensure an integrated approach to countryside conservation. This is achieved in various ways, including provision of advice and information and making response to formal consultations on agri-environment schemes, Hedgerow Regulations applications and forestry proposals. HECAS has also sought liaison with partner organisations for beneficial management of both monuments and blocks of the historic environment.

Agri-environment initiatives such as the Countryside Stewardship Scheme (CSS) and Environmentally Sensitive Areas (ESAs) are among the most effective means of conserving the historic countryside. Against a background in which conserved landscapes are increasingly recognised for their environmental, economic and social values, changes in European and government policy resulted in a doubling of Stewardship schemes in 2000, with a further doubling expected over the seven year life of the Rural Development Plan. This presents an enormous opportunity for ensuring the conservation of the distinctive character of the historic environment and for drawing funding into Cornwall to assist landowners in the environmentally beneficial management of their land.

In Cornwall, nearly 100 Scheduled Monuments fall within areas managed under Countryside Stewardship schemes agreed prior to 2000. This includes five hillforts (Caer Bran, Castle Canyke, Cadsonbury, Tregear Rounds and Warbstow Bury), six cliff castles (including the Dodman, the Rumps, Roundwood and Kelsey Head), Helman Tor Neolithic tor enclosure, Boscawen-Un stone circle, a large number of barrows and two medieval earthwork castles (Kilkhampton and Poundstock),

making these schemes a particularly important vehicle for securing the future of nationally important monuments. The Penwith ESA covers scores of Scheduled Monuments, most of which are likely to be under agreements.

HECAS commented on more than 13,600 hectares of land in the 180 Countryside Stewardship consultations it received in its first six months of activity, from March to November 2000. This included a further 31 Scheduled Monuments and 614 distinct archaeological features, including four chambered tombs, 51 barrows or cairns, two stone circles, nine hut circle sites, 20 rounds, three hillforts and two cliff castles. There were also seven medieval chapels, three holy wells and four medieval crosses, 61 orchards, three windmills and five waterwheels; six deer parks and four ornamental parks, 27 mines, 50 quarries, two china-clay works, three lime kilns, one brickworks, two Victorian forts, one battlefield, seven World War II military sites (including a D-Day embarkation hard and Perranporth airfield), one Roman signal station, Marconi's radio station at Poldhu (from which the first transatlantic radio signal was transmitted), 13 quays, one boat house and one fish cellar. Clearly, the range of sites which can be expected to receive more benign management as a result of Countryside Stewardship is typical of that which gives Cornwall's historic landscape its great wealth.

HECAS has also been involved in various initiatives, including English Nature's two Heritage Lottery Fund 'Tomorrow's Heathland Heritage' bids (for west Cornwall and Scilly), the Bodmin Moor Environmental Enhancement Initiative, the Atlantic Coast and Valleys Project and various Objective 1 projects. Partner organisations with whom there has been direct involvement included the Farming and Wildlife Advisory Group (FWAG), English Heritage (Inspector, Field Monument Wardens, Monument Protection Programme archaeologists), MAFF (ESA and Countryside Stewardship officers), Cornwall County Council (Countryside and Historic Environment divisions of Transportation and Estates), District Councils (Countryside Services; Conservation Officers), Forestry Commission, Environment Agency, Countryside Agency, English Nature, Cornwall Wildlife Trust and the RSPB. The Historic Environment Service also acts as historic environment consultants to the National Trust, providing advice and carrying out surveys.

- Project officers: Peter Herring and Ann Reynolds.

## **Lynher valley**

The Lynher Project was developed by Cornwall Farming and Wildlife Advisory Group (FWAG), the Environment Agency (EA) and Cornwall Environmental Trust (CET) in the late 1990s. There was concern at the loss of soil from arable fields within the catchments of the Lynher and Tiddy Rivers and the effect of soil, chemical, and nutrient inputs into the rivers and their tributaries. Fish, invertebrates, bats and other fauna depend on good water quality and associated healthy vegetation. Plans to persuade farmers in the project area to alter regimes and practices coincided with an approach to Cornwall County Council from the Greek Thyamis Project dealing with similar aims in the catchment of the Kalamis River in north-west Greece. The Thyamis Project was seeking partners to enable funds from the European Union's LIFE programme to be released.

An important element of the joint project design was fuller documentation of historic land use in the Lynher Valley, to allow modern and future land use to be compared with a more 'traditional' base. The results were intended to inform strategies to reduce soil and nutrient migration from fields to streams and rivers. Farmers planting winter wheat and maize were targeted by the Lynher Project and offered advice on reducing soil and nutrient loss. As the dairying industry continues to contract, however, it is likely that farmers will diversify into other forms of arable agriculture; it is desirable that any such changes should also be as environmentally sustainable as possible.

Concepts of sustainability can be applied to the historic as well as the 'natural' environment and the Lynher Project can be regarded as a pilot for ensuring that agricultural decisions take into account their impact on historic fabric and character as well as on semi-natural communities. Modern conceptions of the historic environment would, in any case, place the latter within the historic environment.

The Historic Environment Service was commissioned by Cornwall County Council on behalf of the other partners to prepare historic landscape character mapping of the Lynher Valley with an accompanying report on the area's historic environment. The method and text drew on archaeological and historical sources and the 1994 Historic Landscape Characterisation (HLC) of Cornwall undertaken as part of a general landscape

assessment. That mapping demonstrated that Cornwall is comprised of a mosaic of blocks of land whose predominant historical landscape character is various but also repeating, allowing parcels to be assigned to one of around twenty clearly distinguishable types, some of which can be further subdivided where appropriate. Most types can be found scattered across the whole of Cornwall.

For the Lynher area the original characterisation was reviewed, partly in the light of more recent changes in our understanding of the historic environment, and partly as a result of the more intensive research undertaken for the catchment survey. The original HLC mapping had been undertaken manually, the mapwork only existing as paper copies, but as part of the Thymis Project, to enable all users to have ready access to the mapping, the historic landscape of the Lynher Valley was re-characterised and placed on the Cornwall County Council Geographical Information System (GIS), allowing HLC mapping to be consulted alongside all other GIS mapping (including the Sites and Monuments Record).

Ordnance Survey 1:2500 maps of c 1880 provide the earliest large-scale and systematic portrayal of land cover. These were used to plot the extents of rough ground, orchard and broad leaf woodland, as well as the boundaries of nineteenth century ornamental landscapes. This formed the basis of a second layer in the GIS mapping presenting a fairly good image of the pre-modern Lynher valley. Comparison of the c 1880 layer with the present-day layer allows change and relative stability in the countryside to be seen easily, and allows correlations to be made between land-use change and changes in water quality.

To help guide future decision-making by those involved in the management of the landscape in the study area (farmers, landowners, local communities, countryside officers, etc), new descriptive and interpretative text was prepared for each HLC Type.

- Project officers: Peter Herring and Bryn Perry-Tapper.

### **Scheduled Monument Management Project**

The foot and mouth disease outbreak postponed several pieces of work under the Scheduled Monument Management Project but the following positive activities were undertaken during the year.

#### *St Ruan's Well, Grade*

Work continued on the restoration of St Ruan's Well, or Grade Well, located near Coverack on the Lizard. Early photographs show the square-gabled building with a neat wooden door, surrounded by short and well-drained turf. Compared to this, the well had become scarcely recognisable in recent years. Water running from a road drain had scoured and gullied the ground in front of the building while elsewhere the ground was extremely boggy and poached; tall gorse had grown up around it; brambles and a hawthorn were rooted in it; the door had long gone; and much of the stonework was loose, having lost its bedding mortar. Last year, scrub removal and drainage works were carried out in conjunction with the Cornwall Landscape Project and elevation drawings were made. Further landscaping was undertaken during 2000–1 in preparation for the final phase of restoration.

#### *Pengersick Castle*

In recent years, the eastern part of Pengersick Castle has been a major attraction for ghost-hunters, dowsers, garden historians, archaeologists, students, TV companies and others. Discoveries of late medieval window glass in 1999 highlighted both the potential and the vulnerability of the site. In 2001, with funding from the Scheduled Monument Management Project and help from David Painter, Margaret Hunt and Sally Ealey, a survey was carried out of all recent excavations and finds.

#### *St Levan's Well*

Set in a sheltered valley between the massive granite cliffs of Pedn-men-an-mere and Carn Barges is St Levan's holy well, a small square structure of large granite boulders, built over a spring. An over-zealous restoration in the 1970s concreted the blocks of granite together and pointed them in a bright cement. By 1999 further restoration was needed as the cement pointing had deteriorated and the monument as a whole was neglected and abused. Work to enhance the well, undertaken in association with St Levan Parochial Church Council and the St Aubyn Estate (the owner) involved clearing back vegetation, providing a new sign and replacing the cement pointing with a lime-based mortar. Unfortunately, the concrete core proved too solid to remove.

#### *Madron Well*

Repair work had previously been carried out at Madron Well after repeated vandalism. Sadly, the



vandalism continued and parts of the medieval chapel hitherto unaffected were pulled apart, including the stonework in the doorway and on top of the north wall. In 2000, these areas were rebuilt by Adrian Thomas and David Cutting, this time using 'clob': a mortar of lime and earth, in the hope that it would give a stronger, more vandal-resistant finish.

- Project officers: Jo Sturgess, Charles Johns. Project manager: Ann Preston-Jones

### **Land reclamation projects**

In east Cornwall, the Historic Environment Service was involved in major consolidation and safety projects in the Tamar Valley, led by Cornwall County Council's Environmental Projects team. Works have been concentrated on the long-term management of a number of former mine sites, including the creation of safe public access.

Okel Tor Mine, scheduled under English Heritage's Monuments Protection Programme, is one of the keystones of the Cornish Mining World Heritage Site bid in the east of Cornwall and the specifications for buildings consolidation on this site were prepared by a partnership which included the Historic Environment Service, English Heritage, Caradon District Council and Cornwall County Council Environmental Projects team. Building surveys were carried out on all the buildings requiring structural remediation works on a large and steeply sloping site. The detailed survey drawings, as well as providing part of the essential 'before and after' record, guided building contractors during works which necessarily involved the partial reconstruction of a number of buildings which had become severely weakened by years of neglect. A similar process was followed at Gunnislake Clitters Mine. The final phase of works at both sites consisted of landscaping and fencing schemes to provide safe routes into and through them and to link them to a developing strategic path network which includes the Tamar Trail.

Environmental improvement schemes, co-ordinated by the Tamar Valley Countryside Service, were carried out by Cornwall County Council at Callington, Calstock and Gunnislake. At Calstock, a two-stage provision of new car parking facilities near the river exposed extensive sections of the cobbled ore quay and tramlines which were, where possible, incorporated into the final design.

- Project officers: Dick Cole, Andy Jones, Anna Lawson-Jones, Carl Thorpe. Project managers: Adam Sharpe, Colin Buck

### **Crooklets Beach, Bude**

Remains of a 'submerged forest' on Crooklets Beach, Bude, were investigated in 2000. At the end of the last Ice Age (*c* 10,000 BC) sea levels were lower and the coastline further out than today. Subsequent sea level rise has submerged prehistoric land surfaces and, where conditions were suitable, preserved them beneath silts and sand. Gradual or episodic inundation often resulted in the formation of waterlogged peats and silts which have preserved organic evidence of the prehistoric environment; for example, fossil pollens and pieces of wood. Often described as 'submerged fossils', many such sites are known around Cornwall and Scilly. Analysis and dating of these deposits can provide evidence for historic rises in sea level.

The submerged forest on Crooklets Beach was recorded as early as 1848 and was further identified on the 1880 Ordnance Survey map lying just below the mean high water mark. Its presence was confirmed during trenching for a fibre-optic cable, in May 2000, which encountered organic remains. Two trenches were excavated by Global Marine Systems and the archaeological team located a range of organic and other deposits (including wood fragments). Analysis of the resultant pollen and plant macrofossil remains was undertaken by Heather Tinsley and colleagues at Bristol University. Their work revealed that, from around 3750 to 2200 BC (Neolithic into the Early Bronze Age), Crooklets Beach contained a complex range of plant communities comprising woodland, swamp, freshwater pools, cliff top and beach communities.

The central portion of the modern beach contained evidence of a wooded environment, the pollen remains suggesting that the dominant species were oak and alder together with ash and willow. Results from the radiocarbon dating placed the submerged remains at between 3750 and 3500 BC. These dates were from the top of the organic remains; deeper remains would almost certainly show the forest to be older. Pollen and plant macrofossils indicate a different type of local environment at the eastern end of the modern beach, which was formerly wetter and more open. Species identified in this area were herbaceous plants typical of wet conditions and dominated by aquatic plants, with other pollen



evidence indicating a drier sand or shingle plant community growing close by.

The development of woodland by 3700–3500 BC suggests that at least parts of the peat surface had grown above the water table by this time, although the presence of aquatic plants show that open water pools still existed as a mosaic amongst the trees. Crooklets stream appears to have flowed through an open swamp before meandering through woodland occupying the lower slopes of the bay and eventually out to sea.

No artefacts were recovered during the project to show human activity in the area. A flint knapping site of late Mesolithic date (c 5000–4000 BC) has been recorded inland from the beach and it is likely that the hunter-gatherers who used that site would also have hunted in the forest, which almost certainly predates the earliest recorded radiocarbon date of 3758 BC.

- Project officer: Dick Cole.

### **Stannon Down, Bodmin Moor**

An archaeological evaluation was carried out in 2000 at Stannon Down china-clay works, on behalf of Imerys. The work was undertaken ahead of a proposed landscaping programme for 22 hectares of moorland pasture on Northern Downs. The main objective of the evaluation was to provide an overview of the character of the archaeological resource in order to guide future archaeological recording. Excavation of 22 trial trenches confirmed a number of upstanding sites of prehistoric date (cairns, standing stones and field boundaries). Most of these were covered by a thick peaty soil which had greatly reduced their visual impact in the current moorland landscape. An auger survey to assess the potential of buried soils and sampling for palaeoenvironmental data from two exposed buried peat deposits was also undertaken.

A detailed survey of all the recorded sites within the study area was carried out, revealing a diverse and rich archaeological resource. There is evidence for early mobile communities of the Mesolithic period (c 10,000–4500 BC), a cairn cemetery of Early Bronze Age date (c 2000–1500 BC) and field systems with possible evidence for houses, probably of Middle Bronze Age date (c 1500 BC). Excellent pollen preservation and other organic material was found in the buried peat surfaces and provided an environmental reference from around 6000 BC to the medieval period.

- Project officer: Andy Jones. Project staff: Dick Cole, Ann Reynolds, Nigel Thomas, Peter Dudley. Specialist assessments: Heather Tinsley, Jenni Heathcote, Vanessa Straker, Andrew David and Paul Linford. Project manager: Jacky Nowakowski.

### **Tremough Campus**

Tremough is located immediately to the north west of Penryn and is the ‘hub’ for development of the new Combined Universities in Cornwall. A series of archaeological watching briefs and excavations was carried out during 2000 and 2001 on behalf of Falmouth College of Arts, associated with the expansion of facilities on the site. Written records for Tremough extend back some 800 years and the place-name itself is probably early medieval (that is, pre-Norman) in origin. A grand Queen Anne house is associated with walled gardens and parkland features, including an avenue of limes which runs east from the front of the house. In the 1940s Tremough saw substantial alteration through its adaptation for use as a convent school, before being taken over by Falmouth College of Arts.

Archaeological fieldwork revealed a much longer history. A geophysical survey by GSB Prospection located a later prehistoric (Iron Age or Romano-British) settlement enclosure to the east of the development area, associated with a ditched field system running to the north of the College complex. Fieldwalking in a large field immediately north of the college produced a very large and varied finds assemblage spanning the Mesolithic period to the present. Artefacts included flintwork, part of a polished greenstone axe, pottery, hand-made brick, tile, glass and iron work. The pottery extended from the Bronze Age to post-medieval and modern material.

A close watch was maintained as topsoil was stripped and trenches dug for the development. Finds and features were uncovered in all locations and appear to represent three main phases of prehistoric activity. Neolithic activity had already been suggested by the greenstone axe and a general scatter of flint. Archaeological features of this period are rare in Cornwall but were identified at Tremough: a small hearth pit and a ditch produced radiocarbon dates of 3662–3542 cal BC and 3907–3707 cal BC; a sherd of Neolithic pottery came from the ditch. Other pits, postholes and stakeholes may have been associated, together with a concentration of 140 Neolithic flints. In addition to local beach pebble

flint, the assemblage included nodular flint, for which the nearest source would have been Beer Head in Devon.

It is probable that there was a settlement in the near vicinity in the Middle Bronze Age. A buried soil or old land surface survived in places on the site and contained sherds of pottery of this period and fragments of loomweights. A pit containing several large sherds of a storage vessel produced a Middle Bronze Age radiocarbon date of 1411–1263 cal BC.

A later prehistoric ditched field system appears to survive throughout the area, probably of small rectangular fields and associated with the settlement enclosure identified by the geophysical survey. Pottery from the ditches and a radiocarbon date suggest a Later Iron Age date for the fields (fourth century BC to first century AD), although a scatter of Romano-British pottery shows that activity in the area continued.

• Project officer: Anna Lawson Jones. Project staff: Andy Jones, Dick Cole, Carl Thorpe, Imogen Wood. Volunteers: Mike Reed, John Kirby. Specialists: Henrietta Quinell (pottery and stone artefacts), Roger Taylor (petrology), Wendy Carruthers (archaeobotanist), Rowena Gale (wood anatomist), Margaret Brooks (metalwork conservator), Roger Penhallurick and Dr B Cook (medieval coin), Dr Euan Campbell (glass), Dr Rachel Tyson (medieval glass), Paul Bidwell and Alexandra Croom (amphora sherds). Project manager: Peter Rose.

### Phillack church

Archaeological recording was carried out on behalf of the Parochial Church Council at St Felicitas church, Phillack, during ground works in the churchyard for the construction of a disabled access ramp within the southern entrance, adjacent to the vestry, and the repositioning of the font within the south aisle. St Felicitas Church (NGR SW 5653 3842), a Grade II\* Listed building, is known to be close to the site of a late prehistoric cemetery and there is abundant evidence for its importance as an early Christian site: a fifth-century inscribed chi-rho stone, the sixth- or seventh-century *CLOTUALI MOBRATTI* inscribed stone, a 'coped' stone tomb cover and an eleventh-century churchyard cross can be seen in various parts of the churchyard. A Norman cruciform church stood on this site until it was demolished and the current church built in 1856–7.

The project provided considerable evidence for the history and archaeological potential of the churchyard. Archaeological deposits were encountered to a depth of 1.40m but the full depth of deposits was not established and there is likely to be good survival of early levels. An old land surface, probably early medieval in date (it produced grass marked pottery dated to the eleventh century) was revealed, bounded on its eastern side by a steep-sided curving bank. This was probably the inner northern lip of a curvilinear ditch demarcating an early enclosed cemetery or *lann*. A line of walling was found overlying the possible ditch, but following the alignment of the earlier bank. This represents a medieval (eleventh–twelfth century or later) churchyard wall around the *lann*.

Details of two graves and a charnel pit were recorded. Bone preservation was shown to be very good. The graves proved to be coffin burials. Although no direct dating evidence for the graves was obtained, they must postdate the early medieval land surface into which they were cut, and predate the 1826 landscaping of the churchyard. It was concluded that they are post-medieval, most likely sixteenth or seventeenth century, as the evidence from a 1973 excavation in the churchyard indicated that early medieval and medieval burials took the form of cist graves or shroud burials. It proved necessary to lift the contents of only one grave and the charnel pit; as the other grave was below the level required for the ramp it was left *in situ* and undisturbed.

Within the church a succession of three floor levels was recognised, two earlier mortar floors and the present floor dating from the nineteenth century. The upper mortar floor bore traces of tile impressions on its surface, the tile dimensions suggesting a late thirteenth or early fourteenth century date, implying that the lower mortar floor must be even older. Both mortar floors showed evidence of subsidence, with sufficient movement to have caused severe structural damage within the south transept. This was perhaps a contributing factor in the decision to rebuild the church in 1856 rather than just remodelling or refurbishing it. There was no evidence for burials within the south transept.

A major phase of landscaping was identified, dating from the remodelling of the churchyard in 1826. This involved the building of a new rectilinear boundary wall and the levelling of the interior. This had severely truncated any stratification that may have aided the dating of the graves; it probably

involved the clearance of medieval graves in this area and resulted in the burial of many features beneath a layer of sand.

- Project officer: Carl Thorpe.

### **Church of St James the Great, St Kew**

During September 2000 an archaeological watching brief was carried out during drainage investigation and improvement works. A number of trenches excavated for the new drainage system and to investigate the existing system were inspected and features of archaeological importance were recorded. The church of St James the Great stands on the site of an early medieval monastic settlement founded by St Docco, possibly as early as the fifth century. It is thought to be the earliest named Cornish monastery to be identified with any certainty and contains an inscribed stone which is probably fifth–sixth century in date with the inscription *IUSTI* in ogam script and Roman capitals.

Foundations of probable fifteenth-century date were revealed at the eastern and western ends of the church and the foundations of the porch were also recorded. These were probably later than those of the south aisle. A difference was noted between the foundations of the south aisle and those of the tower, indicating either a requirement for greater strength in the tower, or possibly a different, perhaps fourteenth century, phase of construction. There is a clear difference between the construction of the tower and that of the main body of the church.

Although no evidence of an early Christian religious settlement on the site of the medieval church was revealed during the watching brief, the site continues to have potential for the survival of early medieval structures or burials.

- Project officer: James Gossip.

### **St Sampson's church, South Hill**

An archaeological watching brief was carried out during drainage and repair works at St Sampson's church, South Hill, near Callington. The work comprised the excavation of a trench around the entire perimeter of the church wall in addition to a number of trial pits and the repointing of stone footings projecting from the exterior wall of the church, particularly at its eastern end. The church is Norman in origin, although the building that can be seen today dates to the first half of the fourteenth century, with the addition in the fifteenth century of

a south aisle. It is possible that the Norman church was constructed on an early medieval religious site. Associated with it is an inscribed stone comprising the text *CVMREGNI / FILI MAVCI*, topped by two curved lines, above which is a chi-rho monogram with a hooked rho. The chi-rho monogram confirms a Christian influence on the memorial which has been translated as '[the stone] of Cumregnus, son of Maucus', believed to date to the sixth to eighth centuries. The sub-rectangular enclosure surrounding the churchyard may have been a *lann* enclosure defining not just the church and cemetery but also an early medieval religious settlement.

The watching brief revealed the foundations of a south transept, possibly relating to the fourteenth-century cruciform church, and the buried remains of 15 individuals. Of these, four were found within cist graves; a further three cist graves were observed (but left unexcavated) during the archaeological recording work. Cist graves, constructed from upright slate slabs with slate capstones are thought to be early medieval in origin and were the preferred burial tradition in early medieval Ireland, Wales, Scotland and the Isle of Man. Work in Cornwall suggests that the use of cists continued into the later medieval period. At South Hill, a relationship between a cist and the tower suggested that the cists at least pre-dated 1333, the date of the rededication of the church which is believed to relate to the fourteenth-century building work. In two cases cists were found to be earlier than simple earth-cut graves which would have held shroud burials.

Analysis of the remains of 21 individuals suggested that the group was fairly typical of medieval cemeteries in terms of age range and pathological conditions – mostly tooth problems and signs of poor diet. Four individuals were unusually gracile and short in stature.

- Project officers: James Gossip, Carl Thorpe. Human bone analysis: Hildur Gestsdottir. Project manager: Jeanette Ratcliffe.

### **Lemon Quay, Truro**

One of the largest redevelopments Truro has seen took place on a 3ha block a little south of the historic core of the city, bordered by Lemon Quay, Fairmantle Street and Tabernacle Street. During the nineteenth century this was one of Truro's main industrial areas, with lime kilns, coal yards, a foundry, a pottery and stores fronting the quay. The block also included artisan housing, pubs and a large chapel in Tabernacle

Street. All this was itself the result of a major development at the beginning of the nineteenth century, when Lemon Street, Fairmantle Street and Tabernacle Street were set out, replacing an older road line, possibly medieval in origin, and building over low-lying meadows and moors which, at the end of the eighteenth century, had been used for boat building and rope making. Although the area is outside the medieval core of Truro, Fairmantle is mentioned in medieval documents and may have been a medieval suburb.

By the end of the twentieth century some nineteenth-century components survived – a few houses, walls and stores – but most of the block had already seen extensive twentieth-century development in the form of car parks, garages and the former bus station. All this was to be replaced with a major retail development, multi-storey car park and bus depot.

A programme of archaeological recording was undertaken, commencing with a desk-based study to assess the historical development and likely potential of this area. This was followed by a programme of building survey, evaluation trenching and minor excavation as the development proceeded. Key objectives were to establish whether the area was occupied in the medieval period, to identify any early evidence for use and development of the waterfront, and to record the physical character of the remains associated with the major nineteenth century phase of development.

The location and nature of the south bank of the River Kenwyn prior to the construction of Lemon Quay was established as a shallow, unrevetted mud bank lying approximately 15m back from the street frontage. Among the nineteenth-century industrial and domestic archaeology uncovered were the remains of a cobbler's workshop, a mid-nineteenth century pottery producing earthenware, a coal yard and a late eighteenth or early nineteenth century lime kiln, circular in plan with two draw holes.

An eighteenth-century ditch uncovered in one of the trenches indicated some use of the site prior to development by William Lemon around 1800, but no earlier features were revealed and there was no evidence for medieval activity. This suggests that the area was undeveloped prior to its industrialisation in the early nineteenth century.

- Project officer: Joanna Sturgess. Project assistants: Dick Cole, Sean Taylor, Peter Dudley, Imogen Wood, Jonathan Moller, James Gossip, Charles Johns, Bryn Tapper. Project managers: Andy Jones, Jacky Nowakowski.

## Harvey's Foundry, Hayle

The establishment and subsequent expansion of Harvey's Foundry at Carnsew in Hayle in the later eighteenth and nineteenth centuries was instrumental to the development of Hayle as an industrial centre. The foundry became renowned for the construction of steam engines and other equipment for mining, and these products and associated expertise were exported to many parts of the world. Harvey and Co also had extensive interests in milling, shipbuilding and various other materials that were imported or exported through Hayle.

Although the foundry and associated buildings of Harvey's business once covered a considerable area, much of the former complex has been demolished since the foundry closed in 1903. Fortunately, significant and impressive elements of the complex survived. Some are directly associated with the industrial process, including the pattern store, part of the Boring Mill where castings were finished; an adjoining engine house provided the power. Other buildings, structures and areas were associated with the wider workings of the company: stores, wagon sheds, stabling and the Foundry Barn, recorded as a granary in 1853. The company offices also survived as 24 Foundry Square, complete with strongroom and clocktower. Several buildings are listed and others were made subject to archaeological conditions, mainly brought about by an earlier Cornwall Archaeological Unit assessment of the foundry buildings.

A programme of archaeological recording work was carried out, including a photographic record and measured survey of the building complex. Ruinous industrial buildings tend to be large and complex in their form so the recording was limited to measuring in extents of walling and major features, including all openings and changes of build. Photographic prints were taken of each elevation to record more subtle architectural and archaeological details.

Six trenches were excavated across the area recently occupied by a warehouse built during the 1960s and its immediate surroundings in order to determine the nature of buried deposits.

No 24 Foundry Square, the former headquarters of Harvey and Co, was occupied in recent years as a restaurant. This building once housed Harvey's showroom on its ground floor, with offices and strongrooms above. A wooden extension containing a drawing office was situated at the rear. A tramway connecting the foundry yards with the quays once



passed through the rear part of this property. A clock tower on the roof of the building, probably once forming a focal point of Harvey's premises, is still extant.

• Project officers: Nigel Thomas, Jo Sturgess. Project assistants: Bryn Tapper, Colin Buck, Carl Thorpe, Sean Taylor, Charles Johns. Surveyors (Cornwall County Council, Transportation and Estates): Stuart Cartwright, Ben Opie. Project manager: Jeanette Ratcliffe.

### **Poldhu wireless station**

The year 2001 saw the centenary of Marconi's first transatlantic wireless signal, transmitted from the Poldhu wireless station, on the Lizard, to St John's, Newfoundland. This was one of the key technological advances of the early twentieth century: global communications of today – radio, television, satellites, the internet – all have their beginnings at Poldhu. As part of the preparations for this event, an archaeological assessment of the site was carried out on behalf of the National Trust. The aim was to provide a detailed archaeological record and interpretation of the site to inform the Trust about the potential impact of activities on the site and ensure that important archaeological remains were not unwittingly disturbed.

Following desk-based historical research a digital survey was carried out to locate and describe all the surviving features. These are spread over five fields and include the concrete and tiled floors of buildings, bases of aerials, anchor points, trackways and fence lines. Some features, such as settings for early aerials and large copper earth wires and mats, are likely to survive below ground. The main wireless station buildings were surveyed at 1:100, with additional detail added by hand measurement.

The station was partly built on cliff-top pastures, enclosed in 1871, when two Bronze Age barrows were levelled and an urn and a bronze dagger recovered (a third possible barrow was identified during fieldwork), and partly on the medieval field system associated with the nearby settlement of Angrouse. Marconi chose the site because it offered an unobstructed path across the Atlantic for radio waves and a degree of privacy from imitators or reporting of failures. The proximity of the Poldhu Hotel, a classic late-Victorian Cornish headland hotel built in 1899, must also have been important in the early days of the site. The hotel visitors' book, held at the Cornwall Record Office, Truro,

shows that Marconi stayed there in May and August 1901.

Work began on the station buildings in October 1900 and preliminary testing began in the following January. Throughout the summer of 1901 Marconi and Professor J A Fleming worked on improving the efficiency and stability of the new 'high power' equipment; the first long-range signals were sent to Crookhaven, 225 miles away on the west coast of Ireland. On 27 November Marconi and his assistants Kemp and Paget embarked for Newfoundland, taking with them large canvas kites and several small balloons which would enable an aerial wire to be raised to the necessary height without having to erect a mast.

In Newfoundland they set up a receiving station in the disused Barracks Hospital on Signal Hill, overlooking the harbour at St Johns, the most easterly point on the American mainland. After delays caused by heavy gales, a kite carrying an aerial wire was successfully flown to a height of 400 feet on 12 December. The breakthrough came at 12.30pm, Newfoundland time, on 12 December 1901 when Marconi and Kemp heard the faint but distinct succession of three dots – the Morse letter 'S', the agreed signal – which had been sent across the Atlantic from Poldhu.

The Poldhu station continued to be used for experimental work until 1903. In 1902 the masts used for the earlier experiments were replaced by four wooden towers which supported the various aerial arrays used. These became a distinctive landmark and appear in the background of many Edwardian postcards and photographs of the area. They were replaced in 1912 by steel tubular masts. No above-ground remains of the four wooden towers were identified during fieldwork.

From 1903 to 1922 Poldhu assumed a commercial role, providing news, commercial and navigational messages to ships. In 1910 Marconi's wireless hit the headlines when the murderer Dr Crippen and his mistress Ethel le Neve were arrested while sailing across the Atlantic as a result of a wireless message from *SS Montrose* to New Scotland Yard via Poldhu. From 1922 to 1934 it was used as a short wave experimental station and various aerial arrays were tried out. However the station's remoteness and inaccessibility were not offset by any commercial advantages and its demise was hastened by the trade depression of the 1930s. The station was closed in 1934 and the buildings demolished in 1937. In November 1937 the Marconi company erected a



commemorative monument near the edge of the cliff adjacent to the station site.

- Project officer: Charles Johns. Project manager: Peter Herring.

## 2001–2002

### **Monuments Protection Programme**

An ‘Additional Scheduling Project’ was carried out on behalf of English Heritage in the areas of Carrick District and Restormel Borough Councils, drawing up proposals for the designation of sites as scheduled monuments. These included Bronze Age barrows, Iron Age cliff castles and settlements, medieval crosses and holy wells, and important components of the World War Two airfield, RAF Perranporth, at Trevellas, St Agnes.

- Project officer: Cathy Parkes.

### **Kynance Cove and Lower Predannack Downs**

Considered by many to be the most beautiful cove in Cornwall, Kynance Cove is partly owned by the National Trust, who commissioned CAU to carry out a rapid archaeological and historic assessment over an area which included the nearby Lower Predannack Downs. Among the features identified was a short-lived watermill at Kynance, extant in the mid nineteenth century, which was adapted for turning and polishing serpentine ornaments, sold as souvenirs from nearby shacks.

- Project officer: Charles Johns. Project manager: Peter Herring.

### **Windmill Farm, Lizard**

CAU was commissioned by Cornwall Wildlife Trust to provide an archaeological and historical assessment of a newly acquired reserve at Windmill Farm. The reserve comprises heathland with fields and crofts, enclosed in the eighteenth and nineteenth centuries. The assessment identified a wide range of sites including a rare Mesolithic settlement, Bronze Age barrows and many outlying structures associated with the World War II airfield at Predannack. A seventeenth-century windmill tower is a focal point of the reserve; in the 1820s the ‘grim and lonely’ windmill was the headquarters of a notorious gang of sheep-stealers and robbers.

- Project officer: Charles Johns. Project manager: Peter Herring.

### **Tregiffian, St Buryan**

An archaeological assessment was commissioned by the National Trust on recently acquired land at Tregiffian. This stunning piece of coastline is essentially a post-medieval landscape, its character dominated by the enclosure of former coastal rough ground into a small holding and accompanying field system, with a larger market garden system carved into the cliff slope in and around Tater-du. The headland was possibly the site of a Napoleonic period signal station, although its exact location remains uncertain, and the assessment also included the modern Tater-du lighthouse. Fieldwork identified a number of small, previously unrecorded features within the Tater-du market garden system, including spring heads, possible nursery enclosures, footpaths and a possible shelter. The assessment of this fine example of a market garden, just one of many created in West Cornwall with the development of the Penzance – London rail connection, highlights the inadequate understanding of this important former industry and indicates the need for further historical and archaeological work to address this.

- Project officer: Peter Dudley. Project manager: Peter Herring.

### **Tintagel East (Rocky Valley)**

A rapid archaeological survey was undertaken for the National Trust of properties between Barras Nose in the west, including a small parcel of land to the south of the Castle Hotel, and Rocky Valley to the east. The survey was part-funded through the DEFRA Stewardship scheme and its aim was to provide an overview of the properties, characterising the archaeological and historic interest of the area and providing outline management recommendations. Sites identified included a disputed cliff castle site at Willapark, medieval settlement and strip fields on Bossiney Common and a limekiln precariously positioned above a difficult landing site opposite Lye Rock. The survey also concluded that a feature previously identified as a barrow on Barras Nose was in fact a geological outcrop, but the possible use of this and other geological formations on the promontory for cultural activities was postulated.

- Project officer: Sean Taylor. Project manager: Peter Herring.

### **St Gennys**

A rapid archaeological survey was carried out for the National Trust of their properties between Canceleave to the east and Crackington Haven in the west. These included Dizzard Point, where some of the most severe coastal slumping in Cornwall is home to a stunted oak forest which is thought to be a remnant of the wildwood that once covered most of Britain. Other properties surveyed were Lower Tresmorn and the land around St Gennys. A deserted medieval settlement at Lower Tresmorn was the subject of an EDM survey in which the surviving earthworks were surveyed in detail. Other sites identified included two deserted post medieval settlements and a long-disputed cliff castle site at Cleave. Further investigation of this site, including joint assessment with a geologist, concluded that the earthworks represent the remains of a coastal hillfort rather than a cliff castle proper; the fortifications have suffered serious encroachment as a result of some of the most severe coastal erosion in Cornwall.

- Project officer: Sean Taylor. Project manager: Peter Herring.

### **Baker's Pit, Ludgvan**

Baker's Pit, an extensive area comprising moorland, small enclosures of pasture, derelict clay pits and their associated industrial structures, as well as the abandoned settlement of Polhigey, is one of a number of sites included in an Objective One-aided programme of land reclamation and other works for sites in West Penwith. The programme was drawn up by Cornwall County Council, acting as agents for the National Trust and Penwith District Council. The Baker's Pit site, donated to Cornwall Wildlife Trust by Imerys in 2000, is now managed as a nature reserve. The reserve area incorporates the remains of prehistoric field systems, houses, an enclosure and ritual features, as well as medieval fields and later surface mining. Remains of the clay industry include an engine house that features a conversion from steam to electrical power, together with a pan kiln and associated buildings. Measured surveys were made of the engine house and pan kiln and consolidation works and improved access were recommended.

- Project officer: Sean Taylor. Project manager: Adam Sharpe.

### **Pentewan harbour**

Archaeological recording was carried out on behalf

of the Environment Agency during implementation of a flood defence scheme. *Portbentewen* is first documented in 1303 but the harbour that can be seen today was built in the early nineteenth century to serve the mining and china clay industries. Heavy silting of the channel was a continual problem and the port was last visited by a commercial ship in 1940. An attempt was made to re-use the port after World War II but continuing silting caused it to be finally abandoned. The historic harbour has Listed Building status.

Historical study indicated that the harbour channel was originally 16ft (4.87m) deep; silting has left only about 6ft (2m) visible. A measured survey was made of the wooden harbour gates; these were probably installed in the mid twentieth century, replacing a pair of earlier curved gates. A pair of windlasses and numerous bollards are sited around the gate area. The primary function of the windlasses appears to have been for winching ships into the harbour; they could also be used for opening the harbour gates. An archaeological watching brief was carried out during excavation of a spillway and culvert.

- Project officers: Carl Thorpe, Nigel Thomas. Project manager: Andy Jones.

### **Little Falmouth, Flushing**

Plans to infill a former dry dock at Little Falmouth boatyard prompted a survey of the remains in advance of the development. A shipbuilding business was established here from the mid-eighteenth century. An advertisement in the *Royal Cornwall Gazette* (1 February 1817) sought 'a foreman and masons to build a dry dock at Flushing, the ground having been already excavated and materials ready on the spot'. The dock was originally 190ft long, 42ft wide at the gates and 60ft at the centre 60ft, with a depth of water of 18ft. The dock had stepped sides built of dressed granite blocks and originally had a pair of curved gates; a recess for the gate on the north side partly survived but the other side had been completely rebuilt. The yard was mainly used for building and maintaining packet boats.

- Project staff: Jo Sturgess, James Gossip. Volunteer: Jonathan Moller. Project manager: Nigel Thomas.

### **Marconi Centre, Poldhu**

The centenary in 2001 of Guglielmo Marconi's first transatlantic broadcast from Poldhu to St John's,

Newfoundland, was celebrated with the opening of the National Trust's purpose-built Marconi Centre at Poldhu, which provides a visitor facility to celebrate Marconi's achievement and is also a base for the Poldhu Amateur Radio Club. The National Trust commissioned a watching brief during construction of the Centre, which was built on the site of the carpenter's shop for Marconi's original wireless station. Among features identified was a duct, probably for electrical service cables, leading to the site of the carpenter's shop, the footprint of which is partly preserved below the new building.

- Project manager: Charles Johns.

### **11–12 Boscawen Street, Truro**

A programme of archaeological recording, a condition of planning approval for proposed alterations, was carried out on a Grade II listed building at 11–12 Boscawen Street. A trench at the rear of the building, close to the River Kenwyn, revealed evidence for reclamation and development of riverside land during the eighteenth century. Riverside properties were at this time occupied by successful merchants and their families, and the river was used to import and export goods. A trench at the front of the property suggested that the existing basement was contemporary with the present eighteenth-century house.

- Project officer: James Gossip. Project manager: Andy Jones.

### **Old Bridge, Truro**

Old Bridge is a two-span masonry arch structure which straddles the River Allen in the centre of the city. A bridge is recorded at this location in the thirteenth century. An assessment carried out ahead of strengthening by Cornwall County Council found that although the earliest part of the bridge structure probably dates to the medieval period, the present bridge is the result of three phases of construction. The present façade is eighteenth century.

- Historic buildings consultant: Eric Berry. Project manager: Andy Jones.

### **Tremough, Penryn**

Areas of both farmland and ornamental landscapes were assessed at Tremough, Penryn, site of the Combined Universities in Cornwall campus. The nineteenth-century greenhouses in the walled garden

constitute one of the most important features of the ornamental landscape. Eight greenhouses, some of Paxton designs, housed a collection of exotics and were used for the propagation of orchids, figs and peaches.

- Project team: Anna Lawson-Jones, Dr Joanna Mattingly, Margaret Grose, Peter Herring. Project manager: Andy Jones.

### **St Mawes**

An assessment of the sea wall at St. Mawes to guide its future management identified eight phases of build, dating from the sixteenth to the twentieth centuries.

- Historic buildings consultant: Eric Berry. Project manager: Andy Jones.

### **Trethurgy Round**

One of the most important post-war excavations in Cornwall was that carried out in 1973 at Trethurgy Round, near St Austell, under the direction of Henrietta Quinnell. The excavation has particular significance for research into the character of Roman Cornwall as it represents the only extensive investigation of an enclosed settlement – a round – of this period in western Britain. Post-excavation analyses had progressed intermittently since the 1970s but were guided towards publication under the direction of the Historic Environment Service, with funding from English Heritage.

- Project team: Henrietta Quinnell with Justine Bayley, Sarnia Butcher, Stuart Blaylock, P J Casey, Caroline Cartwright, Rob Ixer, Helen Keeley, Peter Marshall, JG MacDonnell, Jennifer Price, Richard Reece, Rosemary Roberston, Steve Staines, Carl Thorpe, Sue Watts, David Williams. Project manager: Jacky Nowakowski.

(A monograph – *Trethurgy. Excavations at Trethurgy Round, St Austell: community and status in Roman and post-Roman Cornwall*, by Henrietta Quinnell – was published by Cornwall County Council in 2004.)

### **Trevelgue Head, Newquay**

A two-year programme of post-excavation work, funded by English Heritage, has been carried out on the archive of the excavations directed by C K Croft Andrew in 1939. Trevelgue Head, one of the most complex examples of a Cornish cliff castle, is the

only site of this type to have produced such a wealth of data, charting a long history of activity and occupation from the Mesolithic period right through to the final centuries of Roman Cornwall. An impressive round house, an area of industrial metalworking and a small segment of the impressive inner rampart, which cut through large middens or rubbish tips, produced over 4,000 pot sherds and a ton of slag, as well as flint, animal bone, molluscs, ironwork, worked stone and 80 Roman coins.

• Project team: Polydora Baker, Justine Bayley, Paul Bidwell, Lisa Brown, David Dungworth, Vanessa Fell, Jennifer Foster, Rowena Gale, Lucy Harrad, Anna Lawson Jones, Jan Light, Jackie McKinley, Henrietta Quinnell, Richard Reece, Vanessa Straker, Roger Taylor, Carl Thorpe, Anna Tyacke. Project manager: Jacky Nowakowski.

### **Cornish Mining World Heritage Site Bid**

In recognition of the under-representation of sites from recent centuries on the World Heritage List, in particular those demonstrating the industrialisation process which has shaped much of our modern world, in the late 1990s UNESCO invited member states to draw up lists of sites within these categories for eventual submission as World Heritage Sites. The UK 'tentative list' published in 1999 included a number of key locations, including the Derwent Valley (cotton and the factory system), Saltaire (model industrial village), New Lanark (industrialised weaving), Blaenavon (iron and coal) and Cornish mining (the development of industrialised hard-rock mining). The Cornish bid was unusual in that it was accepted from the outset that the proposed World Heritage Site would consist of geographically dispersed yet thematically linked landscapes, rather than a single, representative site, if the true range and impact of this aspect of world history were to be adequately demonstrated.

In recognition of its long experience in the archaeology of the Cornish mining landscape, the Historic Environment Service was asked to draw together the application on behalf of the UK government. A bid team within HES took on the work on behalf of a Bid Partnership consisting of a wide range of organisations with an interest in Cornish mining. Funding for the project was agreed by Cornwall and Devon County Councils, the Cornish District and Borough Councils, West Devon Borough Council, the Tamar Valley Area of Outstanding Natural Beauty and the National Trust

and matched by English Heritage; in recognition of the regeneration potential that such a bid had for the region, it was further aided by Objective One grants.

The bid team was appointed in 2001 and the first phase of the project consisted of extensive data-gathering, defining the significance of the Cornish Industrial Revolution between the early decades of the eighteenth century and the end of the nineteenth and establishing how this is represented in the landscape. This initial work was required in order to present a coherent argument for World Heritage Site status and to begin to define the boundaries of the nominated Site. A series of technical panels were set up to assist the team, made up of local experts in mining, transport and engineering history, Methodism, mineralogy and geology, ecology, social, economic and landscape change. Research was also undertaken on the international aspects of this period of Cornish history, identifying sites across the world where Cornish technology and skills had had an impact and identifying individuals who could attest to this in the form of letters of support for the bid.

To define the eventual boundaries of the Site, the initial task was to define the totality of the impact of this radical change in economy and society within a project area which encompassed the whole of Cornwall and part of west Devon. The Cornish bid was to be a landscape one, but its basis was that the physical impact of industrialisation extended far beyond the mine sites and that a variety of new kinds of landscape had been created in the process. The availability of a Geographical Information System (GIS) and a range of on-screen archive maps made it possible to digitise the locations and extents of a wide range of categories of sites. It was also possible to draw on existing digitised information, including that produced from air photographs by the National Mapping Programme, as well as archaeological site surveys undertaken by Cornwall Archaeological Unit (CAU) over many years. The whole could be drawn together in a series of themes or layers which collectively allowed the impact of mining to be clearly visualised, both at a county-wide level and at the level of local detail necessary to draw up the Site boundaries.

As well as plotting the sites of the many thousands of mines within the project area, and the areas once occupied by shafts and spoil dumps, engine houses and dressing floors, tramways and leats, the team digitised other elements of the mining landscape. Most obviously associated were the mineral



railways, tramways, ports and harbours constructed to export the ores and foundry products and import coal and timber, and the smelting houses, foundries, explosive works, fuse works and other engineering works which sustained the mining industry and developed in tandem with it. No less important were changes in the wider environment, in particular the rapid growth of the towns and villages which housed the mining population, often in planned rows or terraces, and the chapels frequently associated with them. The period was also notable for the creation of many thousands of hectares of miners' smallholdings and new farms on former downland. These seem to have been the immediate precursor to the development of larger mining settlements and represent a particularly radical change in the Cornish landscape during the period. Not forgotten, either, were the houses, parks and estates of the mine owners, investors and entrepreneurs, many of which were either created or substantially remodelled during the eighteenth and nineteenth centuries. Mine setts, significant underground access points, existing interpretation sites and mineralogically or ecologically important localities were also added.

The digital mapping drawn together by the end of 2001 provided a startling yet extraordinarily well-documented overview of the impact of the Cornish Industrial Revolution: collectively, mining, transport infrastructure, associated industries, urban growth, great estates, smallholdings and new farms had affected over 10% of the surface area of Cornwall and west Devon. More particularly, for the purposes of the bid, those changes could be seen to have been most concentrated within specific areas. These were the obvious locations for the eventual Bid Areas. Herein lay a challenge, since the digital mapping represented the historic extents of landscape change rather than that for which evidence still survived on the ground. Two decades of fieldwork by CAU were indispensable in identifying areas where sites had survived and late in 2001 the team presented some preliminary Bid Areas for discussion. These comprised seven distinct areas: the most westerly around St. Just in Penwith, the next comprising the town and port of Hayle, a large area stretching from Goldsithney to Breage and northwards through Godolphin and Clowance to encompass the Gwinear mines, the fourth encompassing Camborne–Redruth and the Gwennap–Chacewater mines, stretching north to Portreath and south to Devoran along pioneering mineral railways, the next around St. Agnes, the sixth the Caradon Hill mines, whilst the

most easterly included the mines of Kit Hill and the Tamar Valley and the town of Tavistock.

The team now undertook the detailed mapping and data creation which would allow these boundaries to be more closely defined and which would underpin the Management Plan required by UNESCO as part of the Bid. Detailed histories were produced for mine sites within the Bid Areas, and further work was carried out in bringing together material which established the international impact of the revolution in hard rock mining, allied technologies, mining culture and society which occurred in south-west Britain and was rapidly exported world-wide during the nineteenth century.

Given the scale of the landscapes included within the Bid, it was recognised that detailed mapping of all of its sites was not practicable at this stage, and instead, the team made use of Historic Landscape Characterisation mapping (HLC), a tool refined within Cornwall, to define the areas (and consequently to identify the appropriate management) of zones within these initial Bid Areas. Other data mapped on the GIS, including Scheduled Monuments, Sites of Special Scientific Interest (SSSIs) and Conservation Areas, were used to further refine the boundaries and site visits were made where the extent of survival on the ground was uncertain. Area Panels were set up, including local government planners and conservation officers, national and local bodies, major land-owners, statutory agencies, specialist interests and knowledgeable local individuals, and these met to discuss boundaries, identify important sites which had been omitted and exclude those of questionable importance, and to highlight management issues affecting each area. By the early summer of 2002, a series of draft bid areas had been produced which met both local and UNESCO criteria and which were ready for testing and, where necessary, further redefinition in the light of comments by English Heritage and ICOMOS UK to ensure that they stand up to the scrutiny of the evaluators who will provide recommendations on the Cornish bid to UNESCO.

By the end of the first twelve months of the Bid Project, therefore, many thousands of features had been digitised, site histories written, statements of significance prepared, scrutinised and refined, and draft Bid Areas identified. A website was also launched to provide information and publicise the bid to the wider world.

- Documentary researcher: Sharron Schwartz.
- Archaeological mappers: Ainsley Cocks and



Stephen Mills. GIS advisor: Bryn Perry-Tapper. HER advisor: John Smith. Air photo plotting: Emma Taylor and Andrew Young. Project manager: Adam Sharpe. Project co-ordinator: Jeanette Ratcliffe.

(The Cornish Mining World Heritage Site bid was formally presented to UNESCO early in 2005. Full details of the bid and its progress are available via the project website: [www.cornish-mining.org.uk](http://www.cornish-mining.org.uk))

### **Cornwall and Scilly Urban Survey**

Cornwall's towns have a wide range of different origins and histories: medieval markets, religious foundations, industrial centres, ports and fishing harbours, holiday resorts, administrative centres some have been all these at different times. The result is a rich legacy of standing buildings, historic street patterns and archaeological remains, but also a distinctive individual character for each place which makes an important contribution to Cornwall and Scilly's strong cultural identity. It was perceived that Objective One and other regeneration initiatives would bring major changes to many of these towns and that such change would need to be carefully managed to make sure that it worked with and enhanced their unique historic character and did not dilute their individuality or turn them into 'anywhere' places.

With this background, the Cornwall and Scilly Urban Survey (CSUS) was set up in 2001 to provide a framework for sustainable regeneration in key towns across the region. Based within the Historic Environment Service and funded by English Heritage and Objective One, it was aimed at giving comprehensive information on the historic environment and distinctive character of each town to the bodies involved in regeneration planning. The project was also intended to identify opportunities for the historic environment itself to spearhead regeneration initiatives. CSUS was designed to cut across the traditional boundary between conservation and economic development and, nationally, was the first project to carry out a characterisation-based assessment of the historic urban environment specifically to inform and support regeneration.

For each of the 'target' towns – Penzance, Newlyn, St Ives, Hayle, Helston, Camborne, Redruth, Falmouth, Penryn, Truro, Newquay, St Austell, Bodmin, Camelford, Launceston, Liskeard, Saltash, Torpoint, Hugh Town – the Survey was to create a detailed report. These, together with GIS digital mapping and database, would include detailed

information on the historic environment, highlight essential elements of local distinctiveness and character and identify regeneration opportunities based directly on aspects of the historic environment.

• Project officers: Kate Newell and Stef Russell. GIS advisor: Bryn Tapper. Project manager: Graeme Kirkham. Project co-ordinator: Jeanette Ratcliffe.

(CSUS reports are available online at the project's website: [www.historic-cornwall.org.uk](http://www.historic-cornwall.org.uk))

### **Cornwall Industrial Settlements Initiative**

The Cornwall Industrial Settlements Initiative (CISI) was set up as a conservation area partnership scheme, jointly funded by English Heritage (with the Heritage Lottery Fund), Cornwall County Council and the six District Councils. Its purpose was to assess the history, character and significance of Cornwall's industrial settlements, including villages, ports and towns associated with mining, quarrying and china clay production.

The programme began in the St Just mining area, and has gone on to produce reports for Camborne, Redruth and the intervening settlements, the central mining districts (St Agnes, St Day, Chacewater) and the Caradon and Kit Hill areas. Between them, these settlements are associated with all stages of the Cornish mining experience, from extraction (Pendeen, Beacon, Pensilva), through processing and ancillary industries (Tregeseal, Tuckingmill), management and servicing (St Day, Callington) to transport and shipping. Several mineral ports and railheads have been studied (Porthleven, Portreath, Devoran, Pentewan, Looe, Minions, Kelly Bray and a linked study of Hayle), as well as some of the quarry-based settlements (Delabole, St Breward and the Caradon Hill - Kit Hill group). Settlements in the china clay country are also being studied.

The distribution of places is broad in terms of date, function and location, and the findings from the research has substantially modified some of the standard received notions of industrial settlement in Cornwall. One of the main themes emerging is the role of capital and vested interest in settlement formation and character. Although the image of the Cornish miner building his own cottage on waste ground remains strong, it is increasingly clear that the actions of landowners, estate stewards, municipal corporations and some larger industrial concerns determined most of the overall layout and form of even small settlements, in some cases as early as the eighteenth or even the seventeenth centuries. Many larger

settlements show clear signs of planned development involving considerable capital and town planning investment; examples include Devoran, Chacewater, Callington and Looe. Linked to this is the emergence of nucleated settlements based largely on the cottage row and the very widespread occurrence in Cornwall of 'industrial' smallholdings. It is not always the case that smallholdings are an earlier settlement pattern, as had been thought; the two forms often developed simultaneously and some types of smaller smallholdings, in effect allotment-cottages, are in fact a type of extensively laid-out but still nucleated settlement (for instance Vogue, near St Day, Bowling Green, at Callington, and the whole of Pensilva).

What is revealed is a much greater complexity than had at first been envisaged, even at the small scale of Cornish industrial settlements. For instance, Redruth, the archetypal industrial town, is revealed as not only a mining town, but as an industrial and processing centre in its own right, the base for many financial, administrative and commercial functions, a social and religious centre, and also, perhaps surprisingly, a great market (the largest in Cornwall from the eighteenth century) and as a late medieval town of some substance. By the same token, in the obviously medieval towns of Callington and East and West Looe, it is the changes wrought by their adaptation to nineteenth-century industry, which now dominate the physical appearance and character of their cores.

Intended as a working tool for local authorities, CISI has had the rare experience of almost immediate application in practical terms, being used as the basis of conservation area designations in the St Just area, in the development of grant programmes, enhancement and regeneration schemes in St Just, Hayle, St Day, Redruth, Looe and Delabole, and to inform traffic management proposals in Camborne–Tuckingmill.

• Conservation and historic buildings consultants: Nick Cahill, Mary Cahill. Project officer: Bridget Gillard. Project manager: Jeanette Ratcliffe.

(CISI reports can be accessed online via the CSUS website: [www.historic-cornwall.org.uk](http://www.historic-cornwall.org.uk))

### **National Mapping Programme**

The Cornwall and Isles of Scilly Mapping Project (COMP) has been in progress since 1994. The project forms part of the National Mapping Programme (NMP) which aims to map to a consistent standard all archaeological sites visible on air photographs. Funded by English Heritage, the

project is being carried out by the Historic Environment Service. During 2001–2, 775 square kilometres were mapped, more than 1,000 SMR records updated and in excess of 1,800 new SMR records created. Three quarters of Cornwall has now been mapped, including virtually the entire coastline.

Much of the work during the year concentrated on recording surface remains of Cornish mining in order to provide information for the Cornish Mining World Heritage Site bid (WHS). As part of this process, 175 square kilometres of west Devon were mapped, including part of western Dartmoor and Devon Great Consols mine. In addition the mapping of the Cornish side of the Tamar was updated to ensure that the data for the WHS project was to a consistent standard. Overall, COMP mapping provided thirty per cent of the data collated by the WHS project. While working on the Tamar Valley, COMP staff also contributed to the Tamar Valley Market Gardens project: by using RAF photographs from 1946, it was possible to map the physical extent of orchards and market gardens immediately after World War II and thereby help to trace the development and decline of this industry in the area.

Consulting air photographs from as many sources as possible is a key aspect of NMP methodology. The value of this can be demonstrated in two areas mapped over the last year. The Minions area, on Bodmin Moor, was surveyed as part of the Bodmin Moor Survey both on the ground and from specially commissioned air photographs in the mid-1980s. Some tracts of moorland, however, had been improved by that date and in consequence few archaeological features were recorded in those places. By looking at photos from the immediate post war era (prior to improvement), it was possible to record approximately 400 new sites. Consultation of colour photos commissioned by Cornwall County Council and taken in July 1995 resulted in the discovery of a considerable number of Iron Age and Romano-British settlements visible as crop marks along the south coast in the vicinity of Fowey. This area has rarely been flown before, largely because the few flights that had been made suggested that it was not a very promising area for crop mark production.

The project has also continued to record twentieth-century military sites, including, for example, the wartime defences around Fowey. Of particular interest was an anti-aircraft gunnery training camp at RAF Cleave, near Bude. Here, in addition to the accommodation blocks and gun emplacements, the concrete base for a steam catapult was mapped; the

catapult was used for a short time to launch unmanned drones out to sea as targets for the gunners. The COMP team also recorded Bodmin Radio Station prior to its demolition. The site began as a wireless station during the war; using photographs from each decade since the 1940s it was possible to trace its development throughout the Cold War as each new technological development brought about alterations to the extent and layout of the station.

- Project officers: Carolyn Dyer (English Heritage); Emma Taylor; Andrew Young. Project manager: Steve Hartgroves.

### **Morasses, moors and marshes**

An Environment Agency studentship grant supported a project aimed at plotting the rapid decline in lowland marshes in Cornwall. Two river catchments were assessed, the Ruthern and the Neet. GIS was used to graphically illustrate the loss of marshes to drainage by plotting the extents of marshland shown on the tithe maps of c 1840 and the c 1880 and c 1905 editions of Ordnance Survey 1:2500 mapping, and comparing these with present extents recorded on the detailed Cornwall Wildlife Trust LIFE habitat mapping.

The loss of marshes is perhaps most keenly felt by those working to protect the natural environment, these dark, wet, sheltered places being densely rich habitats for fauna and flora. This loss also represents a major change in the historic environment, however. Marshes had their own particular uses: the reeds and withies were used in roofing and various forms of basketry; wildfowl were encouraged and then shot for the pot, and in dry spells livestock were turned onto the marshes to graze. As such they were manipulated by people and were not wholly natural places; they were in effect semi-natural, with certain trees such as willows encouraged and others removed. There were often boundaries around and within marshes to control grazing. Equally importantly, marshes were elements of the much greater variety of land use and land cover found on pre-modern Cornish farmland and contributed much to the formerly more varied character of the Cornish countryside. With the help of the Morasses, Moors and Marshes Project we can recommend the reinstatement of some marshes and create fairly quick gains for both Cornwall's historic landscape and wildlife.

- Students: Kaylie Dowling and Neil Craze. GIS assistance: Bryn Tapper. Project manager: Peter Herring.

### **Tamar Valley market gardens**

The Tamar Valley AONB Service, in association with the Historic Environment Service, instigated a project recording and celebrating the market gardening industry, its communities and the remains of their activities. These remains included physical features such as glass houses, garden walls, packing sheds, jam and basket factories, trackways and quays, and growing plants like cherry and apple trees, and daffodil bulbs. Research and fieldwork were undertaken by teams of volunteers, led by Nikki Chaplin, Vanni Cook and Joe Selman. The base mapping underpinning the fieldwork was prepared by the HES. It recorded the fluctuating fortunes of the industry through plotting onto GIS the extent of orchards, market gardens and ancillary features from a long sequence of maps and aerial photographs, dating from the 1780s to the present.

The project proved very successful. The teams of volunteers were enthusiastic and inspired the confidence of the local community, who seemed to be genuinely moved that their industry, which is still active, is so highly valued. A mass of material was collected or recorded (artifacts, documents, photographs, accounts), and a subsidiary oral history project was developed to record the testimonies of many of the people formerly or still involved in the industry. There is a real hope that the industry itself can receive a boost from this interest, with efforts being made to identify new markets for the Tamar's market garden and orchard produce. The National Trust and the Duchy College, with numerous individuals, are actively involved in preserving examples of local varieties of fruit and flowers, and a traditional packing shed has been reconstructed by the Trust at Cotehele.

- Mapper: Neil Craze. GIS adviser: Bryn Tapper. Project manager: Peter Herring.

### **Scheduled Monument Management Project**

Conservation work was undertaken at ten monuments during 2001–2, with more than 50% of the funding coming from English Heritage (EH). For EH this has proved to be an excellent way of grant-aiding conservation work to Scheduled Monuments in Cornwall, with a minimum of bureaucracy; the fact that the work is closely overseen by the Historic Environment Service ensures a high degree of control in the way that it is executed and recorded. Further funding has come from the Cornwall

Heritage Trust, which has given a grant towards the project each year, and contributions also came from Cornwall County Council, Penwith District Council and Restormel Borough Council during the year.

*Men an Tol and Lanyon Quoit*

On the night of 5 November 1999, the Men an Tol (SW 426 349) and Lanyon Quoit (SW 4297 3365) were vandalised in what was subsequently described in a letter to the press as ‘a finely planned act of worship to something you could not possibly comprehend’. An inflammable mixture of polystyrene dissolved in petrol – a crude napalm – was poured over the stones and ignited. The resulting conflagration left a hard, shiny, resin-like material adhering to the stones and extensive soot-blackening. Eighteen months later, natural weathering had removed a little of this residue, but the majority remained, a conspicuous reminder of this senseless action. A project involving the National Trust, Penwith District Council, the Bolitho Estate and English Heritage removed the remaining material. Working over several weeks, the material was painstakingly removed by hand by Adrian Thomas and David Cutting, using fine dental tools. At Lanyon Quoit, the cleaned stones, which stood out in their brightness from the surrounding lichen-covered granite, were finished with a coat of yogurt and cow dung to encourage a re-growth of the lichens which had been killed by the napalm.

*Castallack Roundago*

Although partly destroyed in the nineteenth century, Castallack Roundago, near Lamorna (SW 4482 2540), remains a good example of an Iron Age–Romano–British round. About half the length of the enclosure wall survives, and is characterised by a facing of very large slabs of granite. J T Blight, in the mid nineteenth century, described this as ‘one of the best examples of Cyclopean masonry in West Cornwall’. Sections of the distinctive stonework shown in Charles Henderson’s 1920s drawing had tumbled, probably as a result of root activity. Adrian Thomas and David Cutting replaced the fallen slabs and levered back one or two which were leaning out and unstable. At the same time, the scrub growing on the wall was cut back hard.

*Trewern Round*

Trewern Round, near Madron, in West Penwith (SW 4331 3197) is an excellent example of a small round whose form, fossilised in the present field pattern, shows particularly well on maps and air photos. A change in farming regime had led it becoming

overwhelmed by impenetrable scrub. The work here, under the overall co-ordination of Adrian Thomas, was aimed at reversing this decline. Scrub was cleared back as far as possible using a tractor-mounted flail but much had to be cut by hand because the trunks were so thick. A redundant gateway was blocked but a stile was incorporated to enable continued access for visitors. The work was part-funded by Penwith District Council and, on completion, a management agreement for ongoing maintenance was arranged between English Heritage and the Bolitho Estate.

*St Ruan’s Well, Grade*

In 2001–2, the final year in a three-year programme of works at St Ruan’s or Grade holy well was undertaken. The ground has been drained and levelled and scrub cleared to make access easier. Recording and research carried out with the help of Eric Berry and Joanna Mattingly showed that although the building incorporates medieval carved stone, its present form is of seventeenth-century origin, heavily restored in the mid nineteenth century. The project was fortunate to have help with restoring the building from Richard Marsh, an extremely experienced stonework conservator. New steel railings were made to enclose the site and the area around the well was re-turfed. The result was a transformation of a previously neglected monument, enhancing the appearance of the well-house and conserving it for future generations.

*Barrows on East Pentire*

Two Bronze Age barrows survive on the prominent headland known as Pentire Point East (SW 7832 6152), to the west of Newquay. The headland is popular with residents and visitors and, as a result, both barrows had been damaged by the passage of feet and the elements. The earthen covering of the westernmost barrow had been completely eroded away, leaving the stone core of the barrow and a collapsed cist exposed. These remains were recorded with a detailed survey and then, to protect them, the British Trust for Conservation Volunteers (BTCV) covered over the exposed stonework with earth, recreating the barrow as an earth mound. The second barrow was less damaged but scars caused by walkers were infilled. Wooden benches were also removed from both Scheduled Monuments.

*Mawgan Porth Dark Age village*

The remains of a Dark Age settlement dating to AD 850–1050 are visible within a pitch and putt golf



course in the village of Mawgan Porth (SW 8516 6726). The site was excavated between 1950 and 1974, when three courtyard house complexes and a cemetery were uncovered. Part of the excavation had been backfilled, but two courtyard houses are still visible as a prominent monument in the local landscape. Scrub had grown up around the site. An archaeological assessment of the present condition of the monument was carried out and intrusive vegetation removed by a team from BTCV; a number of open excavation trenches were also backfilled for health and safety reasons. An illustrated leaflet was produced to inform visitors.

#### *Trevelgue Head cliff castle*

Trevelgue Head (SW 8270 6300) is an impressive promontory fort or cliff castle located on the north Cornish coast, lying within designated areas of Great Historic Value and Great Scientific Value. Dating from the Iron Age, it is one of the most heavily defended headlands in Cornwall, with seven ramparts; it also contains other features including two Bronze Age barrows. As a result of natural erosion and visitor pressure, the site has been heavily damaged. English Heritage produced a management plan in 1999, which identified a large number of erosion scars caused by walkers and, in places, mountain bikers, for whom the steep slope of the ramparts represented an interesting challenge. Conservation works were carried out by members of BTCV in December 2001, when scars and hollows on and around the largest rampart were repaired. Further management works were scheduled for subsequent years.

- Project officer: Dick Cole. Project manager: Ann Preston-Jones.

#### **St Thomas' Priory, Launceston**

An archaeological survey, commissioned by English Heritage, was carried out on St Thomas' Priory in Launceston. The project was the result of continuing discussion between Launceston Town Council (the owners of the monument) and English Heritage over the need for consolidation works on the site. In 2000 Launceston Town Partnership, a forum established by Launceston Town Council and others, established a working group known as the Launceston Priory Partnership with the primary vision of providing a long-term means of conserving, celebrating and promoting the priory site for the benefit of local people and visitors. The principal aims of the survey were to provide a detailed record of the Scheduled

Monument in its present form as a guide to further analysis of the fabric and to provide the basis for a specification for consolidation works.

The priory was founded in 1126 by the Bishop of Exeter as a house of Augustinian canons, and by the time of its dissolution (1539) was the wealthiest religious house in Cornwall. It superseded an earlier monastic institution at St Stephens to the north and became one of the larger houses of the Augustinian order, but the consequences of the Black Death were such that by 1381 there were only 13 canons remaining. The priory was surrendered in 1539 with only nine canons. After the Dissolution the land occupied by the priory buildings was acquired by Garen Carew who used the buildings as stables, bakehouses and piggeries, but by the end of the sixteenth century the buildings were ruinous and subsequently levelled.

The site was rediscovered by Launceston solicitor and historian O B Peter during the construction of the London and South Western Railway to the south and of gasholders to the east of the priory site. In a series of excavations between 1886 and 1892 Peter revealed walls, floors and moulded stones of a large structure over 200 feet long from east to west and including, in Peter's interpretation, nave, choir, tower, Lady chapel, aisles, cloisters, cellarer's buildings and other features. The remains visible today represent only the small proportion of the priory left exposed as a monument.

Photographs of the priory ruins from the beginning of the twentieth century show walls still in reasonable condition and the site generally well-kept, but in the intervening years the site became overgrown and neglected and suffered from casual vandalism. Recent vegetation clearance and a programme of weed-killing revealed the site with most of its walls deteriorating badly and some recent collapse. It is likely that substantial below-ground remains of the complex survive. The survey revealed that the ruins represent a complex structure with a chronology that is only partly understood. The survey highlighted an urgent need for conservation and consolidation works, together with some analysis and explanation of the Priory to visitors.

- Project officer: James Gossip. Project manager: Nigel Thomas.

#### **Tregargus valley, St Stephen**

An archaeological and historical assessment was carried out on china stone mills in the Tregargus



Valley, in mid Cornwall. The valley is of exceptional importance for the history of china stone extraction and processing in Cornwall. It contains the finest assemblage of stone mills in western Britain, and these are set within a wider landscape that includes the surviving industrial infrastructure of associated quarries, leats, pan kilns and tramways. As a monument class, stone mills are confined to Cornwall and the Staffordshire potteries, although the Staffordshire mills were not used solely for china stone and principally milled flint. Only in Cornwall are such stone mills found in direct association with their raw materials and their complex supporting infrastructure is very distinctive of the region.

It is known that stone was being quarried from the Tregargus valley by the late eighteenth or early nineteenth centuries, with a quarry noted in the *Sherborne Mercury* in 1807. The St Stephen tithe map of c 1840 showed both the quarry and evidence of china clay extraction within the valley. China stone was milled there from about 1870 until 1965, when the market for lower grades of china stone collapsed and the mills were abandoned. The remains of five china stone mills survive, and two other mills were dumped over by later workings. Water-wheels survive intact in two of the mills. Fieldwork identified a total of 95 extant features. As well as the stone mills, these included derelict cottage, bridges, blacksmiths' shops, lagoons of china clay waste, adits and possible evidence of tin streaming which would have predated the extraction of china stone and china clay.

The assessment was funded by English Heritage and carried out on behalf of the Tregargus Valley Trust, to inform the future management and conservation needs of the area. The Trust is a local charity which is leasing most of the valley from local china clay producers Imerys and Goonvean Ltd. The report set out a series of detailed recommendations for future management, including the need for detailed archaeological surveys of the mills and consolidation of certain buildings, with advice on public access, interpretation and a conservation strategy.

- Project officer: Dick Cole. Project manager: John Smith.

### Godolphin estate, Breage

A number of investigations were carried out on the Godolphin estate to supplement a survey carried out in 1997. These works were commissioned by the

National Trust on acquisition of the wider estate (the land minus the house, gardens, farmstead and grounds) and covered a variety of components of the important historic environment of Godolphin.

- Prehistoric and medieval field systems around Godolphin Hill were reassessed.
- Documentary work on Great Work Mine included a review of the mid eighteenth century mine accounts, adding detail to the broad outline history of the site. A sketch survey was undertaken in the light of the documentary evidence and archaeological recording was undertaken on Leeds Shaft engine house, with the results used to guide the careful restoration works undertaken by the Trust.
- A review of the history and archaeology of the deer park, in the light of recent works in the gardens and elsewhere in Cornwall, suggested that it is likely to be medieval, probably late thirteenth or early fourteenth century. It also suggested the possibility of a deer course above the house and that the park and warren complex was designed to emphasise the rapidly rising status of the Godolphin (Godolphin) family.
- Survey of early field system features within the part of Godolphin Wood east of the Count House enabled a relative chronology to be developed which threw light on the inter-relationships between mining and farming in this part of the site.
- Geophysical survey on two prehistoric settlement sites, Carsluick round and a cropmark site in Little Warren, produced remarkably clear results. The round has clear indications of extra-mural activity as well as internal complexity. There are also clear relationships with contemporary and earlier fields. The Little Warren site appears to be attached to the north side of a major co-axial field system and may be Bronze Age in date.

The geophysical and earthwork surveys have identified potential sites for small-scale keyhole excavations that could provide chronological and artefactual evidence to improve the accuracy and definition of interpretative material.

- Project officers: Dick Cole, James Gossip, Charles Johns, Rebecca Le Saux, Ann Reynolds, Adam Sharpe, Nigel Thomas. Project manager: Peter Herring.

### Mitchell–St Newlyn East sewage pipeline

A watching brief was undertaken on a South West Water sewage main pipeline between the sewage works at Mitchell and St Newlyn East. This part of Cornwall is expected to have high archaeological potential, with many settlement enclosures or ‘rounds’ known from air photographs. Geophysical survey in advance of trenching had identified a number of sites on which archaeological fieldwork could be focused but what was arguably the most significant discovery was unexpected. Stripping of the topsoil at Trevilson exposed the outline of a prehistoric roundhouse which proved to be of Middle Bronze Age date (provisionally around 1500–1200 BC). The house was 7m in diameter, constructed by cutting its floor into the shillet bedrock and building a wall inside the edge of the cut. A ring of large posts set 1m in from the wall would have supported the roof, and an internal partition was suggested by a line of stakeholes running from one side of the entrance, which was towards the south east. Finds included 40 sherds of Bronze Age pottery, three fragments of a granite quern and two pieces of slag. House sites of this form, although still rare, are becoming characteristic of lowland Cornwall with other examples known from Trethellan (Newquay), Callestick (Perranporth) and Penhale (St Enoder).

Other discoveries included a series of interconnecting enclosure ditches at Pollamounter. These were found to contain Bronze Age potsherds and a copper alloy object. Close to this site were a number of features containing Iron Age–Romano-British pottery. A large ditch, 2.3m deep, bounded all of these sites to the north and west. Its dimensions and position suggest some form of later prehistoric enclosure and, although no finds were recovered, charcoal from the fills may provide radiocarbon dates.

In Church Close, east of Trevilson, a large pit was excavated. Within the uppermost fill an arrangement of stones closely resembling a cist burial was recorded. However the north-west–south-east orientation of the feature weighs against this interpretation and it may instead be a stone-lined hearth pit. A pit of similar dimensions was excavated close to the settlement of Metha towards the western end of the pipeline. Both pits contained complex stratigraphies suggesting a gradual infilling rather than backfilling. Finally, at the western end of the pipeline a small pit was excavated and found to contain a number of Neolithic flints, representing the earliest feature discovered.

The excavation of these features, in conjunction with investigations into components of medieval and post-medieval field systems, has revealed a landscape displaying repeated use from the early Neolithic to the present, with settlement, enclosure and ritual features represented in the record.

• Project team: Sean Taylor, Imogen Wood, Rebecca Le Saux, Jeff Muir, James Gossip, Nigel Thomas. Specialists: Rowena Gale, Anna Lawson Jones, Julie Jones, Henrietta Quinnell, Dr Roger Taylor, Carl Thorpe. Project manager: Andy Jones.

(A monograph on the project’s findings was published in 2004: *What lies beneath . . . St Newlyn East and Mitchell: archaeological investigations, Summer 2001*, by A M Jones and S Taylor, Historic Environment Service, Truro.)

### Devon Great Consols Mine

Cornwall County Council Environmental Projects team were asked by the Tamar Valley Countryside Service and West Devon Borough Council to co-ordinate and administer a land reclamation scheme focussed on the Devon side of the Tamar Valley, including the sites of Devon Great Consols, Morwellham and New Quay. A £3.3 million grant was applied, mainly from the South West Regional Development Agency, Heritage Lottery Fund and Objective 2.

An archaeological assessment was carried out over 346 hectares on Devon Great Consols Mine, including Wheal Maria, Wheal Fanny, Wheal Anna Maria, Wheal Josiah, Wheal Emma, Wheal Watson and Wheal Frementor. The project area also included Bedford United Mine to the south, South Bedford, Wheal Luscombe and part of Wheal Russell, a further area of 128 hectares.

Documentary research was carried out at Devon Record Office, which holds detailed records among the Duke of Bedford collection. There were some fine plans of the mine complex dating from 1867, close to its peak of production, and parchment lease maps from 1844 to 1893.

The archaeological field survey was carried out in Spring 2001. Approximately 600 sites were identified, 400 of which were in the Devon Consols sett. More than 130 shafts and 70 adits were identified. The remains also include late medieval openworks and gunnises, large spoil dumps, well preserved reservoirs, settling tanks, leats (up to 2.5 miles long), incline tramways and railway routes.

Most buildings at Devon Consols were reduced to ground level in 1903 but the 1920s arsenic refining works remain with a long flue and 36m high stack.

- Project manager: Colin Buck.

### **Poltesco valley**

A preliminary archaeological and historical survey was carried out of the east Poltesco valley, near Cadgwith on the Lizard peninsula, to inform and guide ongoing management work by the National Trust. The Poltesco stream divides the ancient parishes of Grade and Ruan Minor and two mills serving local estates were here recorded in 1396. The existing Poltesco Mill dates from the eighteenth century, but probably includes fragments of earlier buildings. The mill was restored to working order in the 1970–80s by millwright Anthony Hitchens Unwin, the Trust's tenant, who has repaired, used and maintained it to the present day. Further down the valley, at the edge of the stream below Poltesco farmyard, is the ruin of another mill, the 'lower' or 'little mill' which was abandoned in the 1850s.

In 1855 a factory was established by the Lizard Serpentine Company on the site of earlier fish cellars at Carleon Cove. The Poltesco stream was harnessed to drive a huge waterwheel, used to supply power for cutting, turning and polishing the rough stone, obtained from nearby quarries. The factory, one of only two in Cornwall, made shop fronts, mantelpieces, fonts, vases and many other items, which were transported in barges to waiting ships. In its heyday it employed 20 men and three boys. Steam power was introduced in c 1870, and the capstan house of the old fish cellars, which still stands, was used as a coal store. The factory ceased operation in about 1893, mainly because of competition from cheap Spanish and Italian marble but perhaps also because of the loss at sea of a large uninsured cargo of finished articles.

- Project officer: Charles Johns. Project manager: Peter Herring.

### **Carrancarrow and Greensplat**

The St Austell china clay area is a dynamic, ever-changing landscape. Plans to expand the area of Greensplat China Clay Works near Carthew, and re-direction of a road around the pit, affected the disused Carrancarrow china clay pit and an adjoining area of farmland and small homesteads. Sites affected by the works included the abandoned former upland farming settlement of Carrancarrow, a

ruinous forge associated with the Carrancarrow pit and Greensplat Methodist Church. A programme of investigation was commissioned by Goonvean Ltd in advance of the pit expansion.

#### *Carrancarrow farmstead*

The farmstead of Carrancarrow (SW 9939 5530) was thought to be of medieval origin because of its Cornish name, the characteristic form of associated fields and documentary evidence going back to 1370 for a settlement variously called *Nankerou*, *Caven Nanskerou* and *Cavennanaskarou*. The buildings that had survived extensive quarrying to the east appeared to date from the nineteenth century but it was hoped that the medieval origins of the settlement might be located beneath. Clearance of the thick scrub and rubble covering the remains of the settlement uncovered an east-facing two-storey cottage with fireplaces to the south and north, the latter containing a range and the remnants of a cloam oven. Removal of the range revealed two circular holes cut into the natural subsoil, both containing dark ashy fills; the larger also held sherds of North Devon Ware tentatively dated to the late eighteenth century. These were the only features found within the settlement area which may have predated the extant structure and it seems likely that levelling for the construction of this building destroyed any evidence of earlier occupation. Trial trenches across the enclosure adjoining the cottage to the north resulted in the recovery of small amounts of medieval pottery, suggesting a settlement in the vicinity. However the enclosure banks themselves were shown to be contemporary with the cottage. The concrete foundations and floors of a row of outbuildings that appear on the 1880 OS map were excavated to the south west of the cottage, revealing an earlier well of unknown date.

#### *Carrancarrow forge*

This structure, first recorded on the 1907 OS map, stands on the south-western edge of Carrancarrow Pit (SW 9945 5520). The roofless building consists of two adjoining compartments, an office to the north west and the forge itself to the south east. Due to the poor survival of such structures associated with the clay industry it was decided to clear out the rubble and make a measured survey. The clearance revealed a large number of iron objects within the forge area, including crucibles and tongs.

#### *Greensplat Methodist chapel*

Measured survey and historic building analysis was carried out in advance of the demolition of this

Methodist church and its associated Sunday School (SW 9959 5556). Before investigation, the complex appeared to be a small and relatively simple structure, with cement-rendered exterior walls and recent wooden framed windows. The study revealed that the building was constructed in 1873, but had been enlarged and modified in four further phases. The original chapel was two-thirds of its present length, with an additional bay added to the south in 1896, the date of the alteration indicated by foundation stones. The original commemorative stone in the front gable wall had evidently been moved during the chapel's enlargement. A proscenium arch inside the chapel was probably added at the same time and the whole chapel re-floored and re-fitted with pews, panelling and other fixtures. The Sunday School adjoined the north end of the chapel and was originally a narrower structure, as depicted on the *c* 1880 Ordnance Survey 1:2500 map. At the north end of the Sunday School was a store room, possibly originally a trap house for the minister's transport, which was added sometime between 1880 and second edition of the Ordnance Survey map, *c* 1907. A surviving toilet block was also evident by the latter date. Another small alteration occurred to the rear of the schoolroom where another small space, later turned into a kitchen, was added. In 1925 the whole of the schoolroom was rebuilt, with a new wall to the rear and a heightened roofline. Offices were also provided between the schoolroom and the chapel. Some modernisation, including replacement of the chapel windows, modification of the chapel doorway and addition of plumbing and electricity, occurred later in the twentieth century.

The degree of expansion and modification carried out to this building seems surprising given its relatively short lifespan. Map evidence indicates that the hamlet of Greensplat expanded rapidly in the later nineteenth and early twentieth centuries, with several new smallholdings established. Clay pits at this stage were relatively small but required a large amount of manual labour. The chapel formed a focus for the local population and much community investment found its way into the chapel buildings. The hamlet declined in the later twentieth century as the local clay pits and their associated waste dumps were enlarged.

• Project staff: Sean Taylor, Nigel Thomas, Rebecca Le Saux, Jo Sturgess, Dick Cole, Pete Dudley, Carl Thorpe. Specialist: Eric Berry. Project manager: Andy Jones.

### **Burdenwell Manor Cottage, Week St Mary**

Planning permission and Listed Building Consent were granted by North Cornwall District Council for the refurbishment and extension of Burdenwell Manor Cottage, subject to a condition for historic building recording in advance of and during the building works. Burdenwell Manor (SX 2392 9779) is located in the north-east part of Week St Mary close to the historic centre of the village. The Cottage forms what appears to be an extension to the Manor but on closer examination contains much older fabric. In the middle years of the twentieth century this small part of the building became disused as a dwelling and the rear part was adapted as an outhouse and garage.

A brief desk-based investigation of documentary sources was carried out in advance of fieldwork. Historic building recording of the Cottage took the form of a photographic survey, measured survey and archaeological investigation of floor levels. In addition, the owner and tenant kindly gave permission for a brief examination of the adjoining Manor. This proved invaluable to gain an understanding of how the building developed as a whole. Analysis of the building identified cob structure and a single early roof truss surviving in the gable wall of the Cottage. When a flagstone floor was lifted in the main room of the Cottage, earth floor surfaces were revealed beneath. Lines of disturbed material also indicated the positions of earlier thicker walls.

The building as a whole has origins as a house with a cross-passage plan, probably built in the late medieval period (late fifteenth or early sixteenth century). When first built, it had a two room layout with the hall (living room) at the west end and a service room to the east. There is, however, no evidence that the building was a true longhouse, with humans and livestock sharing a single building. The house was later enlarged to the rear and a second storey was added. In the seventeenth century there were considerable changes to the building, including the addition of a front porch. The former service end of the house was rebuilt and a dividing wall inserted to separate the Cottage from the Manor. At this period the Cottage gained its fireplace within the gable wall and also its stairway and floor joists. The Manor was again redeveloped in the eighteenth century, with the addition of elaborate panelling to the living room. The Cottage seems to have escaped attention at this time. In the nineteenth century the



front wall of the Cottage was rebuilt, with a flagstone floor and cooking range added to the downstairs room and replacement wooden plank flooring and a partition in the upper storey. The structural development of the building also demonstrated how the functions and status of the rooms changed over time, probably linked to changing fashions and the economic circumstances of the occupiers.

- Historic building specialist: Eric Berry. Project manager: Nigel Thomas.

## Church archaeology

### *Mullion church*

Archaeological recording was carried out at St Mellanus Church, Mullion, on behalf of the Parochial Church Council, during ground works within the churchyard to improve drainage around the church. The work comprised the excavation of two trenches around the western and eastern sides of the church, terminating in two soakaway pits within the churchyard to the north of the church.

St Mellanus Church, Mullion, (NGR SW 6790 1920) is a Grade I Listed building. It stands within an irregular, roughly sub-rectangular churchyard. The earliest reference is to *Sanctus Melanius* in 1225. The churchtown was also known as *Eglosmeylyon iuxta Lanfrouder* in 1343 and as *Eglosvylyon* in 1394. Generally place-names beginning in *eglos* (church) are considered to be of more recent origin than those beginning in *lann* (churchyard), which could be fifth to seventh century in date. The name thus suggests that the church site at Mullion may date from the pre-Norman period when the church had superseded the enclosure as the most important aspect of a Christian site, perhaps replacing the earlier site at Lanfrouder.

The project provided considerable evidence for the history and archaeological potential of the churchyard. Archaeological deposits were encountered to a depth of 1.50m before bedrock was encountered (in the eastern soakaway pit), indicating good potential for the survival of early levels. Within the eastern soakaway pit, at a depth of 1.20m below current ground level, a compacted layer of red-brown clay containing flecks of charcoal was encountered. Though only 0.18m thick this layer produced an abundance of artefacts including Mesolithic flints, Iron Age and Romano-British pottery and, most significantly and unexpectedly, several sherds of early medieval BII amphora imported from the eastern Mediterranean (Cilicia and Antioch) and

dating from AD 475 – 550. This layer, suggestive of an old land surface, indicates that a long-lived secular settlement – possibly a round, from the domestic nature of the artefacts – existed on the site long before the church was built. The imported BII amphora certainly indicates that by the sixth century the settlement had become one of significant status, such that it was able to import foreign goods. Evidence of activity into the eleventh century was indicated by the presence of ‘grass-marked’ pottery in overlying layers. Unfortunately no structural features related to any of these periods were encountered.

Details of five graves and two charnel pits were recorded, the bone being in a fair state of preservation. The graves orientated east to west proved to be coffin burials (with the head at the west end). A radiocarbon age determination was obtained from human bone from the lowest stratigraphically located grave within the eastern soakaway pit. This gave a result of  $239 \pm 45$  BP indicating a date around 1700. This follows previous observations indicating that the earliest Christian burials are within long cists, the practice continuing from the eighth to the late fourteenth century, with shroud burials prevalent from the fifteenth to the seventeenth centuries and wooden coffins only coming into popular use in the eighteenth century. Analysis of the human remains recovered (some 11 individuals being represented in the collection) suggest that the group was fairly typical of medieval and post medieval cemeteries in terms of age range and pathological conditions, mostly tooth problems or signs of poor diet, although there was evidence that one individual had fractured ribs (healed during life) while another had possibly suffered from leprosy.

A major phase of landscaping was identified that had severely truncated the grave cuts observed within both the recorded sections in the soakaway pits. Unfortunately no direct dating evidence for this activity was obtained, although documentary sources suggest a date of 1822–3, when earth was removed from around the church ‘to a level with the inside’.

### *Gwinear church*

Archaeological recording was carried out at Gwinear Church, on behalf of the Parochial Church Council, during work within and around the church to upgrade the central heating system and convert the Arundell Aisle, previously used as a vestry, into a meeting room. This work involved the lowering of the floor in the Arundell Aisle and excavation of two service trenches.

Excavation of a pipeline trench close to the



northern lych gate revealed two walls 2 metres apart. These clearly predate the pathway that is shown on the 1839 tithe apportionment map but it is uncertain what type of structure they represent. Possibilities include part of a mausoleum, or an earlier lych gate, a chancel house or part of an almshouse: one was recorded *c* 1680.

#### *Gunwalloe church*

In October 2001 archaeological recording was carried out at St Winwaloe church, Gunwalloe, during groundworks in the churchyard to improve drainage around the western end of the church and while plaster was removed from the interior of the west wall. The church (SW 6602 2055) is a Grade I Listed building. It stands in a curvilinear boundary enclosure which may have been an early medieval ecclesiastical site or *lann*. The current church retains some evidence within the west wall of the nave for the church built in the thirteenth century but the bulk represents alterations and additions in the fourteenth and fifteenth centuries. It underwent a major restoration in 1869.

The removal of the plasterwork from the interior of the western end of the church revealed a complex building history which supported the historical research undertaken as part of the project. The oldest

surviving fabric appears to be the lower portion of the west wall of the nave and the lower courses of the western terminations of the north and south arcades. This is probably of thirteenth century origin. The church was extended in the late medieval period by the addition of north and south aisles dating from the fifteenth to sixteenth centuries. The north aisle (probably late fifteenth century) was found to postdate the nave. Some of the original external rendering of the nave was found in the gap between the builds. It was demonstrated that the whole of the west gable wall of the south aisle is of original medieval build. The fragmentary remains of a niche-like feature were observed near the gable apex. Evidence was identified for the existence of an eighteenth-century west gallery for singers and musicians, in the form of a small doorway cut through the space between the end of the south arcade and the west wall of the nave.

• Project officer: Carl Thorpe. Historic research: Dr Joanna Mattingly, Rev John Denny. Specialists: Henrietta Quinnell (prehistoric pottery and stone artefacts), Hildur Gestsdottir (human bone), Professor Charles Thomas (early medieval ceramics). Project manager: Andy Jones.

## Exeter Archaeology: projects in Cornwall, 2000–2003

Exeter Archaeology (EA) regularly undertakes projects within Cornwall. Details of work carried out during the period 1996–9 were published in *Cornish Archaeology* 37–8 (1998–9), 220–3.

### 2000

#### **St Adwen(a)'s church, Advent SX 1047 8161**

A watching brief was maintained for the parish by T Gent during the excavation of drainage trenches around the church. The footings of the church were exposed but no evidence was found for earlier builds. Articulated bone was uncovered in the base of the trench to the west of the north transept but was left undisturbed. (Exeter Archaeol Rep 00.38)

#### **Fore Street, Boscastle SX 0993 9080**

An evaluation was carried out by T Gent on the site of a new Community and Recreation Centre at the junction of Dunn Street and Fore Street. The medieval Bottreaux castle survives as an earthwork immediately to the north; it was considered that the site may lie within or close to the southern circuit of the castle ditch.

Eight trenches were dug across the site. Although no structures or evidence of the castle ditch were found, an extensive medieval buried soil was identified, sealed by hillwash. Analysis of pollen in the soil indicates a range of plant communities

growing nearby, reflecting a variety of local environments, but did not contain any evidence for medieval cultivation. Three sherds of residual eleventh- or twelfth-century chert-tempered pottery may date to the period of the earliest use of the castle site. (Exeter Archaeol Rep 01.02)

#### **Kenwyn Street, Truro SW 822 448**

A field evaluation was carried out by T Gent at a car park adjacent to Kenwyn Street in connection with proposals to develop the site. An assessment previously undertaken by Cornwall Archaeological Unit indicated that the site was of considerable potential. The evaluation demonstrated that the northern part of the site lies within the former floodplain of the Kenwyn and remained undeveloped until the eighteenth century. The southern part had been considerably disturbed by a garage, but the potential for survival of earlier deposits within discrete areas was demonstrated. (Exeter Archaeol Rep 00.17)

#### **Mylor Churchtown SW 8210 3520**

A recording project was undertaken by M Watts at the site of a World War II marine vessel maintenance structure known as a 'gridiron', located at Mylor Yacht Harbour. The gridiron was partially covered by the construction of a quay in 1951 (now known as Admiral's Quay) and a proposal by the Yacht Club to extend an existing hard-standing and construct a new

slipway would result in the burial of its remaining exposed elements. It was constructed as part of the preparations for D-Day and is one of a class of monuments considered to be of national importance.

The gridiron consisted of nine parallel piers extending at right-angles from a roadway (and possible slipway) with a single ‘dolphin’ located to either side of the seaward end of the structure. There may have been winches located at these points to hoist the landing craft onto the gridiron, supported within wood and metal cradles. Following recording the gridiron was buried in accordance with a method statement produced to ensure its long-term preservation and approved by English Heritage. (Exeter Archaeol Rep 00.62)

### **Bude Canal**

**SS 2037 0644**

Archaeological monitoring and recording was carried out by M Dyer and A Collings during restoration of the Bude Canal sea lock, a Scheduled Monument and Grade II Listed Building. Built between 1819 and 1821, it was enlarged in 1835 to accommodate vessels of up to 300 tons. It continued in operation until 1904, when a combined storm and high tide destroyed the inner gates. These were replaced but sea action has caused ongoing damage subsequently, ultimately necessitating restoration. The excavation of three test pits in the north pier was monitored and a photographic record was made of the gates and all mechanisms prior to removal for refurbishment. All major elements of the works were monitored, including strengthening work to the north pier, the removal of the inner gates, replacement of the granite ashlar blocks in the south pier, removal of the outer gates and the replacement of the refurbished lock mechanisms. (Exeter Archaeol Rep 00.82)

### **Bodmin Town leat**

**SX 0568 – SX 0767**

Archaeological monitoring and recording were carried out for the Environment Agency by C Whitton and S Reed during improvement works to Bodmin Town leat. The former natural stream has been utilised and adapted to serve the needs of the town, probably since the medieval period. The existing leat, which mostly takes the form of an underground masonry culvert, required extensive rehabilitation as part of a flood defence scheme. Where the rehabilitation design proposed complete replacement of the culvert, an internal archaeological inspection was carried out in advance to record and

wherever possible date the culvert. Construction works on the leat were subsequently monitored and two main types of culvert construction – barrel vault and rectangular box section – were recorded. (Exeter Archaeol Rep 00.64)

It has been established from archaeological and cartographic evidence that much of the existing masonry dates to the mid to late nineteenth century, when the largely open stream channel shown on the 1841 tithe map was progressively culverted. Medieval sediments have additionally been recorded on the north-eastern boundary of Priory pond, in the near vicinity of the former Augustinian priory (1120–1539).

### **Eyre’s Building, Castle Dyke, Launceston**

**SX 3316 8464**

A Passmore of Exeter Archaeology carried out recording during groundworks for the conversion of the building into flats. The site lies between the castle motte to the west and High Street to the east. Within a foundation trench was seen the steeply sloping eastern side of a wide and deep feature. Its upper fills were exposed to a depth of 1.1m and yielded a few sherds of post-medieval coarse pottery. The feature is interpreted as the outer edge of the castle ditch and the observation represents the first precise evidence for its position on this side of the castle. Fragments of overlying post-medieval buildings were also found. (Exeter Archaeol Rep 02.76)

## **2001**

### **26 Fore Street, Bodmin**

**SX 0697 6697**

C Whitton of Exeter Archaeology carried out a watching brief for Stanley Racing on this site, which lies within a well-preserved group of burgage plots. Stratified deposits proved to be shallow and badly disturbed; only one small patch of a probable medieval layer survived. Three sherds of granite-derived (‘Lostwithiel-type’) medieval coarseware of thirteenth- to fifteenth-century date were found. (Exeter Archaeol Rep 01.45)

### **4 North Street, Lostwithiel**

**SX 1050 5940**

A Passmore of Exeter Archaeology undertook a watching brief for Mr A Evans on the foundation trenches of a house extension. A single post-medieval layer was recorded. It contained a small

collection of fifteenth–sixteenth century Lostwithiel-type coarsewares and ridge tiles. (Exeter Archaeol Project Rep 4340)

**St Michael's church, Trewen, Launceston**  
**SX 2520 8355**

A watching brief was carried out by P Manning of Exeter Archaeology for Parkes Lees Architects and the Parochial Church Council in advance of drainage works beside the outer faces of the south and east walls of the church. The church is believed to be of Norman origin; it was remodelled in the fifteenth century and restored in 1863–4. The foundations of four phases of stonework were recorded. The east wall of the porch and the adjoining stretch of nave were the earliest fabric, possibly of twelfth-century date. The nave was then lengthened eastward, with an external feature (possibly a buttress) at its eastern end. The chancel was subsequently extended eastward. The south side of the chancel was then rebuilt, probably in the fifteenth or sixteenth century, although no direct dating evidence was found. Fragments of two burials cut by the masonry of phase 3 were also exposed. (Exeter Archaeol Rep 01.29)

**Kenwyn Street, Truro**                      **SW 8222 4484**

P Stead and C Whitton of Exeter Archaeology carried out a watching brief for Hill & Lang (ROKbuild Ltd) on this site, which lies towards the fringe of the medieval town. Most of the area had been heavily disturbed in the recent past, preserving only fragments of seventeenth–eighteenth-century drains and surfaces and a length of ditch which had probably been a medieval property boundary. Residual finds included five sherds of gabbroic ware from two vessels, three of the sherds being from a grass-marked base; these are datable before *c* 1100. The recovery of 25 sherds of Cornish granite-derived wares of *c* 1200–1500 indicates the site's proximity to medieval occupation. (Exeter Archaeol Reps 00.17, 02.50 and 03.19)

## 2002

**36–38 Fore Street (modern nos 38–40), Bodmin**  
**SX 0690 6700**

A Passmore of Exeter Archaeology, in association with E Berry, carried out historic building

recording of these houses for Property International (London). No 38 was part of an early eighteenth-century rebuilding of an earlier structure, with several later building phases. No 36 was rebuilt entirely *c* 1840–50. In a subsequent watching brief in the burgage plots to the rear, more than 1m of deposits was encountered. The earliest pottery consisted of a few sherds of thirteenth–fourteenth century date; the earliest deposit was of the fourteenth–fifteenth centuries. A group of architectural fragments included a cusped window-head of the late fifteenth or sixteenth-century. (Exeter Archaeol Rep 02.37)

**Althea Library, High Street, Padstow**  
See report in this volume.

**Polwhele–Laniley pipeline, Truro**

A Passmore, P Manning and M Dyer of Exeter Archaeology carried out an assessment (in 2001) followed by evaluation and a watching brief (both in 2002) for South West Water Ltd on this 4km stretch of pipeline which runs northward from the north-eastern edge of Truro to St Erme. At SW 8355 4676 an irregularly shaped feature contained a burnt deposit which yielded a C14 date of 1690–1440 Cal BC at 95% probability (3293±50BP: WK10793). Four gabbroic Bronze Age sherds were found in topsoil close to Polwhele Castle (field centred on SW 8364 4624). Four ditches representing potential pre-medieval field boundaries were found within a modern field (centre at SW 8362 4707). (Exeter Archaeol Reps 01.61 and 02.59)

## 2003

**Picklecombe Battery, Maker**                      **SX 4553 5160**

A Passmore of Exeter Archaeology carried out building recording for the Fort Picklecombe Syndicate prior to conversion to apartments. Built in castellated gothic style (apparently to satisfy the Earl of Mount Edgumbe) in 1845–8, the barrack was incorporated into Fort Picklecombe in 1860–4. Annotated plans and a photographic record were prepared. Almost all the original fabric survives; the difference in the size of rooms and the quality of architectural detail between the officers' quarters and the soldiers' barracks was very apparent. (Exeter Archaeol Rep 03.33)

**Trewince Farm, Portscatho SW 8765 3490**

Evaluation was carried out for South West Water Ltd by S Reed and A Sage of Exeter Archaeology in advance of a proposed sewage treatment works. Following a geophysical survey, nine trenches were excavated with a total length of 294m. At least twelve Early Neolithic vessels were found in four different features. Seven of these have been the subject of a preliminary report by H Quinnell, with initial petrological study by Dr R T Taylor. The fabrics of six of them are gabbroic; the seventh incorporated weathered argillaceous micaceous slate. Of particular interest was the mix of gabbroic clay with inclusions from other sources, a feature not previously noted before the Bronze Age. Three radiocarbon dates give a combined date of 3650–3510 cal BC at 95% probability (4818±48BP: WK 13256; 4805±51BP: WK 13257; 4713±45BP: WK 13259); a fourth sample dated to 3810–3640 cal BC at 91.1% probability (4952±45BP: WK 13256). (Exeter Archaeol Rep 03.61)

**St Stephen's church, Saltash SX 4167 5866**

C Whitton of Exeter Archaeology carried out a watching brief on a service trench for the Parochial Church Council and Pearn and Proctor, Chartered Architects. The trench ran from outside the south-western edge of the graveyard to the south side of the church porch. Seven orientated inhumations were encountered within the graveyard. (Exeter Archaeol Proj 4985)

**Nanpean Farm, St Stephen-in-Brannel SW 9613 5611**

P Manning and R Parker of Exeter Archaeology carried out an assessment and building recording for Wainhomes (South West) Holdings Ltd in advance of proposed conversion to residences. The farmhouse dated to the late eighteenth or early nineteenth century; the farmyard buildings were also recorded. (Exeter Archaeol Rep 03.54)

**Brewer's Yard car park, Truro SW 8230 4476**

An evaluation and watching brief were undertaken for the Guinness Trust by P Stead and A Passmore of Exeter Archaeology. The site lies at the fringe of the medieval town and in the area of the former Dominican Friary, the precise boundaries of which are not known. Under an extensive and thick post-medieval cultivation soil were found two ditches and three pits of probable thirteenth- to fifteenth-century date. All were truncated and dating evidence in each was sparse. The ditches appear to represent either property boundaries or early field boundaries. (Exeter Archaeol Reps 01.76 and 03.18)

**ROC Building, Daniell Street, Truro SW 8210 4446**

A Passmore and G Young of Exeter Archaeology recorded the former Royal Observer Corps Headquarters, built in 1963, for Lark Construction Ltd, prior to demolition. Annotated plans and a photographic record were prepared. Features included diesel generators and air filtration systems. (Exeter Archaeol Rep 03.11)



## Obituary

### Roger Penhallurick

Roger Penhallurick – at the time of his retirement the Royal Institution of Cornwall’s Curator of geology and minerals, natural history, numismatics, archaeology, the vast photographic collection and Heaven knows what else – died suddenly in September 2004. The range of different interests, the plain evidence of gratitude for Roger’s work and help, reflected by the large crowd at his funeral service was extraordinary, but also foreseeable. Detailed appreciations from his old friends and colleagues (one and the same) will appear in the *Journal of the Royal Institution of Cornwall*, but it would be unthinkable to omit a mention in *Cornish Archaeology*, a journal with which Roger was involved for decades.

Roger joined the staff of the Royal Institution of Cornwall in 1964, with qualifications in geology and art, and for years was second-in-command of the collections under H L (Les) Douch. His family, purely Cornish and presumably originating in Stithians (there is a settlement named Penhalurick in the parish), had moved to Wales; now they returned to Cornwall, where his parents settled. Roger’s own interests were so wide that it is impossible to do them justice in this note; to a great many people he was primarily an ornithologist and skilled illustrator. To us, he was the man who, with Les Douch, looked after, expounded and added to the main archaeological collection in Cornwall,

was our resident expert on coins ancient and modern, was always available to produce distribution maps and instant line illustrations, and (most importantly) was everyone’s friend – informative, corrective, always amusing and, incredibly, always seeming to deliver on time. For our journal he supplied, with his splendid detailed drawings, cover illustrations as well as individual notes and technical appendices on finds. His major non-bird book, *Tin in Antiquity* (London, The Institute of Metals, 1986), would alone have sufficed to establish his archaeological reputation. Indeed, only he could have written it.

When Roger retired, which allowed him to spend more time on trips to his beloved Scilly, he began to work on (and by the time of his death had more-or-less completed and updated) another project, *Ancient and Roman coins in Cornwall and Scilly*. Its publication now forms a priority for the RIC. It was simply one of many enthusiasms, like butterflies, and stranded turtles, and conversations with friends and dealing with all his eccentric correspondents. Those who, over so many years, knew him best will miss him most, but as a Society all of us will miss him, and will have his beloved wife and companion Pat in our thoughts. Not just within the walls of the RIC, Cornwall’s debt to her reclaimed son cannot be overstated.

*Charles Thomas*

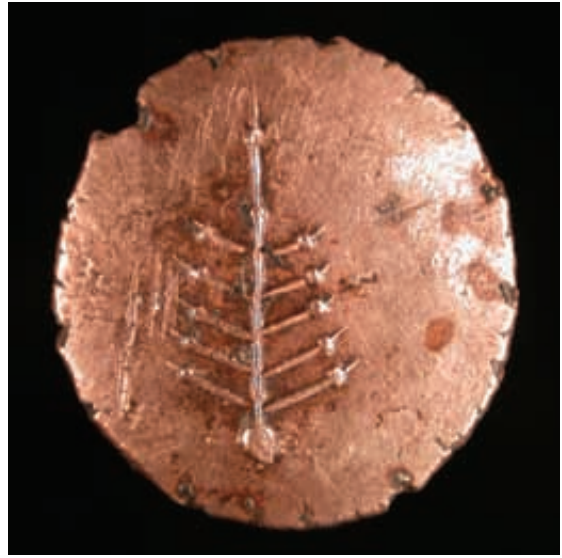


*Colour plate 1 Aerial view of Bryher looking north (© Gibson Collection). (See C Johns, An Iron Age sword and mirror cist burial from Bryher, Isles of Scilly, pages 1-79)*



*Colour plate 2 Detail of the sword hilt; the sword and mirror (© Cornwall County Council) (See C Johns, An Iron Age sword and mirror cist burial from Bryher, Isles of Scilly, pages 1–79)*





*Colour plate 3 The gold stater: obverse (left) and reverse (right). The coin is 19mm in diameter. Copyright of the Royal Institution of Cornwall. (See A Tyacke, Chariots of fire: symbols and motifs on recent Iron Age metalwork finds in Cornwall, pages 144-148)*



*Colour plate 4 Copper alloy scabbard mount from the parish of Padstow. The mount is 55 mm long. Copyright of the Royal Institution of Cornwall. (See A Tyacke, Chariots of fire: symbols and motifs on recent Iron Age metalwork finds in Cornwall, pages 144-148)*



*Colour plate 5 The building of Zennor Quoit, an early Neolithic portal dolmen, c 3700 BC. Jane Stanley, acrylic on canvas. (See commentary on page 159)*



*Colour plate 6 Neolithic rawhide rope making. Jane Stanley, acrylic on paper. (See commentary on page 159)*