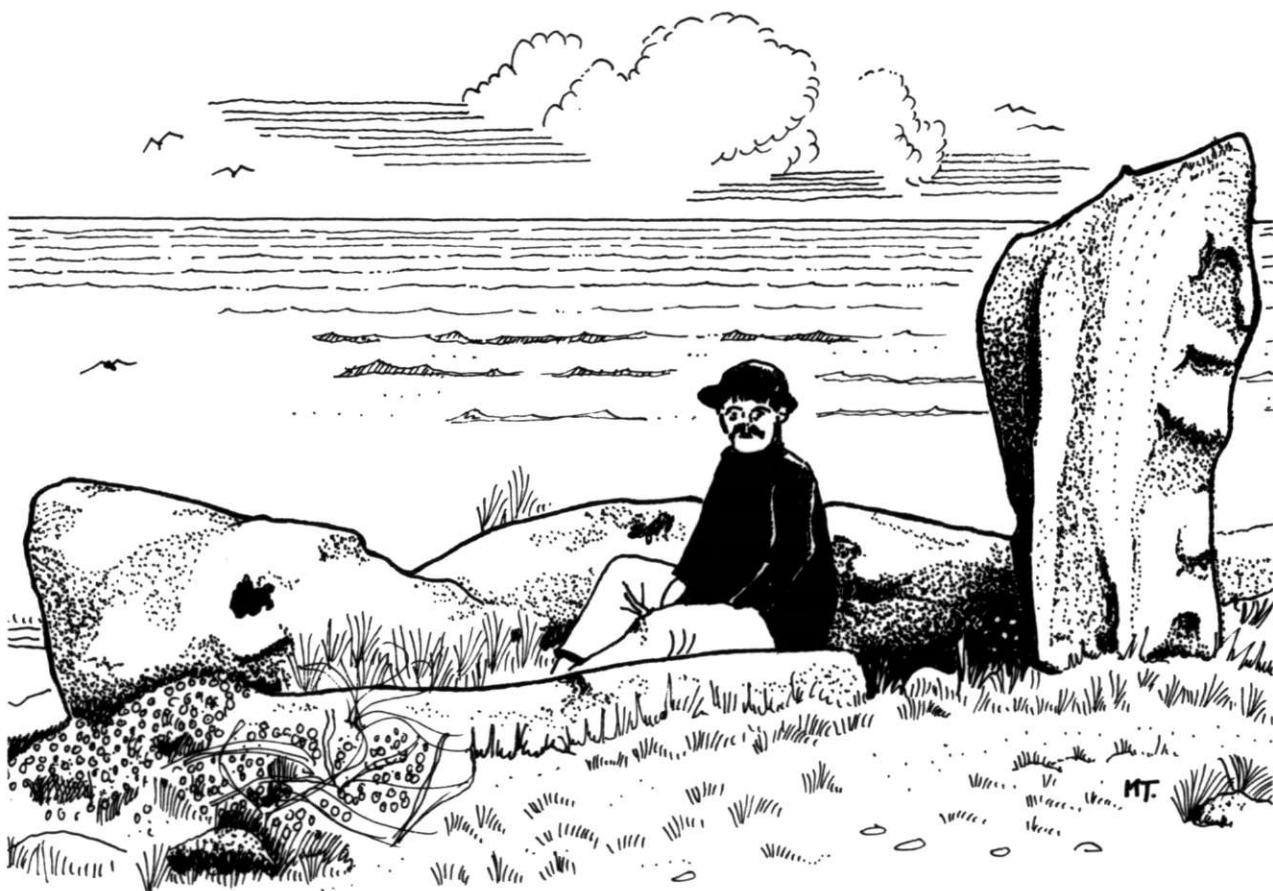


CORNISH ARCHAEOLOGY

No 33 1994



HENDHYSCANS KERNOW

COVER: *Penberth, the huer's hut; drawing by Michael Tangye*

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EDITOR

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Prehistoric stone implements found near Callington, Cornwall, and their significance

G F WALFORD

Summary

Surface finds of a perforated stone hammer, two axes, two grooved hammerstones and other worked greenstone implements collected near Balstone (Balsam) Down, southeast Cornwall, are described, with petrological analyses. Their relationship to Group 4 Neolithic axes and their possible significance as evidence for prehistoric mining is discussed.

Introduction

Amongst flint and other artefacts found whilst field walking either alone or with other members of the Cornwall Archaeological Society over a period of ten years in the vicinity of Balstone Down and Castlewich Henge, there was a stone with a curious groove around it. Later the writer was shown a somewhat similar stone found by a farmer in one of his fields. This farmer, who rarely ploughs, has collected at various times other chance finds including a small axe, a broken axe, a semi-perforated stone, hammerstones and flint. These artefacts are usually found where the ground is eroded by cattle. The collection also includes a mace head/pebble hammer originating from a stream on a neighbouring farm and now in the possession of the Callington Local History Society. Other finds have been retained by the writer for the time being but will be returned to the farmers concerned after further study. All but one of the finds came from Balstone Down or near, the area southeast of Callington where the stone for Group 4 Neolithic axes is thought to have been obtained. Some of the finds have been examined for wear by David Gale of Bradford University. Six were thin sectioned on behalf of the Sub-Committee of the South-Western Federation of Museums and Art Galleries and examined by Dr R V Davis, petrologist.

The locality (Fig 1)

Balstone Down is a ridge some 200 metres above sea level. It is one kilometre southeast of Callington and is now enclosed farmland. At SX 370 689 there is a small, probably 19th century, quarry. It is enclosed land which in the Tithe Apportionment Map of 1841 is shown as common land. Although heavily overgrown with bramble and thorn the visible ground surface is quite irregular. It appears to be in the centre of an area described geologically as picrite but now re-named peridotite, the presumed Group 4 Neolithic implement stone.

Four hundred metres to the south of this quarry is the Class 1 henge of Castlewich, on Westcott Farm (Fox 1952). The henge is on ground sloping to the southwest. Three kilometres to the north is the Hingston Down ridge which lies east to west and rises to 333m high at the western end, known as Kit Hill. There are more than 30 barrows along the ridge including a long barrow on the southern slope of Kit Hill at SX 3818 7093, identified by the writer in 1981 (Walford 1987).

Geologically the whole area is metamorphic and complex, associated with the granite of Kit Hill and Hingston Down, and is heavily mineralised. The 1880 25 inch O.S. Map shows an 'Old Shaft', no longer visible, at SX 3678 6872, a mere 300m southwest of the quarry and 400m northwest of the Castlewich Henge. To the east the general slope of the land by river valleys is to the River Tamar 5.5km away, with easy access to tidal waters.

One and a half kilometres south of the quarry and rising to 200m is Viverdon Down, also an east/west ridge, now threatened by a new road. There are barrows here too but badly damaged

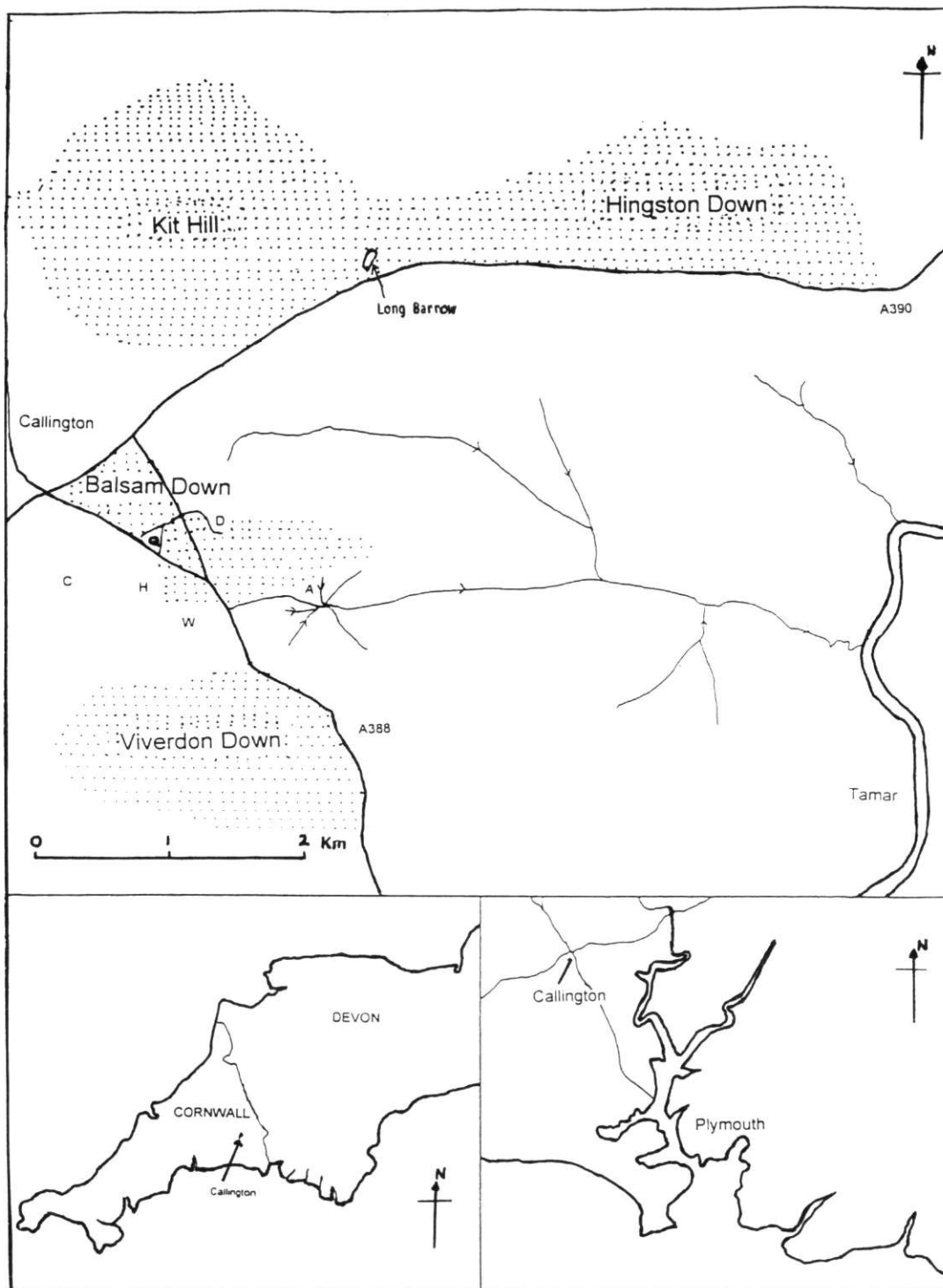


Fig 1 Map showing area of stone implement finds near Callington.
A: Ashton Barton; C: Castlewich Farm; D: Dupath Farm; H: Henge;
Q: quarry; W: Westcott Farm

by ploughing. Three km to the southwest is the univallate hill fort of Cadsonbury and 10km to the north-northwest is Bodmin Moor, rich in prehistoric remains.

Field walking has produced flint, some diagnostically dating to the Mesolithic. The whole area therefore was of interest to prehistoric people for a very long time. Some of this activity would have been concerned with exploitation of the natural resources, an activity that has continued into the twentieth century.

A note on the place-name

Although Balstone has been used in previous works the local pronunciation by farmers is Balsam. Interestingly the relevant Tithe Apportionment lists 13 fields using the latter spelling. To avoid confusion the original spelling has been retained.

The objects

The reports which follow consist of extracts from a microwear study in 1991 and 1993 by David Gale (DG) of Bradford University, and investigation of the implement petrology by Dr Vin Davis for the South Western Federation of Museums and Art Galleries and the Council for British Archaeology. Not every object has had both studies. The full reports may be inspected at the Royal Institution of Cornwall Museum or the Cornwall Archaeological Unit, Truro.

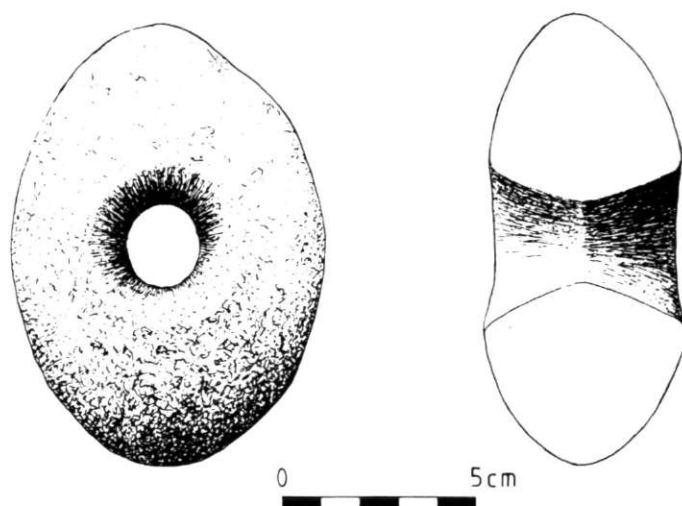


Fig 2. Pebble Hammer/Mace Head. This was found by Mrs Dunkley of Callington in a cartload of stone taken from a stream at SX 381 695. It is now in the possession of the Callington Local History Society. It is a brown, weathered pebble described in the petrological report as 'fresh olivine dolerite with sub-ophitic texture. Lathes of feldspar are embedded in augite crystals. Irregular patches of ilmenite are common. Variations in colour of the augite crystals could be due to chemical zoning'. No group is given but the suggested locality of origin is given as Cornwall.

Fig 3. Broken Axe. This was found by Mr Martin Hicks on Ashton Farm, SX 382 685. Mr Hicks seldom ploughs and his many finds, including flint, occur mostly from erosion around cattle troughs and paths where cattle trample. Ashton Barton is a small Domesday Manor lying at the foot of a northeast extension of Balstone Down. It is a warm and sheltered farm with several springs near the farmhouse. Some fields are on the rising slope behind the farmhouse and others stretch out on the relatively level land to the south. 'The axe is oval in section broken at both ends. The surface is pitted from stone dressing, presumably pecking. It has been damaged by plough marks'. (DG). The petrological study puts it in Group 1, the source for which is the Mount's Bay area. The description is 'highly altered with highly corroded patches of brown augite surrounded by hornblende of feathery aggregate and lathes of feldspar'.

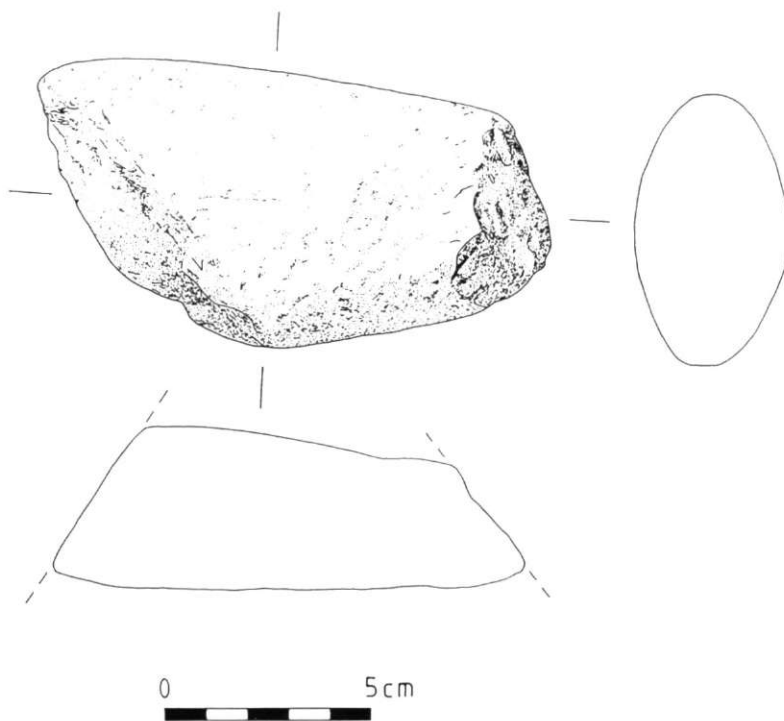


Fig 3

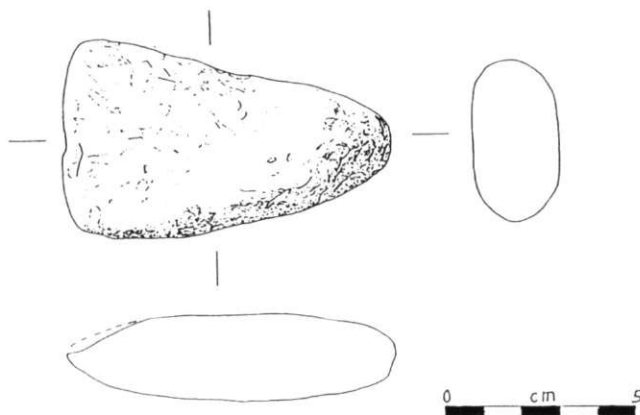


Fig 4. A small complete axe. Found on Ashton Farm, SX 382 685. 'This is a crudely shaped axe, one edge being concave in profile. The most smoothly finished part is the blade. This is rounded but damaged, a flake scar from its centre has been partially removed by grinding'. (DG). The petrological description is that 'it is fine grained with heavy spotting of opaque iron, probably magnetite, which is either angular or sub-angular'. It is ungrouped, possibly from southwest England.

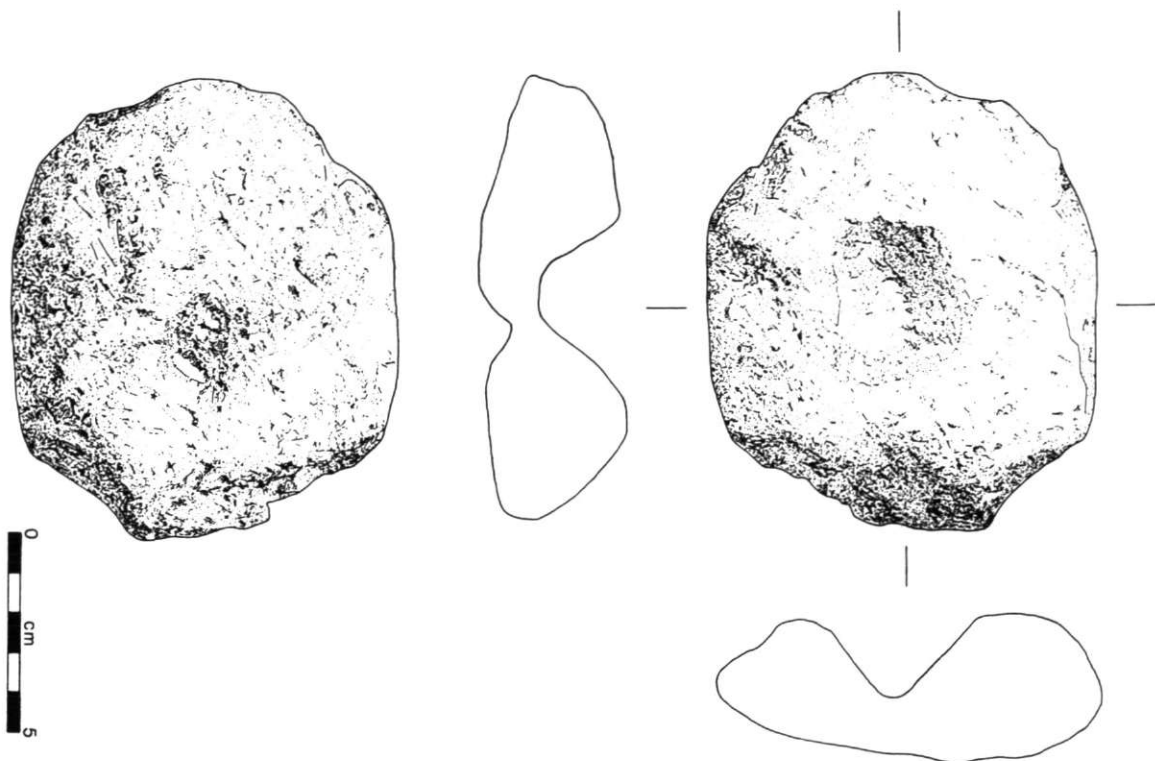


Fig 5. Cupped stone. This stone was found by Mr Martin Hicks of Ashton Farm. SX382 685, and is arguably the most important artefact of this collection. 'The surface of the stone is uneven and it is not apparent whether attempts have been made to shape it. Polishing is confined mainly to its edge. The tool marks of the shallow return cupping are deep relative to their width which strongly suggests a pointed metal tool. The developed cup on the other side is 23mm deep, penetrating three-quarters of the thickness of the stone. It is oblong in outline, V-shaped in cross section and straight-sided. Tooling marks are suggested by slight channels radiating up from the centre of the cup. The form of these marks and shape of the hollow would also suggest metal tooling'. (DG). Petrologically similar to Fig 7 'it is an ungrouped rock of highly altered greenstone with fragments of quartz. Limonite alteration runs indicate former fabric in small patches of decomposed brown augite and green hornblende are common'. Suggested origin is Cornwall.

Fig 6. Hammer Stone found on Ashton Farm SX 382 685 by Mr Martin Hicks. 'This stone is roughly flat and oval in outline. The surface has been cursorily pecked although areas of natural surface texture survive. Notches occur naturally on both sides of the stone. On the one side the notch is relatively shallow, 4.6mm, and has been produced by pecking, whilst the opposing notch has been more deeply scored by heavier blows resulting in rough flaking. The stone, or more accurately cobble, certainly represents a tool blank which judging by the irregularity of the surface was soon discarded'. (DG). The petrologist describes it as 'highly altered greenstone, no feathery aggregates; untypical of high grade contact metamorphism but matches the general description for Group 3 from Marazion, southwest Cornwall'.

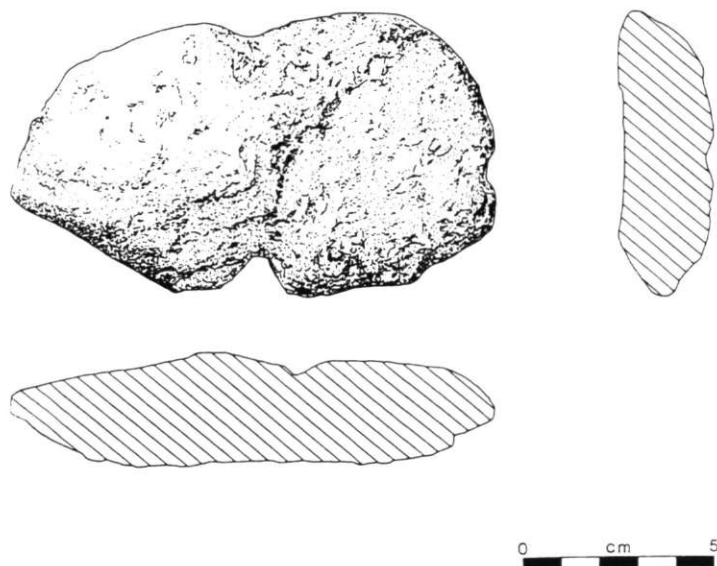


Fig 6

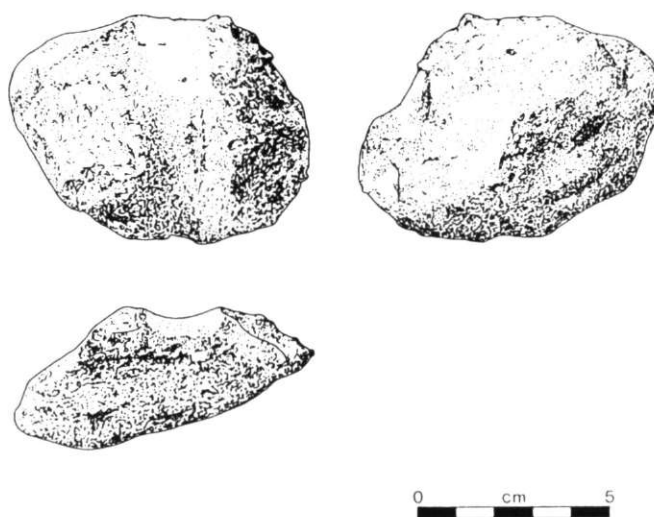


Fig 7. Grooved Cobble. Found during field walking on Balstone Down. Field owned by W and P Coombes of Dupath Farm, Callington. SX 375 692. 'This is a naturally derived cobble with a pitted surface texture which has been worked on both faces. On one face there is a distinct groove, 20-22mm in width and 3mm in depth, encompassing the whole span of the stone face with a roundness of 90mm in length. The stone has been used for the grinding of artefacts with an edge/end diameter of around 50mm, and probably using a fine sand agent'. (DG). The stone is ungrouped and the source is suggested as southwest England by the petrologist, who writes: 'It is a highly altered greenstone (similar to Fig 5), with fragments of quartz, pronounced alteration runs of limonite indicate former fabric, small patches of decomposed hornblende with fragments of altered relic augite are quite common'.

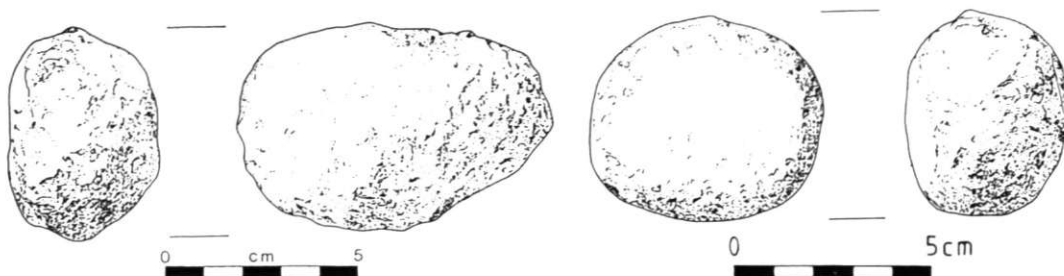


Fig 8

Fig 9

Fig 8. Small Pebble Hammer. Not petrologically tested. Found on Dupath Farm, SX 375 692, whilst field walking. 'This is a prolate pebble with an angular and irregular worked surface. Naturally abraded surface survives on the flattened face and part of one edge/face. The pounded surface is only apparent in comparison to the natural surface'. (DG).

Fig 9. Small Pebble Hammer. Ashton, SX 382 685. Not petrologically tested. It is 'A small sub-spherical pebble mostly end-edge worked by soft/hard pounding. The two ends and one edge show slight faceting from use perpendicular to the plane of the maximum projection, while the remaining edge suggests ridging in this plane from offset use. The flatter face is naturally abraded while the more curved face has been pounded'. (DG).

Discussion

For more than forty years the CBA Implement Petrology Committee (Grimes 1979) have been carrying out a programme of thin sectioning of stone implements with the aim of locating the source and establishing trading networks around the country. Those groups identified as coming from Cornwall are 1, 2, 3, 4, 16, 17, and 19 which with related sub-groups amount to 11 altogether. 31 artefacts are attributed to Group 4 (Callington) and a further 15 to the similar Group 4a (Clough and Cummins, 1988).

The proximity of the finds described in this report to the presumed quarrying site on Balstone Down of Group 4 Neolithic axes (Fox 1952) would lead one to expect some at least of these petrological thin sections to be identified as Group 4. This has not proved to be the case. In fact none has been traced to a known local source. Does this indicate limitations in the petrological process or is there another explanation? Since the geology is very complex one wonders whether the CBA Committee's reference collection is adequate. A complication is that the same stone, or something very similar, occurs elsewhere in East Cornwall (A Goode, pers comm), indeed it would appear that similar rocks can be found associated with igneous intrusions at various locations between Land's End and the Tamar, and into Devon around Dartmoor. Petrological study alone would be unlikely to locate source sites although it may be possible to do so by comparison of trace elements.

That no quarrying sites have been found in Cornwall may indicate there are none, although the writer believes that it would be worth while continuing the search by using modern technology. There may be some merit in the theory that the stones for implement manufacture are beach pebbles or erratics resulting from erosion or ice movement (Pearce 1981, 44-5) although the evidence for the latter appears slender (A Goode pers comm). Whatever the facts it does throw doubt on the validity of the present method of grouping Cornish stone implements.

So, if these implements, or some of them, have no connection with local quarrying or manufacturing—and this appears to be the case—the question arises as to what they are and what they are doing here. The broken axe (No 3 above) and the small axe (No 4) would appear to be Neolithic, while the pebble hammer/mace head (No 2) and the cupped stone (No 5), which had signs of metal working, must surely date to the Early Bronze Age. A suggestion

(C Gaskell-Brown, pers comm) is that as a result of the search for evidence of early mining, particularly in Wales, certain stone tools may provide strong and perhaps the only clues. In this connection No 5, possibly a small mortar (See Dutton 1990, 13; Thorburn 1990, 46), must be a candidate, as well as Numbers 6 and 7. One might also include 8 and 9 as well as two more possible hammer stones that have turned up recently on Ashton Farm and have not yet been examined in detail.

It is interesting to note that a large block of argentiferous copper ore found at Hengistbury Head has been traced in all probability to the Callington area by analysis of the trace elements (Gowland 1915). As has already been mentioned this is a heavily mineralised area. There are 19th century copper mines within a kilometre to the north and many more around Hingston Down, to say nothing of the great copper mines of the last century on Caradon Hill 5 km to the northwest (Dines 1956). Tin streaming works exist on Kit Hill and other nearby valleys. Silver-lead mines are numerous too.

It is worth reiterating that the evidence for prehistoric activity in the area is considerable. It includes a long barrow and many round barrows, a henge, flint scatters and an hour's walk to the northwest is Trethevy Quoit SX 259 688; adjacent on southeast Bodmin Moor are the Hurlers stone circles, the Rillaton barrow in which was found a gold beaker, surely a sign of great wealth, and many other ritual monuments and settlements. Stowe's Pound at SX 258 727 is a probable Neolithic/Bronze Age hilltop enclosure (Hooley, pers comm), not unlike Carn Brea (Mercer 1981). Not least is the pebble hammer/mace head (my No 2 above), a symbol of power perhaps.

Conclusion

The writer is well aware that there is much field and other work to be done and intends to continue with it along the original lines but with the additional dimension offered by metal mining. There is concern that new roads, housing and industrial developments, even changes in farming, may pose threats to fragile archaeology. Hence the publication of this interim report.

Acknowledgements

Many people have contributed to this report in a variety of ways and without their generous help it could not have been done. First, Mr David Gale, (DG), Department of Archaeological Sciences, University of Bradford, for microwear reports, drawings Nos 3-9 and some photographs. Next should be mentioned the farmers on whose fields we have walked. They include: Mr Martin Hicks, of Ashton Barton, St Dominick, whose sharp eyes and recognition of man-made objects have provided much of the material described above. Mr Peter Hambly, Westcott Farm, Callington, who also takes great care of the Castlewich Henge. Messrs W and P Coombe, Dupath Farm, St Dominick, owners of the enigmatic quarry on Balstone Down. Mr K Pethick, Castlewich Farm, Callington and Mr P Poad, Coombe Farm, New Bridge, Callington. Mrs Cynthia Gaskell Brown read the MSS and made many valuable suggestions concerning the text and interpretation of the artefacts. The late James Barber, Plymouth Museum; Peter Berridge, Woodsprings Museum, Weston-Super-Mare; Members of the Cornwall Archaeological Unit, (CAU); Dr R V Davis, CBA Implement Petrologist; Dr A Goode, (AG), British Geological Survey, Exeter; Mr David Hooley, English Heritage; Dr Martin Houlder, British Geological Survey, Exeter; Mrs J A Marchand, Exeter University; Mr Colin Squires, Saltash; Anna Tyacke, Royal Institution of Cornwall Museum, Truro. The writer apologises to whoever drew Fig 2 for losing his/her name and to any others accidentally omitted. Finally, without the considerable help and enthusiasm of the Wivelshire Walkers of the Cornwall Archaeological Society, in particular Sally and Ray Friend, Dick Thorpe, Peter Brierley, Ursula Davy, Mary Avent, Mary Lovelock and others this project would not have happened.

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Archaeological survey of an early mine working at Wheal Coates, near St. Agnes, Cornwall

PAUL BUDD AND DAVID GALE

Introduction

A detailed earthwork survey of an open trench working for metalliferous mining was undertaken. The working was located on the north side of the Towanroath Lode at the 19th century Wheal Coates tin and copper mine near St Agnes in Cornwall (Fig 1). The fieldwork, which took place in September 1992, was part of an ongoing research programme concerned with locating evidence for potential prehistoric copper mining. The openworking at Wheal Coates was one of a number of sites where the relatively shallow surface working suggested a potentially early date for extraction and offered the possible survival of related deposits. The site was first identified by Adam Sharpe of Cornwall Archaeological Unit during a plane-table survey of the National Trust owned land here in 1986. Fieldwalking at the site, by members of the Ancient Metallurgy Research Group during the summer of 1992 resulted in the recovery of a number of rounded cobblestones, some of which had surface markings suggesting that they may have been employed in ore extraction or processing.

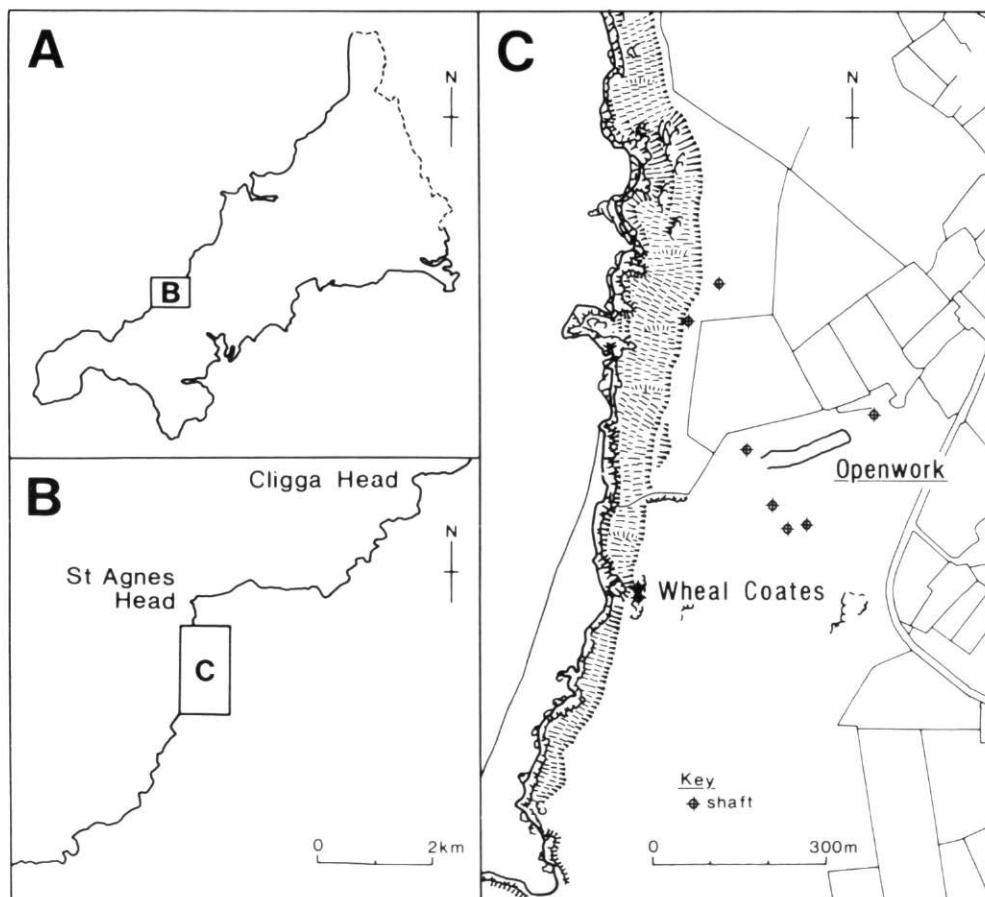


Fig 1 Wheal Coates. Location maps

Survey Procedure

The evidence for possible early mining activity at the site prompted a one week Electronic Distance Meter survey programme in September 1992 with the object of mapping the mining features in detail and locating and planning further possible stone tools. The EDM survey was confined to the area enclosed by the remains of a dry stone perimeter wall surrounding the openwork and its immediately associated features. During the course of the survey approximately 100 rounded stones were examined from mine spoil exposures on the site and from the perimeter wall. Most of these showed no evidence of use or modification and are considered to be of natural origin. A number of the cobblestones examined in the field had markings consistent with use as tools and these were removed for detailed examination in the laboratory. Three mortar stones and a cupped stone were also noted within the wall fabric. Two of the mortar stones and the cupped stone were collected for further investigation.

Description of the mining features

The openwork (Figs 2 and 3) follows two east-west trending almost vertical lodes (see Dines 1956, 476, for full description), which intersect to form a 'horse' at the west end of the working. Here, where the working is narrowest and most trench-like, the tool marks on the walls indicate pick work. The broader form of the openwork to the east is characterized by extensive spreads of angular rock fragments, some with remnant shot-holes. This spoil, slumping into, and heaped around the working is characteristic of blasting. There have been some limited attempts to contain the spoil around the southern margins of the openwork by revetting.

The area is criss-crossed by costeaning trenches, one of which (Fig 3: feature a) appears to be cut by, and hence to predate, the openwork. Another (Fig 3: feature b), crossing the working to the east of the openwork, may post-date the mine working. The southward continuation of this trench is partly stone faced. Depressions identified at the bottom of the broader part of the openwork and intersecting the wall at its north-easterly extreme were interpreted as possible infilled shafts (Fig 3: features c and d).

The whole area of the mineworking was covered by elluvium, the larger clasts of which occurred in the area of the clay pits immediately south-east of the surveyed area. Rather unusually for these cliff top mine sites, well-rounded, smoothed, pebbles and cobbles were present in relative abundance: a phenomenon recorded by Thomas Hogg in the early 19th century (cited in Jenkin 1962, 25). The cobblestones were mostly incorporated in the stone scatters on the south side of the openwork and were most common on the margins of the clay pits. They consisted of greenstones and altered granitic rocks, the former being highly smoothed while the latter were more rounded and commonly fractured and damaged. Great care is needed in diagnosing anthropogenic alteration of stones in the field as almost identical features (eg etch pits, striations and chink marks) can be produced naturally. An example of potentially misleading natural modification (WC 92 5) is illustrated in Fig 6, which shows a cobble possessing a small natural concavity in the centre of one face. This could easily be mistaken for evidence of working. Rounded stones appearing to be worked on field examination were taken back to the laboratory for cleaning and more detailed examination.

Description of the stone tool finds

A total of nine pieces of worked stone were identified, consisting of three mortars, one cupped stone, three anvils and an undiagnostic piece (Figs 4-7). These are individually described in Appendix I. The cupped stone and one of the mortarstones had been used as part of a facing for the wall built around the openwork and these were left *in situ*. The remainder have been donated to the Royal Cornwall Museum, Truro, by the National Trust.

The mortars (Figs 4 and 5) are derived from natural boulderstones rather than quarried rock. They would have been portable and were most likely used for hand cobbing ore. The anvil stones (Fig 6b) are locally derived cobbles of such a size to have been comfortably held in one hand. They exhibit small, dimple-like patches in the centre of one face which result from pounding. Only one of the specimens (WC 92 8) had been worked in more than one area.

Wheal Coates Openwork

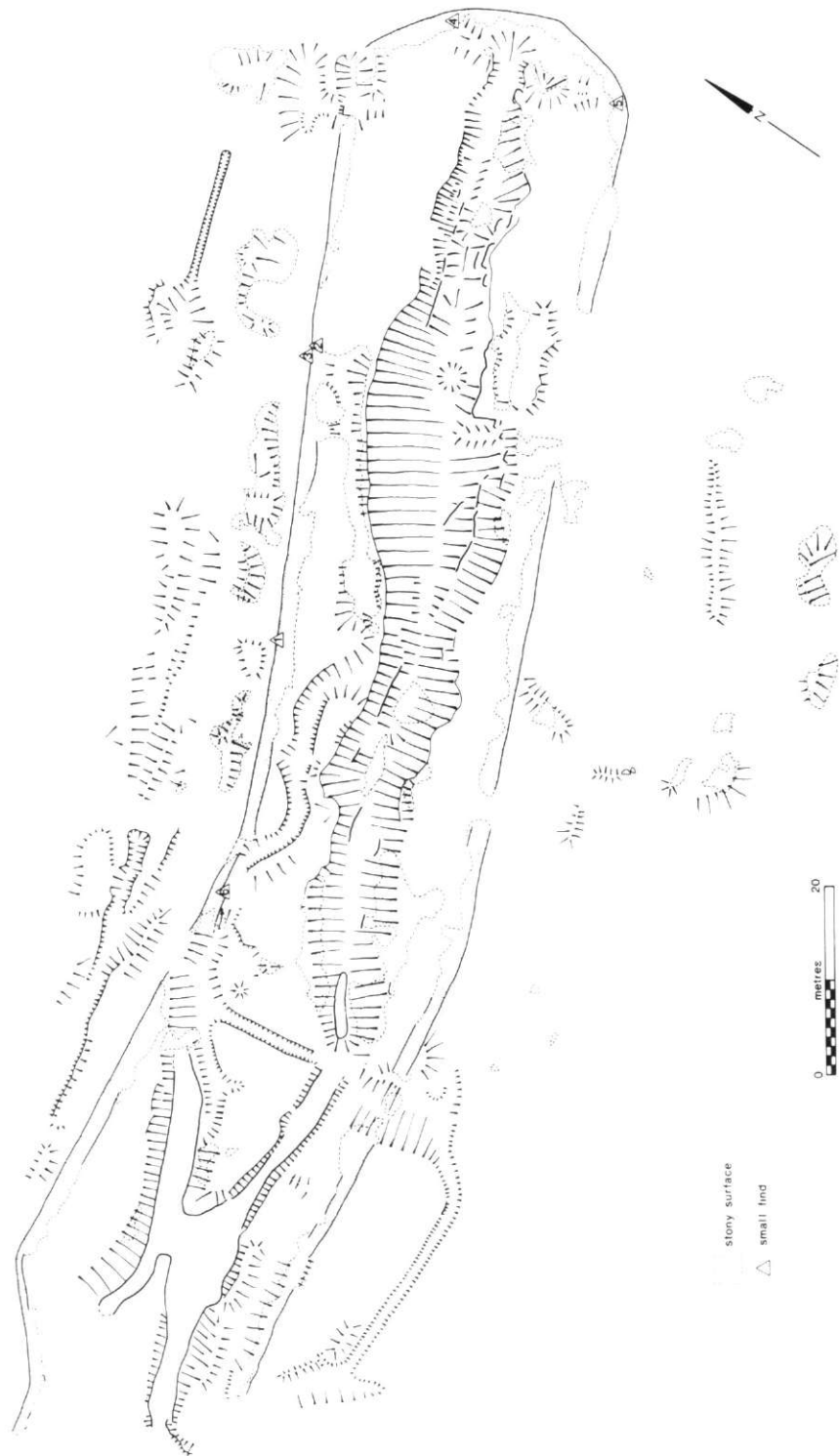


Fig 2 Wheal Coates openwork. Survey plan

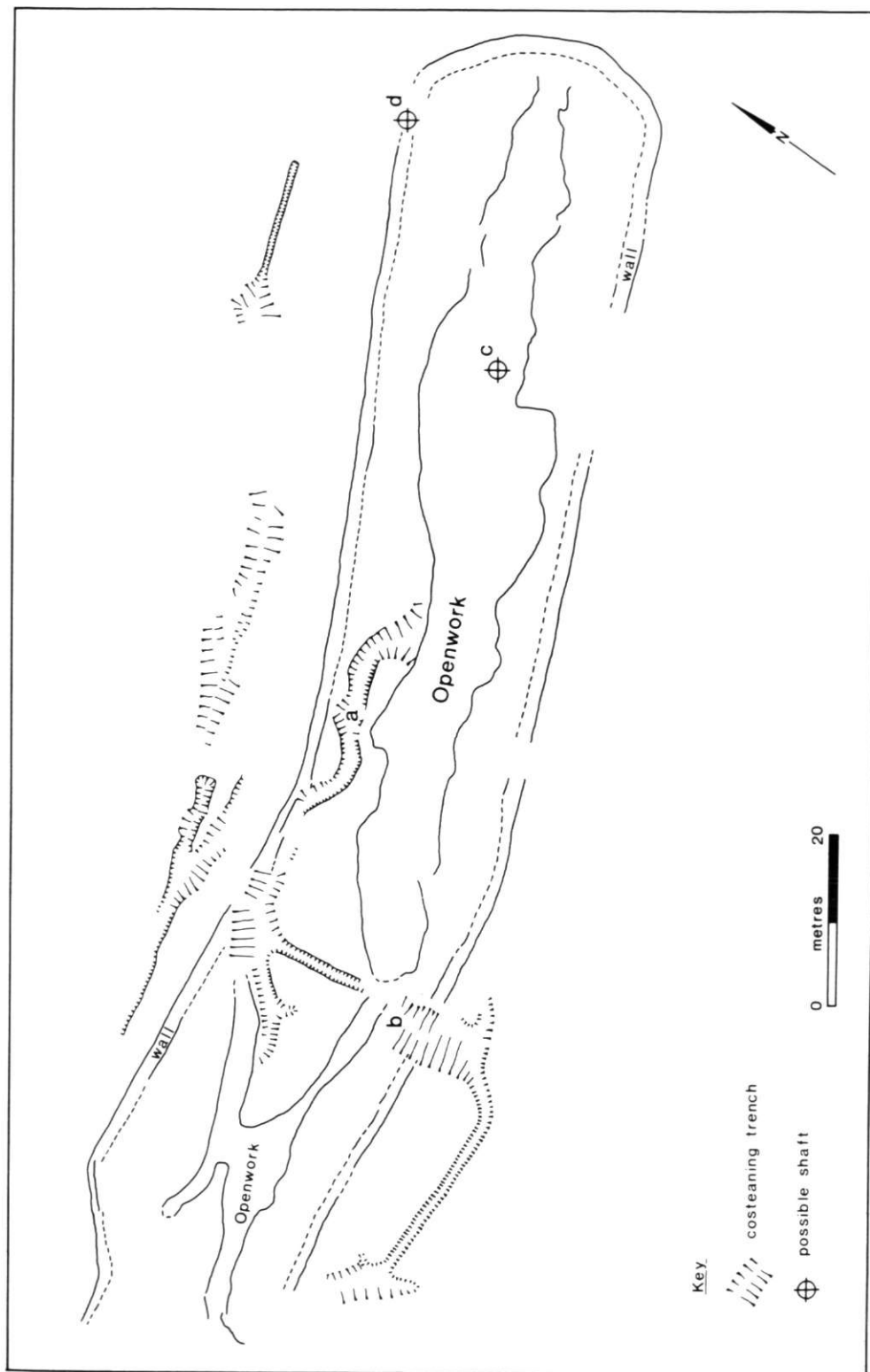


Fig 3 Wheal Coates openwork. Interpretative plan

These pounded dimples are similar to those on implements described as 'cobbing stones' which were used as hammers to dress tin ore and probably date to the medieval period (Buckley and Earl 1990). Cobbing stones from other sites examined by one of the authors (DG) are smaller and more discoidal than the anvils from Wheal Coates. Cobbing stones were used to grind as well as crush ore and feature pounded dimples, but these are always contained within a flatly ground face. The Wheal Coates examples do not exhibit grinding. Their description as anvil stones does not preclude the possibility that they may have been used to dress small quantities of ore, perhaps in connection with assaying.

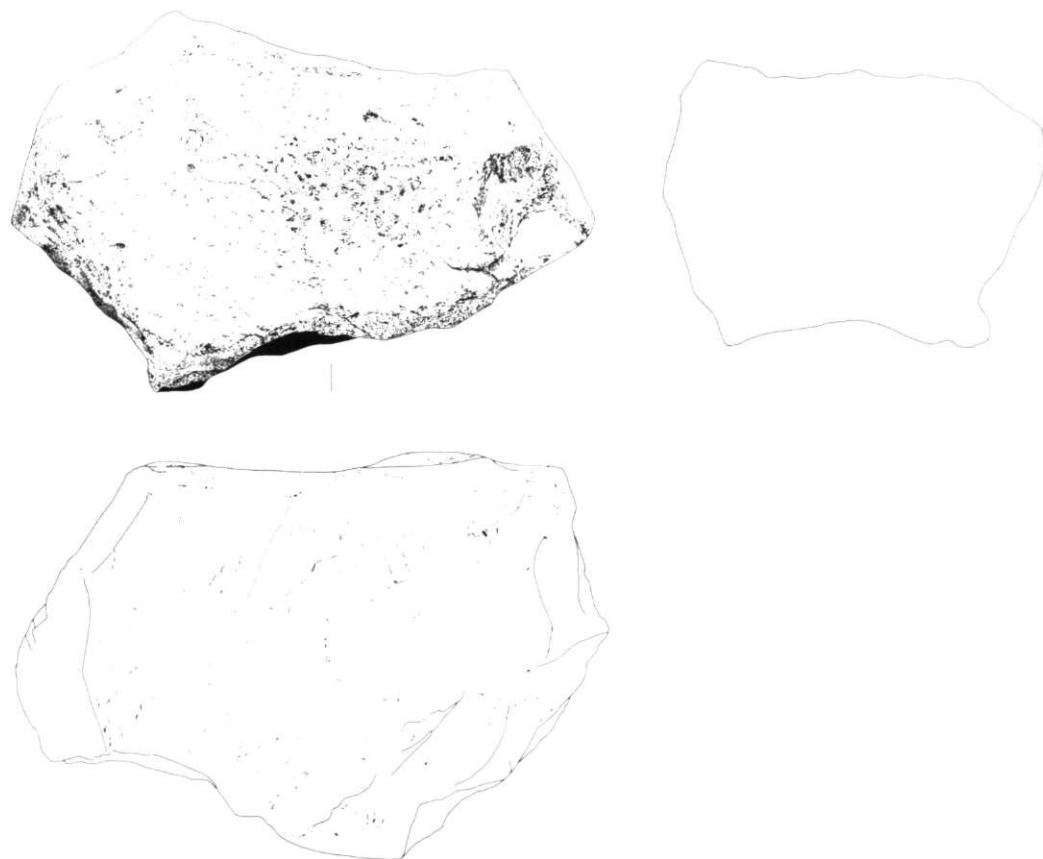


Fig 4 Mortarstone WC 92 2. Scale 1:4

One of the stones examined (Fig 7) has been clearly modified in the manner usually associated with prehistoric copper mining sites. Although the work marks are not particularly clear due to weathering, their position and form is conclusive. The artefact is a locally derived sub-angular stone with a centrally positioned, deep, notched edge. The more rounded underside is grooved having a surface waisting produced by pounding. The more angular edge (not drawn) has been pounded to form a more shallow notch. Although clearly worked, there is no evidence of the stone having been used as a hammerstone as suggested by this type of modification. Whether the stone had been modified for use as a hammerstone in ancient times but had not been employed, or whether it had been produced as a 'one off' in more recent times to act as a weight or similar is a matter of conjecture. One of the anvils has evidence for abrasion on one end suggesting that it may have been used as a hammerstone, but the evidence is inconclusive.

Conclusions

Although the form of the openwork would suggest that the working is pre-industrial, evidence for prehistoric mining activity is inconclusive. A small number of cobblestone tools were recovered, but there was little evidence of these being used as hammerstones. One example had been modified, presumably for hafting, in a similar manner to those recovered from other metalliferous mine sites which have been dated to the Bronze Age (Crew and Crew 1990). The stone tools consisted of mortars and small anvils. These could well have been employed for ore-dressing, but may have been used at virtually any date up until relatively recent times. It is felt that the discovery of a sole modified stone is insufficient grounds to postulate ancient mining activity on the site and that the date of the earliest activity at the openwork remains unknown.

Acknowledgements

We are indebted to the Garfield Weston Foundation, the Robert Kiln Trust and the University of Bradford for their support of the Early Cornish Metallurgy Project as part of which the survey was undertaken. We are grateful to the landowners, the National Trust and Mr Ordish and to Cornwall Archaeological Unit and especially Adam Sharpe for their help, advice and collaboration in the work. We would also like to thank Geoff Gaunt for kindly providing the rock identifications.

*Ancient Metallurgy Research Group,
Department of Archaeological Sciences,
University of Bradford, Bradford BD7 1DP.*

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Appendix 1 Description of stone tool items

WC 92 1 Mortarstone. Description: Stone incorporated in wall facing and therefore left *in situ*.
WC 92 2 Mortarstone. Dimensions: 301×214×199mm Weight: 13.0kg Material: grey granite
Description: A large sub-angular block with one mortar facet, 21mm in depth, on its only flat face. The stone was originally a boulderstone, being the larger fragment of two pieces produced by a fracture event emanating from the edge of the mortar facet, which has been trimmed by flaking. Fig 4.

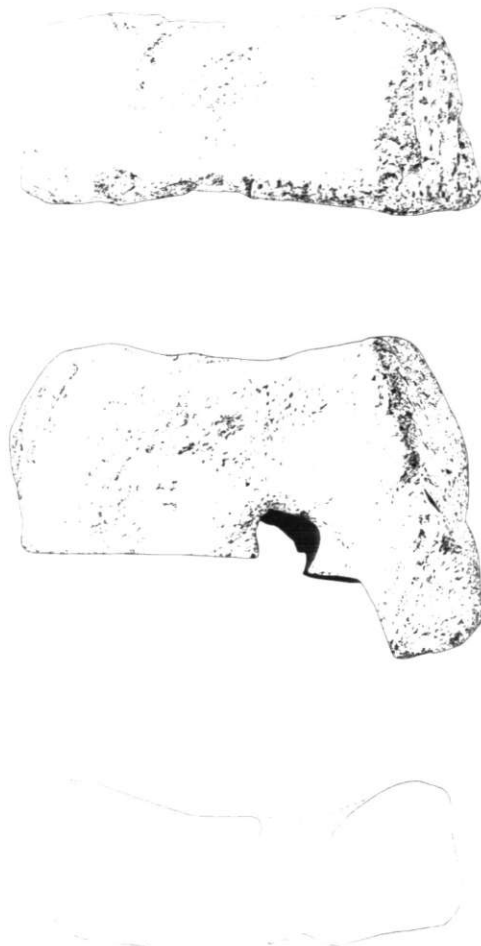


Fig 5 Mortarstone WC 92 4. Scale 1:4

WC 92 3 Cupped stone. Description: A cupped stone incorporated in the wall facing and therefore left *in situ*. This large angular block contained a small, possibly metal tooled, depression which may have been a stemple hole or the start of a shot-hole.

WC 92 4 Mortarstone. Dimensions: 254×172×84mm Weight: 5.5kg Material: not identified Description: A tabular boulderstone with mortar cups surviving on one of the edges, together with two smaller patches of pounding (possible precursors to another mortar cup), and on one face, containing two cuppings. The stone has been fractured by a shot hole, 34mm in diameter, drilled at an angle of approximately 45° from the cupped face. One possible explanation for this feature would be that the mortar was contained within old pack which was broken up by blasting during later reworking of the mine. Fig 5.

WC 92 5 Unworked cobblestone. Dimensions: 118×108×79 Weight: 1586g Material: greenstone. Description: A prominently-jointed sub-spherical cobblestone containing numerous veinlets. The centre of the flatter face contains a dimple which is natural, but could easily be taken as man made, and the margin of the cobble is naturally battered. Fig 6a.

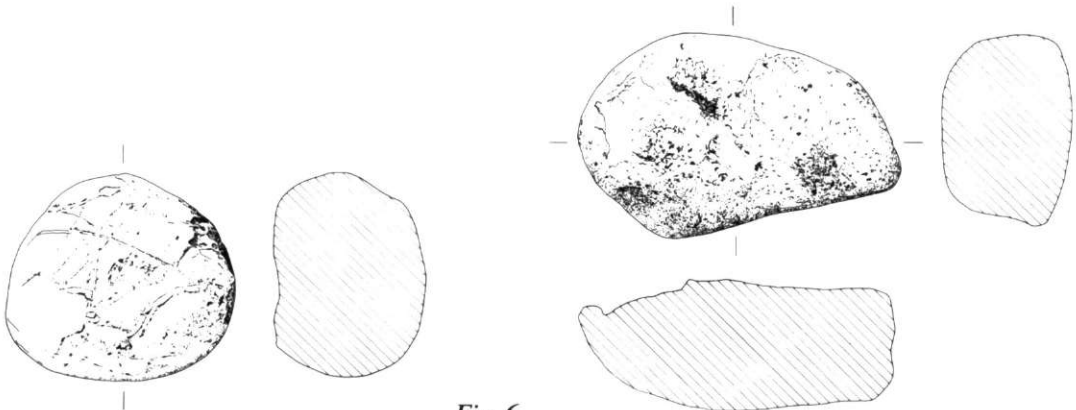


Fig 6

a) Cobblestone with natural face dimple and edge damage WC 92 5

b) Anvil stone WC 92 6. Scale 1:4

WC 92 6 Anvil stone. Dimensions: 163×105×66mm Weight: 1706g Material: greisen Description: A tabular, sub-rounded, cobble which is oval in outline. A small patch of pounding is contained centrally within the flatter face. The cobble is naturally flaked from one end. Fig 6b.

WC 92 7 Anvil stone. Dimensions: 165×93×89mm Weight: 1802g Material: greenstone Description: A prominently jointed oblongoid cobble which has a single dimple of pounding centrally on one face. A similar depression on an adjacent face is a natural feature. A single large flake has been struck from one end, the flake edge of which appears to have been pounded in one place. Whether this damage is natural or not is difficult to tell however and it should be noted that many of the naturally occurring cobbles are fractured.

WC 92 8 Anvil stone. Dimensions: 120×80×76mm Weight: 970g Material: not identified Description: A well-rounded and prominently jointed and cracked cobble. Three patches of pounding were identified, two of these being located at the centre of opposing faces.

WC 92 9 Modified stone. Dimensions: 182×133×87 Weight: 2.0kg Material: chloritized/sericitized granite. Description: A sub-angular stone with little surface abrasion except for the rounding of angular margins. The stone has three edges and faces in cross-section. The sharper edge is prominently notched in the centre to a depth of 15mm. The surface of the notch is flat and pound marks are visible. The more rounded edge of the stone has been superficially grooved in the same position relative to its length by pounding. The third, right-angled, edge has been pounded to form a shallow notch some 7mm in depth (not illustrated). The ends of the stone have not been worked and therefore the piece has not been described as a hammerstone. Fig 7.

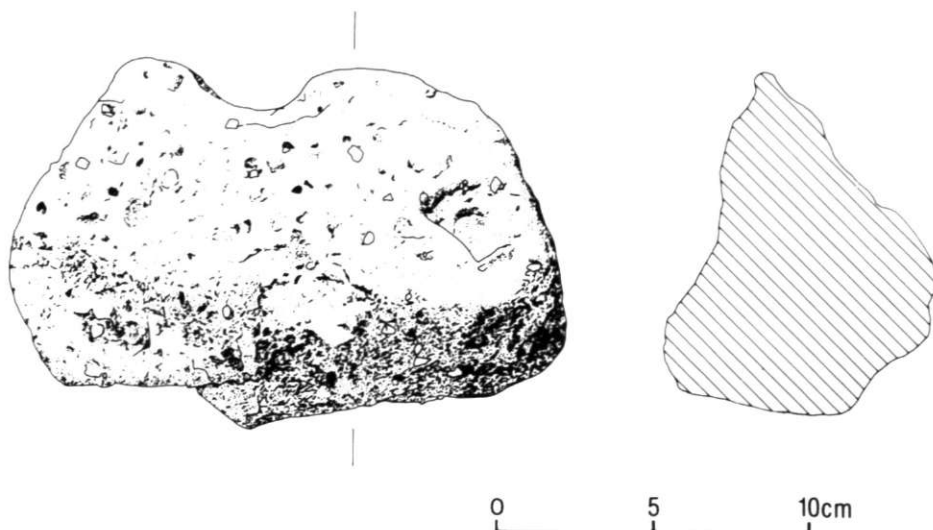


Fig 7 Modified stone WC 92 9. Scale as shown

Appendix 2 Glossary of mining terms After Orchard (1990)

<i>Cobbing</i>	Breaking ore with a hammer to enable hand separation of gangue (waste material).
<i>Costeaning</i>	Sinking pits transversely in a line with the lode to discover its position.
<i>Horse</i>	The dead ground included between two branches of a lode at the point of their separation.
<i>Sett</i>	A lease indicating the boundaries of mining ground.

Littlejohns Barrow: the damage and re-profiling of the round barrow west of Hensbarrow, Roche

CHARLES JOHNS AND PETER HERRING WITH K. CRABTREE AND B. LEWIS

Summary

In the summer of 1992 Cornwall Archaeological Unit (CAU) examined the remains of a round barrow which had been damaged during trenching work and haul-road construction by English China Clays International Ltd (ECCI) who agreed to fund a programme of recording and restoration of the monument. The work undertaken reinforces the concept of the barrows on the St Austell granite as a ritual group sharing certain features from a combination of structural elements yet each with its own complex history and individual characteristics. The barrow was re-profiled to form a circular mound 17m in diameter and 1m high, the objectives being to preserve the damaged remains by burial and make further damage less likely.

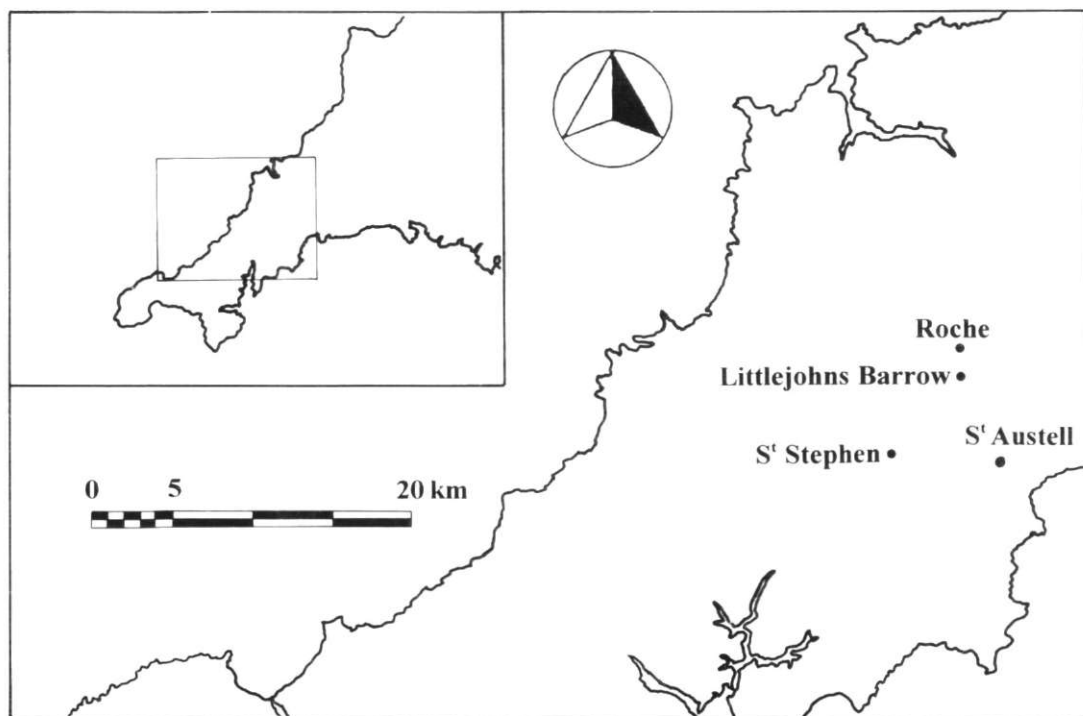


Fig 1 Littlejohns barrow; location map

Introduction

On 6th February 1992 it was noticed by Peter Herring and John Smith (CAU Field Officers) and Rob Iles (English Heritage Inspector of Ancient Monuments) that Littlejohns Barrow, a scheduled monument, AM No 1072, c.600m west of Hensbarrow on a slight rise near the entrance of Littlejohns China Clay Works, had suffered extensive damage during the excavation of an electric cable trench and the construction of a 5-6m wide track for the trenching machines. (Figs 1 and 2). When this situation was pointed out to ECCI the company ceased operations in the area and agreed to fund a programme of recording and re-profiling the damaged barrow.

Alex Hill, the Mines Manager at Littlejohns, erected a fence and notices to restrict access to the barrow and used a large scale aerial photograph to plot the barrow onto a 1:500 plan.

The trenching work had been carried out by ECCI in accordance with planning permissions for the works haul-road and underground trenching approved by Cornwall County Council and Restormel District Council. The situation had arisen partly because the monument had never been surveyed by the Ordnance Survey, so that its exact location had never been fixed, and partly because ECCI's "Short Term Development Plan 1991-2001: Policy Document" does not show the detail of power cable circuits or haul-roads. Consequently Littlejohns Barrow was not listed on CAU's June 1991 draft response to all sites identified as being affected by development during the forthcoming ten year period.

Previous Descriptions

The barrow is depicted on an early 19th century map but named as 'Cocksbarrow'. The name is probably a colloquial joke derived from the monument's proximity to Hensbarrow (See Padel 1988, 97). The first recorded description of Littlejohns Barrow is by the antiquary R. Thomas in 1852, '3 furlongs west of Hensbarrow is a low flat barrow formed of stones and earth, diameter 70 feet' (letter to The West Briton, 23.1.1852). The barrow is next recorded as 'Barrow 2, Hensbarrow Down' in the Parochial check-list for the Parish of Roche (Sheppard 1971). Although the entry states that the barrow appears on the 1813 OS map what is shown is in fact the Littlejohns smallholding.

The barrow was scheduled in January 1980 and was described on the Department of the Environment's Ancient Monuments Form as 'Round barrow west of Hensbarrow. Flat-topped, round-barrow c.22m in diameter and 0.5m high. The monument is in rough grassland. There is some trace of previous excavation in the top of the barrow' (Young 1978). In 1982 it was noticed that, 'An underground cable has been placed within c.10ft of the barrow causing considerable disturbance and it leads into an adjoining mast for which huge guy pegs have

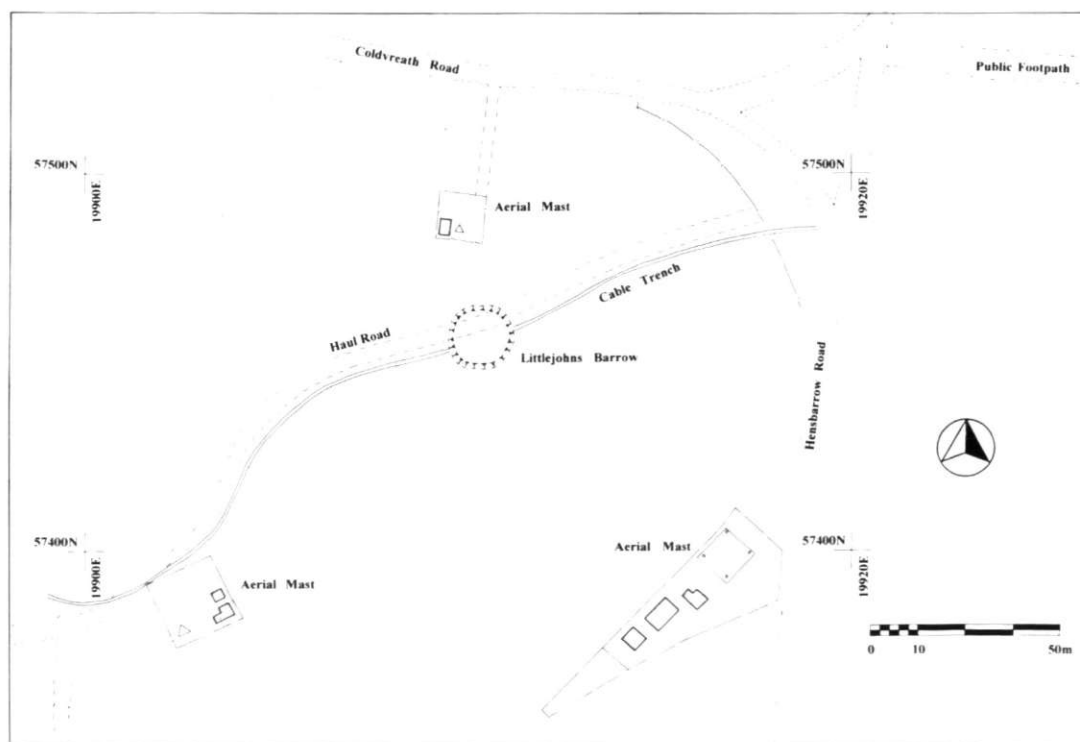


Fig 2 Littlejohns barrow; location plan, from ECCI survey

been knocked into the ground' (Sheppard 1982). In October 1988 the site was visited by Ann Preston-Jones, the English Heritage Field Monument Warden, who described it as a 'fine example of a rimmed platform barrow. The rim is substantial, being at a guess, about 0.4m high and 1.5m wide. The barrow itself had been mutilated in three places. In the centre a small sub-rectangular pit, on the W a large sub-rectangular pit, and on the E a large irregular hollow. A large scale survey is needed for this barrow which has not been surveyed by the OS' (Preston-Jones 1988).

In 1990 the barrow was described by Peter Herring during fieldwork for the China Clay District Project: 'A platform barrow near Littlejohns China Clay Works. The barrow is overgrown with low gorse, heather, bilberries and grass. The platform has steep sides, about 1m high maximum but, being overgrown, it is not possible to see whether it is kerbed. The overall diameter is approximately 17m. There is a slight rim on the edge of the platform, especially to the east. There is a central pit, fairly fresh looking, perhaps dug in the last 100 years. There is a larger pit in the south west quadrant which may be very modern. Both pits are now overgrown' (Herring 1990).

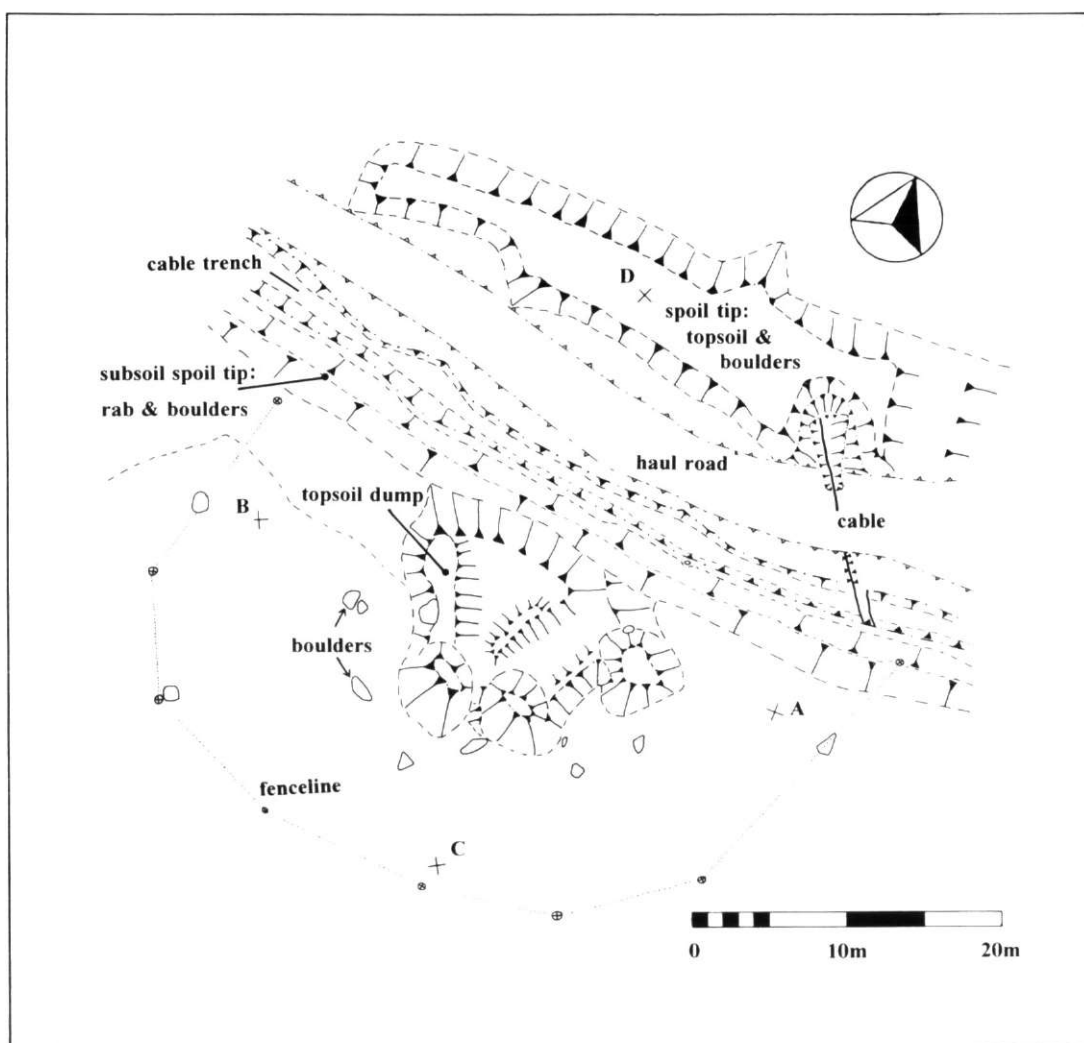


Fig 3 Littlejohns: survey of the damaged barrow

Littlejohns Barrow is included in the gazetteer of *The Archaeology of the St. Austell China Clay Area* as CAU, PRN 19844, a platform barrow 17m in diameter defined as Condition A, Survival A, Site Value A—i.e. a monument of national importance. The minimum activity recommended in the event of a threat to the monument is Site Survey, Geophysical Survey and Full Excavation (Herring and Smith 1991).

Condition/Damage (Figs 3-5)

On 18th February 1992 the site was thoroughly examined by Ann Preston-Jones and Peter Rose (CAU Senior Field Officer) who compiled a report of the damage for English Heritage.

'The damage occurred in the course of excavating a trench for laying electricity cables underground and in the construction of a works haul-road. . . The operation appears to have initially involved machine-stripping of a 12m wide band of vegetation topsoil and boulders

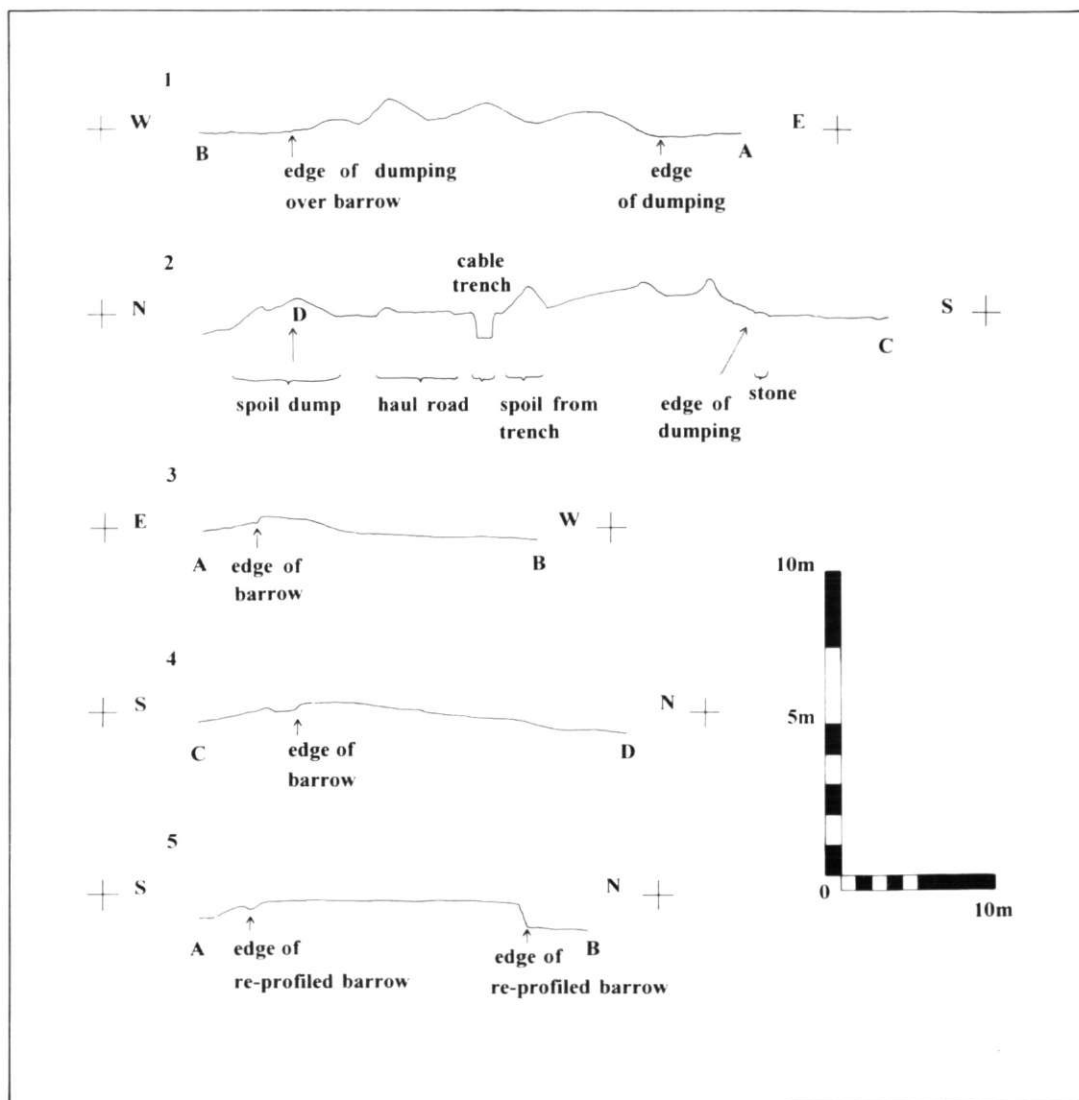


Fig 4 Littlejohns barrow profiles: 1 the damaged barrow west-east; 2 the damaged barrow north-south; 3 the exposed barrow east-west; 4 the exposed barrow south-north; 5 the re-profiled barrow south-north

along the line of the trench—the waste material being spread to either side of the stripped band and in some places partly over the southeast side of it. Following this a 5m to 6m wide bed of sand was laid on the northwest side of the stripped surface, to provide a firm track-bed for the trenching machinery. Finally the trench, varying from 1m to 2m wide and over 1m deep was dug adjacent to this, roughly down the centre of the stripped band, the spoil being dumped on the side opposite the track. So far one cable has been laid. A second is planned but at present all operations on the site have ceased. No above-ground remains of the barrow are visible, following this operation. Since it has never been surveyed, the probable location of the barrow had to be worked out by using topographical features on the 1988 photograph. . . . The reason why it is not visible at all is that a large dump of material from the topsoil stripping has been heaped over the barrow and beyond so that areas not affected by the topsoil stripping and trenching are totally obscured by an irregular heap of spoil up to 1.5m high on the SE and 0.5m high on the northwest. Therefore the following description of the extent of the damage, though probably close to reality, cannot be regarded as totally accurate.

From our assessment of the position of the barrow it seems likely that the trenching operation has cut through the northwest side of the barrow. Top-soil, vegetation, and any stones and boulders have been removed from over half the barrow. Spoil from the topsoil strip has been dumped over the southeast of the barrow—a process which will probably have involved the movement of machinery over the surviving portion of the barrow. A 5m to 6m wide sand track has been laid over the northwest perimeter of the barrow and a trench 1 to 1.5m wide cut into the subsoil southeast of this. Spoil from the trench has been cast up on the southeast of the trench, partly over spoil from the topsoil strip.

The trench section shows a dark peaty soil over the yellow brown subsoil. To either side of the barrow the peaty soil is approximately 0.2m thick but over the barrow it thickens to 0.4m. The barrow therefore appears to have been severely truncated by the top-soil stripping. Under the barrow at least two small pits, a possible shallow perimeter ditch and a small group of stones on edge, perhaps part of a kerb, have been cut by the trench. Clearing of the section may reveal further features not apparently obvious since, following the heavy rain, the sides of the trench are crumbly and collapsing' (Preston-Jones 1992).

During the subsequent archaeological recording work removal of the dumped material showed that the actual position of the barrow was somewhat northwest of that indicated by the grid references in previous descriptions and that the central and northern parts of the barrow had been drastically truncated by the trenching operation. (Actual national grid reference SW 9910 5745).

Part of the original perimeter on the southern side of the barrow survived to a height of c. 0.3m. The undamaged barrow surface around this c. 15m long arc of the circumference was no more than 0.5m wide. From this point the southeast quadrant had been planed away by bulldozer action leaving a plateau of exposed barrow material which sloped to the north. The southwest quadrant had been scraped away to reveal the natural subsoil and moorstones. This part of the barrow had been buried by an irregular heap of dumped spoil which extended c. 0.8m beyond the southern edge of the barrow.

The cable trench (Fig 5) had cut through the geometric centre of the mound exposing a pit, west of centre. The lower fill of the pit showed signs of disturbance, perhaps the work of a treasure hunter who had read about the damage to the barrow in a local paper (*The Cornish Guardian*, 27th February 1992). The truncated base of the peat stack survived to a maximum height of 0.4m. Approximately 2m south of the cable trench was a shallow linear cut, 0.1m deep, which presumably represented the southern extent of the original topsoil strip. This area was buried under the linear tip of subsoil excavated from the cable trench.

The northern part of the barrow which lay below the haul-road had been levelled to the top of the subsoil. Some barrow material and old land surface survived and it was possible to trace the curving outline of the barrow except where part of the northwest circumference had been totally destroyed. Below the haul-road two deep vehicle tracks 0.3-0.4m wide by 0.25m deep cut across the barrow, parallel to the cable trench.

Work Undertaken

The objectives of the work carried out by CAU staff between 17th July and 3rd August 1992 were to make a full record of the barrow without causing further damage; to re-expose the profile of the barrow, where it survived but was obscured by dumping and to restore the barrow to approximately the pre-damage profile. This would secure the damaged remains by burial and by re-creating the monument as a landscape feature make further damage less likely.

Methodology In order to achieve these objectives the work was divided into three stages:
Stage 1

Firstly the damaged barrow was surveyed at 1:200 (Fig 3) and levelled profiles of the damaged barrow were drawn showing the spoil tips, cable trench, haul road and fenced area (Figs 4.1 and 4.2). The northern face of the cable trench was cleaned and recorded (1:20 section drawing, Fig 5)). The soil profile was examined and sampled by an environmental archaeologist.

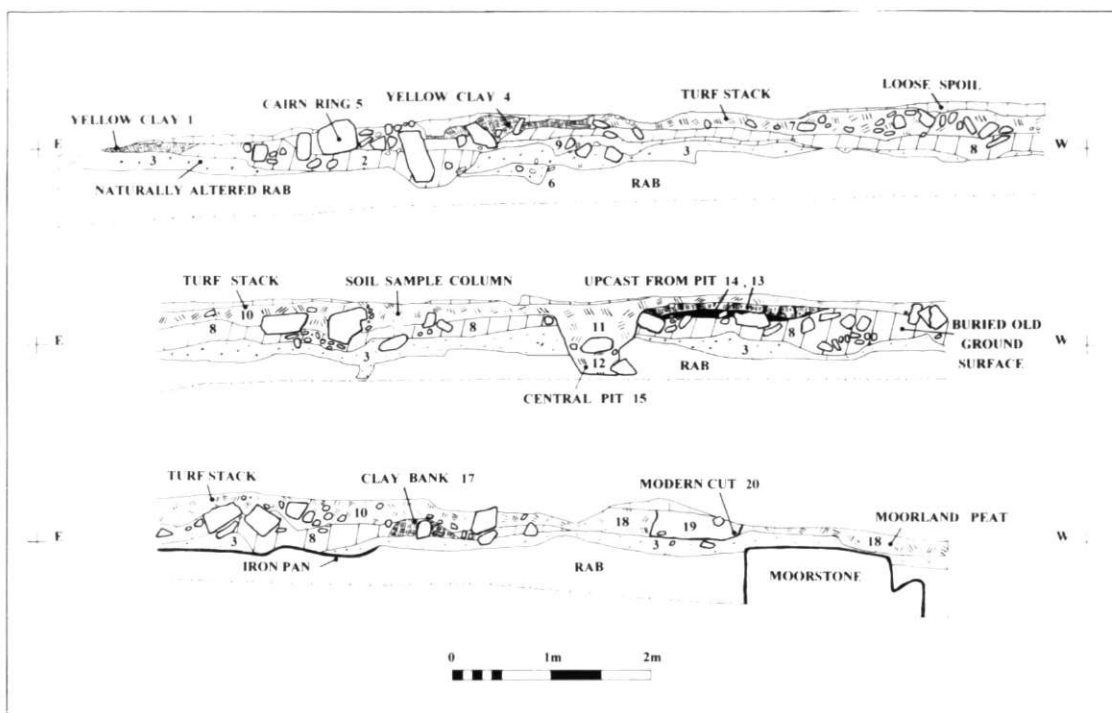


Fig 5 Littlejohns barrow; cable trench section drawings

Stage 2

At the beginning of the second stage the cable trench was infilled with clean sand to distinguish the modern backfill from the surviving archaeological stratigraphy, and to prevent further collapse from the edges of the trench. Following this the sand bedding-track of the haul-road and the dumped material from the trenching operation were removed by ECCI staff under CAU supervision. Because of the displaced boulders and the volume of soil involved this was carried out by a JCB equipped with a smooth-bladed grading bucket. In the hands of a skilled operator the JCB controls were sensitive to slight changes in soil consistency and the smooth blade ensured that no further damage was done to the barrow. To the south of the barrow the undamaged vegetation buried below the spoil tips provided an horizon which could be easily followed by the machine driver up to the edge of the barrow. A thin layer of dumped material was left *in situ* overlying the surface of the exposed barrow in order to protect it. This was then removed by hand. The removed spoil was carefully monitored for finds. A

similar technique was employed in the removal of the sand bedding-track of the haul-road which covered the northern part of the barrow. The exposed barrow was surveyed at 1:50 scale using a plane table (Fig 6), and levelled profiles were drawn (Figs 4.3 and 4.4).

Stage 3 (Fig 7)

The barrow was re-profiled mechanically under close CAU supervision. A thin layer of clean sand 30mm thick was first spread over the surface of the exposed barrow—sufficient to distinguish the ancient deposits from the modern re-profiling but not enough to hinder regrowth of vegetation. The barrow was then rebuilt using barrow material and topsoil which had been stripped from the area and would therefore contain seeds, pollen and roots from the locality. As work progressed the soil was tamped down to stabilise it.

The re-profiled barrow is sub-circular in plan, c. 17m in diameter and c. 1m high with a flattish top and battered sides sloping at c. 60° to the vertical. It was considered impractical to re-create a rimmed barrow as this would lead to waterlogging. The re-profiled barrow was surveyed by plane table at 1:100 (Fig 7), a location plan was drawn at 1:1000 and a levelled profile drawn (Fig 4.5).

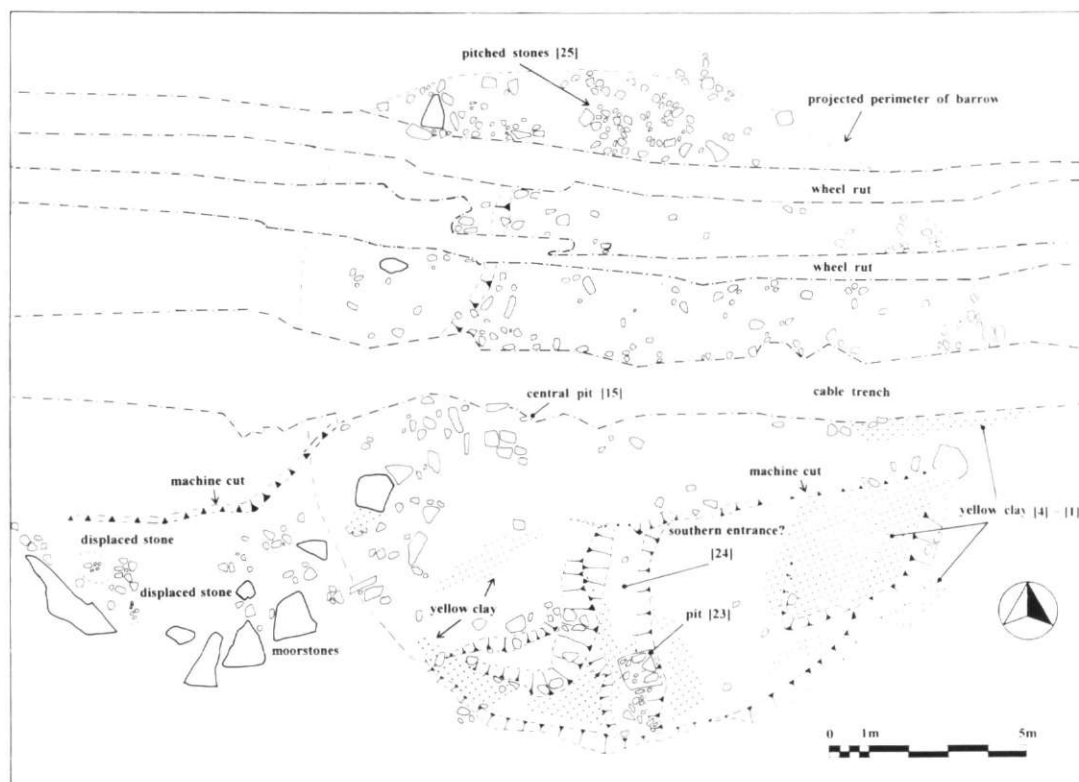


Fig 6 Littlejohns; plan of the exposed barrow

The Barrow

The exposed barrow was sub-circular in plan, 18m (north-south) by 17m wide (east-west). It appeared to be a composite structure built over a central burial or ritual pit. The mound consisted of a possible cairn ring covered by a turf stack and a capping layer of yellow clay. A possible secondary burial or ritual pit was cut into the top of the mound near the southern edge of the barrow. There was no evidence of either a ditch concentric to the barrow or post-holes underlying the mound.

The Old Land Surface

Underlying the remains of the barrow, but not extending beyond its perimeter were layers of leached, greasy, stony soil ranging in colour from black to light grey (contexts 2, 8, 9). This is probably the old land surface preserved below the barrow. Leaching of the soil had evidently occurred during the pre-barrow period and the original horizons of leaching had been considerably disturbed either by pre-barrow agricultural activity or during construction of the barrow. There was no evidence that this soil had been removed or introduced from elsewhere. It was a poor quality soil suggesting that the area was already open moorland or grassland when the barrow was built (*Canti pers comm*). The abruptness of the interface between the old land surface and turf stack implies that the disturbance may have involved removal of surface vegetation before the construction of the barrow.

Southwest of the barrow, and exposed below the truncated turf stack in the southwest quadrant were a number of large moorstones which suggest that the barrow may have been built on a small natural tor.

The Pre-Barrow Bank

Towards the western edge of the cable trench section was a distinctive deposit of grey-flecked reddish brown clay with an inverted semi-circular profile (Fig 5, 17). This deposit was partially overlain on either side by the old land surface and the convex upper surface of the deposit lay below the base of the turf stack (10) so it seems possible that it represents the cross section of a pre-barrow landscape feature such as a boundary bank.

The Cairn Ring?

On the northern perimeter of the exposed barrow, where the mound had been virtually removed by the trenching operation, there was a concentration of medium sized, pitched granite stones (Fig 6, 25) overlying the old land surface. Some of the stones seemed to define the circumference of the barrow but they were not sufficiently consistent or extensive enough to be interpreted as a kerb. This concentration of pitched stones could correspond to a layer of medium to large stones in a black peaty matrix (5) revealed on the eastern side of the cable trench section. It is possible that these elements are indicative of a primary cairn ring constructional phase similar to that revealed by the excavations at Watch Hill, Trenance Downs and Cocksbarrow (Miles 1975). The remainder of the barrow was scattered with stones of varying size, although these were more common towards the edges of the barrow they did not form any recognisable pattern.

The Central Pit

About 2m west of the projected true geometric centre of the barrow a truncated pit (Figs 5 and 6, 15) was exposed in the southern edge of the cable trench. This is likely to have contained the primary burial or ritual deposit. The top of the pit was 0.88m wide and 0.6m deep. The eastern edge was straight, sloping at c.60° to a flat base 0.4m wide. The western edge of the cut rose vertically for 0.28m and at this point there was a shelf 0.4m wide. From the shelf to the top of the cut the edge was straight and sloped to the west, roughly symmetrical with the eastern edge.

The pit had been cut through the old land surface. Two layers on the western side of the pit, one a deposit of mixed yellowish brown clay and black silt loam (13), the other a layer of black silty clay (14), were interpreted as upcast layers redeposited during the original excavation of the pit. These layers were above the old land surface and sealed by the turf stack. Henrietta Quinell's excavations at nearby Cocksbarrow revealed a parallel to this—upcast from the central burial pit 'rested directly on the buried turfline to the South East and was fresh and unweathered when the turf stack was constructed over it' (Miles and Miles 1971, 17).

In the pit, approximately level with the shelf on the western edge, was a horizontal granite stone, 0.34m long by 1.14m thick, which could be a capping stone sealing the narrower lower

part of the pit. There were two smaller stones, one on either side of the horizontal stone, and a large irregularly shaped tabular granite stone wedged against the western edge of the cut. These stones have been interpreted as either the components of a cist or, more probably, a simple stone lining to the pit. Although no other examples of cists are known amongst the Hensbarrow cairns (Herring and Smith 1991, 21) the central pit at Cocksbarrow was lined and covered by selected slabs of moorstone (Miles and Miles 1971, 17). The fill of the pit below the horizontal stone was wet, sticky black peat (12). Unfortunately this context which is likely to be the primary burial or ritual deposit had been disturbed during the time lapse between the trenching operation and archaeological recording. The upper fill of the pit (11) was indistinguishable from the peat stack (10) and it is probably part of the same constructional phase indicating that the pit was partially open when the mound was built. Similarly, the base of the turf stack filled the top of the central burial pit at Cocksbarrow (Miles and Miles 1971, 17).

The Turf Stack

The mound had been planed away, in varying degrees, by bulldozer action. There was a relatively undamaged plateau c. 2m wide around the southeast arc of circumference; the south west quadrant had been substantially truncated; the northern part of the mound had been almost totally removed. The stack, which had presumably been built of turves, was revealed in the cable trench section (Fig 5) as a layer of moderately stony, blocky, black peat c. 0.2-0.3m deep without any detectable turf structure. Previous estimates of the height of the barrow ranged from 0.4m (Preston-Jones 1988) to 'c. 1m high maximum' (Herring 1988). The original height is unlikely to have been more than 1.5m—even if the turf had compressed to half of its original thickness (Miles and Miles 1971, 22).

The Yellow Clay Layer

Around the southern edge of the barrow, where the stack was least damaged a spread of yellow clay was exposed on the barrow surface. This consisted of patchy and irregular deposits, the largest 4m long and 3m wide, overlying the peat stack. (The irregularity of this deposit may have been the result of bulldozer scraping). Where the vegetation at the edge of the barrow had been removed the yellow clay extended down to the foot of the mound and slightly beyond it. A ring of yellow clay on the peat stack would account for the 'rimmed' nature of the barrow (Preston-Jones 1988). This was paralleled at Cocksbarrow where Quinnell noted 'The slight clay bank around its top reflects the clay capping ring which has not compressed as much as the turf' (Miles and Miles 1971, 22).

The yellow clay was a mixed deposit—typically dark yellowish brown in colour with lenses of orange, yellow and cream and mottles of black peat. The clay showed as distinctive layers, (1) and (4), at the eastern end of the cable trench—the corresponding layer at the western end of the section would have been dug away during the trenching operation.

A capping layer of yellow clay is a common characteristic of the barrows on the St Austell granite excavated by Quinnell in the early 1970's and presumably had a ritual significance, 'The choice of bright yellow clay is in accordance with the common Bronze Age practice of dressing the surface of the barrow with a coloured material to render its appearance more striking' (Miles and Miles 1971, 23). Because of the damage it was not possible to determine whether the bright yellow clay had been masked with dark soil, another ritual procedure evidenced at Watch Hill, St Stephen (Miles and Miles 1971, 24).

The Southern Pit

1.5m from the centre of the southern rim of the barrow an almost-square shaped feature (23), was revealed in plan by the removal of dumped material. This was interpreted as a cut for a pit. It was 0.38m long by 0.36m wide and contained a fill of black, blocky peat (21). Around the southern, eastern and northern sides of the feature were three large granite stones, apparently set on edge and possibly representing a stone lining to the pit. The pit was cut into the top of the turf stack and seemed to be respected or defined by the yellow clay layer

(4). The stratigraphic relationship between these two elements was unclear because the yellow clay may have been truncated by the bulldozer at this point. It is possible that this was a secondary burial or ritual pit perhaps having a ceremonial function associated with the linear depression (24), although the possibility that it may be a later intrusion cannot be ruled out.

The Southern Entrance?

Leading from the centre of the southern edge of the barrow there was a north-south aligned linear depression (Fig 6, 24). It was 7.2m long, 0.7m wide and 0.1m deep and encompassed the pit (23). The depression was defined by a gap in the yellow clay layer, which formed part of its western edge and spilled into the base. The edges were smooth and slightly concave, most pronounced on the eastern side. The depression was filled with a loose, black humic deposit which was excavated by trowel, being virtually indistinguishable from the dumped material.

There was a possible parallel to this feature at Caerloggas III; 'on the south side of the mound a gap in the clay 0.7m across was apparently intentional as the hollows in which the clay was set on either side were steep edged and regular. The kerb stopped just west of this gap and possibly turned outward for a short distance; it was absent to the east of the gap. The gap is interpreted as an entrance designed for access to the mound top. There was no wear or trampling associated with it' (Miles 1975, 47). The linear depression at Littlejohns may also have had a similar, ceremonial, function which may have been associated with the pit (23). Certainly if the line of the depression is projected to the north, beyond the point where it was truncated by the trenching operation, it leads to the true geometric centre of the barrow. Because of the damage interpretation of this feature is necessarily equivocal—it may have been caused by the trenching operation although it seems too wide and the edges too smooth for a wheel rut or track impression. It may have been the result of an antiquarian attempt to tunnel to the centre of the barrow, although, if so, it was not noted in recent descriptions of the barrow (Preston-Jones 1988; Herring 1990).

Later Activity

The later intrusive activity described by Preston-Jones (1988) and Herring (1990) had been destroyed by the trenching operation, although three vegetation covered hummocks, c.0.2m high, around the south-east perimeter of the barrow could be upcast from these disturbances.

The Environmental Evidence by K. Crabtree

A series of samples was taken from the top of a black 'peaty' layer (Fig 5, 10) at the base of the mound (0-19cm) and a grey leached B horizon below it (8). This latter extended from 19-40cm and in turn overlaid yellow rab (weathered granite). Samples were prepared for pollen analysis at one-centimetre intervals between 3 and 20cm and at 22-23, 26-27, 30-31, 34-35 and 38-39cm. A cubic centimetre of sediment was treated with dilute potassium hydroxide solution to disperse the material. Then hydrofluoric acid treatment was followed by acetolysis before mounting in glycerol jelly stained with safranin (see Moore, Webb and Collinson 1991, for full details). Tablets of *Lycopodium* spores (Stockmar 1972, 82) were added to allow estimates of pollen concentration to be made.

Pollen was present in the upper 3-20cm samples but below it was sparse, badly degraded or absent and it was not possible to obtain counts in the original soil. The state of preservation varied but was generally fair. The presence of debris and some charcoal made counting more difficult but pollen was abundant in most of the upper slides. Counts of between 550 and 700 grains were made at each sample level counted. As the pollen flora was fairly similar at each depth only alternate samples were counted.

In addition to general information on the vegetation of the prior to mound construction it was hoped that pollen analysis would also be able to address the following questions:

- i Can the junction between the mound and the original buried soil surface be identified?
- ii Assuming that turves were used for the base of the mound can they be identified and can it be determined whether they were inverted or not?

Discussion

The pollen flora is dominated by three taxa; namely *Corylus*, Gramineae and Ericales (*Calluna* type). Tree pollen is generally between 8 and 12% of total pollen and is primarily *Alnus* and *Quercus*. The high non-tree pollen (in excess of 60%) is indicative of an open landscape, and in particular the high grass and heather pollen suggests a grass and heather moorland. This must have been fairly dry as *Sphagnum* spores and aquatics are absent. The moderately high values for *Plantago lanceolata* and for Compositae would suggest considerable agricultural activity possibly of a pastoral nature as the number of weeds and the cereal pollen is low or non-existent. Variable amounts of *Pteridium* spores also suggest clearance for agriculture and generally disturbed open ground.

There is nothing in the pollen sequence to indicate clearly the level of the old land surface, buried by turves. Samples show very little change in pollen concentrations. Increases would have been expected to indicate an old land surface or a turf surface. The 9-10cm sample and again the 3-4cm sample show some resemblance to the 13-14cm sample spectrum and as such might indicate that if the turves were cut they were fairly thin (now compacted to around 4cm) and that they were upright. The evidence for this is very weak and one would not wish to push this argument any further. On the contrary one stresses that the pollen spectra at each depth between 3cm and 16cm are very similar to each other. Only below 17cm is much change seen with an increase in Gramineae relative to *Calluna*, and of Lactucaceae, and *Polypodium* spores. If turves were used to build the base of the mound, they would probably have been cut from the immediate area and would therefore contain the same pollen types as the soil buried by the mound.

One notes the presence of a few spores of *Osmunda*, a fern which grows in reasonably well drained peaty areas. This would fit in with the high *Calluna*, absence of *Sphagnum* and few Cyperaceae. The *Potentilla* type and *Succisa* would also fit this type of environment. The increases in *Polypodium* spores and Lactucaceae type pollen in the lowest two samples is probably a reflection of the differential preservation which occurs in mineral soils as these two taxa are very resistant to decay. The higher Gramineae to Ericales (*Calluna* type) in the lower samples does probably reflect a real difference and a period of less domination by heather. Tree pollen is still a very low proportion of total pollen indicating that the soils did not become acidic enough for pollen preservation until well after the opening up of the vegetation during prehistoric times.

J. Bayley (in Miles 1975) reports on pollen from beneath a number of barrows of Bronze Age date on St Austell Moor. In those cases the buried land surface and stacked turves were identified during excavation, often by the presence of some of the mineral horizon adhering to overturned or upright turves. This was supported by the increase in pollen per unit volume at the old land surface or in the upper surface of the turves. *Corylus* and Gramineae pollen were the dominant two taxa, with varying amounts of *Calluna* type Ericales. Bayley reported that the rise in *Calluna* type at the surface suggested that heather was a relatively late addition to the vegetation community. At Littlejohns it would appear that barrow construction was in an area which already had well established areas of heather. Bayley also noted that the presence of moderate amounts of *Alnus* and *Quercus* along with the *Corylus* offsetting the high Gramineae and open woodland indicators suggested a mosaic of vegetation with patches of woodland in a matrix of hazel scrub and open land. The Littlejohns evidence is very similar, with the probability that heathland was more extensive. Bayley also noted the absence of much long resident pollen in the soils, as evidence for the pre-Barrow soils being Brown Earth soils only just becoming acidic enough for pollen preservation.

The Finds: Flint Report by B. Lewis

The flint finds comprise five unmodified pieces. Four are flakes, one being fragmentary and another partly showing a beach pebble surface. One blade is also present, possibly from imported nodular flint. None of the flint is dateable. The flints were all recovered from the loose spoil created by the trenching operation.

Discussion

The damage to this Scheduled Monument was unfortunate and avoidable. Once notified, however, ECCI acted highly responsibly, taking professional advice from the Inspector of Ancient Monuments and CAU and then fully resourcing the programme of rescue recording, environmental analysis and barrow reconstruction. Nevertheless this incident, together with the complete destruction of another A grade (i.e. nationally important) ring cairn at nearby Cocksbarrow (PRN 27929, SW 9903 5707), removed during ground clearance for the haul-road, highlights the need for a closer and more formal relationship between the China Clay Company and the County Archaeologist. All potentially damaging developments, including ancillary works such as cable trenching, as well as the major schemes dealt with in the Short-Term Plans, clearly need to be considered in advance by professional archaeologists so that damage can be either avoided or minimised and so that, where appropriate, recording of features can be undertaken before and during development.

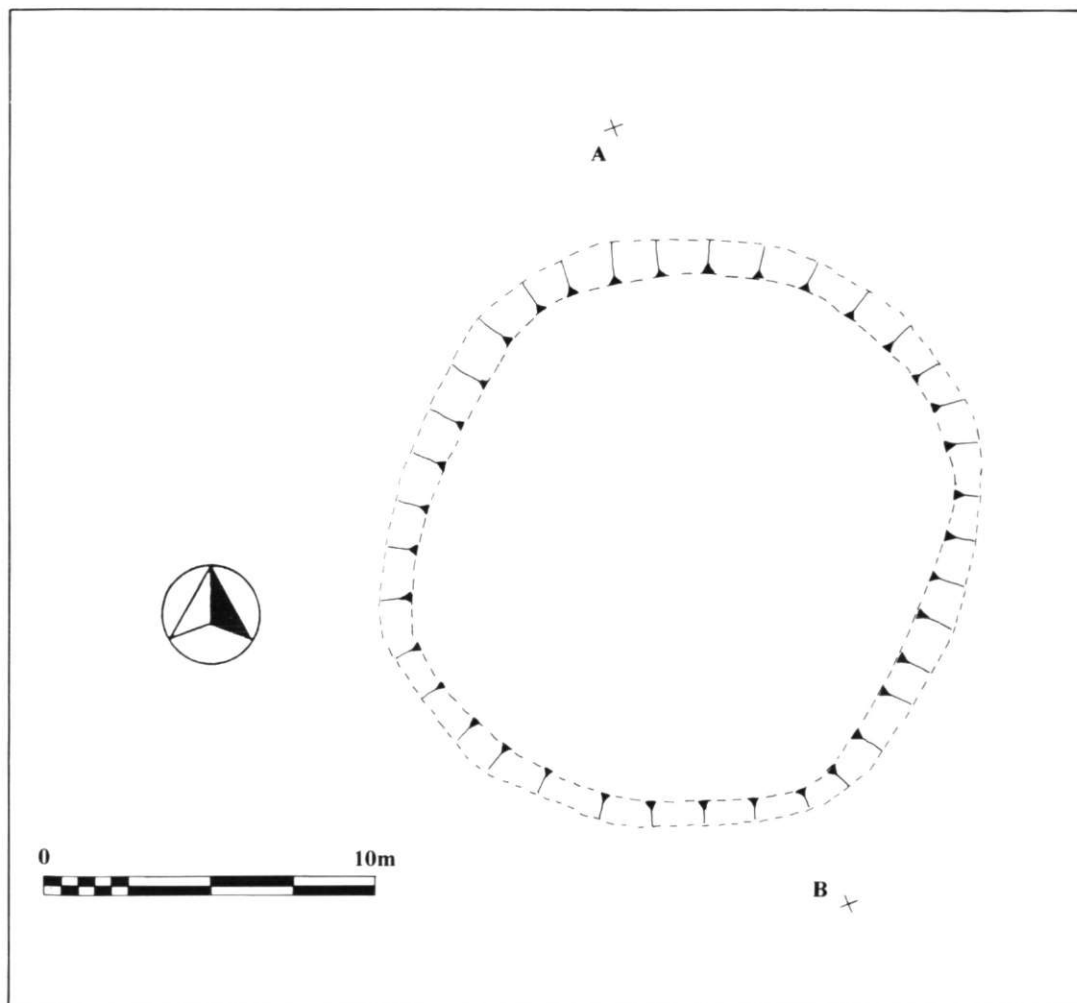


Fig 7 Littlejohns; survey of the re-profiled barrow

The Archaeology

The barrow was severely truncated by the trenching operation, the remnant was cleaned and recorded but there was no further excavation of the barrow structure. As a consequence interpretation of the remains was largely dependent on comparison of the surviving features

with the evidence of previously excavated sites—particularly the six barrows on the St Austell granite investigated by Quinnell in the early 1970's. (Miles 1975). Considering the extent of the damage—at least 75% of the barrow had been destroyed—there was a strong case, in this particular instance, for total excavation of the remnant prior to re-profiling. Excavation would have provided a fuller understanding of architectural aspects of the monument which can otherwise only remain conjectural. This is especially true of the possible primary cairn ring (25) and the southern “ritual” pit (23). Complete excavation would also have allowed examination of the possible pre-barrow field boundary (17) and the buried land surface.

There were few finds from Littlejohns, the assemblage comprised five flints which were all recovered from the loose spoil created by the trenching operation. This compares with 345 finds from Caerloggas I (208 flints); Trenance Downs 132 finds (110 flints); Watch Hill 85 finds (78 flints); Caerloggas III 45 flints; Cocksbarrow 24 finds (21 flints) and Caerloggas II, 3 flints and a pebble (Miles 1975). Of course these sites were fully excavated and it is difficult to draw further valid inferences about the finds, or lack of them, at Littlejohns. Some artefacts may have been removed from the central pit (15) which was disturbed before archaeological recording took place.

In conclusion: comparison of the remnant of Littlejohns Barrow with the six sites excavated by Quinnell reinforces the concept of the barrows in the St Austell area as a ritual group (Miles 1975, 73) sharing certain features from a combination of structural elements yet each with its own complex history and individual characteristics (Herring and Smith 1991, 22). The concept of barrows as multi-phase ritual sites has been both strengthened and complicated by the recent excavations of the Bronze Age Barrow at Little Gaverigan and contiguous Ritual Enclosure at Highgate Roundabout which were undertaken by CAU during the A30 Indian Queens-Fraddon Improvement (Nowakowski 1993, 148-149).

Littlejohns is unusual in that the old ground surface seems to have been disturbed either prior to or during barrow construction. The secondary pit cut into the mound appears to be a unique feature and the possible associated southern entrance enabling access to the top of the mound is only paralleled at Caerloggas III (Miles 1975, 47,49). These idiosyncrasies are balanced against certain features commonly occurring within the St Austell group, these include: a possible primary cairn ring phase of construction as at Watch Hill, Trenance Downs and Cocksbarrow; a slab-lined central pit as at Cocksbarrow (there are also central pits, though unlined, at Watch Hill, Caerloggas I and II); a turf stack as at Watch Hill, Caerloggas I, II, III and Cocksbarrow. Finally there is the distinctive, ubiquitous yellow clay capping distinguishing the barrows in the group, ‘The use of yellow, kaolinised granite, perhaps having been brought from a local source such as a stream bed, is the main evidence for the sites all having been constructed within one continuous ritual tradition’ (Miles 1975, 73).

The barrow was built in an open environment of grass and heathland, with some areas of hazel scrub. Presumably these uplands were used for rough grazing at this date as well as for the ritual practices suggested by the barrows.

Location of Finds and Records

The finds and site archive are stored at CAU's premises: Old County Hall, Station Road, Truro, Cornwall.

Acknowledgements

Acknowledgements are due to English China Clays International Ltd who funded the archaeological recording and re-profiling of Littlejohns Barrow and sponsored the report. Thanks are extended to George Muskett, ECCI's Estates Surveyor, and Alex Hill, the Mines Manager at Littlejohns China Clay Works for their co-operation and assistance during the work. Especial thanks are due to Graham Beer, the JCB driver, who skilfully removed the dumped material and re-profiled the barrow. The CAU work programme was devised by Peter Rose. Zena Kane, Ann Preston-Jones, Trish Roberts and Ben Wallace contributed to the recording work. The environmental samples were taken by Vanessa Straker. Matthew Canti gave valuable advice on the soil profile.

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Round barrows and burials of the 'Wessex' Earlier Bronze Age in Cornwall

LESLIE GRINSELL

Introduction

It was the author's original intention to prepare an account of all the round barrows in Cornwall, uniform with his papers on those in the other counties south of the Severn and the Thames; but much of the ground in Cornwall has already been covered by Peter Sheppard, Vivien Russell, Julian Trahair and others. This paper is therefore limited to a study of the bowl-barrows at Linkinhorne (that which yielded the Rillaton gold cup) and Pelynt (that which contained the Pelynt dagger of Mycenaean type), 18 bell-barrows, and three disc-barrows.

Bowl-barrows

Linkinhorne: the Rillaton barrow.

Pelynt: the barrow which yielded the 'Pelynt' dagger. These will be detailed in the lists under bowl-barrows. Here it is fitting to note how strange it seems to be that those buried with such rich grave-goods were interred only in bowl-barrows. One might have expected them to have been interred in bell-barrows, on the showing of those in Wessex.

Bell-barrows

Eighteen examples are listed, counting the Advent triple-barrow as three barrows.

Disc-barrows

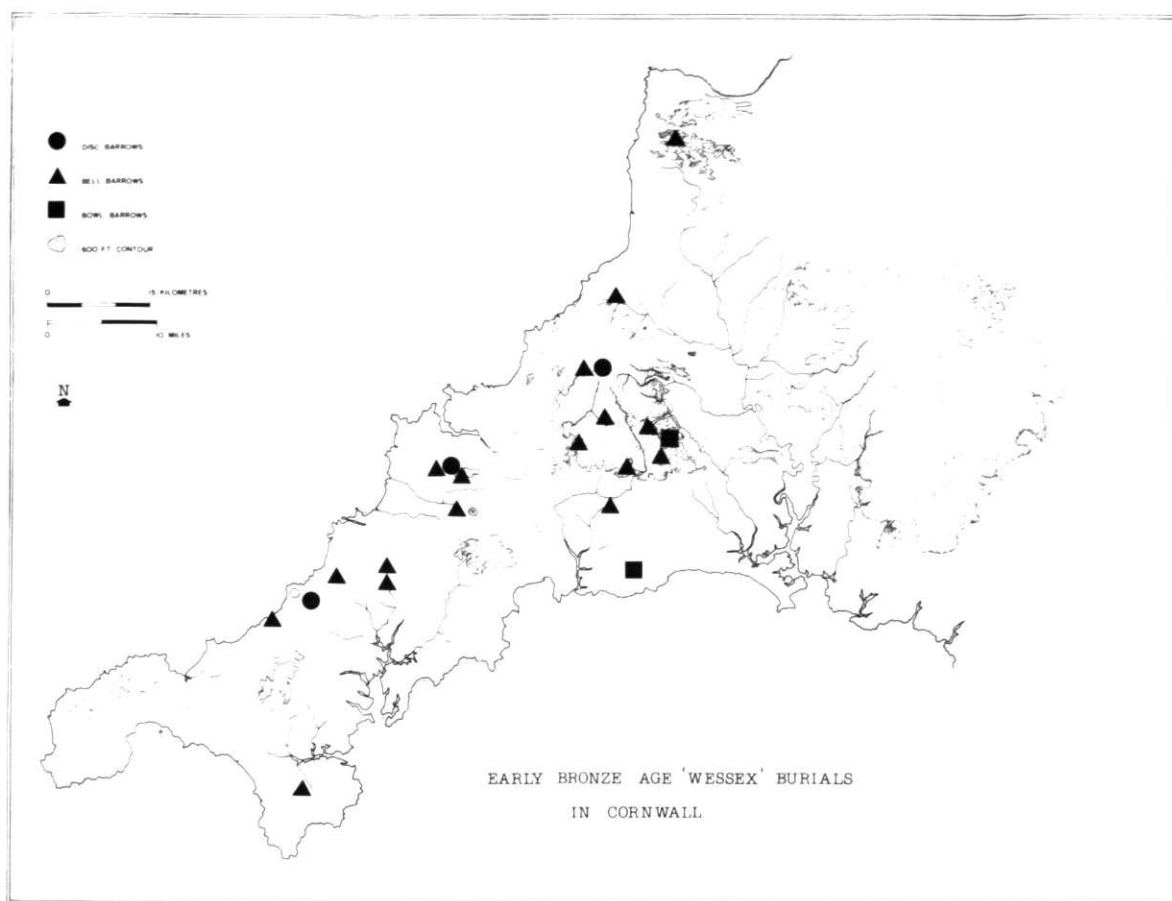
Three examples are listed. The term disc-barrow has however been used by Vivien Russell (*West Penwith Survey*, 1971, 22) in the Oxford English Dictionary sense of the word disc: a circular flat area—and not in the archaeological sense from John Thurnam (1870) onwards, which requires a disc-barrow to comprise a small mound in or near the centre of a comparatively large platform enclosed (in Wessex) by a ditch and outer bank (cf Grinsell, 'Disc-barrows', *Proc Prehistoric Soc* **40**, 1974, 79-112). In Cornwall the rocky nature of much of the ground would cause difficulties in constructing a disc-barrow of the Wessex type for which the Wessex chalk is ideally suited.

Sites scheduled under the Ancient Monuments Act are indicated by an asterisk.

Bowl-barrows

Linkinhorne parish, No 1*, Locality: Rillaton, Nat grid ref SX 2601 7191, Diameter 33.5m, Height 3m

The so-called Rillaton Barrow was opened in 1837. On the east side of the barrow, but within its circumference, is a stone cist 2.3m long, 1.2m wide and 0.9m high, which when opened in 1818 was found to contain a male interment (rite doubtful) accompanied by a gold beaker with ribbon-like handle, a Wessex type ogival dagger, probably faience beads and pottery. There is reason to believe that the cist was originally in the centre and primary, but that it was rebuilt in its present position c1890. J. Couch in *Rep Roy Inst Corn* **27**, 1845, 34; E Smirke in *Archaeol J* **24**, 1867, 189; S Gerloff, *The Early Bronze Age Dagger in Great Britain*, 1975, passim, esp 257 (Appendix 6: biconical cups and related vessels); N Thomas, *Guide to Prehistoric England*, 1976, 60; C F C Hawkes in *Antiquity* **57**, 1983, 124-6. The gold beaker is in the British Museum on loan from the Royal family.



Pelynt parish, No 1, Locality: SW of village, Nat grid ref SX 200 544, Height 1.2m
 Supposed find-spot of the Pelynt bronze dagger of Mycenaean type, 14th/13th cent BC. W C Borlase, *Naenia Cornubiae*, 1872, 189; J Dyer, *Southern England: an Archaeological Guide*, 1973, 45-6; N Thomas, *Guide to Prehistoric England*, 1976, 60. It is uncertain which of the 10 barrows in the Pelynt group yielded the dagger.

Bell-barrows

In Cornwall the normal bell-barrow takes the form of a circular mound with surrounding berm or platform but often an enclosing bank instead of a ditch as normal in Wessex (Blisland 1; St Breward 1; St Cleer 2; St Neot 1). This may be due to the nature of the subsoil.

Advent parish, Nos 1-3*, Locality: Lower Moor, Nat grid ref SX 1362 8346, Height 1.2m, Width of berm 3m

Triple barrow comprising three round barrows enclosed in an oval ditch with outer bank. Dyer (op cit, 30) describes them as bell-barrows on the evidence of the berm between the western and the two eastern mounds. Grinsell, *Ancient Burial Mounds of England*, 1953, 125; Trahair, *Cornish Archaeol* 17, 1978, 14

Altarnun parish, No 1, Locality: Priddacombe Downs, Nat grid ref SX 1627 7711, Diameter of mound 16.6m, Height 0.7, Width of berm 3m

Flat-topped cairn 36m overall diameter. Mound slightly off-centre. No ditch, but outer bank 5m wide

Blisland parish, No 1*, Locality: NE edge of Greenbarrow, Nat grid ref SX 1303 7302, Diameter of mound 8m
 Overall diameter 15m. No enclosing ditch but an enclosing bank
[Broadoak parish, No 1*, Locality: Middle Taphouse, Nat grid ref SX 1722 6314
 A bowl barrow, but shaped like a bell-barrow because ploughed around its base]
[Mawgan-in-Meneage, No 1, Locality: Goonhilly Downs, Nat grid ref SW 7253 2125, Height of mound 2.8m
 Overall diameter 42m. Now impossible to classify as either a bowl-barrow or a bell-barrow because of damage. Top dug into and containing a small concrete base]
Morwenstow parish, No 1*, Locality: Woolley Barrows (one of), Nat grid ref SS 2619 1653, Height of mound 2.4m
 Overall diameter 24.4m. Excavated by D Dudley 1967: primary and secondary cremations; *Cornish Archaeol* 7, 1968, 80
Otterham parish, No 1, Locality: Junction of A39 and lane to Trengune Farm, Nat grid ref SX 1763 9413, Height of mound 2.7m
 Overall diameter 30m. Excavated by D Dudley 1960 before destruction for road widening. Central interment had been robbed and no other interments were found. Finds included burnt bones, charcoal, a cupped pebble implement, whet-stone and 27 worked flints. Site now occupied by waste ground. Dudley in *J Roy Inst Corn NS* 4, Part 1, 1961, 62-80
Perranzabuloe parish, No 1, Locality: Liskey, Nat grid ref SW 7737 5370
 Crig-a-Mennis; excavated Sept-Oct 1957 before being removed. Finds, including 2 MBA ribbon-handled urns and a miniature cup, in RIC Museum, Truro. Christie 1960: *Proc Prehistoric Soc* 26, 76-97
Portreath parish (ex Camborne/Redruth), No 1, Locality: Nancekuke, Nat grid ref SW 6765 4627, Height of mound 3.4m
 18.9m overall diameter. Excavated Croft Andrew 1940: grave had previously been rifled when burnt bones and a wooden object were found; but the latter was later destroyed. Christie *Cornish Archaeol* 24, 1985, 31-41)
St Cleer parish, No 1, Bodmin Moor, Nat grid ref SX 2516 7127, Height of mound 2.2m
 Overall diameter 23m. Central mound with berm and outer bank, but apparently no enclosing ditch
St Cleer parish, No 2*, Locality: Smallacombe Downs, Nat grid ref SX 2309 7477, Diameter of mound 10.5m, Height 0.4m
 Overall diameter 17.5m. No surrounding ditch, but a stone ring 1.7m wide and 0.4m high
St Erme parish, No 1*, Locality: Warren's Barrow, Nat grid ref SW 8460 5395, Height of mound 3.6m
 Overall diameter 36m. No trace of enclosing ditch
St Erme parish, No 2*, Locality: Killigrew Barrow, Nat grid ref SW 8457 5382, Height of mound 3.6m
 Overall diameter 21.3m, but 'cut away around the base so may originally have been larger'
St Issey parish, No 1*, Locality: on Trelow Downs, Nat grid ref SW 9291 6839, Height of mound 5m
 Overall diameter 12m: very small for a bell-barrow. No evidence of ditch
St Issey parish, No 2*, Locality: 700m E of The Fiddler stone, Nat grid ref SW 9479 6813, Diameter of mound 10m, Height 1.0m, Width of ditch 2.0m
 Overall diameter 14m
St Issey parish, No 3*, Locality: NW of the Nine Maidens, Nat grid ref SW 9320 6838, Height 6m, Width of ditch 0.2m
 Overall diameter 18m
St Neot parish, No 1*, Locality: Goonzion Down, Nat grid ref SX 177 674, Diameter of mound 13m, Height 1.2m, Width of ditch 4.0m
 Overall diameter 21m. Traces of a rim bank on outer edge of berm

Disc-barrows

Davidstow parish, No 1, Locality: Davidstow Moor, Nat grid ref SX 1616 8417, Height of mound 0.16m

Overall diameter 29.5 metres. The ditch is outside the bank: therefore it is at best an atypical disc-barrow. Entrance at east. Croft Andrew in *Trans Plymouth Inst* **20**, 1945-6

St Agnes parish, No 1, Locality: N of Hurling Barrow, Nat grid ref SW 7276 4924

Possible remains of a twin disc-barrow visible on unspecified air photographs

St Issey parish, No 1*, Locality: Trelow Downs, Nat grid ref SW 9320 6838, Diameter of central mound 6m, Height 0.2m

Overall diameter 18m. No outer ditch

Acknowledgement

I am grateful to the former Archaeology Division of the Ordnance Survey for providing the print-out on which this paper is entirely based. My personal visits to many of the sites here described were made between 1934 and 1990 but in my opinion they have been superseded by the records of the Archaeology Division now within the National Monuments Record of the RCHME.

32 Queen's Court, Bristol BS8 1ND

The cliff castles and hillforts of West Penwith in the light of recent work at Maen Castle and Treryn Dinas

PETER HERRING

Discovering that most of Cornwall's Iron Age cliff castles have fallen into the hands of the National Trust comes as no surprise. The rocky promontories and headlands with marvellous views to which we resort to be thrilled and inspired by raw nature will also have attracted prehistoric people seeking impressive sites for their local centres. Two-thirds of the cliff castles illustrated in the recent review of Iron Age defended sites in Cornwall by Nicholas Johnson and Peter Rose (1982) are now held by the Trust—who own just one-third of the county's coastline.

This note describes the detailed recording of ramparts at two West Penwith cliff castles, both before and after necessary repairs were undertaken by the Trust in 1993 and 1994, and uses it as an opportunity to re-examine the sites themselves, Maen Castle in Sennen and Treryn Dinas in St Levan. In so doing it also makes a number of more general observations concerning the West Penwith peninsula in later prehistory.

At Treryn Dinas the local National Trust warden, Jon Brookes, was concerned about serious erosion where people climbed onto the innermost rampart and walked along it on their way to the Logan Rock. The informal footpath they had created also took them dangerously close to a cliff edge which was unstable, having suffered several slumps in recent years. With agreement from English Heritage and the Department of National Heritage—the site is a scheduled Ancient Monument—and under supervision from the Cornwall Archaeological Unit (CAU), the Trust undertook repairs. The path was closed and re-turfed, and the stone face at the entrance passage partly rebuilt so that it would again serve as a barrier to clambering onto the rampart. Scheduled Monument Consent was granted on condition that detailed records were made both before and after the repairs.

The repair work at Maen Castle originated from detailed recommendations made in an archaeological survey report commissioned by the Trust (Herring 1986a). Here the impressive entrance passage through the stone-built wall was effectively blocked by large granite rocks which had slipped from its faces some time in the second half of the 20th century. People had resorted to climbing over the wall, a few metres south of the entrance, to gain access to the headland. A second area of erosion was identified where visitors left the headland to the north of the entrance to make for Sennen Cove. Scheduled Monument Consent was obtained to clear the entrance passage and to replace the fallen stones (using as guides photographs and sections from excavations at the site in the 1930s and 40s); and to build up the stone faces of the wall and counterscarp bank where the defences were breached by the northern footpath. Again, detailed records were to be made both before and after repairs were carried out.

Maen Castle (Figs 1–3)

This small cliff castle, on a stumpy headland less than half a mile to the north-east of Land's End, was shown on the 1840 Sennen Tithe Map as 'The Castle' and a few years later was described by Richard Edmonds as,

'a large vallum and massive wall of rocks with an intervening deep ditch; the wall, ditch and vallum being almost perfect on the north side of its once well-fortified gateway' (Edmonds 1845-50, 344).

Its plan and section were sketched by J T Blight who also drew sample lengths of the internal and external faces of the rampart walling, and produced a fine drawing of the site viewed from Carn-men-ellas to the north (Blight 1864). Maen Castle soon became one of west

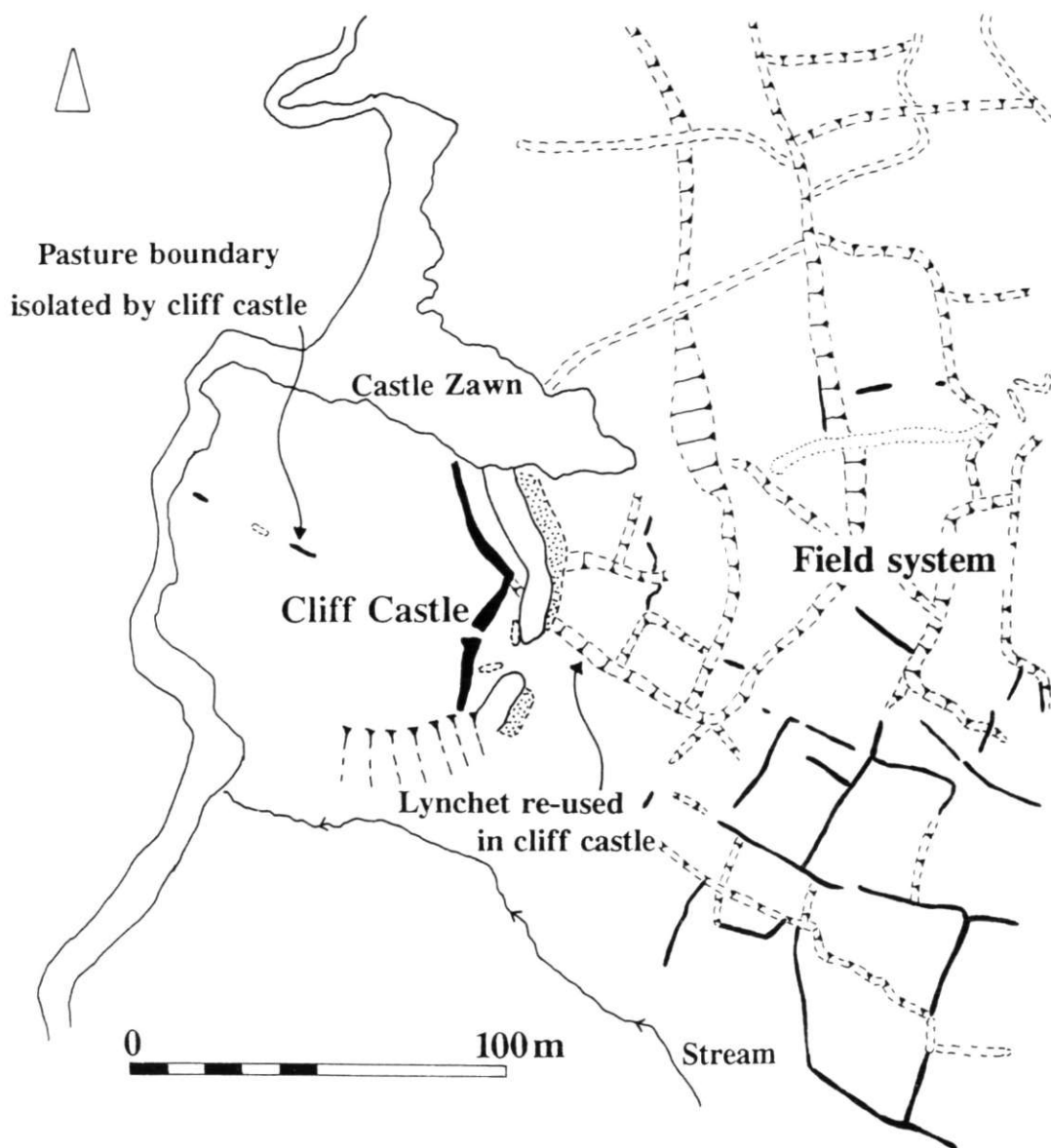


Fig 1 Maen Castle and the earlier prehistoric field system, reduced from the National Trust 1:1000 survey

Cornwall's archaeological attractions and was only the nineteenth monument in the county to be scheduled. It came to the National Trust in 1935 as a gift from a group calling themselves the 'Ferguson's Gang'.

The West Cornwall Field Club, under Rev C B Crofts, rector of St Buryan, undertook extensive excavations at Maen in 1939, 1948 and 1949 as part of their cliff castle campaign (see Hirst and Crofts, nd; Crofts 1948; Crofts 1955). Simplicity of defence and small internal area (barely an acre) suggested that Maen Castle may have been 'constructed by a different people' to those who built larger, more complex sites like Gurnard's Head (Crofts 1948), itself excavated by the Club, under Miss A S R Gordon, in 1939 (Gordon 1940).

Although there were a couple of possibly Early Medieval sherds (Patchett 1955, 110), most of the pottery recovered was Early Iron Age (*ibid*, 109-115)—dated, in Henrietta Quinnell's recent re-assessment, to somewhere between 800 and 400 BC (Quinnell 1986, 112). This makes the site certainly earlier than the Later Iron Age cliff castle at Gurnard's Head, and arguably also culturally distinct, if not necessarily made by 'a different people'. Sadly both excavation and pottery reports for Maen were published posthumously (Crofts 1955; Patchett 1955) and neither appears to be as complete as its author would probably have wished. The site plan, in particular, is disappointing, being a sketch survey with stonework shown stylistically (Crofts 1955, fig 16).

Maen Castle was planned at 1:1000 by a National Trust archaeological team in 1985 as part of a measured survey of the whole of the Trust's property on Maen and Trevescan Cliffs made for an archaeological management report (Herring 1986a; and see Fig 1). Not only was a pronounced kink in the northern part of the main stone wall represented accurately—both Blight and Crofts had rounded it off—but the survey of the prehistoric fields on the cliffs immediately inland, to the east, revealed the kink's significance. The wall to the north of the kink continues, down to Castle Zawn, the line of a substantial stony lynchet which is an element of the well-preserved field system. Sensible use appears then to have been made by the cliff-castle builders of the existing substantial wall for the core, at least, of the northern half of their principal rampart. They kinked the southern half away from the field wall, to its south-west, to complete the barrier on a more appropriate defensive line; the lynchet heading inland to be attached to the field system (Herring 1986a; and see Fig 1).

The implications for the field system's date of this fossilisation of the lynchet by the rampart are straightforward; the field system is earlier than the cliff castle, either very early Iron Age if the dating of the Maen pottery is accepted, or, perhaps more likely, Bronze Age. It does seem possible that at least this part of the field system had become redundant before the castle was built.

Another pasture boundary was enclosed and entirely divorced from the fields to which it was originally attached by the cliff castle, and was also largely robbed of its stones, presumably by the castle builders (see Fig 1). Both boundaries affected by the castle are cliff-pasture dividers which appear from the evidence of measured survey to have been secondary to the main complex of very small, rectilinear fields. The field system was therefore likely to have been laid out quite some time before the cliff-castle. Furthermore, the survey evidence indicated that the fields themselves were not created all at once; a long succession of accretion phases is detectable (seven were identified in the survey report—Herring 1986a, fig 20). Altogether the evidence strongly suggests a pre-Iron Age date for the fields.

The significance of this for the study of West Penwith's prehistoric field systems is considerable. Maen may enable us to view a part of the elusive Later Bronze Age Cornish agricultural landscape. It must be relevant that the accretive field system on Maen Cliffs, whose core was inland to the east, perhaps near the present settlement of Maen, had reached the very exposed and stony cliff-tops apparently by the Later Bronze Age or very early Iron Age. This part of West Penwith, at least, appears, therefore, to have been already farmed to its agricultural margins by the first half of the first millennium BC. The Maen Cliff fields are more similar to the roughly rectilinear fields associated with late prehistoric settlements like Bosigran, Chysauster and Porthmeor than to the curvilinear and more irregular fields of Earlier Bronze Age settlements like Trewey-Foage. The possibility arises then, through both similarity of form and the apparent filling-up of the farming landscape by this relatively early date, that the familiar field systems of Bosigran, Chysauster *et al* may also have their origins in the Later Bronze Age. Furthermore, if the rest of the peninsula was exploited equally intensively, the development of later prehistoric defended sites including, of course, Maen Castle itself, may indeed be seen, as some have suggested, in the context of significant pressure on available resources.

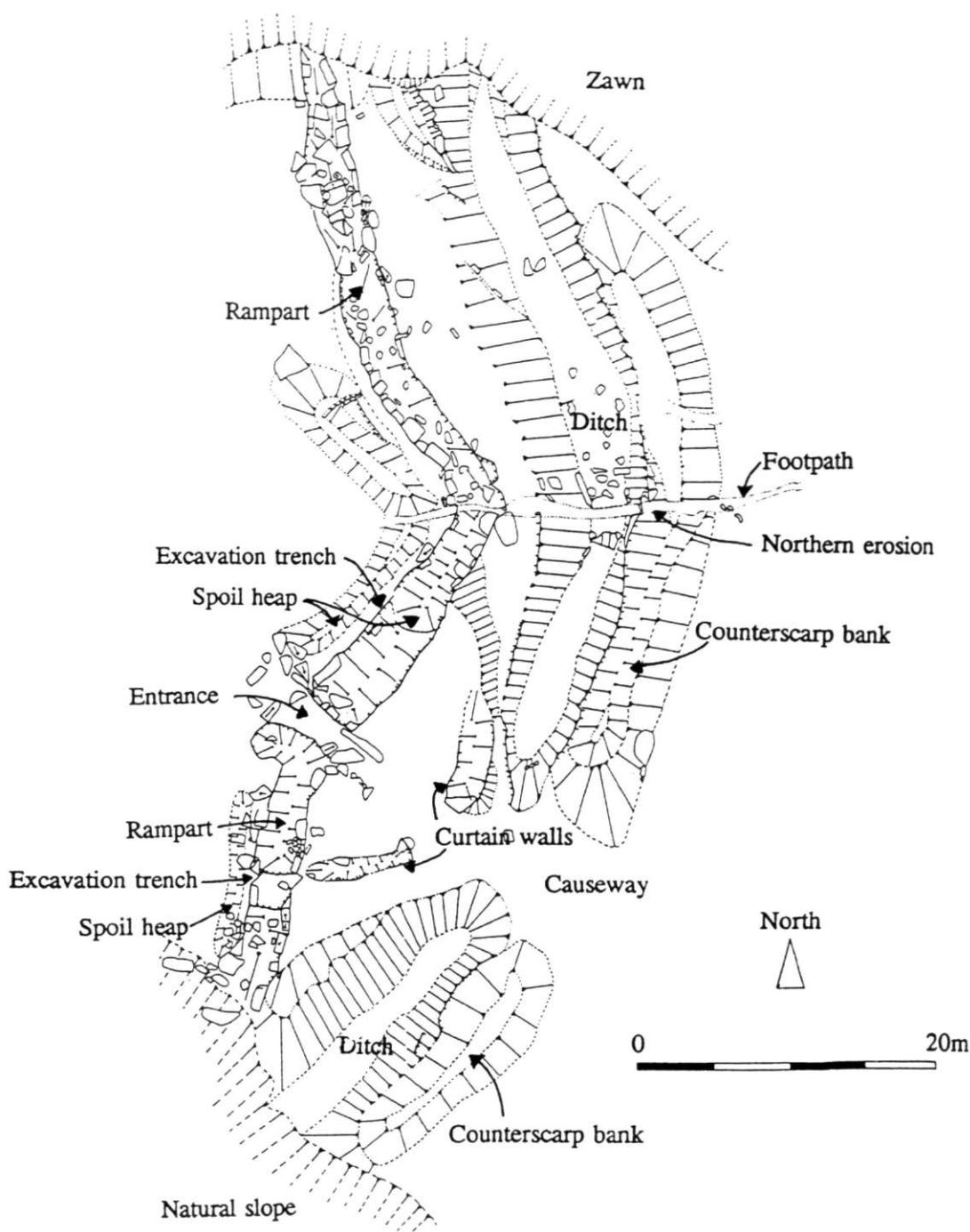


Fig 2 Maen Castle. Large-scale plan produced by the Cornwall Archaeological Unit in 1993

As Rev Crofts' excavation plan was stylised and not perfectly accurate, new large-scale measured plans and elevations of Maen Castle were produced in the summer of 1993 for 'before and after' records of the National Trust repairs. These plans were made by Anna and Andy Jones of CAU; the plane-table plan at 1:100 and elevation drawings (offsets from horizontal lines) of the entrance passage at 1:50 (see Figs 2 and 3). The plan is especially useful, providing

the first large-scale measured plan of the whole of the Iron Age defences, from wall to counterscarp. Its close examination yields intriguing points. It confirms the existence of two internal revetments crossing the full width of the main wall, to the south of the entrance. These were also shown on Crofts' plan (1955, fig 16) and appear to be box-like internal strengthenings of the rampart. The new plan also records the two very slight walls (0.6m maximum height), first noted by Blight as 'curtain' walls (1864, 10), protecting the approach to the entrance within the line of the ditch. That they may be more real than Crofts' report on trenches put through them suggests (1955, 101) is indicated by the expansion of the stretch of the berm (between ditch and wall) outside the entrance to respect and enclose these walls.

The ditch at Maen appears from the new plan to have been built after the main wall. Its line mimics, in a less pronounced way, the kink or dog-leg in the wall shown to have been determined by partial re-use of an earlier pasture boundary; and material dug from the ditch was not incorporated into the wall but was simply thrown out downhill, either into Castle Zawn or to create a fairly substantial but essentially unstructured counterscarp bank. The impression gained is that those who dug the ditch were ignorant of the simple Later Iron Age 'dump' form of rampart, which could have been built outside the wall had the ditch been cut a few metres further to the east. Two distinct phases can therefore be proposed for Maen but the evidence of both defence morphology and pottery suggests that both are Early Iron Age:

1. A freestanding wall with slight curtain walls protecting its entrance.
2. The wall provided with a ditch (and counterscarp bank).

There is another example of a ditch-less wall serving as the sole rampart of a West Penwith cliff castle at Bosigran in Zennor (see Herring 1987, and Fig 4), and a ditch-less wall forms the only substantial defence of what may be a hillfort at Trencrom. The latter has been interpreted by several people, including the present writer, as a possible early prehistoric tor enclosure (eg Mercer 1980; Herring 1992); but the similarity in form and scale of its rampart to that at Maen suggests that this should be reconsidered. Long stretches of the wall have both inner and outer faces, either orthostatic or built with large blocks of granite. Early Iron Age sherds are also known to have been picked up out of rabbit-holes and molehills within the enclosure (Thomas 1957). Henrietta Quinnell also identified Trencrom, with other 'simple univallate structures in good defensive positions' like Cadsonbury and Stowe's Pound, as a likely early hillfort (1986, 112).

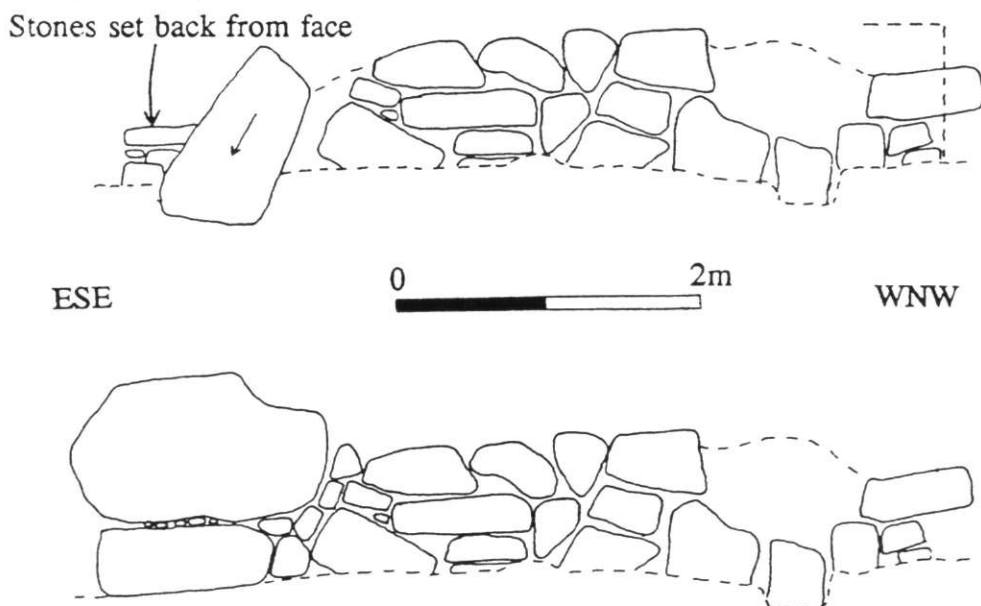


Fig 3 Maen Castle. Elevation drawings of the south side of the entrance passage before (top) and after recent repairs

If Maen, Bosigran and Trencrom are to be tentatively interpreted as being the earliest group of defended sites in later prehistoric West Penwith, and if cliff castles are indeed regarded as essentially coastal hillforts, as suggested by Johnson and Rose (1982, 155) and Henrietta Quinnell (1986), it would be of interest to consider their geographical distribution (Fig 5). They are fairly evenly spaced, approximately 10km apart, and each is within a topographically discrete part of the peninsula over which its builders may have exerted some control:

- Maen, the southern and western plateau;
- Bosigran, the northern hills and the northern coastal plateau;
- Trencrom, the eastern hills and coast to St Ives Bay and the Hayle River.

One would perhaps like to see a fourth early site in the area of Penzance to control Mount's Bay and the central valleys and wish that more was known of the form of the apparently ditch-less rampart of Penzance's beautifully situated but terribly abused Lescudjack Castle (see Pool 1974; Weatherhill 1981, 52). The stretch cut back to accommodate police housing on the north side was apparently seen to be faced with large blocks of granite (anonymous Lescudjack Castle allotment holder, pers.comm.). If Lescudjack is tentatively associated with the other three possibly Early Iron Age defended sites, and this group is separated out from the distribution of West Penwith hillforts and cliff castles, the pattern of the remaining sites also becomes more understandable, with sites fairly evenly spaced across the peninsula (see Fig 5).

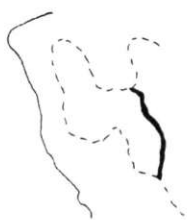
Once the two groups of defended sites have been proposed, other similarities within each become apparent (see Fig 4). All the remaining or 'later' hillforts, for example, are remarkably circular, are roughly similar in scale and—with the exception of the intriguing and possibly very late Lesingey—are multivallate with ramparts fairly closely spaced by Cornish standards (see Johnson and Rose 1982, figs 4 and 9 for comparisons). One of these sites, Chun Castle, has produced Later Iron Age (post 400 BC) South Western decorated pottery, as have other excavated Cornish multivallate hillforts—Tregeare Rounds, Castle Dore, Castle-an-Dinas (St Columb-Major) and Killibury (see Quinnell 1986, 114). The two 'earlier' hillforts, Trencrom and Lescudjack, are both larger and have irregular plans which follow the shapes of the hill-tops they enclose (see Fig 4). Although Maen was made complex by the provision of the ditch and counterscarp bank, it is like Bosigran an essentially simple cliff castle; whereas the other, 'later' cliff castles are again all multivallate. Gurnard's Head produced Later Iron Age material (Gordon 1940), and South Western decorated sherds have recently been picked up within the inner enclosure at Treryn Dinas (Sharpe 1992, and pers.comm.).

Two distinct types of fort, with apparently meaningful distributions and apparently discrete date-ranges, have therefore begun to emerge in the Iron Age defended sites of West Penwith (excluding, for now, the Later Iron Age and Romano-British defended farming settlements or rounds). The development or genesis of the earliest group may, judging from the field system evidence at Maen, have been associated in some way with pressure on agricultural resources. It is tempting to identify four (or more) territories, each provided with an impressive defended site. Further research into the mechanisms is needed, but the concentration of power within elites may have been reinforced or accelerated by increasing pressure on agricultural resources; especially if one of the key functions of the higher levels of relatively unsophisticated rural societies was the administration of access to scarce or shared resources—pastures, routeways, trading systems etc (see Herring 1986b, and forthcoming). Such a role may have been a factor in the establishment of defended sites. The importance of secure access to trade in the later Iron Age, for example, is made clear by Diodorus Siculus' description of Ictis, the most valuable element of which is not its much debated identification of this trading station with St Michael's Mount, Mountbatten or wherever; but instead the description of a trading system dependent on distinctive, recognisable and essentially neutral places where both local and foreign traders could feel secure (see Herring 1992). Of course, hillforts and cliff castles would have also been very useful tools in maintaining an elite's position in relation to the community which both created and supported it (see also the discussion of hillforts below, in the section on Treryn Dinas).

Early sites



Maen



Bosigran



Trencrom



Lescudjack

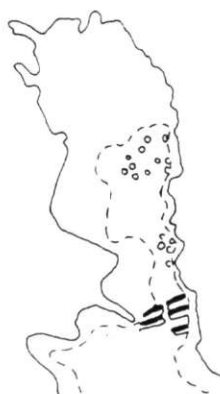
0 300 m



Later sites



Treryn Dinas



Gurnard's Head



Kenidjack



Carn les Boel



Caer Bran



Castle-an-dinas



Faugan



Chun



Lesingey

Fig 4 Hillforts and cliff castles of West Penwith divided into 'early' (top) and 'later' (bottom).
Plans taken from Johnson and Rose 1982

Stability appears to have been elusive in Iron Age West Penwith if the logic of the subdivision of its defended sites is pursued. There were clearly major upheavals some time around the middle of the Iron Age period, if each of the 'later' defended sites is to be seen as representing control of a territory. In other parts of Southern Britain differing patterns of early and late defended sites have also been identified, by Professor Cunliffe. There, however, numbers

of sites were apparently reduced by the amalgamation of territories in a relatively simple concentration of power, or 'growing sophistication in political structure' (Cunliffe 1978, 175-6). Little evidence of shifts of defended sites through the Iron Age was found; rather, a few of the earlier forts prospered while the majority were abandoned (*ibid*). In West Penwith, in contrast, a wholly new political map was created; at least eight smaller, 'later' territories are identifiable through their defended sites, and maybe even ten if the Island at St Ives and St Michael's Mount are recognised as Later Iron Age defended sites—they certainly fit very happily into the distribution (see Fig 5).

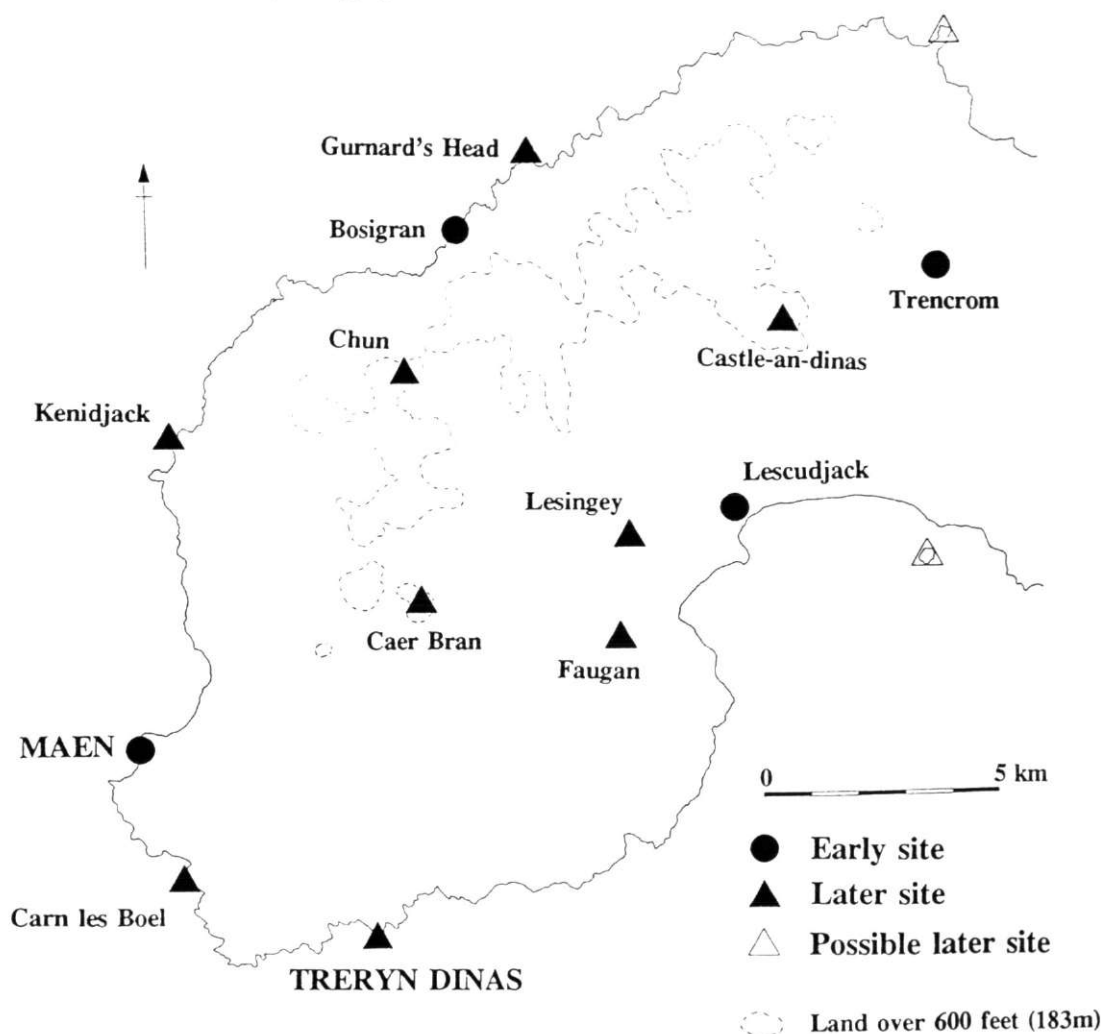


Fig 5 Distribution of hillforts and cliff castles in West Penwith with 'early' and 'later' distinguished

Analysis of such a radical change clearly requires serious thought, as no established elite will have yielded control easily. The simplest explanation is that the most effective means of so completely re-organising a set of local territories would have been such a revolution in local political structures as can most realistically be associated with an invasion, a 'pseudo-historical event' which we have learnt to be very wary of using to explain change in British prehistory. To note that such an invasion may have coincided not only with the appearance

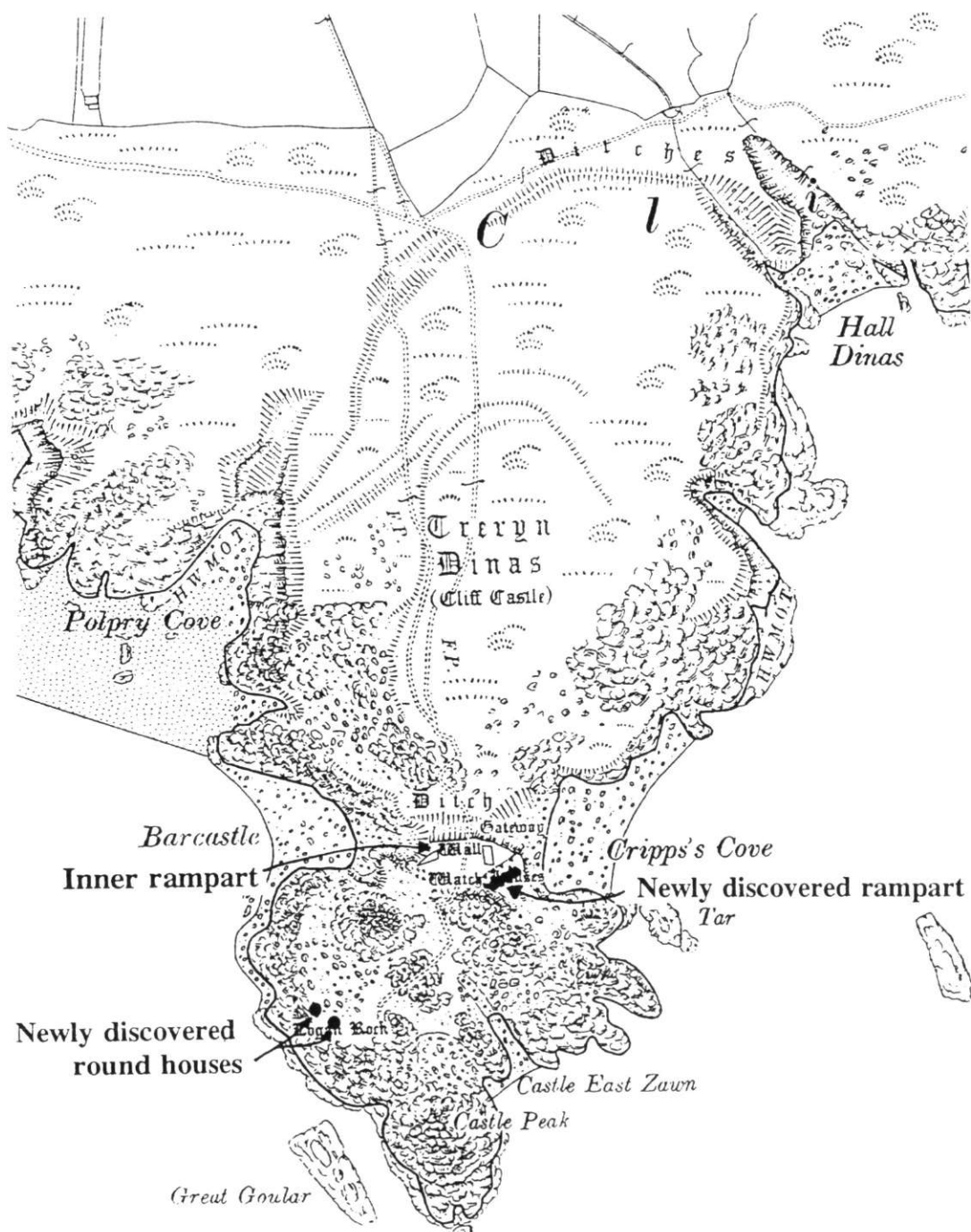


Fig 6 Annotated OS 1st edition 1:2500 plan of Treryn Dinas, indicating the Inner Rampart and with the newly discovered rampart and round houses sketch-plotted (round houses from Sharpe, pers comm)

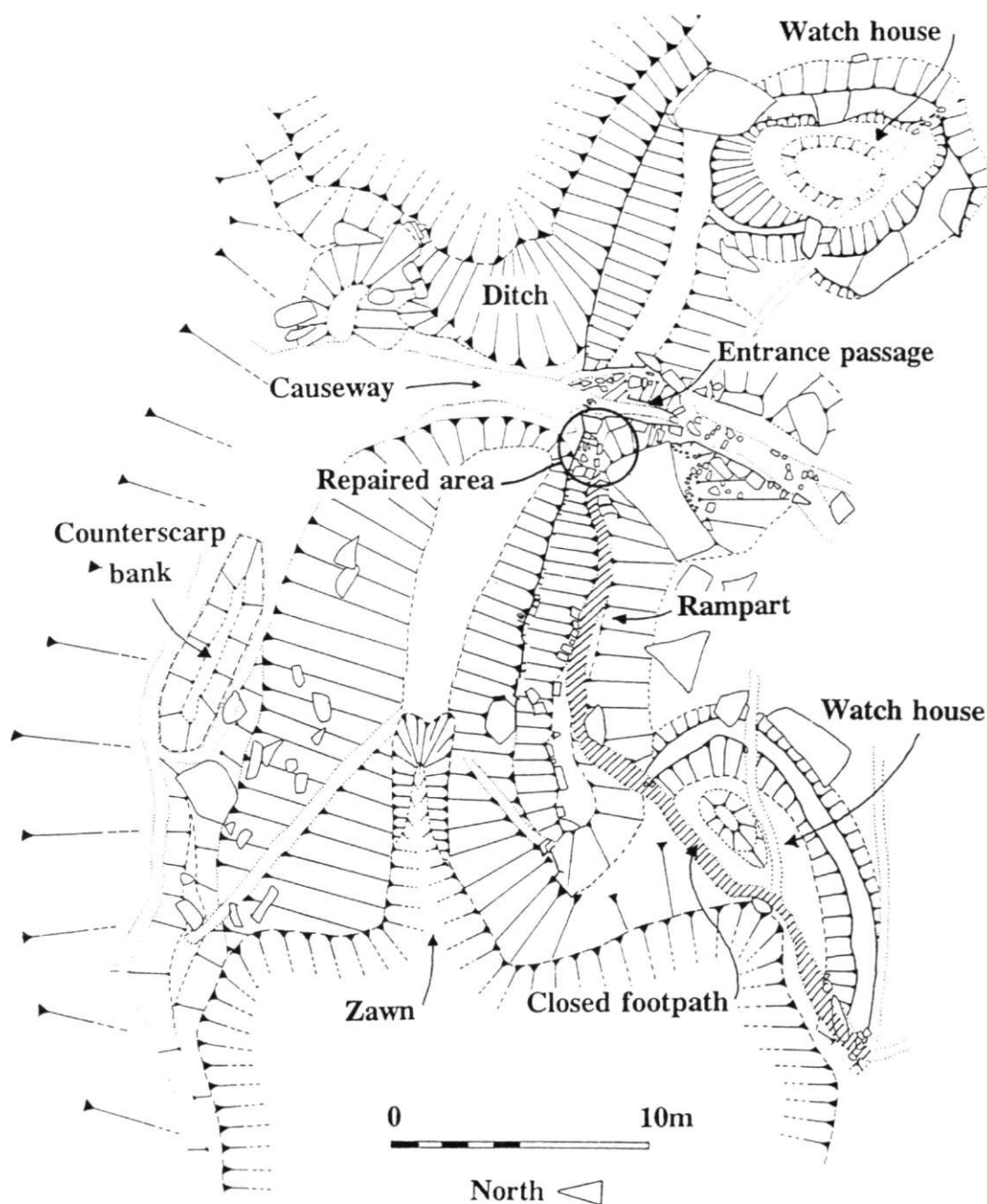


Fig 7 Treryn Dinas. Large-scale plan of inner rampart produced by the Cornwall Archaeological Unit in 1993

of the distinctive South Western decorated pottery, but also—on the evidence of the small number of excavations so far carried out—the first appearance in Cornwall of the defended farming hamlet, or ‘round’, only compounds the heresy by suggesting that the proposed invaders brought with them a ‘cultural package’ not unlike those so carefully documented by cultural archaeologists of the earlier 20th century.

In fact, the emergence of the rounds offers a way out of accepting either invasion theory or cultural determinism, if not an escape from pseudo-historical events. Why there were at least two clearly identifiable layers in Cornish Later Iron Age society both building defended sites, hillforts and rounds, has long been a subject of debate. The need for at least some hamlets—the main agricultural units in the Cornish landscape, co-operative or neighbourhood groups of farming households providing the base of its wealth, and of course food—to throw up defences suggests that a degree of anarchy may have existed, inconsistent with control from the higher levels of society associated with the hillforts. If the first rounds are seen then as the products of a systems collapse—a pseudo-historical event, perhaps due to agricultural/economic failure in a region with a growing population and an agricultural capacity stretched to the limits current technology and practices allowed—it is possible to suggest the temporary loss of the higher, co-ordinating level of society; in this case the ‘chiefs’ who controlled Maen, Bosigran, Trencrom and Lescudjack Castles.

The models of hillfort formation outlined in this note (both above and in the discussion of Treryn Dinas below) suggest that the rural society’s profound needs to re-establish local administration of trade and resources, defence systems, ritual organisation etc would have rapidly thrown up a new arrangement of territories, those with the ‘later’ defended sites as their centres. If these new centres were indeed the creations and even the clients of the rounds, this historic relationship could explain the surprising tolerance by the hillfort/cliff castle level of society of defences at the round level. If so, the proliferation of rounds in the Cornish countryside in the Later Iron Age and Romano-British periods may be seen as a symptom of stability under a sophisticated and realistic social structure, rather than as a symptom of stress in the countryside. If Cornwall really was some sort of client state during the Roman period, it is more likely to have been tolerated as a stable society rather than a nest of warring and feuding bands.

The model of Later Iron Age West Penwith sketched above has room for, indeed may even require, a higher level of rural society capable of co-ordinating and verifying the new arrangements. Such a level may be manifest in the archaeological record in places like St Michael’s Mount (Ictis?) or even Treryn Dinas, strikingly impressive in comparison with the less distinctive hillforts.

Treryn Dinas (Figs 6-9)

West Penwith’s largest, most complex and possibly most important Iron Age defended site was built on a beautiful promontory between the coves of Porthcurno and Penberth, in what is now St Levan parish. It has never been fully surveyed at a large scale, and the only accurate plan is that at 1:2500 first produced by the Ordnance Survey in the later 19th century (OS County Series, Cornwall 78/7 and 11, 1876). Craig Weatherhill produced an amended version of this in 1977 (copy held by CAU); but there was no detailed plan of the inner rampart, which could have enabled plotting of the extent and nature of the recent erosion and adequate recording of the state of the monument prior to repair. In the early summer of 1993 Anna and Andy Jones of CAU planned this rampart, its ditch and slight counterscarp bank, as well as two structures immediately within the rampart at 1:200 (Fig 7). They also made elevation drawings at 1:20 of the wall faces to be repaired (Figs 8 and 9). Their records, as at Maen, allowed this part of the site to be fully described for the first time, and valuable archaeological observations to be made.

Granite jambs on external corners mark the 1.75m wide entrance passage, located just east of centre of the gently bowed, 33m long rampart. The stone-walled entrance passage is 9.5m long; the rampart, which is elsewhere 5.0m wide, being expanded where it is pierced. A massive natural boulder, 4.8m across, too heavy for the rampart-builders to shift, formed the core of the entrance expansion to the west of the passage and its location appears to have determined the entrance’s slightly eccentric position. At present the external, northern side of the rampart has an almost vertical stone revetment, partially restored by the National Trust in the recent works. The elevation drawings (Figs 8 and 9) suggest that much of this face may be relatively

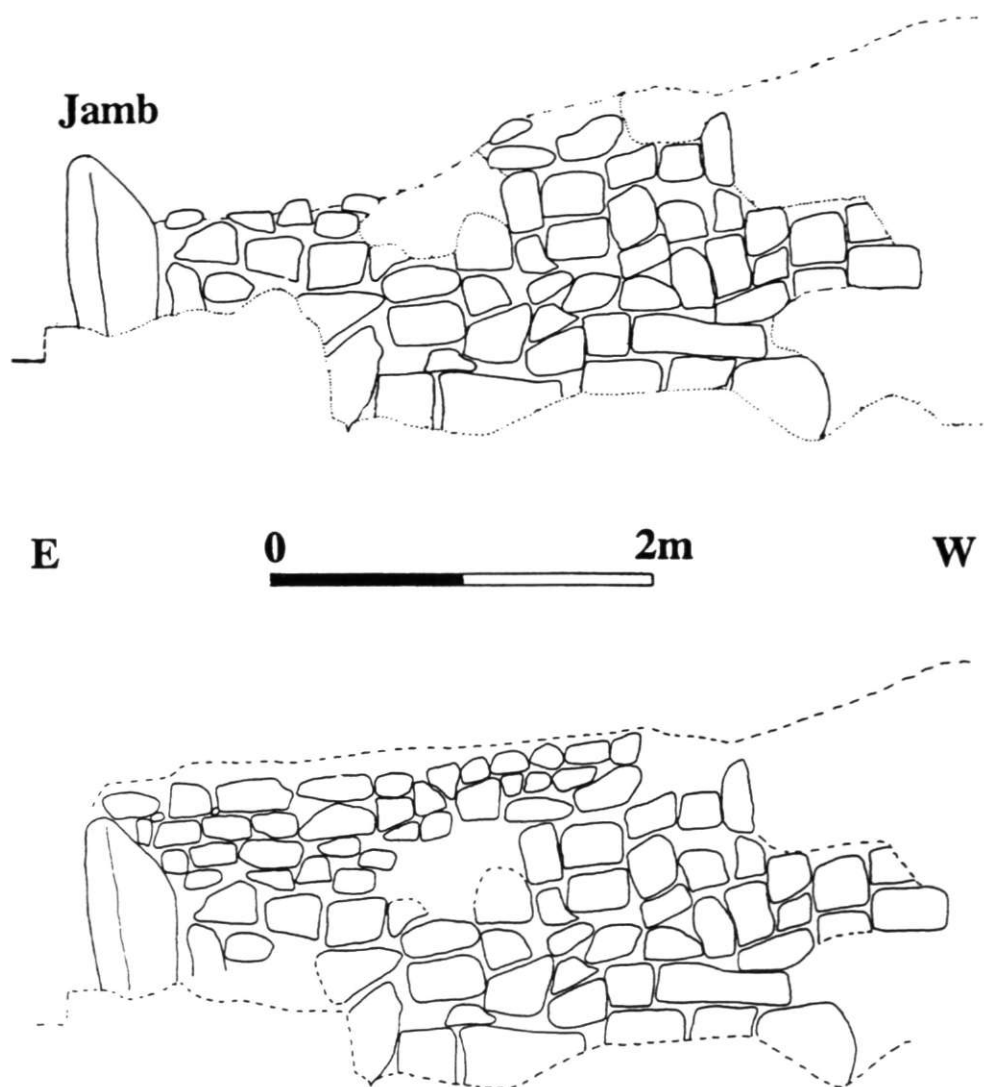


Fig 8 Treryn Dinas. Elevation drawings of part of the inner rampart face (west of entrance) before (top) and after the recent repairs

late; either a prehistoric remodelling or more likely a medieval or later creation. The stonework differs markedly from that in the entrance passage where stones are more irregular in shape, significantly larger—most being over 0.8m maximum dimension compared with a typical 0.35m maximum dimension for stones in the rampart face—and are much less neatly laid. Indeed an immediate impression on first viewing this rampart is one of surprise that such insubstantial stonework, with only rab as mortar, in such an exposed location, and with such pressure of human and animal visitors, has survived to up to eight courses high for over two thousand years. This is not like the beautiful drystone walling of Chun Castle nor the substantial, self-supporting blockwork of the fogous or Trencrom, Maen and Bosigran Castles; nor even the partially tumbled and overgrown walling of Romano-British courtyard houses. It is closer in style and condition to relatively modern field boundaries, although it does appear to have already existed in the 18th century (Borlase 1769). It may have been built by farmers to prevent livestock grazing the extensive heathlands of Treryn Dinas—the part of the promontory inland from

the inner rampart—from entering the much more hazardous Castle Treen, the rocky headland. Such boundaries are common along the cliffs of West Penwith, and it is known that one of the ramparts at Gurnard's Head was turned into just such a stone-faced pastoral boundary (see Nowakowski 1986).

Whatever its later history, it does seem possible that this was originally a simple 'dump' rampart; the absence of a berm between rampart and ditch would also support such an interpretation. The only original stonework would then be the jambs and facing in the entrance passage. With the exception of some possible stone facing on the innermost of the cliff castle's central ramparts, this leaves all the defences at Treryn Dinas with simple, Later Iron Age 'dump' ramparts.

There have been suggestions that the various defensive lines at Treryn Dinas represent different phases or episodes (eg Weatherhill 1981, 59). There is certainly visible relative chronology in the central lines, where a bank and ditch running down to the western cliff-edge are clearly secondary to the curving ridge-top ramparts (see Fig 6). On the other hand, the three sets of defences can each be seen to have performed clearly distinct functions, and may also be regarded as complementary and essentially contemporary. Without extensive excavations neither interpretation can be confirmed but in both schemes the role of the inner rampart is intriguing.

With a simple entrance reached by an unexcavated causeway across the ditch, the inner rampart is extremely vulnerable to attacks from the steeply sloping ground above, to the north. In addition, virtually the whole of the headland it encloses is not only bare rock, but a rockscape of such startling form—with vertical piles of clean, rounded granite, culminating in Men Amber, the Logan Rock—that there is no danger of transposing modern perceptions of beauty and drama to prehistoric minds in following Adam Sharpe (1992) in maintaining that those who built this rampart were deliberately enclosing, laying claim to, or excluding interlopers from, a very special place.

A newly discovered rampart, found during visits to the repairs in early 1994, lies within the inner rampart, running from rock-pile to cliff-edge just to its south-east. It is relatively slight, surviving as a bank 4.1m wide, 0.7m high with external ditch 4.2m wide, 0.5m deep; and appears designed to prevent movement along the eastern side of the first rocky mass encountered in Castle Treen, guiding people towards the only pass through to the limited areas of soil-covered land (virtually all of it steeply sloping) in the vicinity of the Logan Rock. Prehistoric visitors were apparently encouraged to take the same route as 18th and 19th century tourists, over and between tors and boulders along the western side of the rock-mass; a passage which brought them into one of the most awesome places in Cornwall.

The outer ramparts at Treryn Dinas would certainly have performed well as a large coastal hillfort, the favoured interpretation of cliff castles (see Cunliffe 1978, 333; Johnson and Rose 1982; Quinnell 1986, 115). The central ramparts enclose an area of relatively level ground larger than that of any other West Penwith Iron Age defended enclosure, and a second area of almost equal size lies between these and the massive outer rampart (see Fig 4). This scale and complexity offers support to the suggestion made earlier that Treryn Dinas may have been the peninsula's primary hillfort during and after any mid-Iron Age re-organisation of the local political map. Although Adam Sharpe (1992), has recently identified two very small, round houses clinging limpet-like to steep western slopes within the inner enclosure, it is difficult to see this part of the complex having any kind of secular function; indeed the main purpose of the inner rampart seems to have been to formally separate Castle Treen from the cliff castle's two main outer enclosures.

Large sherds of a Bronze Age cremation urn together with small pieces of charcoal and bone, recently found eroding out of a crevice in the tors of Castle Treen near the Logan Rock itself, were suggested by their finder Adam Sharpe, and by Jacky Nowakowski, to derive from some kind of ritual burial in a sacred area (Sharpe 1992). Certainly the spirits of earth, water and air are all close at hand on a stormy day among these great rocks. What little is known of Iron Age belief suggests that the gods and goddesses of nature were of great importance then (see Cunliffe 1978). A case can then be made out for the apparently non-secular function

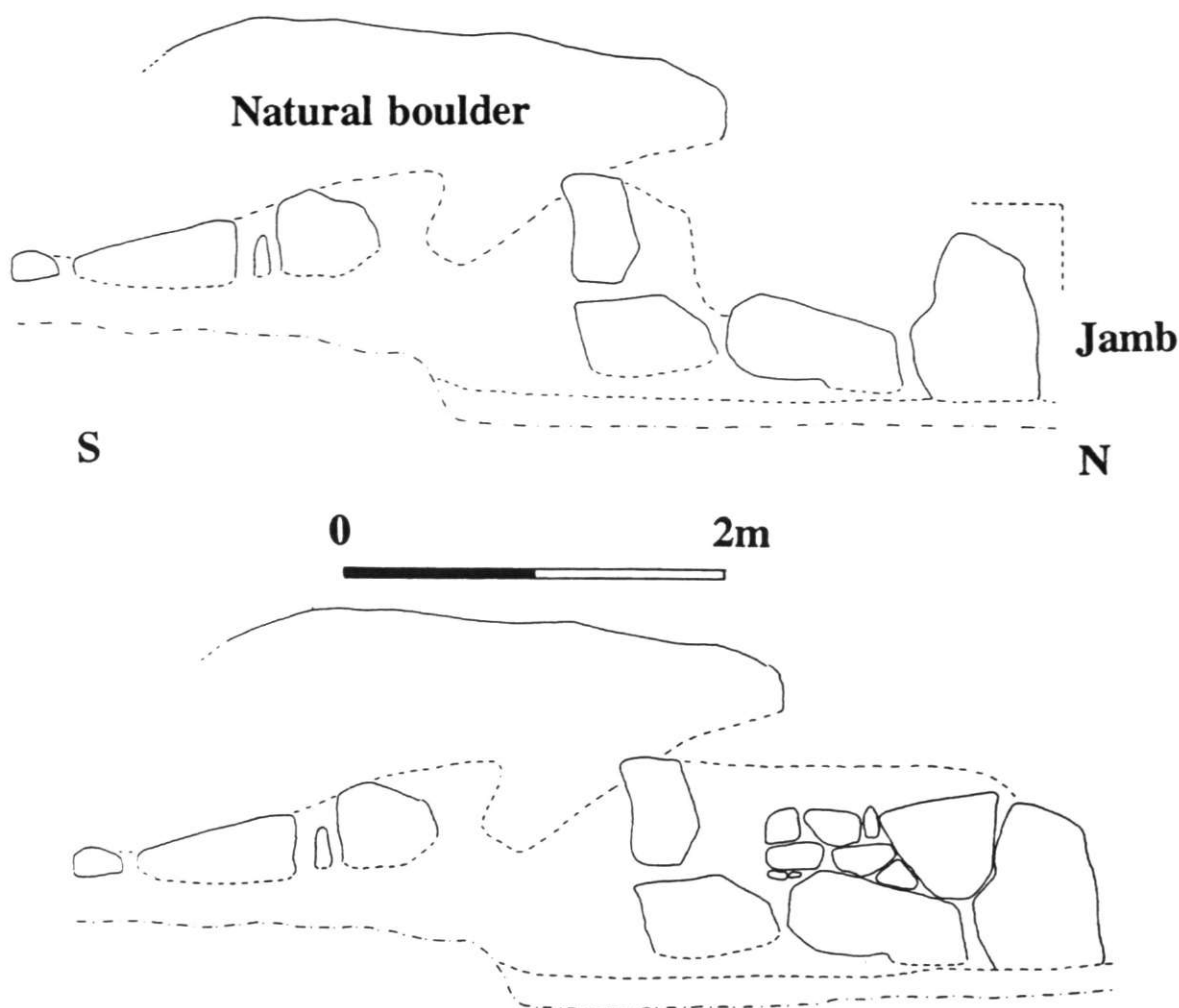


Fig 9 Treryn Dinas. Elevation drawings of the west side of the entrance passage before (top) and after the recent repairs

of the inner enclosure at Treryn Dinas being closely associated with religion. The place's sacredness may well have been enhanced by any memory of earlier, Bronze Age ritual use.

If cliff castles really are coastal hillforts, as is assumed throughout this note, it seems sensible to extract the maximum information about the functions and requirements of hillforts, still little understood in Cornwall (see Quinnell 1986, 114-115), by studying how cliff castle builders adapted to the often more complex and difficult topographies of uneven rocky promontories.

One of the most striking features is the apparent vulnerability of some of the cliff castles. In West Penwith, the ramparts of Gurnard's Head, Kenidjack Castle and Carn Les Boel are all overlooked by rising ground and are themselves relatively insubstantial. The impression gained is that the defences were not built to withstand a determined onslaught—and cliff castles are inherently vulnerable to any form of siege. Instead they appear to have been designed to provide adequate security for people and goods (and perhaps animals in outer enclosures). The land cliff castles enclose is also often steeply sloping (Maen and Bosigran are good examples) and although Gurnard's Head, Kenidjack Castle and Treryn Dinas all contain some small round houses it seems unlikely that these sites were suitable for permanent settlement. It is perhaps unwise to insist that *any* Iron Age people took orders and endured Cornish winters on stormy

headlands or exposed hilltops, let alone those people we believe held positions of power and who, presumably, had a degree of choice over where they lived. Most of the houses excavated at Gurnard's Head were very small, apparently not built for families (see Nowakowski 1986). The headlands themselves are, however, so beautiful, with such extensive and exciting views, that the suggestion that hillforts, and cliff castles, are 'objects of display' (Cunliffe 1978, 278) comes vividly to mind.

If inland hillforts in West Penwith and also, perhaps, throughout Cornwall, were not permanently occupied, but had facilities for occasional or temporary use, including round houses and other structures as excavated at places like Chun (Leeds 1927 and 1931), Killibury (Miles 1977) and Castle Dore (Quinnell and Harris 1985), we can move on to consider what functions they may have served. The idea that they were built as strong retreats for troubled times is, of course, as pseudo-historical as conjuring up 'invasions' to explain striking changes in prehistoric material culture—although it may be foolish to assert that hillforts and cliff castles could never have been used in this way. It seems much more relevant to consider their usefulness to the relatively stable agricultural communities, made up of small co-operating groups of farming families, living in hamlets which were either enclosed (the rounds) or open. The higher levels of society, those probably responsible for building the defended sites, will have both exploited and served the farmers. Services provided by the higher levels will probably have centred on running local administration systems, ensuring local justice worked and guaranteeing security; they may also have included providing people and places for performing ceremonies and rituals and overseeing or organising both local trade or exchange and longer distance trade. Defended central places offering security to members of higher levels of local society, vulnerable traders, priests (or Druids), stewards and law enforcers would have served all these functions. Most such functions could also have been performed at particular times of the year, when people will have gathered from throughout the territory; to meet, render dues, exchange goods, settle disputes, and either take part in or witness rituals, the calendar of which may well have determined the dates, through the seasons, for these meetings.

Returning to the recent survey of the inner rampart at Treryn Dinas, the two internal structures, one at each end of the rampart, were planned and shown to be not round houses ('hut circles') but oval or sub-rectangular buildings. The larger, western one has been partially removed by cliff falls, but was at least 12m long and 4.5m wide internally; the eastern one is 9.0m by 5.0m internally. Walls are now stony banks and no definite entrance was found in either building. Their shapes suggest a date probably later than the cliff castle, either Romano-British or early medieval. Their function may therefore have been associated not with the cliff castle, but with the headland's natural resources or extensive seaviews. Their Ordnance Survey label, 'watch houses', though suggestive of a defensive role, may be quite appropriate if they were shelters for watchers of grazing animals, fish or ships.

Conclusion

The models of later prehistoric economic, social and political structures and change in West Penwith and Cornwall outlined in this note have stemmed from observations based on detailed field survey of two cliff castles and their implications for local landscape history. The need for further critical survey and analysis of other sites, including the remainder of Treryn Dinas, is clear, especially as purposeful excavations of Cornish cliff castles and hillforts to test interpretative models become increasingly unlikely to materialise. Besides securing and conserving important sites for future generations, it is clearly also the responsibility of archaeologists and historians to force available evidence to work hard in interpreting the past so that places like Maen Castle and Treryn Dinas are more fully understood and enjoyed by those who visit (but no longer damage) them.

Appendix: Possibly Roman leaden weight found at Maen Castle

A trapezoidal lead-based weight with a small hole at its tapered top (Fig 10) was found by Andrew Mace and Emma Townsend in turf immediately to the south-east of the south-east

corner of the entrance passage through the inner wall at Maen Castle. At first it was thought to be a post-medieval fishing weight but Roger Penhallurick, Curator of the Royal Cornwall Museum, Truro, reports:

'Leaden weight. Nearly 6oz avoirdupois. Allowing for loss due to corrosion, I would guess this is 6 Roman Ounces (same as Troy weight) which is heavier than avoirdupois, equals $\frac{1}{2}$ a Roman Pound. If it were 5 Roman Ounces it would weigh 480×5 grains = 2400 grains. The find spot suggests to me it should be Romano-British, probably a weight from a steelyard, rather than anything more modern'.

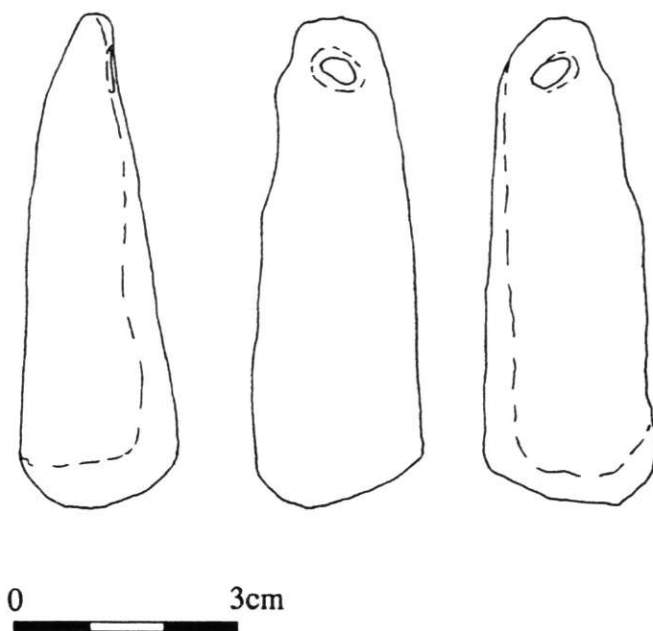


Fig 10 The leaden loom-weight unearthed during recent repairs at Maen Castle

Acknowledgements

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Tin ingots found at Praa Sands, Breage, in 1974

LEO BIEK, collated from notes and reports by
A J CLARK, H L DOUCH, P G HARRIS, L J JONES, P J KAY, R L OTLET,
R D PENHALLURICK and B J SCOTT

Twenty years ago severe gales exposed some tin ingots among a buried forest level. The finds were referred to by Biek (1979, 78) and documented by Beagrie (1985, 165 and fig 3) and Penhallurick (1986, 233-4). In view of the continuing interest in the material and, especially, more recent scientific examination with equipment that had not previously been available, it was felt that all the existing information should be brought together here in this way. The discussion reflects the views of all contributors.

Although this kind of isolated chance find inevitably leaves tantalising loose ends it is ultimately from a weave of such that an overall picture begins to emerge, provided always that the details have been adequately recorded, and are published or otherwise accessible.

1 Location and circumstances of discovery, by H L Douch (Figs 1-3)

From the Royal Cornwall Museum Enquiries Book for 1974 ([] = information added):

In February 1974 Mr Yelland [of Helston] found on the exposed forest level towards the eastern end of Praa Sands [SW 580 279] two roughly-shaped pieces of smelted tin (1 and 2). He had [2] 'assayed' at Holmans where a considerable piece was cut from it. In September 1974 his children found two more pieces (3 and 4) nearby—all four within a 15-foot square. On September 22nd a number of us dug on the site, cutting back from the denuded seaward exposure towards the sand-dunes. This revealed that the 'forest' layer, with fairly large branches compacted into it, was 3-4 inches thick; below this a layer of rich chocolate-coloured soil; below that again a grey clay merging into sand. Root systems extended into the clay. We removed samples of wood and compacted vegetation for analysis. The site was otherwise blank, giving no reaction to a [metal]-detector. From Mr Yelland's account it would appear that the blocks of tin were found exposed at the bottom of the 'forest' level.

Block (1) in size and shape resembles a pasty; its weight approximately 4lb 2oz. The undersides of all four pieces are rough as though they were cast in stone moulds; the flat surfaces show some signs of impurities oxidising in the metal. [Penhallurick 1986 (b): 1.87kg, 25 × 10 × 3cm; *Appendix 1 (b) below*]

Block (2) is somewhat similar, although less regular, in shape; being in section shallower it only weighs 1lb 12oz approx. Holman's are giving the piece removed a spectrographic analysis; the first 'assay' showed an 80-90% tin content. [Penhallurick 1986 fig 133, (d): (when complete) c0.9kg, 18.5 × 9.5 × 1.7cm; *Ingot I below, section 4*]

Block (3) weighs 8½lb. On the side in contact with the mould it has a raised cross which runs from edge to edge. Whether this cross was deliberately carved in the mould or represents a crossed fault-line in the stone is not known. [Penhallurick 1986 (a): 3.8kg, 18.8 × 4.6cm; *Appendix 1 (a) below*]

Block (4) weighs 4lb 3oz and the head is an overflow from a shallow mould. [Penhallurick 1986 (c): 1.9kg, 26 × 12 × 2cm; *Ingot II below, section 5*]

As to how old these blocks are remains supposition but one might infer that they immediately pre-date the sand-blow [Fig 3]. The facts that they are so small, so variously shaped and so lacking in identifying marks (if one discounts the cross) suggest that they are pre-medieval. It was hoped that they were near the place where they were smelted—indeed this may still be so—but other evidence might have been eroded away already, the site being just above high water mark and washed during storms.

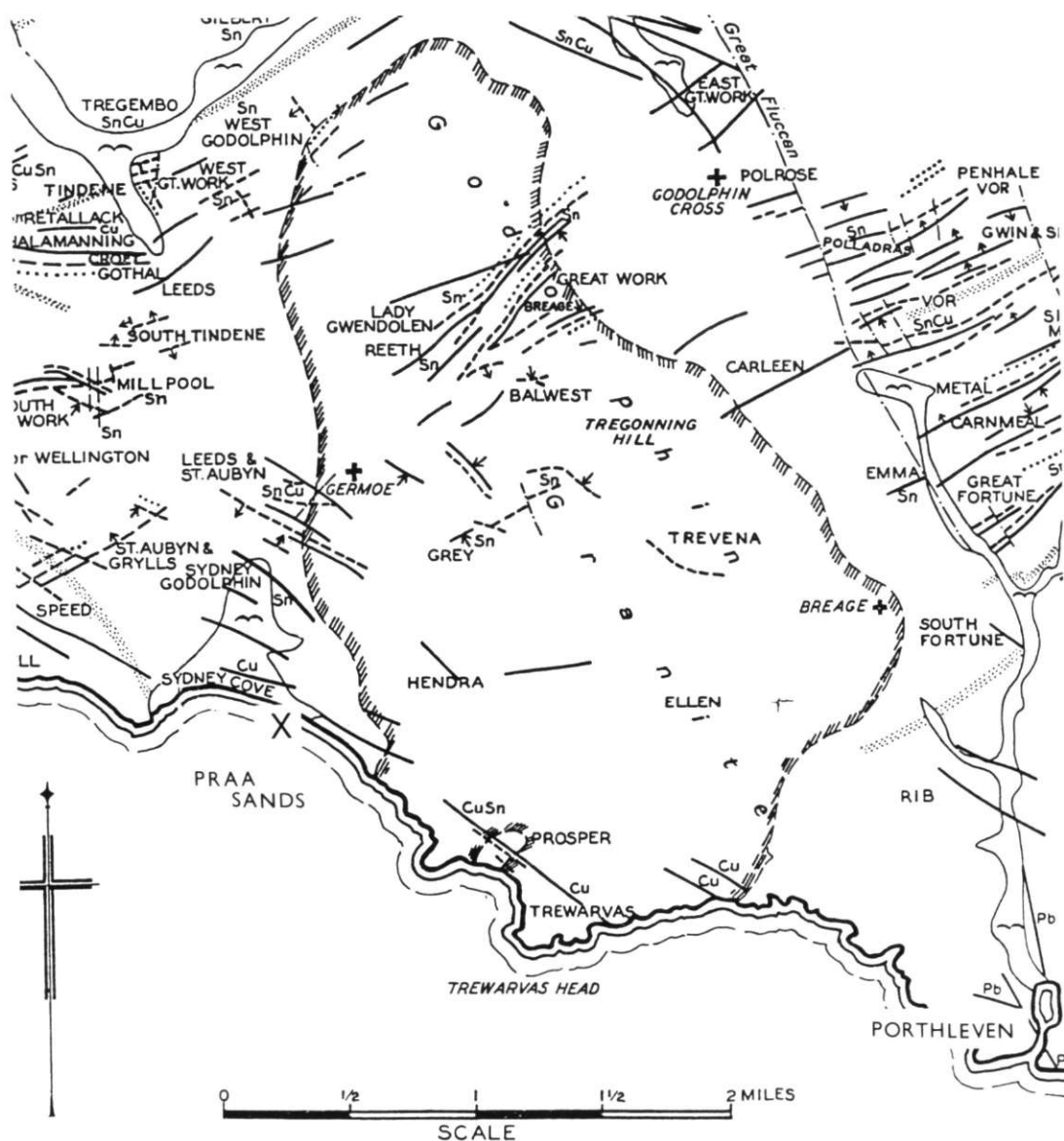


Fig 1 Praa Sands. Location map showing site where tin ingots found (X) and mineralisation of the hinterland. Based on Dines 1956/88, 1, Map IV, reproduced by permission of the Director, British Geological Survey: NERC copyright reserved

30/9/74—Local hotelier told me that that area of dunes had been eroded last winter: a local farmer who had lived there all his life said that the whole bay was stripped of sand one day and the shore showed large boulders and 'pieces of tin stone'. The sand gradually accumulated again. He also said that there was a tin stamps and roasting-house between Praa Sands and the main road, the chimney and flues still there; the stamps were worked by a 30 foot water-wheel behind the count-house. In the dunes just behind the beach-site was the shaft of a copper-pine (Sidney Godolphin, he said).

Charles Thomas and I dug pillars of the peat layer for removal by [L Biek, Ancient Monuments Laboratory, Department of the Environment. Dr H Keeley of the same department] collected timber samples. Noticed beetle-cases in the peat layer which appears to thicken towards the dunes.



Fig 2 Praa Sands. 1974 photograph showing site of tin-ingot find; note dark 'forest' level below sand dune.

Photo: A. C. Thomas

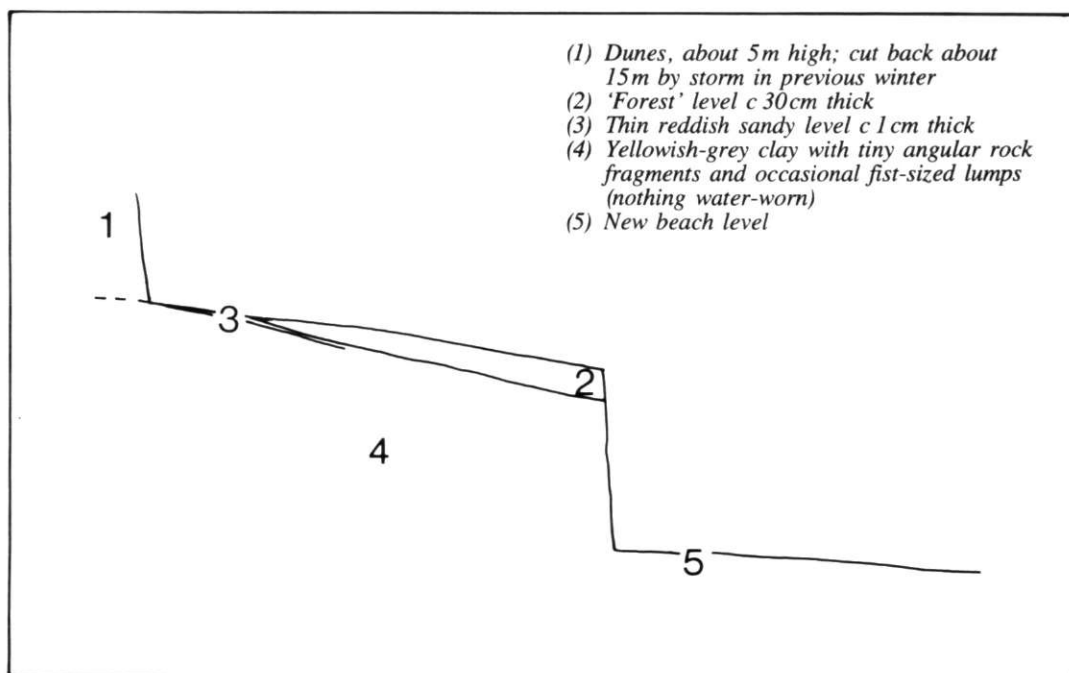


Fig 3 Praa Sands. Rough section-drawing of beach at site of tin-ingot find, 484 paces southeast of the stream by the beach. R D Penhallurick, December 1974

Note and sketch section (Fig 3) by R D Penhallurick, Royal Cornwall Museum

On 17 December [1974] I visited the site which had become exposed following gales. The site of the 'excavation' was plainly visible. The dunes had been removed along a strip [12-15m] wide. This slopes seawards about 55cm in 12m. The 'forest' level was about 30cm thick and contained plenty of alder twigs up to 5cm thick. (At about 150m southeast of the stream the 'forest' level is thicker—between 50 and 70cm). Below this was a layer, about 160cm deep, of yellowish-grey clay with tiny angular rock fragments [4 on fig 3] and occasional fist-sized lumps (nothing water-worn). It contained minute root-like traces but only a few large roots which could reach to the new beach level. The clay was more bluish-grey below a depth of c 45cm.

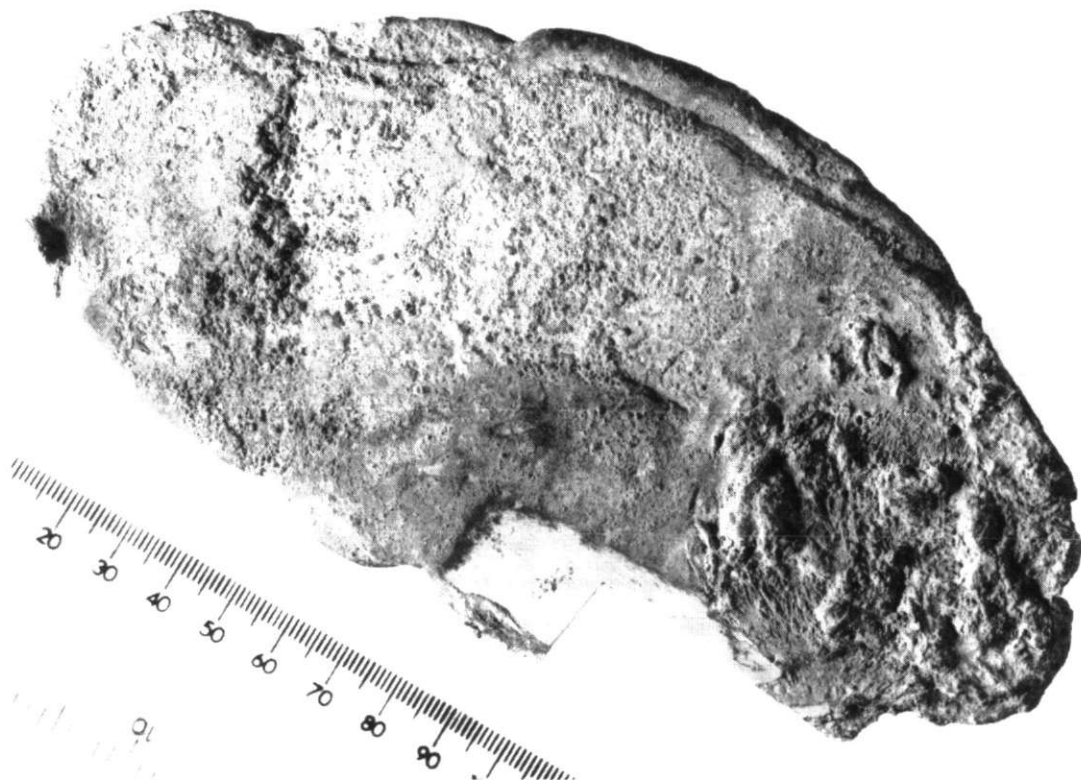


Fig 4 Praa Sands ingot I, top surface

Photo: International Tin Research Institute

2 Scientific work I

Following site investigation standard basic routine examinations were put in hand through the Ancient Monuments Laboratory at the request of Professor A C Thomas. Samples taken by Dr H Keeley were examined and passed to AERE Harwell for radiocarbon dating (3 below). Samples were also taken for archaeomagnetic dating (3 below). Two of the ingots were fully investigated at the International Tin Research Institute (4 and 5 below)

3 Dating

Radiocarbon dating

by R L Otlet, then of Carbon-14 and Tritium Measurements Laboratory, Atomic Energy Research Establishment, Harwell

Extract from Jordan, Haddon-Reece and Bayliss 1994:

HAR-962 1290 ± 70 BP

$\delta^{13}\text{C}$: -28.2‰

Sample: PRASANDS, submitted by H Keeley on 26 November 1974

Material: wood

Initial comment: from the peat deposit

Calibrated date: 1σ : cal AD 660-785

2σ : cal AD 630-890

Archaeomagnetic dating

by A J Clark, Clark Consultancy

Measurement ref: AJC-113

Soil/silt layer overlying peat and beneath beach sand

Measured in the Dept of Geophysics and Planetary Physics, University of Newcastle upon Tyne

Six of the samples gave a distinctive directional grouping with the following mean value for the direction of detrital remanent magnetisation:

Dec = 5.74°E ; Inc = 67.85° ; $\alpha_{95} = 1.63^\circ$ (6 samples)

Allowing for a slight shallowing of inclination, as often occurs in sediments, this result gives date spans of 300-200 cal BC at the 68% confidence level; 350-150 cal BC at the 95% confidence level. An alternative and more likely date, however, is about cal AD 800, with an upper limit of approximately 830 at the 68% confidence level; 850 at the 95% confidence level. The lower limit cannot be estimated reliably because of a lack of calibration data for this period.

We are grateful to Prof. D H Tarling for his contribution to the analysis of these samples.

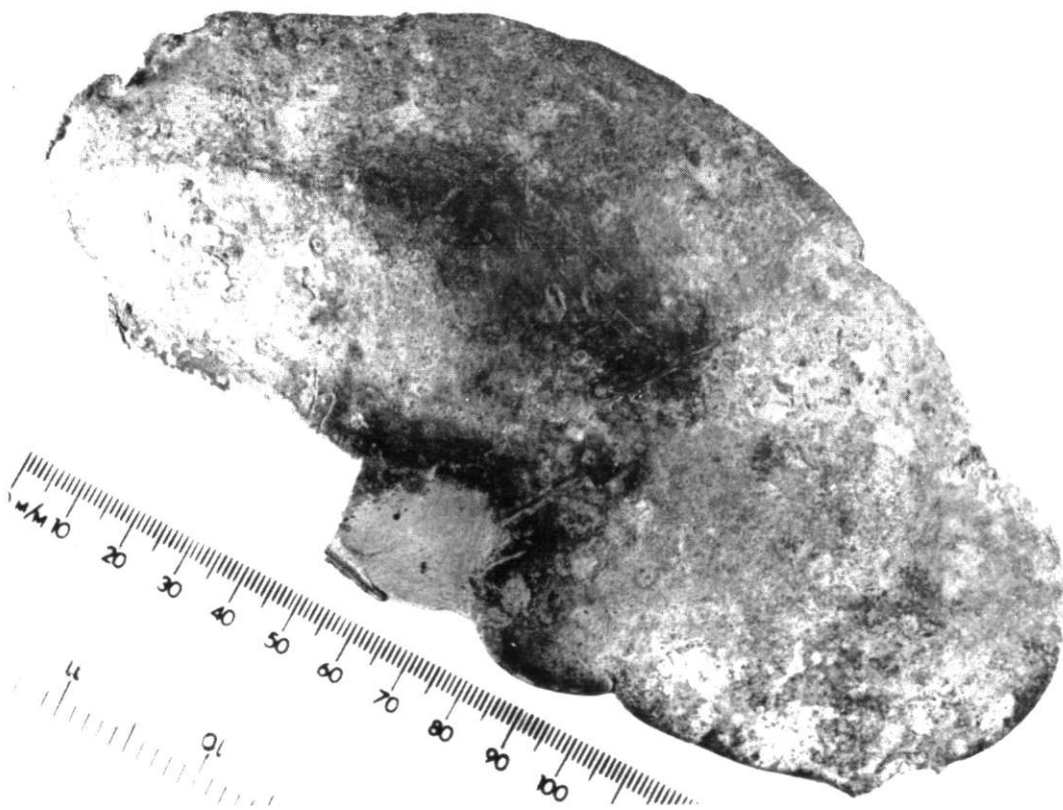


Fig 5 Praa Sands ingot I, bottom surface

Photo: International Tin Research Institute

4 Tin ingot I, by P J Kay, B J Scott and L L Jones, then at International Tin Research Institute. Figs 4-8

[= AM No 749300; Block 2 of Douch, *l above*; (d) in Penhallurick 1986, fig 133]

Both surfaces were found to be in an excellent state of preservation overall. Especially on the smoother bottom, the metal was more or less clearly visible and any immediate surface deposits were very thin and uniform. They ranged in colour from off-white to pale ochre with occasional greyish and greenish tinges. In small rougher and/or raised areas, on the top surface, where there had evidently been bubbling and/or other disturbance during pouring/freezing (as eg at right, and in lines at left, in Fig 4), darker hues were more in evidence, as mid-brown to black patches. Similar colours appeared on the central ridge of the bottom surface (Fig 5).

Scrapings of the top surface were examined by X-ray diffraction and found to consist essentially of SnO_2 with some SnO . The former (cassiterite) when pure is white: eg as formed in a fluffy, low-density powder during corrosion of a Bronze Age bronze dagger (Campbell 1976); but when contaminated especially by iron oxides in geological mineralisation its colour is dark, from brown to black—hence ‘black tin’. The other oxide (romarchite, Roberts *et al* 1974, 524; Organ and Mandarino 1971) actually is black and so may contribute to the darker colours. Varlamoffite, a hydrated iron-tin oxide, $(\text{Sn},\text{Fe})(\text{O},\text{OH})_2$ (Gastellier 1950; Campbell 1976; Campbell and Mills 1976, 1977), was sought but not positively detected. No hydroromarchite (Organ and Mandarino *loc cit*) or other significant lines were seen.

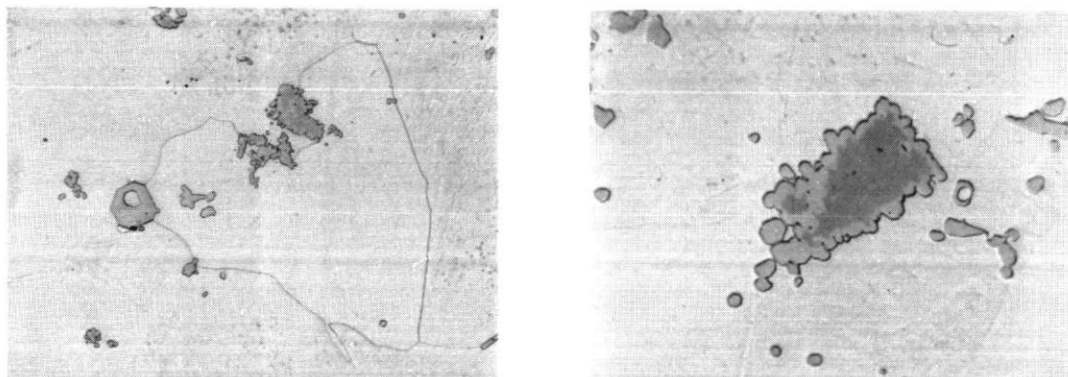


Fig 6 Praa Sands ingot I, optical micrographs of cross-sectioned specimen, after etching with 2% HCl/alcohol to delineate the tin grain structure; a) $\times 200$ b) $\times 600$

Photo: International Tin Research Institute

A sample of metal was taken from the edge of the prominent cut which had previously been made elsewhere. It was mounted in the normal way, polished and etched for metallographic examination. Fig 6, a) and b), shows standard optical micrographs with well-defined inclusions some of which contain ‘holes’. The tin matrix is very clean. This was confirmed by the results of standard optical spectroscopy:

%Fe $\sim$ 0.5; As $<$ 0.05; Sb $<$ 0.02; Cu, Pb, Bi all $<$ 0.01; Cd $<$ 0.001%.

Fig 7 a) shows a scanning electron micrograph of the tin matrix, with the grain boundaries etched, containing iron-rich inclusions, as illustrated in the X-ray dot distribution map, Fig 7 b).

In Fig 8 the scanning electron micrograph of a typical (duplex) inclusion is overlaid by X-ray line scans of Fe and Sn, showing that the two phases are distinguished by carrying different amounts of iron in the iron-tin intermetallic compounds (*see Section 7 below*).

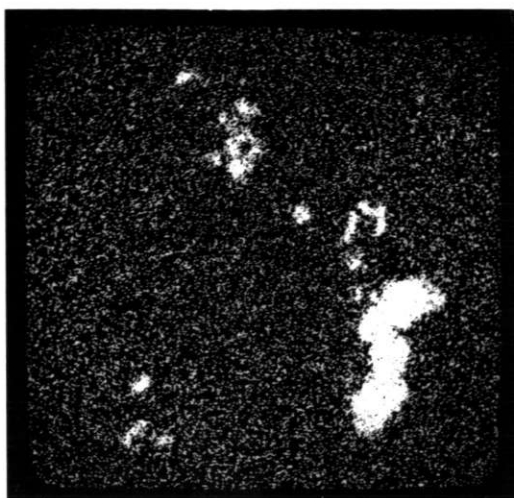


Fig 7 Praa Sands ingot I.

a) Scanning electron micrograph showing intermetallic crystals embedded in tin matrix

b) X-ray dot distribution map of iron in the specimen

Photo: International Tin Research Institute

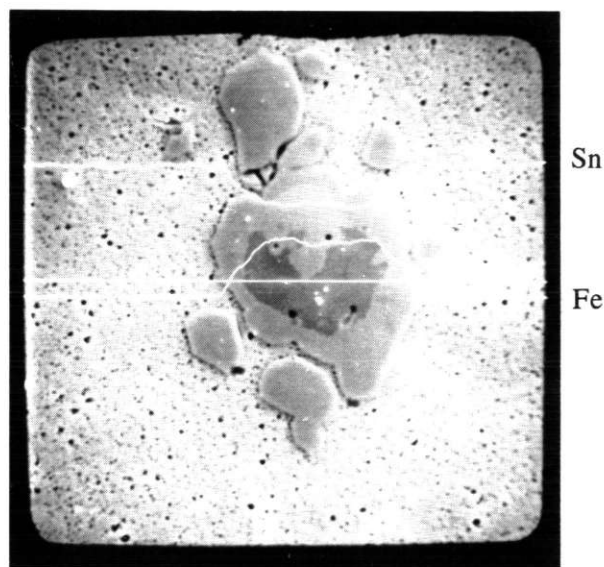


Fig 8 Praa Sands ingot I. X-ray line scans, showing the distribution of tin (above) and iron along the central datum line in a cross-sectioned specimen. Note the presence of the iron-rich inner areas in the duplex intermetallic crystal

Photo: International Tin Research Institute

5 Tin ingot II, by P J Kay, B J Scott and L J Jones, then at International Tin Research Institute. Figs 9-10

[= AM No 782068; Block 4 of Douch, *1 above*; (c) in Penhallurick 1986, fig 133]

The second ingot was examined for comparison and to check that the data for the first one could be taken as broadly representative. It looked sufficiently similar to make this valid but differed in some details to offer wider scope for specific attention. For instance, it carried

some overspill at one end, as if mould positioning and/or pouring had been careless; also, a wraith-like pentagonal 'leaf-shaped' outline on the upper surface had produced the suggestion that it might indeed be due to a leaf settling on the molten surface (*see 7 below*).

Both surfaces of the ingot had, again, been excellently preserved overall and much the same general description of colour and topography applies. The underside of the spill stands proud with rounded irregularities. The main body to the left is much smoother, the whole being pale to medium grey with some darker patches. The topside (Fig 9) is mostly smooth, with some pitting in the central area. At the left end is a rougher, rippled area. The whole is of varying shades of grey, with the cleanest parts having a dull dark grey metallic look.

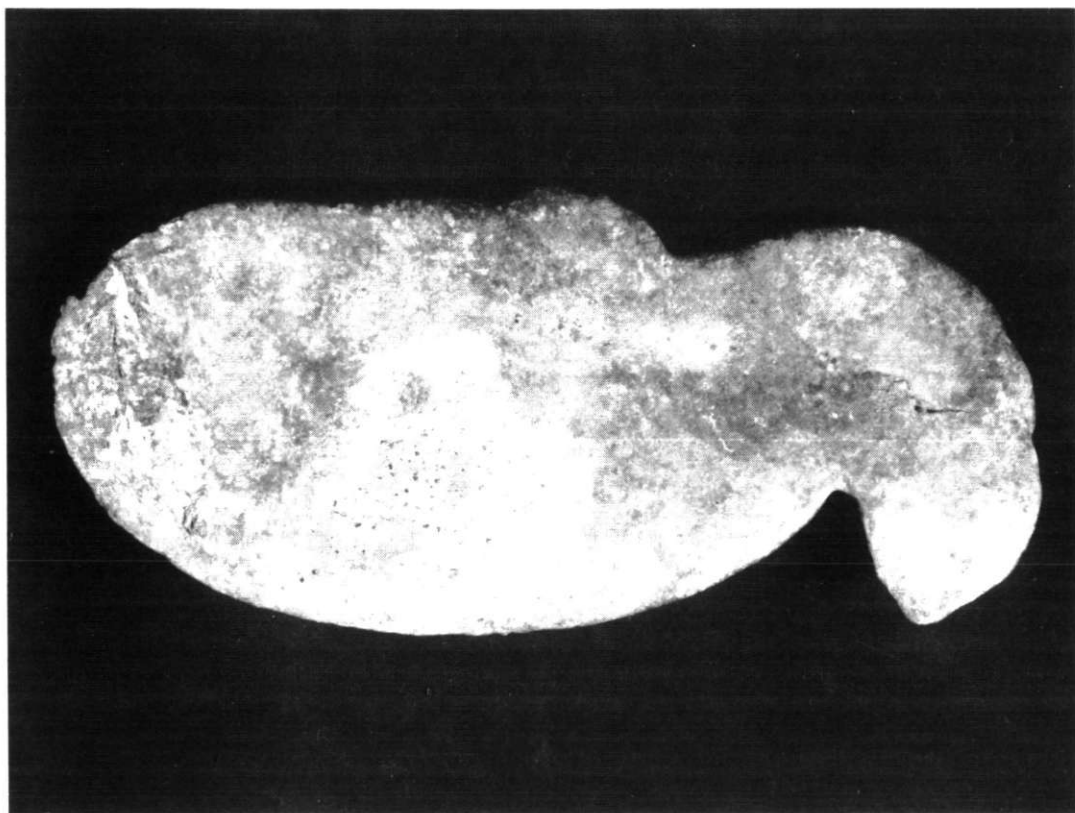


Fig 9 Praa Sands ingot II, top surface

Photo: Royal Cornwall Museum

A sample of metal was taken from the convex underside of the spill, where there was a protuberance, and mounted for metallographic examination as before. This time the particular nature of specific inclusions was closely investigated. Fig 10, a)-c) shows dark-field illumination optical micrographs of a variety of crystals at increasing magnifications. The special 'tin etch' used destroys the reflective, polished surface of the pure metal, but not of the inclusions, leaving them to stand out. The size and shape of these particles varies with the plane of sectioning through them; some also appear hollow owing to their mode of growth. They appear to grow with 'fingers' at either end of the elongated crystal and if sectioned through the area they could appear hollow. The faint lighter structure is a deformation effect which can occur during the polishing of the very soft (ie pure) tin matrix. The structure is, again, rendered visible by the etch used to darken the matrix.

6 Scientific feedback

Following more specialised discussions with scientists at conferences over the next few years, especially eg at Bonn (Biek 1979), Exeter (Beagrie 1985) and Oxford (Bound forthcoming), it became clear that the shape and nature of the crystals in Fig 10, and particularly the 'holes', aroused much interest and raised some queries about their interpretation. It became vital to know their exact composition, since there were conflicting opinions about whether they were in fact all iron-tin intermetallic compounds, or some were cassiterite (J P Northover, pers comm), or yet other intermetallic materials (cf Meeks 1986, fig 8); and then, it was also important to decide what the 'holes' meant, and how they came about. As a result, a small amount of further work on the previous sample of ingot II with more sophisticated equipment eventually became possible (7 below).

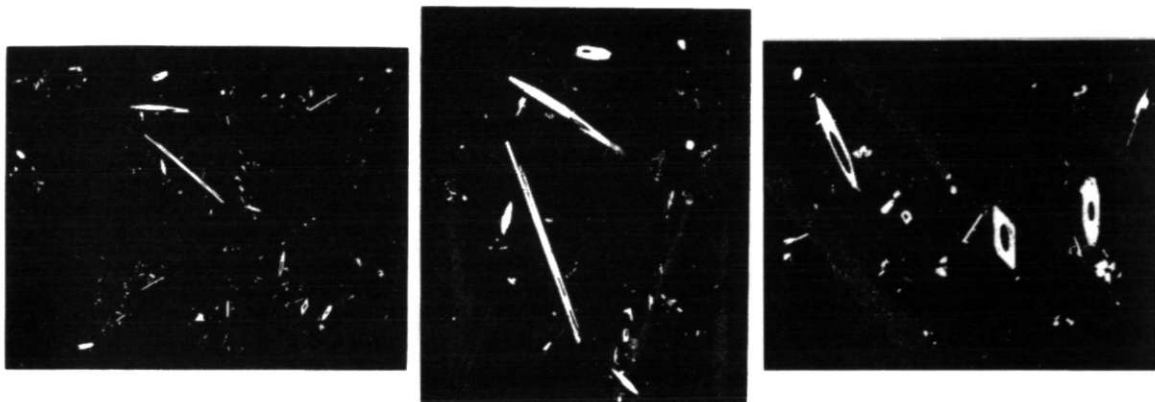


Fig 10 Praa Sands. Optical micrographs of a cross-sectioned specimen from ingot II. The specimen has been specially etched with tin etch to darken the matrix and highlight the intermetallic crystals; a) $\times 25$, b) $\times 50$, c) $\times 100$

Photo: International Tin Research Institute

7 Scientific work II, by P G Harris, International Tin Research Institute. Figs 11-12. Tin ingot II, section 5 above

In Figs 10 a)-c) numerous iron-tin intermetallic crystals are evident, as is quite often the case. Re-examination by point analysis of the previously mounted sample, using an energy dispersive X-ray system capable of detecting light elements (such as carbon, oxygen and nitrogen), showed no evidence of any remaining cassiterite, or any other contaminant. The analyses suggested that the intermetallic crystals were all FeSn_2 . Iron is commonly associated with tin in lode deposits, such as those found in Cornwall. The conditions needed to smelt iron ore are only slightly more forceful than those required for cassiterite (SnO_2), and inevitably during the smelting process some of the iron ore present is also reduced and passes into solution in the molten tin. The quantity of dissolved iron depends on many factors, including the concentration of iron in the ore and the smelting temperature, but would in normal modern practice not be greater than 10% (Wright 1966, 160) and much less under primitive conditions.

At the temperatures which are necessary for the smelting process (at least 600°C for SnO_2) the solubility of iron in tin is quite high (eg 1.6% at 700°C); at lower temperatures it is much less, being only 0.003% at 20°C (Wright 1966, 160). As the molten tin starts to cool, iron-tin intermetallic compounds precipitate from solution. The nature of the first compounds to form depends on the quantity of iron originally in solution. If the iron concentration was very low the tin-rich compound FeSn_2 may be formed. At higher contents the first solids to appear may be compounds which are richer in iron, eg FeSn , Fe_3Sn_2 (Ehret and Gurinsky 1943, 1226). As the temperature falls the iron-rich compounds should progressively transform into FeSn_2 , if time permits. Iron tends to separate quite quickly (P A Wright, pers comm); all the same, if cooling is rapid the iron-rich crystals may be only partially transformed, resulting in structures

as in Fig 8 where iron-rich particles are coated by a layer of material which is richer in tin (FeSn_2 in this case).

The intermetallic crystals in Fig 10 have an interesting morphology, some being partially hollow. Similar structures are often observed to be present in other cases immediately after freezing (Fig 11). Apparently hollow intermetallic crystals (eg Cu_6Sn_5 , FeSn_2) have been reported by numerous authors, particularly in the soldering literature. Most papers suggest that they are indeed hollow. It is, however, hard to understand why this should be so. Tips of growing dendritic crystals normally have convex rather than concave surfaces. One suggestion is that after formation the crystals are hollowed out by remelting during recalescence. In support of this view, their external surfaces are found to be flat and aligned with specific crystallographic orientations, as one would expect. The inner surfaces, on the other hand, are circular in cross-section, and hence not crystallographically aligned.

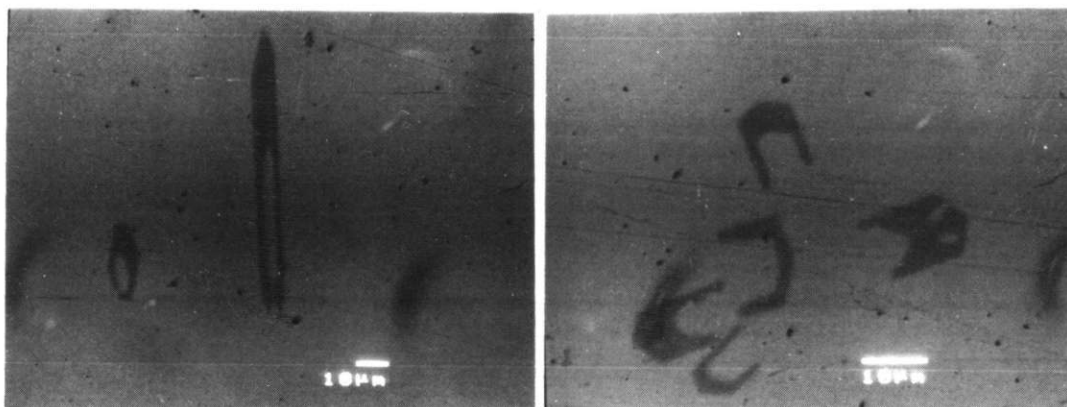


Fig 11 a) and b) Hollow laths and bridge-shaped intermetallic crystals seen in modern 90:10 tin-lead solder

Photo: International Tin Research Institute

The solidification of metals is perhaps a rather more haphazard process than might at first be imagined. It does not normally commence immediately upon the melt reaching its liquidus temperature. Instead it is normal for melts to undercool, to some extent at least, because of difficulties in nucleating the solid phase. When solidification does start it is accompanied by a massive release of energy as the newly formed solid liberates its latent heat of fusion. This frequently causes the temperature of the melt to increase, and some remelting of primary species is believed to occur. Fig 12 shows a typical cooling curve for a tin-rich alloy which illustrates this type of behaviour. This process of remelting has been suggested as the cause of the partial hollowing out of intermetallic crystals (eg Klein-Wassink 1989, 75-109).

Closer investigation showed the 'leaf' shape on the upper surface (5 above) to be the result of a confluence pattern on the setting metal, creating a differentiated light-scattering iridescent quality which had evidently been preserved. Experiments indicated that leaves, which are never flat, touched a molten tin surface only at 3-4 points, and could be made to produce an 'outline' only if pressed into the melt. Many surfaces solidify in dendritic patterns which are often leaf-like.

8. Discussion

On the British Geological Survey Map (1984 edition) one notes 'Submerged forest' marked, off shore, near the west end of the stretch of sand between Penzance and Marazion; also, there is 'Thin layer of peat beneath blown sand' arrowed to just west of our site. Clearly such features were previously known and could be quite extensive in this area.

The local mines were tin and copper. Dines (1956/1988, Vol I, Map IV) shows the immediate area to be saturated with worked tin deposits. The Mount's Bay District yielded large quantities of tin and copper ores, tin mainly from the mines of the Wheal Vor group (~3 miles northeast

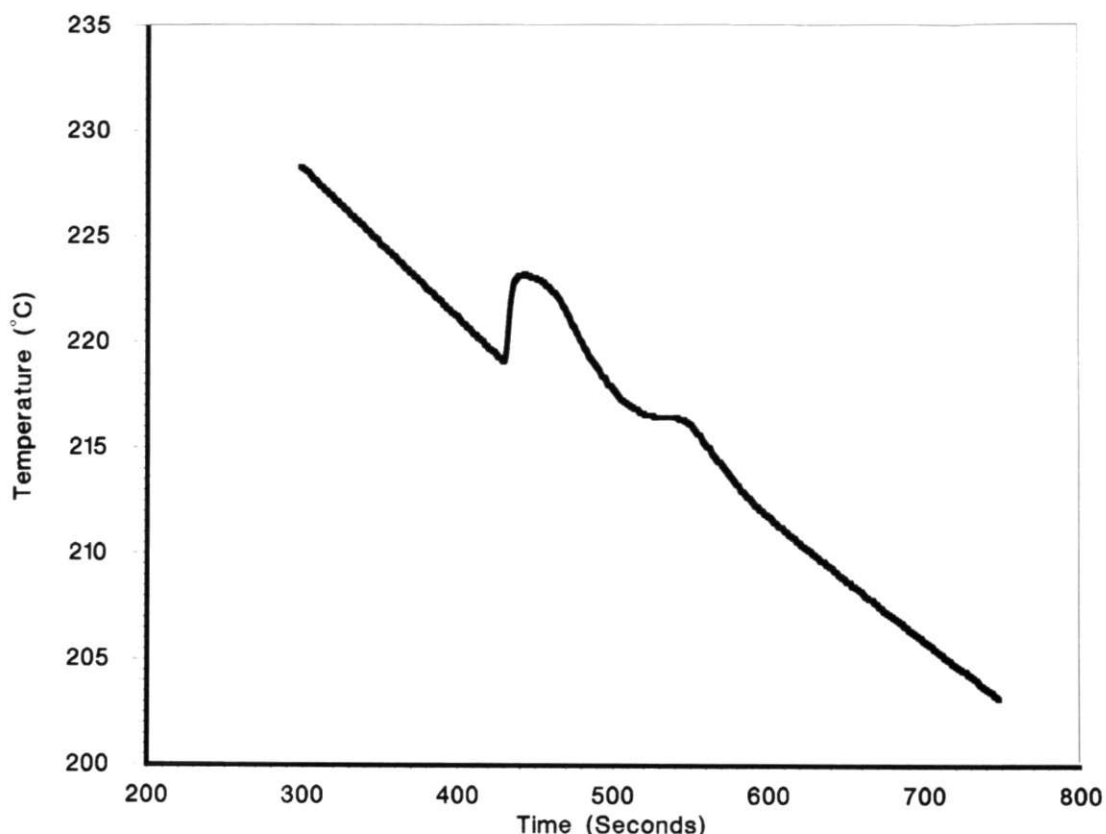


Fig 12 Typical cooling curve for modern 99.5% Sn:0.5% Cu alloy

of Praa), and the area centred about Great Work (see Fig 1). Between 1853 and 1908 Sydney Godolphin Mine, the nearest to Praa, raised over 100 tons 'of black tin and 15 tons of arsenic. . . In 1896 a working known as Praah Mine [perhaps the same] returned 1 ton of black tin' (Dines 1956/1988, 169, 218, xxvi).

On his sketch map (Fig 1) Dines also marks some alluvial tracts—within the Praa stream valley as well as at Prussia Cove and several other coastal outlets towards Marazion (~3½ miles west-northwest). However, there are no records of any tin streaming in the immediate neighbourhood of Praa Sands; the stream can only have been served by any outcropping veins which may have existed at Sydney Godolphin Mine. The stream is short and mostly steep, so one doubts if much alluvial tin could have got trapped there. If the ingots are of alluvial tin, as one would have supposed, the cassiterite more likely came from the Hayle River valley (Leeds and St Aubyn Mine, Germoe, is in the valley which drains into the Hayle), streamworks in the Marazion area, or maybe from the Wendron area (~6 miles east-northeast). Rather oddly there is no evidence of any early finds in streamworks in Wendron parish—not that such negative evidence proves anything.

And yet one needs to remember the elvan boulders 'with the surfaces indented in deep hollows, where the tinstone had been rudely pounded into powder', frequently found in both the Helston and St Ives areas (Cunnack 1867). Also, surface workings at Wheal Vor are believed to have gone back to Roman times, but that is tradition, not based on any known archaeological finds. However, the fact that there is a Roman milestone of Postumus (259-268), found being used as a gatepost, now in Breage church, does show more than the usual Roman interest in the region.

Against a well-documented background of tin-working, a very local tradition of small-scale primitive smelting would be consistent with use of simple natural scoops in nearby rocks or stones or sand.

It has been tacitly assumed throughout that the finds are the end result of small-scale smelting operations, but there is no material evidence to support this, either in slaggy or other diagnostic features or any associated finds. It needs, therefore, to be stressed that our conclusions are inevitably limited: the ingots were formed by pouring molten metal into crude moulds. The metal could equally well have come from a larger ingot—or even a collection of smaller residues—that was remelted and divided into different portions. However, the extreme purity of the matrix is not only remarkable but also more indicative of primary metal.

In the circumstances it is extremely difficult to decide on the date of the finds. If one can accept that they reached the relatively more impermeable level of the 'chocolate-coloured soil' then it is not only 'tempting' but also justifiable 'to regard them as evidence' of activity in the post-Roman period, ie as suggested by the radiocarbon result. The present known pattern indicates that earlier medieval—and indeed prehistoric—ingots are smaller, and increase in weight during the Roman period, and again through the Middle Ages (Penhallurick 1986, 233). Although the radiocarbon date might be taken to be confirmed by the archaeomagnetic results these offer other, prehistoric, options. One has to accept that the periods concerned suffer from a dearth of reliable data. But it is clearly possible that the archaeomagnetic results may simply refer to a level, ie the surface of the 'chocolate-brown soil', that is indeed prehistoric, and on which the ingots came to rest—at whatever time.

In passing, it is probably more coincidental than curious or significant that the weights of the four ingots are in the ratios of 1:2:4 . . . ?

The presence of substantial amounts of iron is known to be normal in the local tin-bearing deposits but is insufficiently diagnostic by itself; concentrations of other common impurities (eg As) are very low in the ingot matrix and therefore the absence of varlamoffite and other esoteric species is not surprising. The nature and amount of the intermetallic iron-tin compounds, however, are to be expected, but perhaps not their crystal shapes—the modern concern with 'holes' in inclusions in solder could be of greater significance to our work than it might at first seem to be. At any rate it is important to register the present findings as a possibly useful first(-time) marker in this context; the evidence which has persisted at least reflects the reasonably rapid cooling one might expect.

The freedom of the ingot surface deposits from chlorides, sulphates and sulphides may seem surprising in the circumstances, marine margins normally providing some of the most vulnerable sites for severe metallic corrosion. One might expect chlorides, in particular, to be highly active here, and it is not generally appreciated that seawater-logged bronze, for example, can behave quite anomalously, to the extent that the copper becomes cathodic to the tin which is preferentially (Campbell and Mills 1976; 1977), and sometimes totally (Campbell 1981, Tylecote 1977, 275-7), dissolved out.

One might suppose that some amorphous salts could be lurking within the thickness of the crust and have evaded detection, in somewhat the same way as is known from the behaviour of iron under comparable conditions, when chloride enters the reaction in a (semi-)catalytic capacity (Knight 1990, 38-40; Turgoose 1982, 97-8). But by the same token one would then have expected to see signs of a similar progressive break-up of the surface. Possibly, as suggested at the time (Biek 1979, 78), the burial amid organic material with a substantial overburden of sand could have protected the ingots from contact with oxygen. This might have led, even in the presence of (inhibited) sulphate reducing bacteria, to the kind of anoxic preservation observed over many years and described in detail for some finds in a Roman well (Biek 1977, 350-5) which are relevant to the present discussion.

Much of what was recommended by Tylecote (1966) has proceeded successfully since, and the establishment in 1992 of the Trevithick Partnership (now a Trust) is another important step forward. It has ensured as far as is possible not only that the work will continue, but also that it will be guided and progressed effectively by the Trust's Chief Executive, Stuart Smith, until recently Director of the Ironbridge Gorge Museum Trust. This refers particularly also to the search for the remains of smelters.

The opportunity was taken to re-examine the surfaces of the two ingots which are the subject of this note. Their overall condition, as seen in the photographs of 1978 (Figs 4 and 5), would appear to be unchanged: from the 'cleaned' metallic areas left by initial local cutting and subsequent minimal sampling for analysis, to the patches of rugged topography and other details specifically mentioned above. On the same occasion the other two ingots were similarly examined (for the first time) and these descriptions are given in Appendix 1.

9 Conclusion

The full details relating to the casual circumstances in which this group of four ingots was found, and results of scientific work carried out on the site and especially on two of the ingots, are presented in the hope that the data will help in the continuing study of the more ancient history of tin in west Cornwall. The concentration of the loss 'within a fifteen foot square' may suggest regular smelting activity in the early medieval period, as might be expected from reasonably available raw materials. The extent of the information accessible even in a find so divorced from a fully significant context serves to underline the vital importance of instant reporting and proper specialist investigation. This applies especially to all aspects of metal objects, as well as any associated material (ie minerals/ores, crucibles, moulds, slags, and remains of hearths, furnaces and fuels). We all know that this kind of occurrence is part of the continuing background to life in the locality and look forward to many more, and more securely 'fixable', finds to come.

15A Belsize Square, London NW3 4HT

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Appendix 1, Descriptions of surfaces of Ingots (a) and (b) by R D Penhallurick

(Penhallurick 1986, Fig 133; not analysed)

Examined 14.9.94

(a) (Section 1 above, Block 3). Underside: central area pale grey spotted with black metallic inclusions—at first thought to be charcoal, but not. SSE of centre is a small oblong depression, 10mm long which might have been left by a charcoal fragment. SSW of centre is a minute pale greyish white quartz pebble, presumably left in an unclean mould. Being rounded it cannot have been a fragment of a granite mould, but one would not like to say whether any of the moulds were of stone or sand.

Topside: depressed towards centre but most of surface pretty smooth; to one side a section stands proud with a rough surface partially cracked. The whole mid to dark grey.

(b) (Section 1 above, Block 1). Underside: rough feel like very coarse sandpaper, but irregularities small. Colour varying from pale grey to dark grey.

Topside: section forming right end ($\sim \frac{1}{4}$) stands proud, uneven with some cracks; gives impression of tin being 'splashed' in here and migrating to cover rest of area, with arcuate lines over much of it, rather like ripples on pond (cf ingot II, 5 above)—even so, this fairly smooth.

Decoding Cornish churchyards

ANN PRESTON-JONES

This article was originally published in The early Church in Wales and the West, editors Nancy Edwards and Alan Lane, Oxbow Monograph 16, Oxford, 1992. We are grateful for permission to make it available to a wider Cornish audience.

In Cornwall, it is traditionally held that the typical church site was founded at the beginning of the Dark Ages, by a holy person who is often said to have travelled from Ireland, borne by some outlandish form of transport. A martyrdom or some miraculous event is frequently invoked to explain the often peculiar choice of site for the saint's foundation. That foundation is usually said to have been a small monastery containing initially a tiny wattle or wooden chapel and a few cells for the monks. Of course, nothing now remains of the monastery: the hoary, lichen-covered, ancient-looking churchyard cross is generally pointed out as the only tangible remnant of the Dark Age foundation. More recently, archaeology has added a new element to this tradition. A curving churchyard wall is now claimed to represent the boundary of the early monastic enclosure, or *lann*.

The purpose of this paper is to look in detail at the churchyards of Cornwall, to see exactly how many are curvilinear, and to see whether it is possible to substantiate the claim for a very early (ie fifth to seventh century) origin which most church sites boast. It will be shown that there are indeed a large number of church sites which probably did begin as early, possibly monastic, enclosures, but there are also many which, although still pre-Norman in origin, did not. The purpose of this paper is to look in detail at the churchyards of Cornwall, to see exactly how many are curvilinear, and to see whether it is possible to substantiate the claim for a very early (ie fifth to seventh century) origin which most church sites boast. It will be shown that there are indeed a large number of church sites which probably did begin as early, possibly monastic, enclosures, but there are also many which, although still pre-Norman in origin, did not. The fact that by no means all sites fit with the traditional view had already been indicated over twenty years ago by Charles Thomas's excavations at Merther Euny, the site of a chapel with a small oval yard (Thomas 1968a; 1968b). This was shown to have been founded in about the tenth century, and therefore 500 years after the adoption of Christianity in Cornwall.

In the first part of this paper, churchyard plans will be examined and the evidence for their dating and nature in the early medieval period discussed. Then, by comparing churchyard shapes with other types of evidence, an attempt will be made to distinguish the different types of site. Those which may have originated as very early enclosures or *lanns* will be discussed in detail. Finally, the evidence will be drawn together into an archaeological framework which is in effect a model for the development of the church in early medieval Cornwall.

Churchyard shape

Churchyard plans are the primary source of information, though they do not take the dating of a churchyard boundary back very far. The Ordnance Survey's 1:2500 maps provide a full and comparable series and before this, the Tithe Award plans of c 1840 provide the only complete coverage, though at scales varying from two to eight chains per inch. A number of sites (45) have plans at a useful scale for an earlier date, the earliest known to me being a couple of plans in Lord Burghley's maps of c 1580 (BM MS Royal 18 DIII) and estate surveys by Joel Gascoyne of the late 17th century (The 'Lanhydrock Atlas').

Thus, the cartographic evidence may, exceptionally, take the dating of a churchyard boundary back 400 years: 150 years is more common. But this is only a small portion of the life of any church site; so how can it be shown whether the 19th-century boundary follows the line

of the later medieval, or even early medieval graveyard? Firstly, there is the simple probability that the consecrated area will have been preserved, so long as it remained a living part of the countryside, with an active graveyard. Secondly, the cartographic evidence coupled with fieldwork, shows that at least 50% of churchyards have been altered or extended since the mid-19th century, whereas less than 10% appear to have been altered before then. This suggests that the population dynamics and sheer mechanical ability of the last 150 years have wrought changes which would previously have been unthought of, unnecessary, or impossible. With

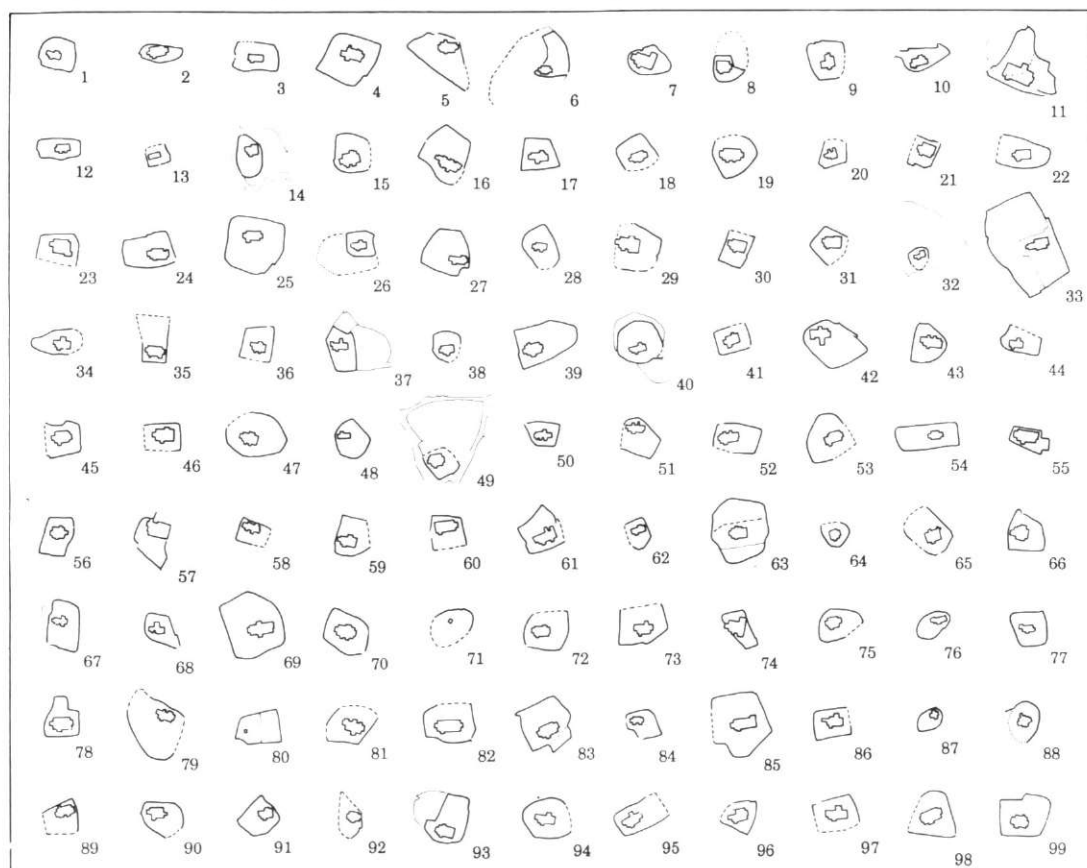


Fig 1 Plans of all Cornish churchyards: a) 1 Advent; 2 St Agnes; 3 St Allen; 4 Altarnun; 5 Antony; 6 St Anthony in Meneage; 7 St Austell; 8 St Blazey; 9 Blisland; 10 Boconnoc; 11 Bodmin; 12 Botus Fleming; 13 Boyton; 14 Braddock; 15 Breage; 16 St Breock; 17 St Breward; 18 Budock; 19 St Buryan; 20 Caerhayes, St Michael; 21 Callington; 22 Calstock; 23 Camborne; 24 Cardinham; 25 St Cleer; 26 St Clement; 27 St Clether; 28 Colan; 29 St Columb Major; 30 St Columb Minor; 31 Constantine; 32 Cornelly; 33 Crantock; 34 Creed; 35 Crowan; 36 Cubert; 37 Cuby; 38 Cury; 39 Davidstow; 40 St Dennis; 41 St Dominick; 42 Duloe; 43 Egloshayle; 44 Egloskerry; 45 St Endellion; 46 St Enoder; 47 St Erme; 48 St Erney; 49 St Erth; 50 St Ervan; 51 St Eval; 52 St Ewe; 53 Feock; 54 Forrabury; 55 Fowey; 56 St Gennys; 57 St Germans; 58 Germoe; 59 Gerrans; 60 St Gluvias; 61 Gorran; 62 Grade; 63 Gulval; 64 Gunwalloe; 65 Gwennap; 66 Gwinear; 67 Gwithian; 68 Helland; 69 Helston; 70 St Hilary; 71 Illogan; 72 St Issey; 73 St Ive; 74 St Ives; 75 Jacobstow; 76 St John; 77 St Juliot; 78 St Just in Penwith; 79 St Just in Roseland; 80 Old Kea; 81 Kenwyn; 82 St Keverne; 83 St Kew; 84 St Keyne; 85 Kilkhampton; 86 Ladock; 87 St John; 88 Landewednack; 89 Landrake; 90 Landulph; 91 Laneast; 92 Lanhydrock; 93 Lanivet; 94 Lanlivery; 95 Lanreath; 96 Lansallos; 97 Lanteglos by Camelford; 98 Lanteglos by Fowey; 99 Launcells

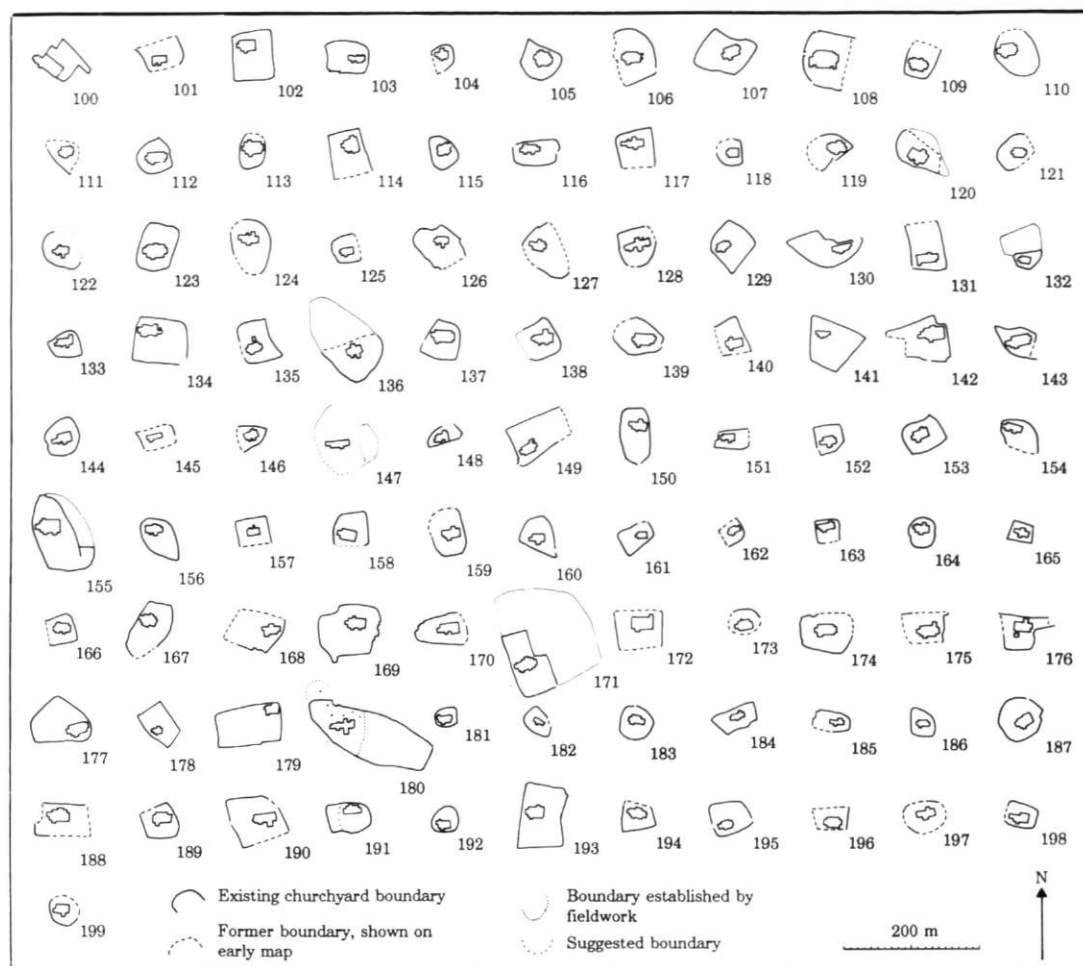


Fig 1b) 100 Launceston, St Mary Magdalene; 101 Lawhitton; 102 Lelant; 103 Lesnewth; 104 St Leven; 105 Lewannick; 106 Lezant; 107 Linkinhorne; 108 Liskeard; 109 Ludgvan; 110 Luxulyan; 111 Mabe; 112 St Mabyn; 113 Madron; 114 Maker; 115 Manaccan; 116 Marhamchurch; 117 St Martin by Looe; 118 St Martin in Meneage; 119 St Mawgan in Meneage; 120 St Mawgan in Pydar; 121 Mawnan; 122 St Mellion; 123 Menheniot; 124 St Merryn; 125 Merther; 126 Mevagissey; 127 St Mewan; 128 St Michael Penkevil; 129 Michaelstow; 130 Minster; 131 St Minver; 132 Morvah; 133 Morval; 134 Morwenstow; 135 Mullion; 136 Mylor; 137 St Neot; 138 Newlyn; 139 North Hill; 140 North Tamerton; 141 Otterham; 142 Padstow; 143 Paul; 144 Pelynt; 145 Perranarworthal; 146 Perranuthnoe; 147 Perranzabuloe; 148 Little Petherick; 149 Phillack; 150 Pilleigh; 151 Pillaton; 152 St Pinnock; 153 Poughill; 154 Poundstock; 155 Probus; 156 Quethiock; 157 Rame; 158 Redruth; 159 Roche; 160 Ruan Lanihorne; 161 Ruan Major; 162 Ruan Minor; 163 St Samson Golant; 164 Sancreed; 165 Sennen; 166 Sheviok; 167 Sithney; 168 South Hill; 169 South Petherwin; 170 St Stephen in Brannell; 171 St Stephen by Launceston; 172 St Stephen by Saltash; 173 Stithians; 174 Stoke Climsland; 175 Stratton; 176 Talland; 177 St Teath; 178 Temple; 179 St Thomas by Launceston; 180 Tintagel; 181 Towednack; 182 Tremaine; 183 Treneglos; 184 Tresmeer; 185 Trevalga; 186 Trewen; 187 St Tudy; 188 Tywardreath; 189 St Veep; 190 Veryan; 191 Warbstow; 192 Warleggan; 193 Week St Mary; 194 Wendron; 195 St Wenn; 196 Whitstone; 197 St Winnow; 198 Withiel; 199 Zennor

hindsight, there is also the evidence of the enclosures themselves. The fact that they do fall into distinct groups and types (as will be shown below) suggests that the plans derived from maps do, to a large extent, correspond to the form of the original enclosures. In one instance excavation has demonstrated that a modern churchyard wall follows an old line (Preston-Jones 1987).

The resultant collection of over 200 churchyard plans is almost bewildering in its variety (Fig 1). Some churchyards are unquestionably square or rectangular, others certainly are round or oval, but the majority fall somewhere in between, with sub-rectangular, triangular, trapezoidal and parallelogram-like shapes. The sizes vary too, the smallest being 0.05 ha and the largest over 0.9 ha. The average is approximately 0.28 ha.

Location

Location, like enclosure shape, is a variable applicable to all churches, unlike many of the other features to be discussed below. This makes it very useful; but as with shape, there are as many different locations as there are church sites, and classification can therefore be difficult and subjective. However, a few broad categories which cover most options have been selected. These are valley bottom, valley head, valley side, plateau or hilltop, and spur.

Dating a church site

Before looking in more detail at the physical characteristics of Cornish church sites, it is useful to establish how many actually have some form of dating evidence to support the tradition of a pre-Norman origin. The dating evidence takes many forms, including documentation, sculpture, inscriptions, place-names and dedications. The various types of evidence also help to define groups against which churchyard shape and location can be compared, to see whether any significant correlations exist.

Domesday Book

First, there is the retrospective evidence of Domesday Book, which lists a number of small Cornish religious houses as land-holders in 1086 (Thorn 1979; Taylor 1924). For example, it states that *Canonici Sci Achebranni tenent Lannachebran*, 'the canons of St Achebran hold the lann of Achebran'. Canons of St Probus, St Piran, St Carantoc, St Berion, St Niot, St Constantine, St German, St Petroc, St Stephen and St Michael are all referred to as landholders in the same way. In her recent book on *Early Monasteries in Cornwall*, Olson (1989) has shown that features in the entries for most of the Cornish religious houses in Domesday Book imply a pre-Norman Celtic origin. Altogether 13 religious houses are documented in this way: they represent 7% of Cornish church sites.

Domesday Book also implies, but does not actually mention, the existence of a church in the names of secular manors such as *Hecglostudic*, 'the church of St Tudy', and *Heglosenuder*, 'the church of St Enoder'. Other secular manorial names like *Scanct Mawan* (St Mawgan) and *Landelech* (Landulph) also suggest estates of ecclesiastical origin or estates taking their names from nearby ecclesiastical sites. Eighteen manors have names of this sort.

Pre-Norman Documentation

A handful of Cornish church sites are mentioned in pre-Norman documentary sources. With two important exceptions, these derive from an Anglo-Saxon background and consist mainly of charters. Two secular estates whose names betray an ecclesiastical origin (Lamorran, and Lanlawren) are granted, and there are five charters known in which land is granted to pre-existing Cornish religious houses (St Buryan, St Kew, St Germans, ?St Michael's Mount, Lansallos: Birch 1885-93, 785, 1231; Finberg 1963, 42, 78, 84, 87, 99; 1969, 268-73; Kemble 1839-48, 914; Padel 1978). In addition, there are grants of eight estates, not apparently of ecclesiastical origin, which by at least the Norman period had a church at the manorial centre. A variety of other sources mention five other church sites: King Alfred prayed at the church of St Gueriir (Stevenson 1904, Ch 74), Bishop Kenstec issued a profession of obedience to

the Archbishop of Canterbury from a monastery called *Dinuurrin* in 833-870 (Birch 1885-93, 527), St Petroc's Stow was ravaged by Vikings in 981 (Plummer 1892-9, I.124), there was a mint at Launceston, possibly from the reign of Edgar (Carlyon-Britton 1906, 1908; Dolley 1961, 146, 151); and manumissions were recorded in the Bodmin Gospels from 941-946 (Finberg 1963, 19).

One of the exceptions is a 10th-century list, in Old Cornish, of 48 names, of which 21 can confidently be recognised as the patron saints of Cornish parish churches. Apart from providing documentation for a number of sites which are not otherwise recorded until the 11th- or 12th-century, the List's importance is in its hint that in some parts of Cornwall the structure of the medieval parochial system was already in existence by the 10th century (Olson and Padel 1986). The earliest source is the Life of St Samson which refers to the *monasterium quod Docco vocatur*—that is, St Kew near Wadebridge—as a community which, when Samson was passing through Cornwall in the 6th century, had already been in existence long enough to have suffered a decline in standards of religious practice (Olson 1989, 14-15; arguments on the dating of the Life of Samson are summarised by Davies 1982, 215).

Early Architecture

No Cornish parish church is certainly known to incorporate pre-Norman architectural remains, although this has been suggested for two sites (Tintagel: Canner 1982, 10; Cox 1912, 226; St Germans: *ibid.*, 107; Miles Brown 1973, 86). Early buildings only survive where, as at Gwithian or Perranzabuloe, they have been abandoned to encroaching dune sand (Thomas 1964; Tomlin 1982). But in these cases, the circumstances leading to their preservation have rendered them useless for present purposes, as the sand entirely masks the morphology of their associated enclosures. The dearth of early architecture, and the small size of the surviving examples perhaps reflects the insubstantial nature of Early Medieval Cornish churches.

Pre-Norman Sculpture

Although stone crosses are ubiquitous in Cornwall (there are over 500), only about 13 church sites can claim early sculpture in support of a pre-Norman origin. It is impossible to be precise, as dating Cornish crosses is notoriously difficult and has only once been seriously attempted (Thomas 1978). The reason is partly that very few have diagnostic, datable features. The range of dates which has been (soberly) suggested extends from the 8th century (Langdon 1896, 17-20) to the 15th (Thomas 1967, 98), but the earliest supportable date is the late 9th century for the St Neot and Doniert crosses (Langdon 1896, 377-79, 405-7). Tall ring-headed, interlace- and vinescroll-carved crosses, showing influences from Wales and Devon, seem to start the series (Preston-Jones and Rose, 1986, 159) but it is clear that this style of cross was still being carved in Norman times (eg Langdon 1896, 17-18, 387).

Early Christian Memorials

Approximately 32 Early Christian inscribed memorial stones are published for Cornwall, of which 16 can be associated with a church site (but at only 14 church sites; Macalister 1945; Tangye 1985). They are generally dated to between the 5th and 7th centuries (Jackson 1953, 160) and when they occur at a church site can probably be regarded as positive evidence for that site's early use. There is little evidence in Cornwall for the wholesale removal of these stones to the church from the surrounding countryside. (The stones at St Clement and Southill were found outside, but very close to, the churchyards they now occupy and are therefore considered to have been associated with their respective church sites at an early date.) The idea of erecting these memorials is believed to have come to Cornwall from Wales (Thomas 1957-8, 64); those with ogam or an Irish personal name reflect the presence in Cornwall of Irish settlers, in all probability from Wales, not direct from Ireland (Thomas 1957-8, 64; Thomas 1972, 257-60; Olson 1989, 36-40, 48).

Place-names

Numerically, place-name elements are the most important evidence for pre-Norman church sites. Four ecclesiastical elements are particularly relevant in Cornwall, namely *lann*, *eglos*, *merther* and Old English *stow*. Other elements which occur are *mynster*, 'endowed church', *plu*, 'parish', *meneghy*, 'sanctuary', **log*, 'chapel', and OE *cirice* 'church': but these are found in such small numbers that they are of little use for present purposes. All the place-name elements have been fully discussed by Padel (1974; 1976-7; 1985; 1989).

The precise meaning of *merther* in Cornwall is uncertain. Derived via Latin *martyrium* from Greek *martyrion* meaning 'place possessing a martyr's physical remains' (Thomas 1971, 89), it has been explained for Cornwall as 'a place where the actual physical relics of a saint (originally a martyr, one who suffered for Christ) are preserved' (Thomas 1967, 47) or more economically 'saint's grave' (Padel 1985, 164). But this is despite the acknowledged fact that only one of the nine *merther*-named places in Cornwall is said to have possessed a shrine, while three other *merthers* are dedicated to saints whose relics were said to be elsewhere. A preferred explanation of the term will be described below.

The status of *eglos*, 'church', is uncertain. While it could be used to name a very early site, the word also remained current in Cornish until the language died out. When it ceased to be used as a name-forming element is not known. Even the precise meaning of *eglos* at any early date is uncertain. The term would seem to imply the presence of a significant building at a site, but exactly how a place called *eglos* differed from a *lann*, and whether or not it implied a monastic site, is unknown. At a later date one, St Buryan (*Eglosberrie*, 1086) had a religious community, but the evidence to be discussed below suggests that on the whole *eglos* seems to have been used to name places of possibly later origin and different type to *lann*.

Oliver Padel has shown that the use of *eglos* with a descriptive element to make a true place name goes back to an early period. Egloshayle in Maker must have been named before the 10th century (Padel 1985, 91), and one of the two other Egloshayles (Phillack) has monumental evidence indicating a particularly early foundation (Thomas 1963). Many of the instances recorded where *eglos* is combined with a saint's name are not considered to be place-names proper, but phrases in the Cornish language referring to a church site, which could be coined at any time (Padel 1976-77, 24). Amongst the latter, however, are a handful which can be regarded as true place-names since they are recorded as the names of estates or manors. The Domesday manors of *Hecglostudic* and *Heglosenuder* are examples which have already been referred to. These plus the descriptive *eglos* names give a total of 15 church sites which can be examined as a group.

On the other hand, *lann* is a demonstrably early element which may have gone out of use at a relatively early date (Padel 1976-77, 25). As the distribution map of the element (Fig 8) shows, there are several examples in East Cornwall, which were probably formed before the English incursions over the Tamar and therefore probably before the 8th or 9th century. The development of this originally secular word from British *landa* is discussed by Roberts (1992, 43-4). When first used in a Christian context, *lann* probably meant simply 'enclosure'. Thomas's (1971, 85-87) explanation of the term as 'enclosed cemetery' is, as Padel (1989, 191) has pointed out, probably too narrow, giving weight to what may have been only one aspect of a site. In Cornwall, the earliest written evidence for the meaning of *lann* appears in the possibly 7th-century Life of Samson, where the place known from later documents as *Landochou* is rendered in Latin as *monasterium quod Doeco vocatur* (Olson 1989, 14); but it is easy to see how, if the early enclosure sometimes defined the precinct of a monastic community, the word might acquire the meaning of 'monastery'. In a rather later (early 14th century) source, which presumably reflects the medieval interpretation of a word which by then was obsolete in the Cornish language, *lann* is translated as *cimiterium* (Grosjean 1956, 153). *Lann* never acquired the meaning of 'church building' as it did in Wales.

The significance of *lann* in names referring to church sites is that it is liable to imply the existence of an early religious enclosure whose form, as Charles Thomas (1967, 45-46) has suggested, may be reflected in the modern churchyard boundary. Approximately 25% of Cornish

church sites have a name in *lann*.

Old English *stow*, 'church', is important because it is clear that in Cornwall, as in Wales, it could replace an earlier name in *lann*. For example, St Martin by Looe is attested as both *Lancoff* and *Martistowe* in early records (Padel 1989, 116; and information from W M M Picken, via Oliver Padel). Gelling (1980, 189-90) suggests that *stow* could also be significant in denoting a church with a shrine, and this is certainly the case in some of the Cornish instances.

Dedications

Sixty-five percent of Cornish church sites are dedicated to shadowy figures with Celtic names. The remainder, mainly in the east of Cornwall where English influence was strongest and earliest, are dedicated to universal saints like the Archangel Michael, who is the most popular and is the patron saint of the whole county, the Virgin Mary, and the Evangelists.

The Celtic dedications need to be carefully evaluated, as not all are of very early origin, nor are they all undoubted saints. Firstly, it is clear that not all dedications go back to the earliest days of Christianity. Gerrans church, for example, is said to be dedicated to Gerent, an early 8th-century Cornish king (Doble 1938). Secondly, not all dedications are derived from personal names. In a number of cases, early forms of the name suggest that the 'saint' has been invented from a place-name. Saints Tallan, Kenwyn and Ludgvan are likely examples (Padel 1989, 23, 102, 160). At St Dennis, a universal saint has arisen from the place-name *dynas*, 'fort' (Henderson 1925, 85). Finally, Pearce has suggested that many dedications to Celtic saints in Cornwall and the South-West may be relatively late, and based on English and Norman interest in the saints and their relics (Pearce 1973; 1978, 124-28). This is not the place to contest this hypothesis, which may have an element of truth in it and may be applicable elsewhere; but it is difficult to accept, for example, that the dedication to Winwaloe at Landewednack is related to the acquisition by Exeter and Glastonbury of relics of Winwaloe in the 10th century since the site and name of Landewednack, which combines *lann* with the pet-form of Winwaloe, **To-Winnoc* (Padel 1976-77, 17-18), is probably of pre-10th century origin. With these qualifications in mind, I am generally prepared to take most Celtic dedications in Cornwall at face value—that is, as originating in a Cornish Christian context at some time in the pre-Norman period—though they need not all be particularly early. The 10th-century list of Saints' names, mentioned earlier, provides unique confirmation of the antiquity of a number of Cornish dedications which would otherwise rest on tradition or late record alone.

Celtic dedications in Cornwall may be divided into two types. The first are dedications to saints who are of some renown and found in more than one Celtic country. Samson, Winwaloe, Carantoc, Cuby and Mawgan are examples. For convenience, these will be referred to below as 'inter-Celtic' saints. In contrast, many Cornish churches are dedicated to completely obscure individuals associated with only one or occasionally two churches in Cornwall and nowhere else. In instances where a parallel dedication occurs at only one site abroad, it seems simplest to assume a coincidence of name, rather than a dedication to the same individual, unless there is good evidence to the contrary.

Analysis

The various forms of dating evidence described above combine to suggest that the majority of Cornish church sites are of early medieval origin. But pre-Norman Christianity spanned a period of over six centuries, during which time the religion and its institutions were not only born, but also grew, matured and no doubt changed. Therefore sites differing in function, date, status and complexity are to be expected and the variety in Cornish churchyards suggests that these differences may have a physical reflection. This possibility will be explored next.

In Fig 2, the relationship between the topographical and other features of all church sites in Cornwall likely to be of early medieval origin is presented graphically. All the different types of evidence described above are listed along the two axes (apart from dedications, which will be dealt with separately) and the relationship between each group is then expressed as a percentage in the table. The purpose of this is to quantify any important correlations and

	Number in group	% All churches	Average size of enclosures	% in valley bottom	% in valley head	% on valley side	% on spur	% on hilltop/ plateau	Domesday monasteries	% Direct Pre- Norman ref.	% Indirect Pre- Norman ref.	% Saxon period monument	% Inscribed stone	% LANN	% EGLOS	% MERKER	% STOW	% Mother church	% Chapelry	% Rectangular	% Sub-rectangular	% Oval	% Round	% Sub-round
All churchyards	193	100	.66	22	15	25	19	19	7	7	6	7	7	24	15	3	4	14	18	14	16	27	9	12
Churchyards on valley bottom	43	22	.73	100	-	-	-	-	9	11	2	7	7	54	4	-	7	18	14	2	19	44	-	9
Churchyards in valley head	29	15	.54	-	100	-	-	-	7	10	3	7	7	31	14	0	7	14	24	7	17	38	7	17
Churchyards on valley side	47	25	.6	-	-	100	-	-	4	2	9	6	6	17	6	2	2	4	21	30	13	17	13	9
Churchyards on spur	36	19	.75	-	-	-	100	-	3	0	6	6	11	19	22	3	3	17	11	9	23	23	17	11
Churchyards on hilltop/plateau	36	19	.7	-	-	-	-	100	3	3	11	3	6	11	28	8	0	17	19	19	11	17	8	17
Domesday monasteries	13	7	1.1	39	15	15	15	8	100	54	8	31	8	77	8	0	15	31	0	9	27	36	9	0
Churches with Pre-Norman ref. (Direct)	14	7	.98	55	27	9	0	9	64	100	0	29	7	50	7	0	14	29	7	10	20	60	10	0
Churches with Pre-Norman ref. (Indirect)	12	6	.67	9	9	36	9	36	0	0	100	0	0	36	0	0	0	17	0	64	18	9	0	0
Churches with Saxon period monument	13	7	.80	23	15	39	15	8	31	23	8	100	39	46	23	0	15	39	8	15	23	15	15	0
Churches with inscribed stone	14	7	.75	21	14	21	36	-	7	7	0	36	100	50	29	7	0	14	0	7	36	14	7	21
LANN	47	24	.76	42	17	19	15	8	16	14	8	12	14	100	6	0	4	20	14	2	26	40	2	9
EGLOS	30	16	.65	7	17	17	27	33	3	3	0	10	13	10	100	7	0	20	3	17	17	17	20	10
MERKER	6	3	.51	-	-	34	17	49	0	0	0	0	17	0	29	100	0	0	43	0	17	17	0	50
STOW	8	4	.77	38	25	25	12	-	25	25	0	13	0	25	0	0	100	13	13	13	13	13	13	13
Mother church	26	14	.91	31	15	8	23	23	23	15	8	19	8	38	23	0	4	100	0	12	19	27	15	4
Chapelry	34	18	.43	18	21	29	11	21	0	3	0	3	-	21	6	9	3	0	100	15	3	21	15	15
Rectangular enclosures	27	14	.62	4	7	52	11	26	4	4	26	7	4	4	19	0	4	11	19	100	-	-	-	-
Sub-rectangular enclosures	31	16	.84	26	16	19	26	13	10	3	7	10	16	39	16	3	3	16	3	-	100	-	-	-
Oval enclosures	52	27	.82	37	21	15	15	12	8	4	4	4	4	37	10	2	2	14	14	-	-	100	-	-
Round enclosures	17	9	.48	12	0	35	35	18	6	6	0	12	6	6	35	0	6	24	29	-	-	-	100	-
Sub-round enclosures	23	12	.51	17	22	17	17	27	0	0	0	0	13	17	13	4	13	4	22	-	-	-	-	100

Fig 2 Table showing the occurrence of churchyards with various features and their locations

to facilitate comparisons. For example, looking down the 'average size of enclosure' column, it is immediately apparent that mother churches have, on average, much larger enclosures than their chapelries, but the group with the largest enclosures of all are those for which communities are recorded in Domesday Book. Looking down the 'oval enclosures' column, we discover that altogether 27% of Cornish churchyards could be so-described, and that 37% of oval churchyards have a name in *lann*. Moreover, this stands out as one of the most significant features of oval churchyards, apart from a location in a valley bottom (also 37%). Looking at it in another way (ie along the *lann* line) it appears that 40% of churchyards with a name in *lann* are oval, and while only 14% of *lanns* have evidence of an early origin in the form of an early Christian inscription, these few actually account for half of the inscribed stones in churchyards. Already, then, it appears that there may be some correlation between a place-name in *lann* and a curvilinear enclosure, and there is reason to believe that at least a few of the enclosures belong to the first centuries of Christianity in Cornwall.

But, as suggested above, it is probable that not all church sites in Cornwall originated as *lanns*. Those which are almost certainly not *lanns* will be examined first, before returning to describe the *lanns* in greater detail.

Post conquest church sites

Post conquest sites include churches associated with towns and priorities of Norman origin, a foundation of the Knights Templar (Temple, on Bodmin Moor) and Lelant and Gwithian, two early foundations rebuilt in new locations following inundation of their original sites by blown sand (Thomas 1963; 1964). As Fig 3 shows, all of these have regular, rectilinear enclosures which suggest that by Norman times at least, it was not the rule to construct a curvilinear churchyard.

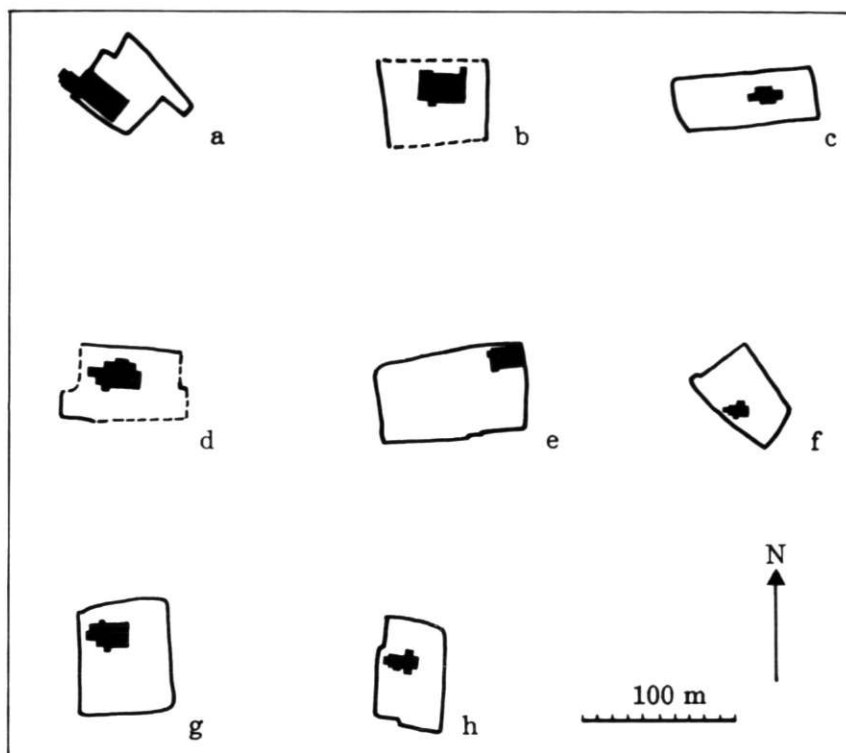


Fig 3 Churchyards of probable post-Norman Conquest origin: a) St Mary Magdalene, Launceston; b) St Stephen by Saltash; c) Forrabury Church, Boscastle (church sites associated with Norman castles and towns); d) Tywardreath; e) St Thomas by Launceston; f) Temple (church sites associated with post Conquest establishments); g) Lelant; h) Gwithian (early Christian foundations on 'new' sites)

Rectilinear churchyards

Apart from the definitely post-Norman Conquest sites, there are 27 examples of rectilinear churchyards in Cornwall. The distribution map (Fig 4a) shows that they fall into two distinct groups: one in East Cornwall, the other in the West. The two groups will be dealt with separately, taking those in East Cornwall first.

East Cornish rectilinear yards (Fig 4b)

There are several factors which suggest that the church sites in this group may have a late, pre-Norman, Saxon origin. In the first place, their distribution shows marked concentrations in the north-east and south-east of the county—in areas where the density of English place-names is believed to reflect extensive English settlement (Preston-Jones and Rose 1986, 140, fig 3). Secondly, they are, with only one exception, dedicated to universal Saints. Moreover none is associated with an inscribed stone or early sculpture and none have Cornish ecclesiastical names. Maker, Lawhitton (this name probably contains *nans*, not *lann*), Rame and Sheviock

are all associated with important manors donated to English religious houses in Saxon charters (Finberg 1963, 42, 72, 76). Alfred left land at Stratton to his son in his will (Birch 1885-89, 553), and Whitstone, Boyton, Callington and North Tamerton churches are all named after Domesday manors. It is therefore not inconceivable that all these sites represent churches or chapels founded to serve pre-Norman manorial centres. This origin may explain the sites' physical characteristics, for the shape of their rectangular yards, which reflects the shape of the church within, suggests that they are primarily yards designed around a building, rather than enclosures which acquired a major building as a secondary consideration. Also, in common with most secular settlements in Cornwall, these churches are located on valley sides or hillslopes, and not in valley bottoms, in contrast with the *lanns* discussed below.

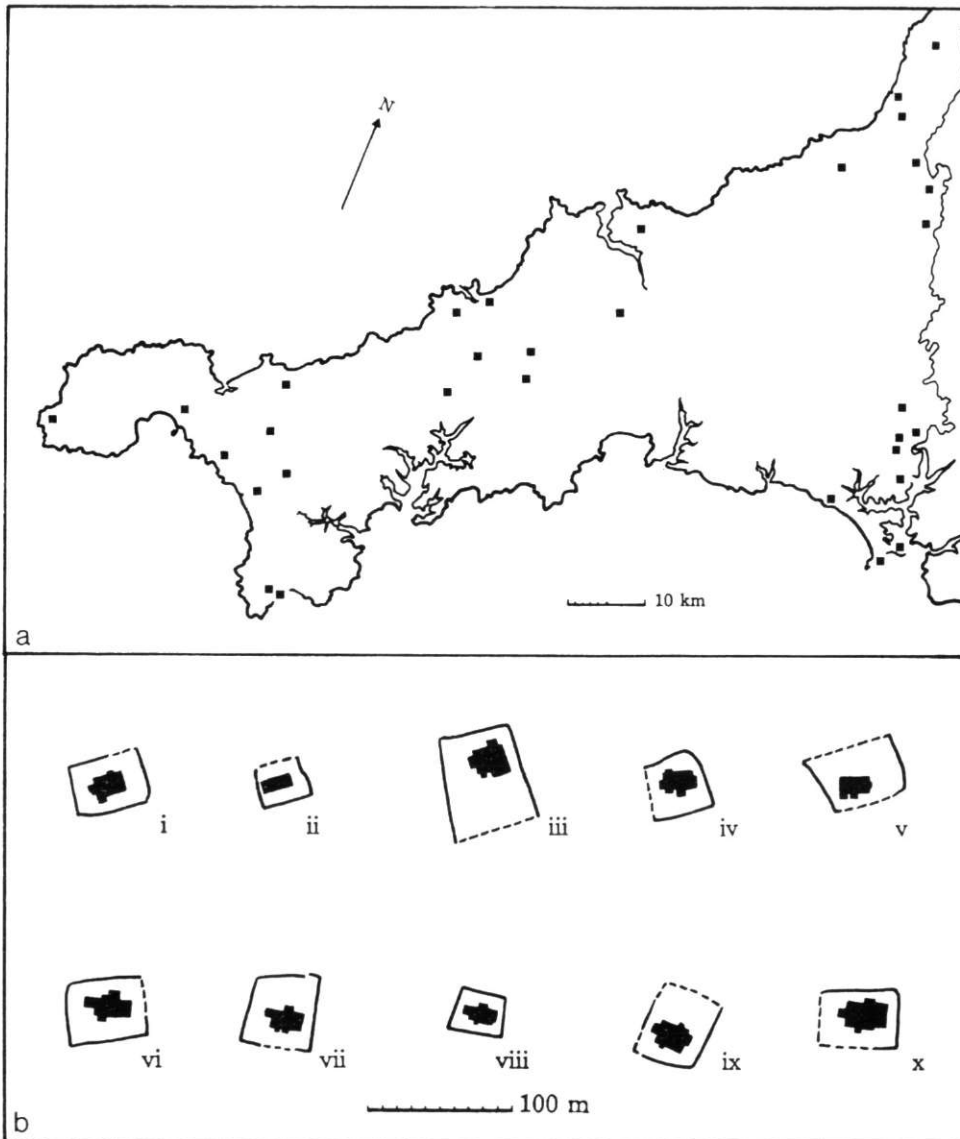


Fig 4 a) Distribution of rectilinear churchyards in Cornwall; b) Plans of selected rectilinear churchyards: i St Dominick; ii Boyton; iii Maker; iv Shevioc; v Lawhitton; vi Ladock; vii Cubert; viii Sennen; ix Ludgvan; x St Enoder

West Cornish rectilinear yards (Fig 4)

Comparison of the physical characteristics of the East Cornish rectilinear yards with those of West Cornwall suggests that the latter could also be of relatively late, pre-Norman origin. The shapes of the churchyards are very similar (for example, compare Boyton with Sennert or St Dominick with Ladock) and they generally occupy similar valley side or upland locations. Their pre-Norman date is supported by the fact that *Heglosenuder*, 'the church of Enoder' is recorded as a manor in Domesday Book (Thorn 1979, 4, 12) and *Latoc* (Ladock) is mentioned in the 10th century List (Olson and Padel 1986, 52); but only one (Cubert) has an inscribed stone and a name in *lann* and hence evidence of a 5th-7th century origin. Half of this group can be associated with a manor but only Ludgvan and Withiel churches are named after the manor; and whereas in East Cornwall the manorial centre and church are usually close together, in the West the two are generally between half a mile and a mile apart. A fact which may point to the initiative for their foundation is that a high proportion of the manors involved were owned in 1066 by St Petroc's church. All of the churches in this group are dedicated to Celtic saints, and several have Cornish ecclesiastical place-names; but the place names are (with the exception mentioned) always in *eglos* and the dedications are mostly to obscure Cornish saints.

In conclusion, comparison of these two groups of rectilinear yards suggests that both could represent relatively late pre-Norman foundations of churches by either secular or lay authorities, but there appear to be differences, which may be cultural, in the way the foundations were made.

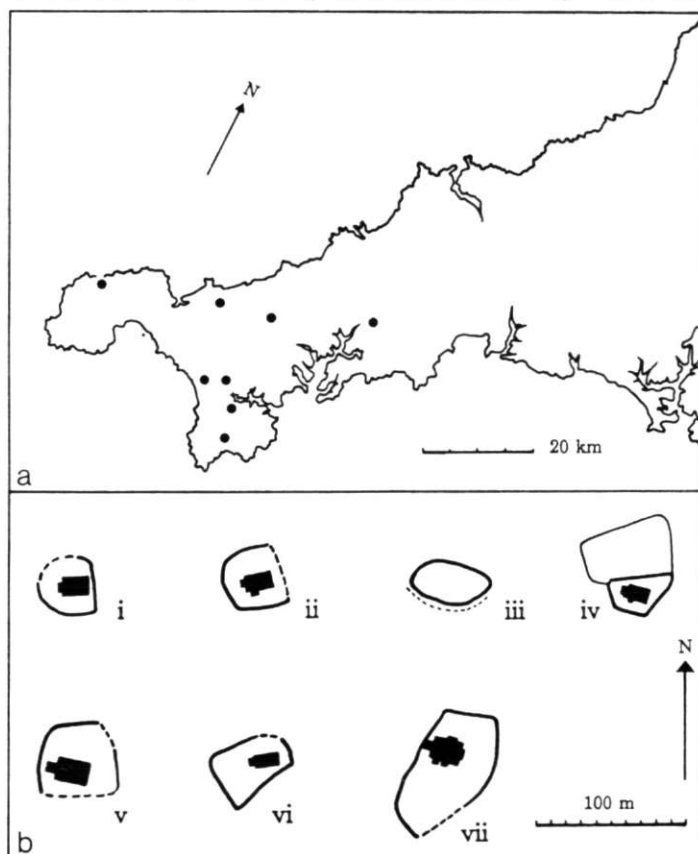


Fig 5 a) Distribution of church and chapel sites with a name in merther

b) Plans of the enclosures at church and chapel sites with a name in merther. i St Martin in Meneage (Merther-anowe (1407) or Merther Mylor 1328); ii Merther; iii Merther Euny; iv Morvah (Merthyr); v Redruth (Merther-euny 1301); vi Ruan Major (Merther 1329); vii Sithney (Merthersitheny 1230)

Merthers and rounds

Another group of church sites may be singled out, on the basis of their place-name and because one in the group has been excavated. The excavated example, which has already been mentioned, is Merther Euny in Wendron. This small oval chapel yard, located on a spur above a deep valley, was dug in the 1960s by Charles Thomas (1968a, 1968b). His excavation showed, contrary to expectation, that the site was not a purpose-built Christian enclosure of early date. Instead, it originated as an Iron Age enclosed settlement or round, which was deserted in the 2nd century AD and not re-occupied for Christian purposes until at least the 10th century.

There are indications that the eight other sites with a name in *merther* may likewise be relatively late; in addition, the form of their enclosures (Fig 5b) and their invariably upland locations indicates that any of the *merthers* could in theory be on the site of an earlier round. As far as date is concerned, the fact that there are no instances of *merther* place-names in East Cornwall where the English were well-established by the time Merther Euny was founded, may be relevant (although Thomas's (1977) suggestion that the use of *merther* was simply a fashion restricted in time and space would also help to explain the westerly distribution). On the other hand, one (Redruth) is associated with a possible Early Christian memorial (Tangye 1985). In common with the West Cornish churches in rectilinear yards discussed above, the majority of *merthers* are dedicated to thoroughly local saints of whom four are traditionally said to have been martyrs, even though only one had a shrine at a *merther*. Thus an alternative meaning for *merther*, more in keeping with the evidence, might be 'chapel (with burial ground) in honour of a locally popular saint or martyr' (cf Henderson 1958, 350). The status implied in the use of the term chapel rather than church to describe these sites reflects the fact that of the nine Cornish *merthers* only three were full parish churches, whereas five were chapels. The site to which the ninth referred is lost. (Note that although nine *merther*-named sites are known in Cornwall, only six have surviving enclosures, enabling them to be dealt with in Fig 5b).

Rounds and churches

Rounds are the typical farming settlements of Cornwall in the Iron Age and Romano-British periods. The settlement of round or oval houses was enclosed by a substantial bank and ditch which is usually curvilinear but sometimes sub-rectangular. Hundreds are known in Cornwall, of all shapes and sizes (Johnson and Rose 1982, figs 2 and 3). Rounds are typically located, like that at Merther Euny, on spurs or prominently on hillslopes. On excavation, some prove to have been occupied into the 6th or 7th centuries (Trethurgy: Miles and Miles 1973; and Grambla: Saunders 1972), and rounds may still therefore have been the predominant settlement type when the earliest Christian sites were being established.

Particularly because of Thomas's discoveries at Merther Euny, it is necessary to consider the possibility that any curvilinear churchyard on a spur or high hillslope could be a re-used round.

St Dennis is one example of a church which is almost certainly sited within an earlier enclosure. It stands on a conical hilltop, within a perfectly circular churchyard (Fig 6(k)) outside which excavation in the 1960s established the existence of a second concentric rampart (Thomas 1965). All these features suggest an Iron Age hillfort, which is confirmed in the name of the site, Dennis being presumably derived from Cornish *dynas*, 'fort'. Thomas's excavation, and another carried out more recently by Cornwall Archaeological Unit after the church had been gutted by fire, failed to locate any evidence for early medieval activity (CAU Annual Report 1985-86, 19-20). It seems more probable that the church was established within the ramparts of the hillfort at around the time of the Norman Conquest, to serve the lords of the nearby Domesday manor of Domellick (C Thomas, pers comm). The name of Domellick (*Dimelihoc*, 1086) presumably also refers to the fort.

The excavation at St Buryan, mentioned earlier, also provided the opportunity to test the theory that curvilinear churchyards in prominent upland locations may be re-using prehistoric settlement enclosures. The excavation was moderately successful in this respect. Behind the 19th-century wall were the remains of three earlier boundaries, of which the earliest was a

stone-faced bank and ditch. A single sherd of Romano-British pottery was found in the ditch silts. Unfortunately, no evidence was found to suggest when the site was converted into a Christian enclosure (Preston-Jones 1987).

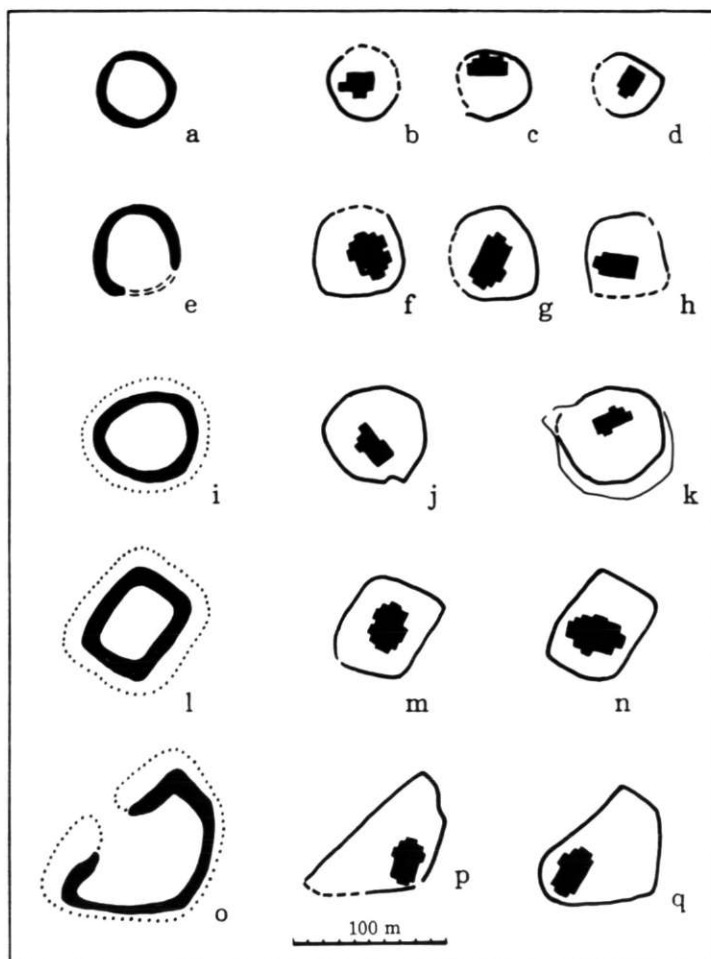


Fig 6 Rounds and churchyards compared: a) Tregullas Round; b) Zennor; c) Warbstow; d) St Martin in Meneage (Merther-anowe, 1407 or Merther Mylor, 1328); e) Trewannion Gate Round; f) Breage (Eglosbrek, 1181); g) St Buryan (Eglosberrie, 1086); h) Redruth (Merther-euny, 1301); i) Castle Fust; j) St Tudy (Ecgllostudic, 1086); k) St Dennis; l) Bosence Round; m) St Hilary; n) Menheniot; o) Crenver Round; p) Antony; q) St Teath.

Plans of rounds derived from Johnson and Rose 1982, fig 3

The possibility that many churches may be occupying pre-Christian earthworks is seen strikingly in Fig 6, where a selection of rounds are compared with a number of curvilinear churchyards. The similarity of form between the two types of site emphasises the fact that any church in Cornwall in a curvilinear enclosure on a spur, hillslope or hill top may have a round or hillfort as a churchyard. The example of Merther Euny, where the round was not re-occupied until about the 10th century, indicates that such churches are not necessarily very early foundations.

In fact, it is notable that very few of the churchyards which could be re-used rounds have evidence of an early origin. Of about 40 potential re-used rounds, only four have a name in

lann and only two have Early Christian memorials—the two memorial stones being at two of the *lann*-named church sites (Lewannick and Madron/Landithy). On the other hand, like the rectilinear yards of West Cornwall, a relatively high proportion (approximately 25%) have a name in *eglos* and most are dedicated to obscure Cornish saints, though there is also a notable group with Breton connections (including Budock, Corentin, Melaine, Clether, Tudy). Two or possibly three of the dedications associated with upland churches in curvilinear yards are recorded in the 10th-century list of saints' names (*Gerent*, *Berion*, *Erbec*: Olson and Padel 1986, 45-49, 86), presumably indicating that the sites concerned were well established by that date.

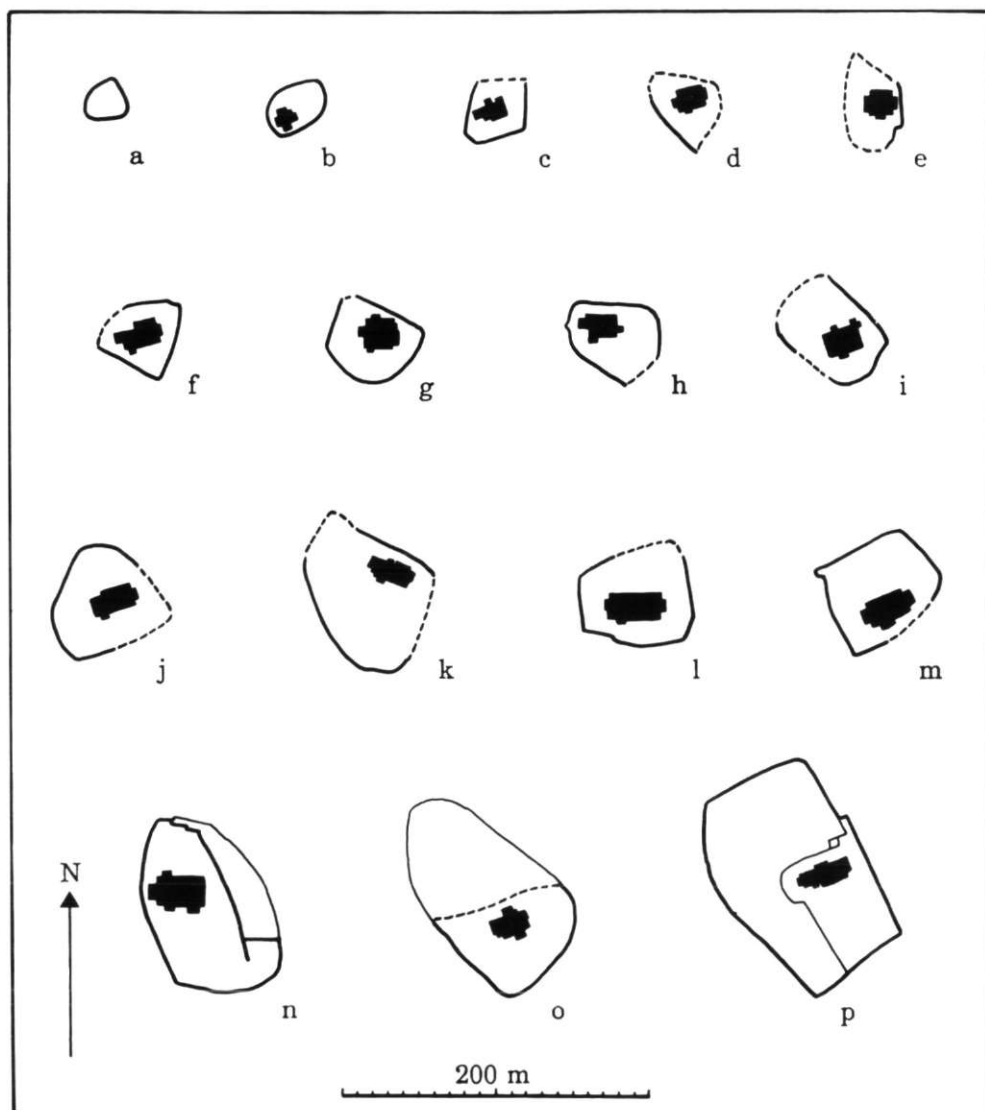


Fig 7 Plans of selected church sites with a name in *lann*: a) Helland, Mabe (*hen lann: non parochial); b) Lamorran; c) St Michael Caerhayes (Lanvyhaill, 1473-8); d) Mabe (Lavabe, 1640); e) Lanhydrock; f) Lansallos; g) Lewannick; h) Landulph; i) Gwennap (Lawenep, 1444; j) Feock (La Feock); St Just in Roseland (Lansioch, 1202); l) St Keverne (Lannachebran, 1086); m) St Kew (Landochou, C10); n) Probus (Lanbrebois, 1086); o) Mylor (Lawithick); p) Crantock (Langorroch, 1086)

Lanns

Up to this point, a total of about 80 church sites have been discussed which, on the whole, need not be of very early Christian origin. It is now time to look more closely at those which may belong to the earlier phases of Christianity in Cornwall: that is, places with a name in *lann*. First, the points which have already been made about *lanns* will be briefly recapitulated.

Lann is found as the name of approximately 50 church sites in Cornwall (see Padel 1976-77, 17-19, for a list) and as the name of a similar number of secular settlements. The place-name is believed to have originally denoted an enclosure, although it later acquired the meanings of monastery and cemetery. It is possible that the shape of churchyards with a name in *lann* actually reflects the form of the original, purpose-built, Christian enclosure. Fig 2 shows that the enclosures of church sites with a name in *lann* are overwhelmingly oval (40%) or subrectangular (26%) and hardly ever truly circular or rectilinear. A selection is illustrated in Fig 7.

The table (Fig 2) also shows that the locations of *lann*-sites are generally very different from those of other groups discussed above, with 42% on a valley bottom and only 8% on a hilltop or plateau. Over 40% are close to creeks, estuaries or navigable waters and they are frequently at excellent natural harbours. Landulph, for example, was formerly at the head of a small creek of the Tamar estuary which in the later medieval period was a flourishing point of embarkation for pilgrim-tourists travelling to Compostella. The 12th century 'Life' of Ke describes Old Kea or *Landegei* as 'the port of Landegu' (Doble 1929, 11); and St Just Pool (St Just in Roseland or Lansioch) 'has been named by competent judges as being in every way adapted for a naval arsenal' (Polsue 1867-72, II, 310). The distribution map (Fig 8) emphasises this. *Lann*-named churches are concentrated particularly around the harbours of the rivers Fal, Helford and Fowey on the south coast, and in the estuaries of the Hayle, Gannel, Camel and Bude rivers on the north.

In fact the combination of an oval or sub-rectangular enclosure and a valley bottom location, possibly near tidal waters, is such a distinctive characteristic of churches with a name in *lann* that for any church with similar attributes but no *lann* name, it seems reasonable to suggest that the *lann* name has been lost. It will be shown below that the postulated loss of a name in *lann* has been more frequent at the less important sites.

Some other features which do not appear to be significant of *lanns* as a whole, when looking along the '*lann*-line' of the table, Fig 2, acquire an enhanced significance when the question is not 'how many *lanns* possess feature x' but instead, 'how many sites with feature x are also *lanns*'? For example, only 16% of *lanns* are recorded in Domesday Book as the site of a religious community, yet altogether 77% of the Domesday communities have a name in *lann*. Similarly, it may be significant that 50% of Early Christian memorials and 46% of Saxon period monuments are at churches with a name in *lann*. Returning to features of location, it is notable that *lanns* are found more frequently in a valley head than any other group—apart from oval churchyards!

Where *lann* occurs in the name of a secular settlement it is generally assumed to denote the former existence of a Christian enclosure which went out of use at an early date, perhaps because the site was not of sufficient importance to acquire full parochial status. Padel (1985, 144) has pointed out that there is a quite remarkable lack of coincidence between non-parochial *lann* names and documented chapel sites, but finds at two have helped to confirm the assumption. Building work at Lanvean in St Mawgan in Pydar uncovered a series of east-west oriented long-cist burials, remains of buildings, and the ditch of an enclosure (Wailes, 1955-56). At Helland in Mabe (**hen-lann*, the 'old or disused *lann*'), a cross, a font, a stoup, and old building materials were found when digging a small, oval, piece of raised ground known as the 'Graveyard' and said locally to be the site of an old Priory (Henderson 1958, 316). Helland is the only non-parochial *lann* where the plan of the enclosure survives (Fig 7): with an area of only 0.05 ha, it is very small indeed.

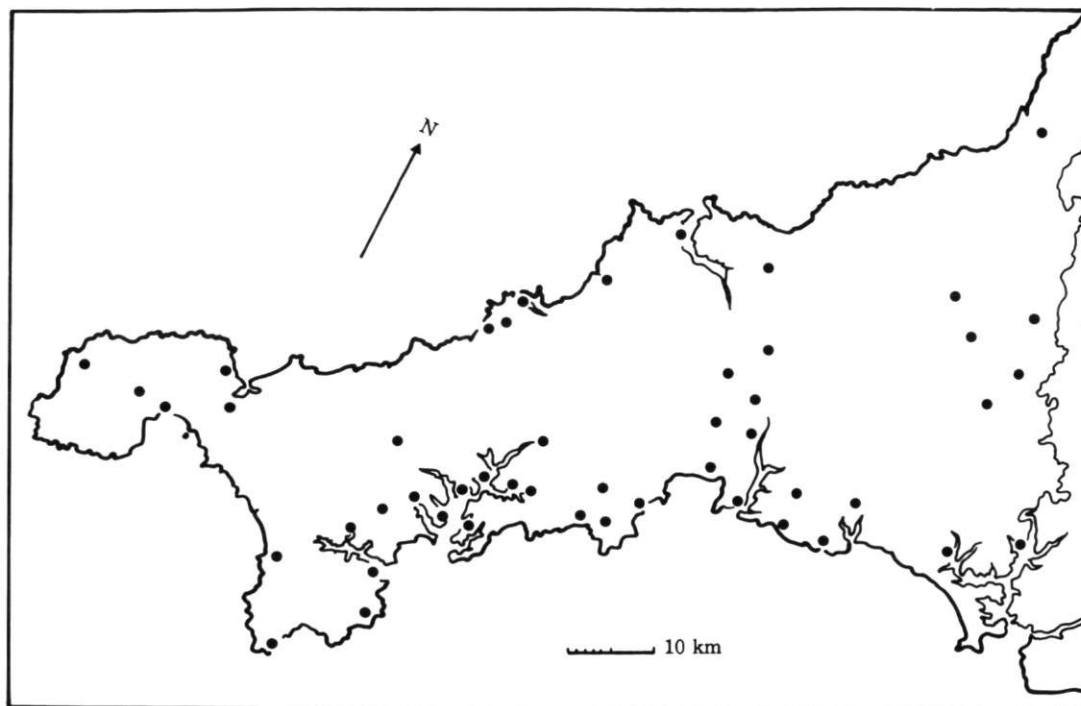


Fig 8 Distribution of parish church sites with a place-name in lann

As the term *lann* could be used to refer to a site like Helland which (at least officially) went out of use before Norman times, or to a community of sufficient importance to be recorded in Domesday Book, considerable variety is to be expected in the individual sites. Thus, although the average area of a *lann* is 0.31 ha, they range from only 0.05 ha to over 0.9 ha; and Figure 7 is also designed to show that on the whole, there is a close relationship between the size of a *lann* and its status. Helland, the non-parochial *lann* described above, has the smallest enclosure. Lanhydrock, Mabe (*Lavabe*) and St Michael Caerhayes (*Lanvyhaill*), *lanns* with smaller-than-average enclosures, are all chapelries. Lewannick is typical of most Cornish churches in that it is neither mother church nor chapelry, and its oval churchyard is very close in size to the average Cornish churchyard of 0.28 ha, though it is slightly smaller than the average *lann*. Like Lewannick, Lansallos (area 0.18 ha) is neither mother church nor chapelry, but it is uniquely documented as a land-owning church in a charter of the time of Athelstan (Padel 1978). The church must have been robbed of its lands soon after, for *Lansalhus* was a secular manor in Domesday Book (Thorn 1979, 5, 3, 7). The churches with the largest enclosures are Mylor (Lawithick) and St Just-in-Roseland (Lansioch), both mother churches, and Probus (*Lanbrebois*) and Crantock (*Langorroch*), both of which had a land-owning religious community in 1086 (Thorn 1979, 4, 24; 4, 25). Later traditions of seven churchyards, seven altars, and a chapel within the graveyard at Crantock suggest that the latter was a particularly complex site (Olson 1982). This relationship between size and status is perhaps not surprising, since *lanns* which are not on spurs or hilltops are likely to be purpose-built enclosures, designed to meet the requirements of their communities for space. The larger the community, the larger the enclosure needed.

It then follows that, if purpose-built and if not remodelled at some stage in their history, the large enclosures are likely to have been sites of importance from their foundation; and the fact that the enclosures of the Domesday communities are, on average, the largest of any group, must imply that only the most important sites retained their land-owning status until

1086. However, there are a few places with large enclosures but no documented significance. Might these also have once housed land-owning religious communities which lost an originally higher status at an early stage? St Anthony in Meneage (for which see Olson 1975), Veryan and Feock would be examples. Equally, might churches with enclosures of comparable size to Lansallos also once have been land-owning and capable of receiving, as an endowment, the estate of another *lann*, as happened at Lansallos?

	Valley Bottom		Valley Head		Valley Side		Near navigable water	
	No (%)	Size (ha)	No (%)	Size (ha)	No (%)	Size (ha)	No (%)	Size (ha)
LANN	54%	0.36	20%	0.33	26%	0.31	64%	0.34
POSSIBLE LANN	38%	0.25	31%	0.18	31%	0.22	42%	0.22

Fig 9 Table showing the percentage occurrence of *lann* sites in various locations

A further aspect to the relationship between *lann* size and status involves location. The table, Fig 9, shows that slight differences exist in the average sizes of sites in different locations, the largest percentage of sites and the largest enclosures being on a valley bottom. In contrast, there are fewer *lanns*, and they tend to be slightly smaller, in more elevated locations, on a valley side or in a valley head. *Lanns* on spurs, hilltops or plateaus are omitted as they could include some re-used prehistoric enclosures. The table also includes possible *lanns*, that is the curvilinear or sub-rectangular churchyards which are not in a location where they might be re-used rounds. The average size of the whole group is smaller than that of the average *lann* (0.22 as opposed to 0.31 hectares): but the relationship of size to location is similar in that the larger enclosures are again on a valley bottom and the smaller ones on a valley side or in a valley head.

A number of conclusions may be drawn tentatively from this. The first is that the sites which have possibly lost a name in *lann* are generally the smaller and less significant ones, in the more exposed topographical locations. Secondly, the choicest location for a *lann* appears to have been a valley bottom, for on the whole, the larger, more important enclosures, are found here. Moreover, the fact that 64% of the *lann*-named church sites considered in Fig 9 with an average size of 0.34 hectares, are also close to navigable waters, suggests that this was also a very favoured option. The relationship is exemplified by Mylor and Mabe churches. Mylor, originally Lawithick, the 'wooded *lann*', sits by the water's edge at an excellent natural harbour in the sheltered Fal Estuary. Its large oval churchyard is now engulfed by the trappings of one of Cornwall's busiest marinas. Mylor is the mother church of Mabe, originally *Lavabe*, which stands 6km inland, on an open hillside at 122m OD, on the edge of a bleak granite upland. Mabe has a small enclosure of only 0.17 hectares. A temporal relationship may also be indicated. Both Mylor and Mabe are *lanns*, and therefore relatively early foundations. But probability suggests that the first to be founded was Mylor, with Mabe established somewhat later, perhaps as a daughter house to serve a remote rural area.

Dedications are also intertwined in these size/status relationships. It was mentioned earlier that Celtic dedications may be divided into two types, namely the purely local saints and the 'inter-Celtic' saints—ie those found in other Celtic countries. It was also observed that the local saints are frequently associated, in West Cornwall, with churches in rectangular yards, or churches possibly in re-used rounds, occasionally with a name in *eglos* or *merther*. A small proportion of the churches which may be in re-used rounds are dedicated to Breton saints. But when looking at dedications associated with *lanns*, a rather different pattern emerges. In the first place, although dedications to Cornish saints are in the majority, there is nonetheless a substantial proportion (42%) with dedications to inter-Celtic saints. In the second place, *lanns* dedicated to inter-Celtic saints have much larger enclosures (average 0.38 ha) than those

associated with purely local saints (average 0.3ha) and the implication of this, in view of the foregoing discussion, must be that the *lanns* dedicated to inter-Celtic saints are generally the more important, perhaps earlier, foundations. On looking in more detail at the inter-Celtic saints, further features of interest emerge. Two have possible parallels in Brittany; two are also found in England; two are saints of Welsh origin who achieved greatest renown in Brittany (Winwaloe, Samson); but the remaining eight, who include Carantoc, Piran, Docco, Petroc and Mawgan, are all placed by tradition and parallel place-names in Wales. The majority of these are found along the north Cornish coast and three were at places of sufficient importance to survive as land-owning communities until 1086. Thus if, as Wendy Davies suggests, dedications may be proprietorial and reflect the ownership of church-sites (Davies 1978, 142-46), this evidence may point to a strong and early presence from Wales in the establishment of Christianity in Cornwall. The fact that the distribution of dedications to saints of Welsh origin at both *lanns* and possible *lanns* agrees closely with the distribution of Early Christian memorials, which may also be of Welsh inspiration, lends support to this suggestion.

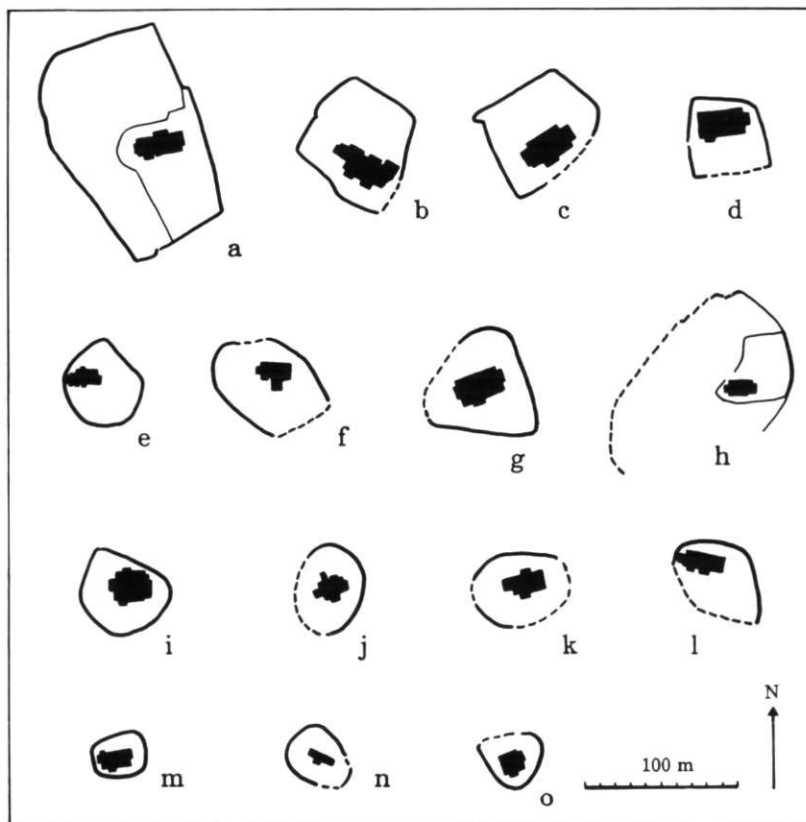


Fig 10 Correlations between enclosures and dedications. Enclosures associated with dedication to saints of Welsh origin: a) Crantock; b) St Breock; c) St Kew (*Landocco); d) St Gluvias. Enclosures associated with saints of Cornish origin: e) St Erney; f) Mevagissey; g) Lanteglos by Fowey (St Wyllow); h) St Anthony in Roseland (Entenin). Enclosures with dedication to Winwaloe: i) Lewannick; j) Landewednack; k) St Winnow; l) Poundstock; m) Towednack; n) Tremaine; o) Gunwalloe

The enclosures associated with 'Welsh' *lanns* and possible *lanns* are markedly sub-rectangular, in contrast with the *lanns* of Cornish or other saints (Fig 10). A number of very large oval enclosures with dedications to Cornish saints are found on or near the south coast, particularly

around the Fal Estuary, perhaps suggesting that the impetus behind Christian foundations here was largely indigenous. With one exception, Breton saints do not seem to be significantly associated with foundations of *lanns* in Cornwall. The exception is in the dedications to Winwaloe, which are widely spread over Cornwall, yet present a uniform group comprising small and medium-sized oval enclosures. In fact, no other Celtic saint has more dedications in Cornwall—not even the county's most famous saints, Piran and Petroc. This perhaps reflects the claim made in the Life of Guenael, who succeeded Winwaloe as Abbot of Landevennec



Fig 11 Early ecclesiastical sites with outer boundaries: a) St Mawgan in Meneage; b) Mabe; c) Padstow

(Winwaloe's principal foundation in Brittany), that the former saint 'founded in Great Britain and Ireland, by miracles and apostolic labour, two famous monasteries, and afterwards others to the number of fifty' (Doble 1940, 47).

A final feature of *lanns* and possible *lanns* is that a number have evidence of an outer enclosure or enclosures. The clearest example is at St Mawgan in Meneage, a mother church (Fig 11). Here, an Early Christian memorial of possibly 7th-century date, which may be *in situ*, sits on the outer boundary, at the point where it is crossed by the main road to St Mawgan church (Macalister 1945, no 447). The way the church is not centrally placed but lies on the edge of the outer enclosure compares with other examples in both Cornwall and Wales (Butler 1979). Documentary evidence suggests a similar feature at Padstow, the primary centre of St Petroc's cult, for his early-14th-century Life says that the saint 'surrounded the limits of his lands with very long ditches dug deep like valleys, the ruins of which remain to this day' (Doble 1938a, 14n). Around Padstow are several concentric boundaries, any or all of which may have had a former significance in this context. They may alternatively have marked the limits of Padstow's privileged, extended sanctuary (Cox 1911, 220-24). Another Cornish church with a privileged sanctuary, said to date from a gift of Athelstan, was St Buryan (*ibid*, 214-24). The extent of St Buryan's sanctuary is actually shown on a map of the reign of Elizabeth I; it evidently enclosed the entire village around St Buryan church, but is not easy to trace on the ground (Crofts 1955, 35-38). St Mawgan in Meneage, Padstow and St Buryan are important places, but this phenomenon is by no means confined to sites of higher status. Of the other examples illustrated, Quethiock, with a smaller than average oval graveyard, is neither mother church nor chapelry; and Mabe is the chapelry of Mylor which has already been referred to. Higher and Lower Spargo, the farms situated on the outer boundary to the east and west of Mabe church, may hint at the nature of the boundary here, as their name is derived from Cornish *spern*, 'thorn', and *cor*, 'hedge' (Padel 1985, 65, 210).

The function of these outer boundaries is uncertain. They may, as at St Buryan and Padstow, be marking the limit of the ecclesiastical estate or the area over which a church's protection or sanctuary extended, or they may simply be defining the extent of enclosed agricultural land about the settlement. They presumably compare in some way with the indications of outer ecclesiastical boundaries in Welsh and Irish sources (Hughes 1966; Butler 1979).

Conclusion

Up to this point, the topographical, monumental and place-name evidence for church-sites in Cornwall has been explored. It has emerged that many, if not most, may be on sites of early medieval origin, and that the form of their present churchyards may reflect the shape of the original enclosure; but there are contrasts amongst the enclosures which may in part be explained as developments taking place during the six centuries over which the early medieval period extends.

In this concluding section, the material will be drawn together into a chronological sequence, and fleshed out by looking briefly at other, non-parochial sites. The result is a model for the development of Christian sites in Cornwall which is now in need of testing by excavation.

So far, there is no sign that Roman period Cornwall was Christian (Thomas 1981, figs 14, 15, 16). The earliest evidence for Christianity in Cornwall is a small Chi-Rho incised stone of possible 5th-century date built into the porch of Phillack church (Thomas 1963, 11). This stone suggests the direct influence of Continental ideas (Olson 1989, 41), which could have been transported to Cornwall with the imported Mediterranean pottery known from many sites in Western Britain and most notably Tintagel (see Thomas 1988a and Fulford 1989 for the latest consideration of the nature of this contact), but other evidence indicates that the more influential source of Christianity in Cornwall lay to the north. There is evidence for Christianity at an earlier date in Wales, and Olson has suggested that Wales may have been the nursery for monasticism in Western Britain (Olson 1989, 48-50). Dedications to Welsh saints along the north Cornish coast suggest that a number of Cornish church sites may have originated as daughter houses of Welsh monastic communities, and inscribed stones with ogam and Irish

personal names indicate an actual migration to Cornwall of probably Christian people, originally of Irish descent, but from Wales (Thomas 1957-8, 64). Two of the earliest Christian memorials in Cornwall commemorate people with Irish names in unambiguously Christian formulae, in both Latin and ogam. They are at Lewannick—a church with a name in *lann* and a raised oval churchyard. Enclosures called *lann* are a feature of Early Christianity in Wales, as in Cornwall, and it therefore appears that with Christianity came not merely the faith, but also the associated monuments, site types, place-names, and presumably also the method, so well testified in Wales (eg Davies 1979; 1978, especially 161-63), by which parts of large estates could be alienated to provide support for the new communities. Evidence from Wales suggests that the new Christian foundations were settlements, rather than isolated churches (Davies 1982, 143), and they may therefore be expected to reflect the nature of contemporary settlement which in Cornwall and in parts of Wales (notably the southwest) was located in defensive enclosures (Johnson and Rose 1982; James and Williams 1982). Although the normal name for these sites was *lann*, some Early Christian sites had or acquired a name in *eglos* (plus topographical element) whilst others which may have once been called *lann* appear to have lost their early place-name.

It is probable that the predominantly coastal and estuarine distribution of *lanns* reflects the fact that Christianity was first introduced from abroad, and then continued to spread and thrive by water-borne contact. On the other hand, they were not always newly established sites. Occasional instances have evidence of a pre-Christian burial ground in the vicinity (Olson 1982, 179-81; Thomas 1963, 10; 1971, 57). The number of place-names in *lann* in Cornwall, both parochial and non-parochial (about 100 in total), together with the church sites which may have lost a name in *lann*, suggests a rapid proliferation of sites. Along the north coast, many of the earliest foundations may have been due to Welsh influence, but the total distribution shows that the greatest multiplication of *lanns* was in the more fertile and heavily settled parts of south Cornwall. Here, church dedications suggest that some of the impetus came from Wales and Brittany, but was mostly indigenous.

Where the form of the early Christian enclosures survives, in parish churchyard boundaries, a considerable variety in both size and shape is apparent, the different sizes seeming to reflect the status of the site and possibly the size of the original community. There is some evidence that the larger enclosures were amongst the earliest and most important foundations. Secondary foundations or daughter houses tended to be located further inland, away from the favoured estuaries. For the most part, their dedications are to obscure local individuals. There is no contemporary information about the nature of these sites.

It is possible that in the early days of Christianity, burial in a *lann* was a privilege reserved for clerics and important lay-persons only (Davies 1982, 185-7). So how are the rest of the population to be accounted for, at least as far as their burial requirements are concerned? Again, it is necessary to fall back on the Welsh evidence, which suggests that burial in wild, isolated places or in the homestead was the preferred option (Davies, op cit)—a suggestion which finds reflection in the distribution of the Early Christian memorials in Cornwall. Approximately half of the Cornish memorials are associated with a church site, but the remainder are found by ridgeways or fords where they would be both isolated, yet in spots frequented by travellers. A number are on or close to boundaries where they may also have had a territorial significance. The memorials at Lancarffe and Rialton are at settlements of undoubted early medieval origin (Preston-Jones and Rose 1986, 157). Around Endellion and Tintagel churches are extensive cemeteries of long-cists (Trudgian 1987; Thomas 1988b), which by analogy with similar cemeteries elsewhere, may represent early Christian burial grounds for lay populations. At Tintagel, recent excavation has shown that the cemetery also included special graves, visible as low mounds (J Nowakowski, pers comm). It is possible that these did not begin as early enclosures, but as cemeteries which acquired a church and parochial status later, because of their funerary tradition. Other such sites may well have existed but would have left no trace if stone cists were not used, as bone dissolves rapidly in the acid soils of Cornwall. The use of stone cists certainly appears to have had a limited distribution (Preston-Jones 1984, fig 8).

Lay needs may also have been catered for by places with a name in *eglos*, usually combined with a personal name. Like the small secondary *lanns*, these are generally located further inland; but unlike the majority of *lanns* they are found on well-drained valley sides, spurs or uplands. Those on valley sides generally have regular rectilinear yards while those in the more prominent upland locations have curvilinear enclosures. Excavations at St Buryan and Merther Euny suggest that some of the latter may be re-used rounds and that some could be relatively late foundations. Thus although a few have a name in *lann* or an Early Christian memorial stone they may on the whole represent a later phase than *lanns*, designed to meet the needs of lay populations. Associated dedications suggest that this was mainly an internal development, but with some influence from Brittany.

The rectilinear yards may have been so-shaped because they reflect the shape of the building within. They would therefore be true churchyards, and if so, would represent a development whereby the church had superseded the enclosure as the most important aspect of a Christian site. Use of the term *eglos*, 'church', rather than *lann*, 'enclosure', may also suggest this. But at the same time, the fact that *Heglosenuder* was a manor in Domesday Book suggests that these churches might be land-owning, like the *lanns* (though not necessarily; *Heglosenuder* might simply have been a secular manor, named from the nearby church). The rectilinear churchyards of west Cornwall compare very closely with a group in east Cornwall which appear to reflect foundations of churches or chapels at important English manors, perhaps from the 8th or 9th century.

The limited evidence available from excavations suggests that during the latter part of the early medieval period other sites with sacred connotations such as holy wells were being elaborated with structures (Thomas 1967a, 49, 81-82; 1967b; Pool and Russell 1968). Places with a name in *merther* may be part of this pre-Norman flowering of minor Christian sites. At Mawgan Porth, a cist-cemetery adjoined the 10th to 11th century settlement (Bruce-Mitford 1956, 187-89), and other small local cemeteries may be indicated by the numerous examples of chapels with Celtic dedications or traditional, unlicensed burial grounds (Adams 1957, 49-50). In some places, there may eventually have been a very full provision of cemeteries (Preston-Jones and Rose 1986, 158 and fig 4).

Beginning in the late 9th century, cross carving was also a late phenomenon. The earliest crosses compare very closely in concept with the inscribed stones, firstly in the fact that they are memorials, and secondly in that they are found not only in churchyards, but also out in the countryside, often by major routeways, and occasionally at manorial centres. A possibly 11th century memorial stone at Lanteglos by Camelford is a remarkable throw-back, for it commemorates people with English names, in the English language, but in thoroughly archaic Cornish style, with a vertically-written inscription (Okasha 1971, 90-91). Most pre-Norman crosses associated with churchyards are at sites with evidence of an early medieval origin, and the size of their enclosures indicates that it was generally the more important sites which were embellished in this way. The implication is that as Cornwall gradually came under English control, the Celtic Christian sites were not abolished but were taken over and where appropriate, elaborated with new monuments.

But at the same time, it is clear that change was taking place. Whereas the place-name evidence alone could suggest that there may have been over one hundred land-owning religious communities in Cornwall in the early part of the early medieval period, by the time of Domesday book, only a handful of the most important ones survived to be recorded. Most communities had disappeared, presumably as their estates were appropriated first by the incoming English and then by the land-hungry Normans. Domesday Book actually bears witness to the despoliation of ecclesiastical lands when it records that the manor of St Neot, held in 1086 by the Count of Mortain, had formerly belonged to the clergy of St Neot. The Count left the clerics with a mere acre or two (Thorn 1979, 4, 28) and not surprisingly, the community at St Neot is never heard of again. Gradually, therefore, the communities would have been replaced by a parish priest supported by payments of tithe, burial fees, and a small area of glebe. Inevitably, this process would have been linked with the closer definition of parochial boundaries and the demise of small local cemeteries.

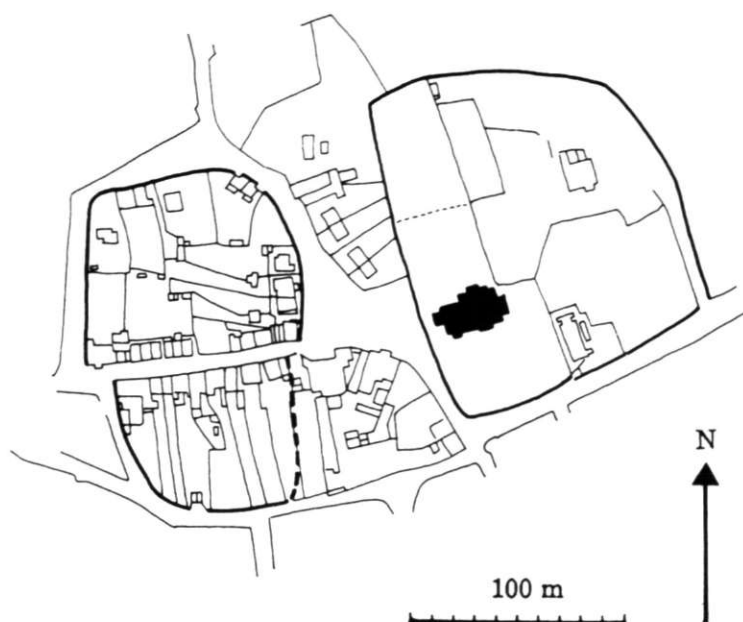


Fig 12 Ecclesiastical and early town enclosures at St Stephen by Launceston. The ecclesiastical enclosure is on the east, the town on the west; the southeastern (dashed) boundary of the town's enclosure is derived from 18th-century maps (see Sheppard 1980, 79-80)

By 1086, those communities which had survived had become more than simple religious settlements. At such sites, the need to furnish the worldly requirements of a non-agriculturally productive community may have encouraged a nucleation of settlement about the church (Preston-Jones and Rose 1986, 164). The lands of St Petroc's Church were extensive and must have required a considerable team of estate managers (Thorn 1979, 4, 3-4,22). Of the five markets recorded in Cornwall in 1086, four were at ecclesiastical centres and two, St Stephen by Launceston and Bodmin, can be regarded as boroughs (Thorn 1979, 4, 2; 4,3). At St Stephens, which had been minting coins since 976, the ecclesiastical enclosure and the enclosure of the early town apparently lay side by side (Fig 12). But in 1066, these urban and proto-urban places also became victims of Norman rapacity: Domesday Book records that the Count of Mortain took away St Stephen's market: he put it in his castle (Thorn 1979, 4, 2). St German's Sunday market had been reduced to nothing by the Count's market nearby, on the same day, in another of his new castles (ibid, 2, 4).

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Lammana, West Looe; C.K. Croft Andrew's excavations of the chapel and Monks House, 1935-6

LYNETTE OLSON, with a report on the ceramic finds by CATHY O'MAHONEY
and a survey of the chapel site by ANN PRESTON-JONES and PETER ROSE

These excavations were noted briefly and judiciously in the Congress of Archaeological Societies *Report* (1937, 18) and a little less so in *Devon and Cornwall Notes and Queries* (1936-37, 145-6). From the excavator's field notebook, plans, photographs, lecture notes and correspondence, notices in the local press and other records deposited with the Royal Institution of Cornwall, finds from the excavation now in the R.I.C. Museum, Truro, and from the chapel site itself, which was left open, a much fuller excavation report can be made. (The plans and section drawings illustrating this report have been re-drawn from Croft Andrew's originals).

The value of this undertaking will be seen from a few preliminary remarks. While a case can be made for the existence of an early Cornish monastery by working backwards from the post-Conquest priory of Lammana, the focus of the latter was on Looe Island (Olson 1989, 97-103; more background on Lammana Priory will be found on p 125 below). The circumstances in which the mainland chapel was founded were remembered as follows in 1290:

' . . . Lammana is a certain sea-girt island in which a certain chapel of Saint Michael used to be kept up where the monks of Glastonbury, time out of mind, had monks celebrating Divine



Fig 1 Looe Island (St George's) from the Lammana excavation site in 1936. The south doorway and porch of the chapel are in the foreground

Service. And, because in days of old many of those people who through devotion would have wanted to visit the said chapel on Saint Michael's day often lost their lives in the stormy sea, a certain chapel of Saint Michael was constructed upon the coast opposite the said island' (Picken 1985, 283).

This is corroborated by the results of Croft Andrew's excavations on the mainland. For, hard as he tried to argue to the contrary, the archaeological evidence shows that the chapel which he dug was of post-Conquest foundation. Excavated monastic sites of any period in Cornwall are scarce, exceedingly so for excavations worthy of the name—and the Lammana excavations were worthy. Croft Andrew was careful and up-to-date archaeologically, at a time when significant advances in stratigraphy were being made (Harris 1979, 8-27; note that Croft Andrew interestingly labels the interfaces of the layers rather than the layers themselves in his drawn sections); his photographs are unusually effective for the period (Charles Thomas, pers comm). While there are exasperating aspects of his data, like numbers on potsherds which can represent the depth or the date of the find or the page in the excavation notebook on which it is recorded, things can generally be worked out satisfactorily. Because of the second-hand nature of this report more than usual will be said about the origin and progress of the excavations, as well as giving their results.

How the excavations came to take place is an interesting story (Croft Andrew papers, R.I.C.). Six years before they commenced, Croft Andrew was first given permission to excavate the Monks House and mainland chapel sites on the Portlooe Manor of the Duchy of Cornwall by Sir Walter Peacock, the Duchy Secretary. West Looe (Hannafore) development had reached the Monks House east gable incorporated into the western hedge of the field called Lemain Park (Tithe Map, 1839; deriving from the old name Lammana); in the construction of the adjacent modern house 'a wall had been found 3 ft [0.9m] under the surface at rightangles to the existing wall' as well as a worn mill stone (Looe Old Cornwall Society Minute Book, March 5, 1932). The excavations were eventually begun in order to save the chapel, and at least record other remains of the priory, in the face of a threatened land sale and consequent building further west. After the first excavation in 1935, Croft Andrew received a letter from R E Tucker, the Duchy solicitor, asking for evidence that what had been found was the chapel 'and not merely an old sixteenth century cottage' and for his judgement about the Monks House wall. Croft Andrew replied with a useful and effective report on the excavation (dated 27 Jan, 1936), really the best he ever wrote about Lammana. Tucker, clearly impressed, forwarded the report to T M Stanier the Duchy Land Steward (who was already well-disposed), Lord Radnor, the Lord Warden of the Duchy, and Sir Walter Peacock, now chairman of the developers. The upshot was that the Duchy reserved the chapel site from the land to be sold, the developer objected, and the sale fell through. That is why West Looe stops abruptly at the Monks House wall, and it is nice to know that developers did not always win, even in the 1930s! (See Fig 2).

The Lammana excavations took place over two seasons, for three days (17-19 October) in 1935, and for three weeks (14 September–3 October) in 1936. The former was regarded as preliminary, the latter was more of the order of an all-out archaeological campaign, but an unfinished one. The excavations were essentially private, the 1936 season partly funded by the Cornwall Excavations Committee associated with the Royal Institution of Cornwall. Work was carried out by Croft Andrew, a couple of assistants, and four to five paid labourers. There is evidence that Croft Andrew was on the site most, and probably almost all, of the time; the quality of the work varied but, judging by the size of some of the finds, some of the diggers had sharp eyes.

Before excavation both the chapel and Monks House were under turf except for the east gable of the latter preserved in the Cornish hedge bounding the field on the east (OS grid reference SX 252 522; the name appears on the second edition 1908 6 inch map; cf Bond 1823, 61 n: 'the remains of some antient building, perhaps that in which the Monks dwelt'). Charles Henderson had earlier examined this feature and described it thus:

'On the tenement of Lemain are still some vestiges of the building which the Ordnance map calls the Monks House. These consist of a wall of killas some 25 feet [7.62m] long now



Fig 2 Hannafore, West Looe, in c 1936. Croft Andrew's photograph of the housing development and the field beyond: the Monks House wall is built into the hedge to the right of the end of the road, while the chapel site is on the ridge, with the line of the cart road visible on the hillside

incorporated in the hedge about 50 yards [45.72m] from the cliff. The wall [is] about 4 feet [1.21m] thick and contains two widely splayed windows or window-slits with remains of a corbel gable for a floor above them, showing that the windows once lit the cellar or undercroft of some building. The wall runs NW and SE. There is no cut stonework'. (Henderson, 'East Cornwall', ms, 521). See location map Fig 3 and plan Fig 4.

The chapel site is about 150 yards (137.16m) northwest on a rock ledge on the steep hillside 150 ft (45.72m) above the sea (OS grid ref SX 251 522). The entire site slopes from northwest to south east. By the time of the Tithe Map, a cart-road had been built to Portlooe Farm which passes just north of the chapel, and remains of walls excavated in the intervening space were interpreted by Croft Andrew as belonging to additional early buildings over which the road had been built. Presumably stones from these and the chapel have been incorporated into the stone-faced embankment on which the road rests. All of this was beyond the resources of the excavators to shift. A 19th-century tributary cart-road of beach pebbles ran south across the Monks House site to the quay; it was dug through in the 1936 excavation.

There is more information about the brief 1935 excavation—in Croft Andrew's report to the Duchy of Cornwall, two plans, a drawing and some photographs—than might be expected. Starting from the OS antiquity mark for the chapel site (known to be based on the testimony of an East Looe resident in 1880), a trench about 2 ft (0.6m) wide was dug in a north easterly direction, slanting towards the cart-road embankment. This trench intersected the west wall of the chapel just above its mid-point, but crossed the line of the north wall at the point where a robbed-out section begins which extends almost to the northeast corner of the chapel; the east end of the west portion of this wall was just picked up by the trench, which ran on to

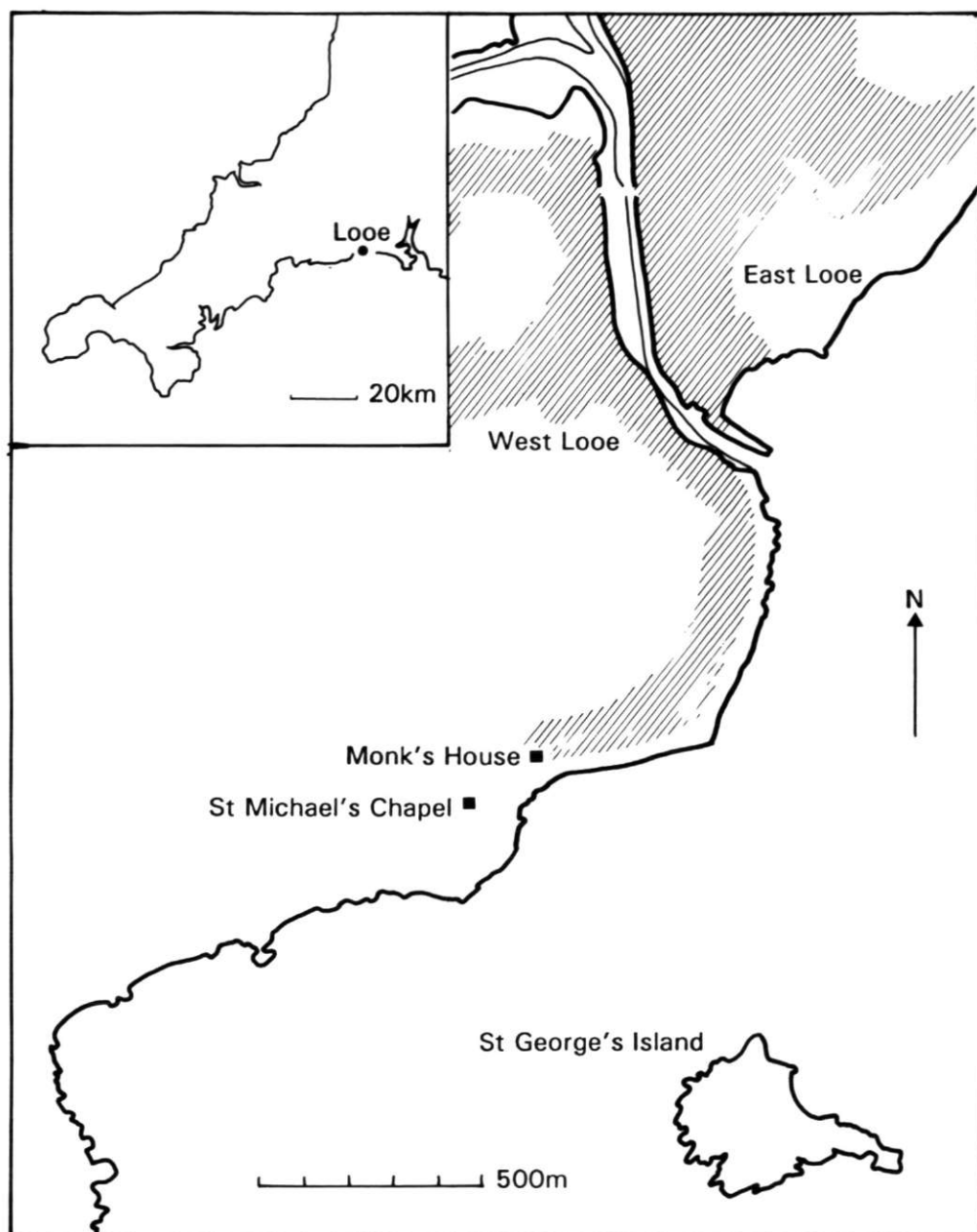


Fig 3 Lammana. Map showing location of the chapel and Monks House

intersect another wall northeast of the chapel. The top of the west wall was cleared, including a buttress on its south. Also cleared was the top of the south wall, revealing a doorway with slate threshold, an interior partition wall separating what became known as the 'nave' from the 'chancel', and that the chancel wall petered out towards the east. The inner edge of the north wall was revealed, having a doorway with two steps up towards the north about opposite to the south doorway; beyond the point where it was robbed out the line of this wall was somewhat uncertain but an interior partition was found corresponding to the southern one, leaving an entranceway from nave to chancel between them. Plaster on the north screen wall

is noted. The chancel was cleared to its slate paving in the northwest section, where Croft Andrew thought that a doorway immediately to the east of the interior partition wall had been located. Here however the remains were to some extent misunderstood, for one of the plans shows that the line of the chancel wall was placed too far to the south and that, when the surviving northeast corner of walling was eventually picked up on the same line as the north wall of the nave, it was thought perhaps to be an external buttress. Later Croft Andrew realised his error and queried the doorway. He found remains of the rest of the chancel wall to be slight or non-existent, and suggested that 'the southeast angle, which must have been reared upon "made ground" at the edge of the declivity, may have slipped down hill'. In contrast, the west and north walls of the nave rested on rock-cut foundations, 14 in (0.35m) high topped by 18 in (0.45m) of masonry at the point where the west wall was cut by the trench, the total height from rock-cut floor to the top of the wall in the northwest corner being about 4 ft (1.21m). Indications of 'a stone-built or rock-cut bench around the wall-footings' were found inside the nave.

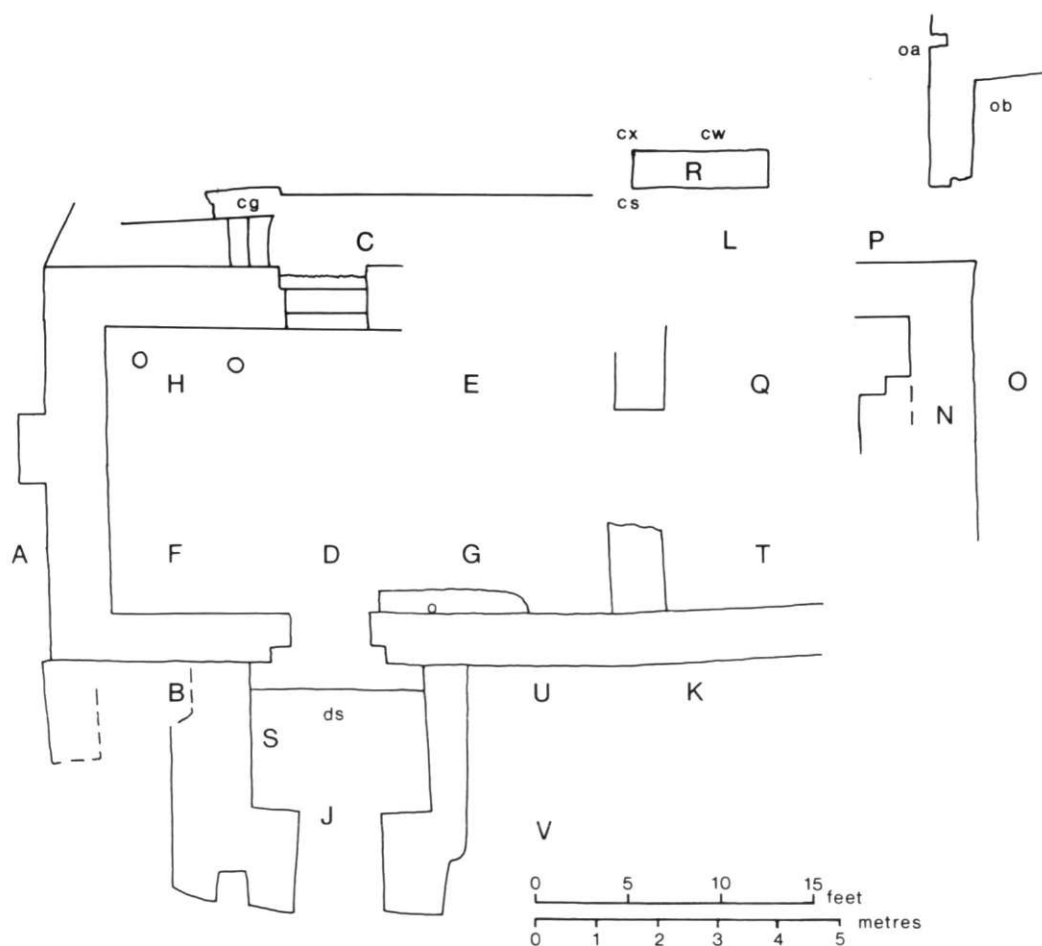


Fig 4 Lammana. Plan of the 1936 excavation of the chapel. 'Excavation north' is at the top of the drawing

Thus the 1935 excavation was basically about tracing walls. Concerning these Croft Andrew wrote in his report to the Duchy: 'All were originally built with flat pieces of the native mud-slate (or 'killas') rock laid horizontally in a clayey earth without mortar. Mortar had, however,

been subsequently used in repairing the upper walls, in the roof, in the doorways, and in lieu of plaster upon the interior faces of the walls'. The criteria of his day led to the following conclusion: 'The unmortared masonry at Lammana clearly indicates a pre-Norman structure, but is better faced, better aligned and brought to sharper angles than (for instance) that of the Celtic monastery excavated at Tintagel . . .'. Croft Andrew removed and photographed two cut stones of slate from the vicinity of the north and south doorways: respectively one rectangular and the other a chamfered jambstone. The latter was eventually deposited in the Truro Museum by Croft Andrew, who seems to have misunderstood its use, maintaining that it might indicate that the original chapel doorway had inward-sloping jambs as in early Irish oratories. In fact it is paralleled by the jambstone from an early 13th century structure at the manor of Penhallam in Cornwall (Beresford 1974, fig 37a, as pointed out by Ann Preston-Jones).

Reported finds included ridge-tiles, some of which labelled '1935' are analysed by Cathy O'Mahoney below, and 'a variety of stone roofing-slabs or shingles, roughly and heavily hewn from local slate of several colours and textures; a few lighter and better-cut slates (a large, squarish, pinkish slate labelled 'Lammana—outside chancel: N' is in the Truro Museum collection). The possibility of floor-tiles was later dismissed; this from *The Cornish Times* of 25 Oct 1935: 'while a fragment of tile bearing a dull green glaze may suggest a scheme of decoration', probably refers to the ridge-tile edge marked 'N chancel 1935'. The 'small piece of ivory from the "chancel"' is unique to the Duchy report and perhaps was bone; Croft Andrew also listed 'from a spot in the floor of the nave a few broken bones on which no report has yet been made'. No pottery was recovered at this stage, and it is clear from Croft Andrew's comments that he did not expect to find any on a chapel site.

Considerable detail has been given here about the 1935 excavation partly in order to gauge the extent of its disturbance of the site. This was greatest at the north chancel, is uncertain in the rest of the chancel ('Chancel laid bare' in the Looe Old Cornwall Society minutes for 19 Oct 1935 could easily represent a part as the whole), and in the nave seems to have been confined to the original trench and along the walls as described. The above reference to the bones is a little worrying but might refer to a spot in the angle of the south partition and wall where a photograph suggests there may have been a little more clearance and where a burial was recorded in 1936. Croft Andrew reported to the Duchy: 'Below its modern top-soil the whole site is strewn with debris, meriting very careful examination, from demolition of the building. The greater part of this deposit remains untouched'; and in a follow-up letter to T M Stanier: 'Exercising great self-control, I refrained, so far as possible, from disturbing the Chapel interior'. The photographs indicate that most of what was excavated in 1936 was still under turf. The site was partially filled in (not as much as Croft Andrew would have liked) to await the next year's campaign.

Croft Andrew's approach to the 1936 excavation is shown by what he wrote to H A Lewis, the vicar of Talland, just after the first dig: 'the task is not a mere tracing of walls: one must try to collect and correlate every scrap of evidence that comes to light'. From the 1936 excavation we have a day-by-day account in the site notebook, several plans and sections, photographs and a list of the various trenches or cuttings. Note that many finds are undocumented except for the information actually inked on them. The procedure here will be to work through, trench by trench, giving some idea of the progress of the dig as well as correlating its results. Reference will be made throughout to the plans and sections. Only those ceramic finds for which there is some indication of more specific context will usually be mentioned in what follows, and Cathy O'Mahoney's report on pottery and ridge-tiles should be regularly consulted. See Fig 4 for a plan of the excavated structures. The letters on this plan indicate the position of known trenches; their final dimensions are not recorded.

First, trench A, 5 ft (1.52m) wide, was started 3 ft 6 ins (1.06m) south of the southwest angle of the chapel and dug along the west side of the buttress, the west wall of the chapel and its continuation to the cart-road embankment. A relatively large amount of information is provided about finds and features near the southwest angle on the first day of excavation: measuring from the south end of the trench, at 18 ins (0.45m) was found a flint 16 ins (0.40m)

deep, at 4 ft 6 ins (1.37m) a patch of limpet and horse winkle shells, small bones and a sheep's tooth 26-28 ins (0.66-0.71m) deep, at 6 ft 2-3 ins (1.87-1.90m) a mass of mortary debris 15ins (0.38m) deep, and a little further north small water-worn pebbles; an unidentified sherd and tiles were recorded at the southwest angle at unknown depth. The stratigraphic section drawn from the west face of this trench shows layers of turf, stones and debris (Fig 5). Considered against this the patch of shells and bones would have lain close to the natural shillet and presumably below the stone and debris layers; the same would be true of two joining sherds of Cornish ware cooking-pot or jug and a ridge-tile found at a depth of 3 ft 6 ins (1.06m) in the north part of the trench. Two limpet shells are also labelled 'A, N[orth]'. The other information from this trench is structural: a break in the line of wall where the buttress joins, a projection north of midpoint, and a continuation by mortared wall to the road embankment.

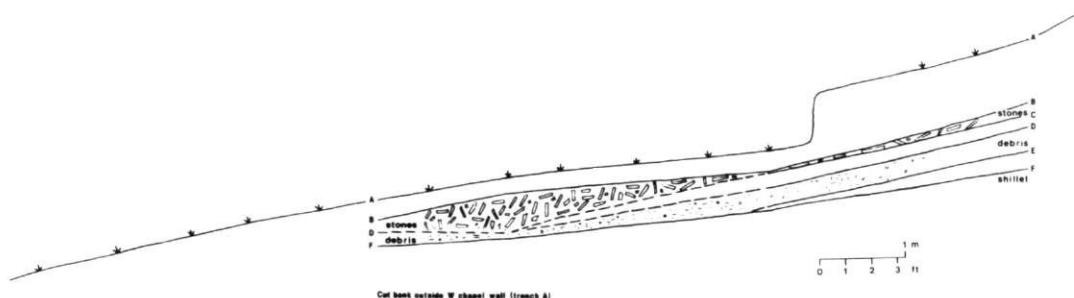


Fig 5 *Lammana chapel 1936. North-south section outside west wall*

Trench B was dug south from the south wall of the chapel, west of the doorway. A section drawn at 4 ft 9 ins (1.44m) east of the west chapel wall (Fig 6) picked up 7 ft 3 ins (2.20m) of porch wall in this trench; plotted against this is the mass of bones extending from 5 ft to 8 ft (1.52-2.43m) south of the south chapel wall at depths of 3 ft 3-6 ins (0.99-1.06m) to 2 ft 6 ins (0.76m) respectively. No depth of the sherds of St German's-type (?) decorated bowl and ridge-tiles from about 6 ft 6 ins (1.98m) south of the south chapel wall is given.

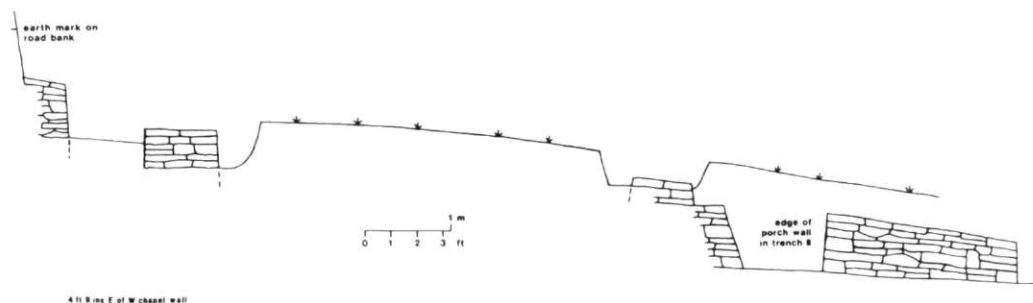


Fig 6 *Lammana chapel 1936. North-south section through chapel 4 ft 9 in (1.44m) inside west wall*

Trench D began south of the chapel and was dug through the south doorway across the nave to the north doorway. Several cut stones of slate from the door frame were found outside the south doorway, companions to the jambstone discussed above. Two iron fragments, one of which seems to have a bit of slate attached to the rust, were found in the vicinity of the south doorway.

Clearance of the nave was recorded in quadrants, but it is difficult to tie the excavation notes to these. Thus, men were set to dig out earth from the southern half of the nave. 'At E end the stuff is simple earthy matter of late deposition down to level below top of ruined walls. In western half the slates and rubble ran down in a scree from edge of the S wall'.

In the eastern third of the nave, dug from south to north, were found slates and debris at the northeast corner, otherwise earth. About the northern two-thirds of the western half of the nave the notes say: 'Save that the top foot is of slightly better earth no stratification worth mentioning. Lower 2 ft [0.60m] is of local slate slabs with much earth and practically no mortar'. For the human remains 2 ft 3 ins (0.68) under the earth floor in quadrant G see below. In quadrant H, between the north door and the northwest corner, two post-holes were found. An 'iron bolt embedded in one of several Patches of a hard mortar or cement of floor of western half' was also found. A label reading 'Samples of Plaster from interior of Nave, Lammana Chapel, Looe. Some of these fragments shew traces of the painted decoration . . . C K C 22 III 50' accompanies this material in the museum. Croft Andrew never elsewhere refers to painted plaster from the nave, only from the chancel (see below). Some of the pieces are thick, up to almost 2 ins (50mm). Medieval plaster is only finer mortar. These fragments would be for filling in, making a smooth surface for example round a doorway or in the floor (Charles Thomas, pers comm). Sparse waterworn pebbles occurred, but how widely is unclear. One shell fragment is labelled H. On the floor of the nave in quadrant F were Stuffle fabric B potsheds; and from the depth given the Saintonge ware green and yellow glazed chafing-dish and unglazed jug fragments from quadrant H must also have been on or near the nave floor.

The portion of trench D south of the south doorway (DS), deepened, gave trench J; clearance of the porch on both sides of this gave the cutting S. The greater part of the porch was filled with earth, with a 'curved stratum of rubbish'. The precise locations of three potsherds (two from the same Cornish ware jug), in distance from the south wall of the chapel and depth, are given. When compared to a stratigraphic section drawn on a line running south from the chapel east of the porch, the find-spots correspond both to a position below the layers of debris from the chapel and to the decreasing distance from the bottom of those layers to the top of the turf as they tail off to the south, likewise seen in the varying depth of the bones in trench B on the west side of the porch.

K was a small trench dug south from the south wall outside the corner of the chancel. The only find recorded from it is a large, kite-shaped, blue-grey roofing-slate which Croft Andrew thought well of.

Meanwhile work was going on outside the chapel on the north, where early descriptions speak in terms of 'chamber' and 'passage'. Thus in cutting C pottery and 'horned tiles' were reported from 'chamber at head of stairs (north door)'. C was taken to the northeast corner of the nave, producing in addition to pottery, iron, a wire ring, and sheep bones. Croft Andrew later investigated north of the north doorway to the cart-road embankment, and northwest to the mortared continuation of the west wall of the chapel. Three steps went up towards the west outside the west wall of the chapel (Fig 7). It is best here to use the excavator's words: 'I started exploration of the road-bank footings opposite N door. Confirmed steps on west. Then, north of the steps, found a gap between 2 quoins of masonry—perhaps a door [CG]. I sank the middle of this gap down to rock and found at bottom a 6 inch [152mm] layer of *fine* plasterly rubbish from the building, then 5 courses of flat-slates carefully laid in earth and rubbish without mortar (? by Grigg [the farmer])—they included 2 very fine heavy slates from the roof). Above this a few rough stones perhaps laid, then the scree of rubbish, and earth and stones from uphill'.

He decided that originally there had been a building (running back under the road) north of the chapel here. At the end of the dig he wrote: 'The north wall of the chapel was evidently based throughout the nave on a slate outcrop which was cut into a gully on its N side. A little passage about 2 ft 6-8 inches [0.76-81m] [wide] intervened between the original N wall and the mystery building to the N (under road). Later this intervening passage was closed at the W end by a wall (roughcast on W face) and build up solid, with steps leading from Chapel N door to ??'.

These features were beautifully photographed (Figs 7 and 8). It must be emphasised however that the cart-road embankment is very close to the chapel here, making their interpretation very difficult.



Fig 7 Lammana chapel 1936. North doorway, with further steps outside the north wall, and the cart-road embankment above

The cuttings and features north of the chancel are labelled in a somewhat confusing manner, although the overall picture is clear. L is the 'passage' with 'kerbing of rough stones' outside the chancel to the north; P the trench outside the north chancel wall. To the north is a stretch of 'old wall' R. CX, CS and CW are all on this wall, labelling which suggests that people were still thinking of 'cutting C' at this point. The finds from north of the chancel are like those from north of the nave: later pottery, ridge-tiles and iron. Excepting the two south doorway labels, iron is only reported from C and L on the whole site, and it seems perfectly possible for items like an ox-cue to have found their way from the cart-road onto the chapel site below.

Trench O ran from the middle of the east 'wall' of the chancel up to the cart-road embankment. Where it met and ran along the east of the wall projecting south from the cart-road embankment (picked up at the east end of the original diagonal trench in 1935 and regarded as a building) it was called OB, along the west of this wall OA, although in fact the latter was applied to a particular feature in the wall-face: the 'slot'. Some excavation data of this feature is provided. At a depth of 15in (0.38m), which would be about the height of the wall, or just above it, were found large joining sherds of a St Germans type vessel which from its decoration is possibly of early-16th century date. A few days later a workman described as digging 'in very soft



Fig 8 Lammanna chapel 1936. Detail of features beside the ranging rod in Fig 7, at what Croft Andrew called 'the gap'. The south end of the wall on the right, and the wall of which the east end can be seen to the right of the top of the steps, were old, and he thought the space between might be a door, now virtually blocked by the foot of the cart-road embankment (upper centre)

earth full of charcoal pinheads and small stones about 1 ft 10 ins [0.55m] below wall top' found 1 ft [0.30m] to the west a handle of 13-14th century, or possibly early 15th century Stuffle fabric A jug, of which another sherd was found in OB on the other side of the wall. This is the only reference to charcoal on the chapel site. O was later extended to the south, and a section from the cart-road embankment to the cornerstone in V (Fig 9) can be taken with the photographic evidence to indicate that a considerable extent of the outside of the east wall below the level of the chancel floor was revealed by trench O.

Trench N was led across O and the east end of the chapel into the chancel, picking up the north part of the altar-base (Fig 10). From the dimensions which Croft Andrew gives of the latter and the chancel, the altar block, and thus the mensa on top of it, was either something like 64 × 32 ins (1.62 × 0.81m), or possibly a bit smaller at 60 × 30 ins (1.52 × 0.76m). In this case it probably falls into line with a general group of 13th-century altars that have a double-square plan (Charles Thomas pers comm). Fragments of painted plaster were found here, which Croft Andrew interpreted as coming from the east chancel wall (letter to T M Stanier of 27.9.36), and the altar front as well (R.I.C. report of 27.4.37, see below). The geometric decoration of the plaster has similarities with that from the east wall of St Ia's chapel phase 3, dated to the first half of the 13th century (Thomas 1967, 74-85; cf Thomas 1966, the painting is on an intermediate layer of plaster and so may be a little later), although the plaster of the latter is coarser. The following interesting passage seems to be from the perspective of trench P, which is mentioned just before it in the site notebook: 'The north chancel wall had been taken away stone by stone, and so neatly that while no stone remained along the

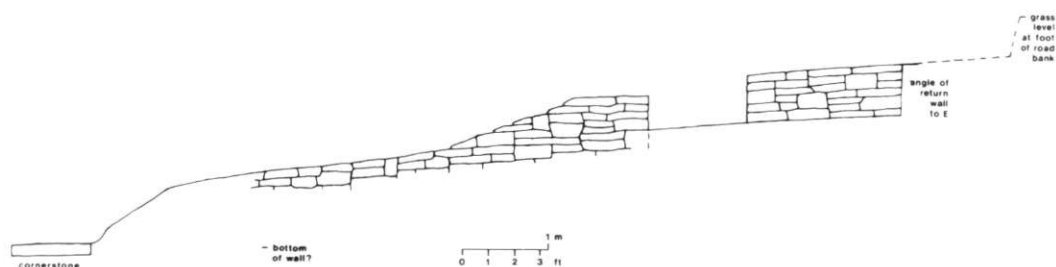


Fig 9 Lammana chapel 1936. North-south section outside east wall (Trench O)



Fig 10 Lammana chapel 1936. The chancel, with surviving northeast corner of wall, paving, and end of altar block, on which ranging rod (scale of feet) has been placed. Note that here as elsewhere slates have been piled on remaining walls, and that a workman is placing stones to mark the inner line of the east wall behind the altar

greater part of its length, large plates of its plaster remained in position, held by the earth body inside the chancel. The chancel, therefore, was full of earth before this demolition of its north wall took place'.

Plaster on the south screen wall is also mentioned. Associated with the chancel were local green roofing-slates roughly imitating the type from trench K and 'very rough small slip-slates' (cf Croft Andrew 1954-55, 62-3) and several fragments of a mullioned window formerly in the east wall. The northern half of the chancel interior was labelled Q, the southern half T. Croft Andrew reported that the central area (Looe Old Cornwall Society minutes, 6.3.37, printed in Smyth 1950, 32) or in another version a great part (R.I.C. report 27.4.37) of the chancel had been well dug over at some earlier period. While Q produced two 17th-18th-century glass fragments and an otherwise unprovenanced sherd of 15th-century Lostwithiel-

type ware (as well as the 1935 ridge-tile), finds from T were of 18th century or later, and Roman pottery. Coming as it does near the end of the second week of the dig, the discovery of two Romano-Cornish sherds in the southwest angle may have been made under the chancel floor, where burials were found early in the next week, but one can't be sure. An extremely abraded piece of samian pottery bears the label 'Skeleton SE chancel 29', the last being the date in September when it was found.

The human remains in the chapel are best considered together. In the southeast corner of the nave was found a skull, 1 ft (0.30m) from the chancel (screen) wall and about 2 ft 3 in (0.68m) under the earth floor. Croft Andrew describes this as 'burial in earth—rough stones on top' but he only draws, measures the position of, and gives a level for the skull. He also notes: 'end of grave about 18 or 19 inches [0.48m] from chancel wall'; from its context in the site notebook this must be the distance in the nave, including the skull. Therefore Croft Andrew considered the burial to run under the screen wall. He notes that there had been 15 teeth in the upper jaw but the left upper eight were missing from their sockets, and 16 in the lower jaw when complete. Croft Andrew then dug a 3 ft wide (0.90) trench from the southeast corner of the chancel west along its southern 'wall'. Here he found '1 a skull: broken brain pan full of earth jaw broken . . . face to east. 2 a pair of legs protruding from W'. Of these he provided a drawing, measurements of position and levels, and fortunately a photograph, which corresponds exactly to the drawing, enabling part of the skull and at least the position of the leg bones to be seen. The eastern end of the latter was 4 ft 6 in (1.37m) from the east chancel wall and (as the chancel is 13 ft (3.9m) from west to east) over 10 ft (3m) from the skull in the southeast nave; therefore they are not part of the same burial even though their distance from the south wall looks similar in the drawings. Although Croft Andrew used the phrase 'Two of the burials which I was reluctantly obliged to uncover' in his report to the R.I.C., a rough sketch of the entire site in the middle of his site notebook (away from the regular notes and perhaps drawn for someone he was talking to or to clarify his mind) shows three burials. But were they east-west orientated burials rather than scattered remains? There is no problem with the leg bones as such, shown parallel to each other and the south wall (how far the trench was taken west is unknown), but only the skulls are mentioned otherwise. If the eastward-facing skull 3 ft 10 in (1.16m) from the east chancel 'wall' was of an orientated burial and was not of a child, then it would have run under that wall. Only a few teeth in jaw fragments were preserved from the site: these are the teeth of an adult but relatively little worn, suggesting an atypically refined diet (FA Turk, pers comm).

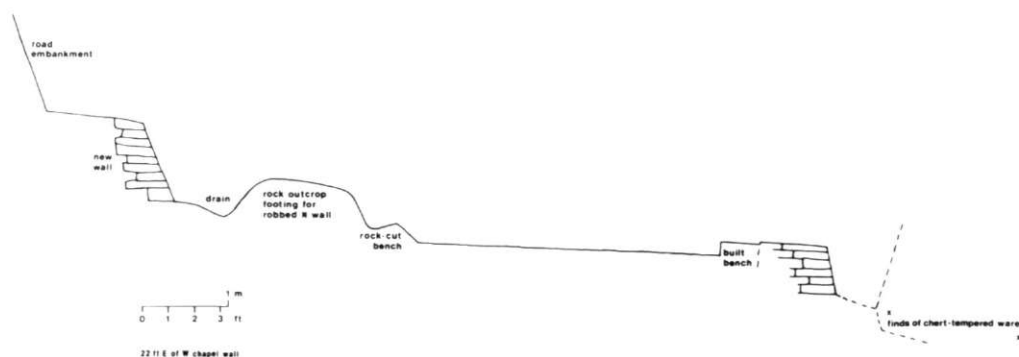


Fig 11 *Lammana chapel 1936. North-south section inside chapel 22ft (6.7m) east of west wall*

Trench U was dug outside the south wall of the chapel from porch to chancel. The 1935 and 1936 soil dumps south of this were excavated through and beneath (V). A north-south section through V was drawn and photographed. Two groups of 12th-century chert-tempered ware sherds were plotted on this section by Croft Andrew (Fig 11). Although there are discrepancies in their location as originally noted and as given in relation to the section, it

is perfectly clear from the depth specifically assigned to these finds in the drawn stratigraphy that they occurred below the layers of debris from the chapel, which were in turn beneath earth and turf and the 1935 and 1936 dumps. Croft Andrew elsewhere refers to this pottery as being from a sealed layer. The nine joining sherds of chert-tempered cooking-pot (see p 116, CHA 1) are the 'parts of a food pot which may belong to the 9th or 10th century' in Croft Andrew's report to the R.I.C. The area south of the chancel was investigated also, revealing 4-foot-wide (1.21m) foundations below the floor level to support this part of the building on the edge of the hill-slope. These terminate in 'the great corner stone outside the S.E. angle' (VE, Fig 12) which sealed two more sherds of chert-tempered ware. There is room for confusion



Fig 12 The great cornerstone of the outer and inner footings at the southeast corner of the chapel. (Scale of feet)

about the southeast angle of the chapel, about which the site notebook says too little, but according to a section (Fig 9) and a part-plan, the stone (of which there is a photograph) lay on a line with the east wall of the chancel, 35 ft 8 ins (10.90m) south of the foot of the cart-road embankment, in which case the foundations shoring up the southeast corner of the chapel were more massive than just stated. Note that all of the earliest pottery on the site, whether Roman or 12th-century chert-tempered ware, was from its southern part, and no further west than the porch.

Excavation of Monk's House (Fig 13) began at the beginning of the second week of the 1936 season. Here the east gable, judged by Croft Andrew to be 12th or 13th century, was visible in the adjacent hedge to indicate the location of the structure beneath the turf. The first trench, MHA, was dug (with difficulty through the modern pebble cart-road) 9 ft 6 in (2.89m) west of the hedge wall from north to south, picking up a clay level, the north wall of the building, an east-west interior partition with clay floors on either side and beneath them 'a well-made stone drain', and the south wall of the building. There was a patch of charcoal

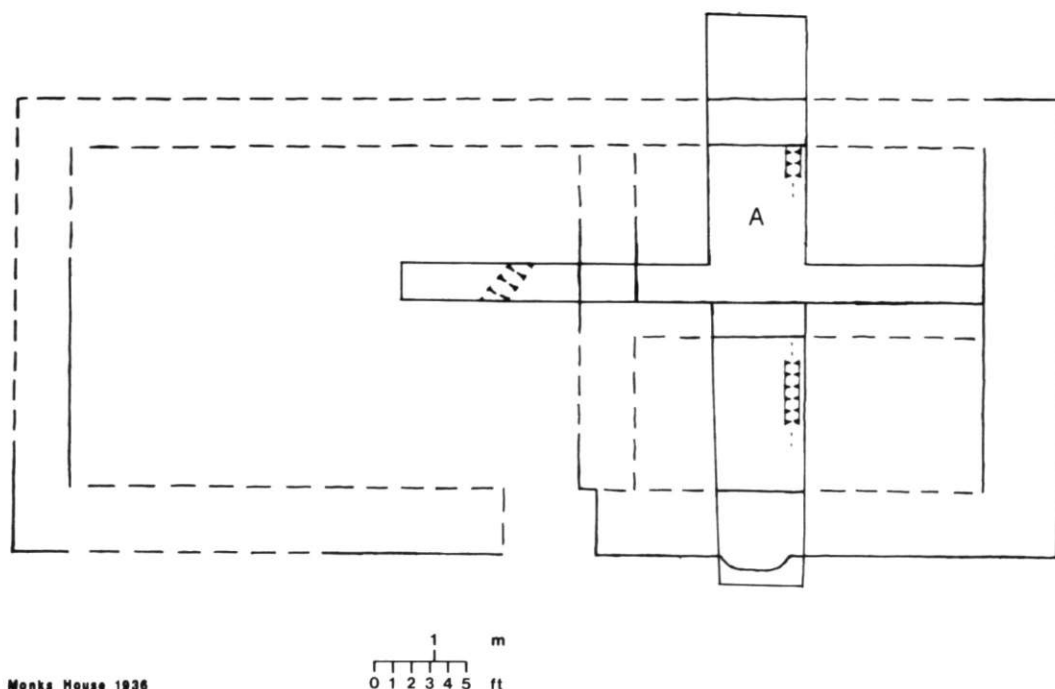


Fig 13 Lammana. Plan of 1936 excavation of Monks House. 'Excavation north' is at the top of the drawing

and burnt clay in the floor 1 ft (0.30m) south of the north wall, overlying the drain. A middle trench followed along the north side of the east-west interior partition from the hedge wall, cutting across MHA to intersect a north-south interior partition wall and further west a gully, but not far enough to reach the west wall of the building (See section Fig 14). The west wall was found where it met the south wall, the latter being traced for much of its length by an exterior south trench which revealed a possible doorway immediately west of the interior north-south partition wall. Croft Andrew reports that these partitions were 'not bonded to the outer shell' of the building. Aside from 'a piece of porous stone with large (teredo) holes' found in the fill of the gully in the middle trench, the only finds from Monk's House were potsherds. The depths of two of these are given: Stuffle fabric A at 50 ins (1.27m) against the south face

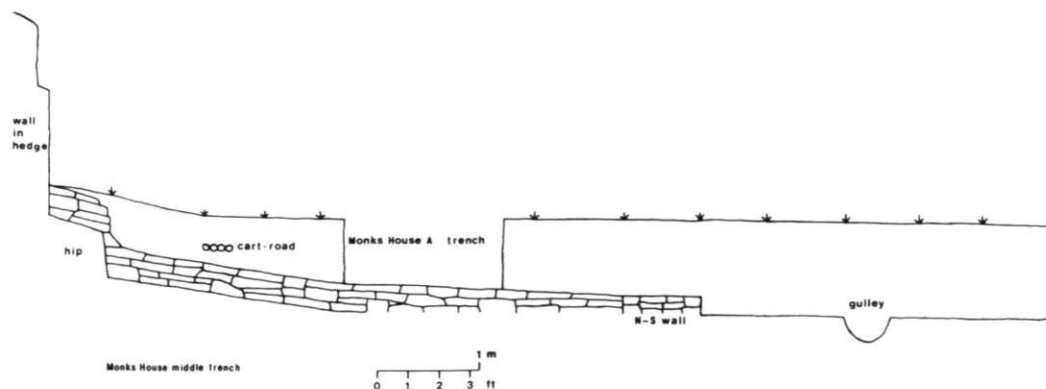


Fig 14 Lammana, Monks House 1936. East-west section; south face of 'middle' trench with east wall on left

of the north wall of Monk's House and the east wall of trench MHA, and part of a jug handle of a medieval regional import, possibly from Dorset, at 48ins (1.21m) in the same trench 2 ft 6 ins (0.76m) south of the north wall. While only a small fraction of the pottery from Lammana is from Monk's House, half of the 13th-14th century Stuffle fabric A sherds were from there, and little else.



Fig 15 Lammana, Monks House 1936. Trench A looking north, showing the north and middle walls; the ranging rod (scale of feet) is placed in an exposed part of the stone drain; the intersection of the east-west 'middle' trench is just beyond the inner wall

By the end of the third week of the dig, the chapel site had been virtually stripped, albeit by trench and cutting (Fig 17). The 'turf bank' drawn and photographed in section had been removed from V and only a small ridge of unexcavated ground running between trenches A and B at the southwest corner seems to have been left, judging from subsequent photographs. As the site was to be left open Croft Andrew had the workmen employed in 'building buttress wall from CS westward' to the excavated wall north of the north chapel door (shown clearly in one photograph) and 'the building of a rubbish wall at W. side of Trench A'; they also piled loose stones on top of the existing walls of the chapel, as the photographs show. Down at Monk's House where, as Croft Andrew put it in his report to the R.I.C., 'I could not spare labour to do more than dig a pair of cross-trenches and trace the south wall', the excavations



Fig 16 Lammana, Monks House 1936. East-west 'middle' trench, looking east towards the wall in the hedge; the intersection with Trench A is in the foreground

were filled in. A lot of surveying was done at the end of the dig, and up at the chapel Croft Andrew made the important observation of a break in the line of the north and south walls at a point which could be measured on the south wall approximately where the screen wall joined the nave, giving the chancel a slightly different orientation (see Fig 4 and compare the 1988 survey, Fig 19). Arrangements to fence the chapel site were carried through—would that we had as much information about excavated features as about that fence! The following in a letter from Croft Andrew to T M Stanier is interesting: 'I strongly recommend, however, that there be also enclosed a small triangle adjoining its eastern end, where I suspect the presence of another building and where graves may exist'. Cut stones from the doorways (seven plus one broken one from the south, one from the north, which was perhaps the 1935 rectangular stone) and east chancel window, a few of them drawn with measurements in the site notebook and most if not all photographed in the north-west corner of the chapel, (Fig 18) were then removed from the site, together with slates, to temporary storage in the nearby house, called 'Longstone', of an assistant on the dig. In 1938, hearing that the house had been sold, Croft Andrew wrote anxiously to the new owner about these stones, and was told that they would be kept safe until collected. In 1988 a visit to 'Longstone' turned up a piece of mullion on



Fig 17 Lammana 1936. The chapel excavated, seen from just east of the screen walls. This is probably the photograph of '[George?] Chettle in the chapel' to which Croft Andrew refers

the rockery, which may well incorporate the rest. The mullion fragment was kindly donated by the present owners to the Royal Cornwall Museum.

Croft Andrew regarded the excavation as unfinished and several times stated his intention to continue it (for example 'if war does not break out' in the letter just cited). On 27 April 1937 he delivered a paper on Lammana to the Royal Institution of Cornwall. This he refers to in a letter written to the Rev H A Lewis in 1952 as his 'second report', the 'first report' being the one to the Duchy on the 1935 excavation. Although the R.I.C. has a typescript account of this lecture, the version sent by Croft Andrew to JH Adams in 1957 is fuller (Adams 'Catalogue of medieval Cornish chapels' TS, no 306, Lammana). Here we can see what Croft Andrew made of the sites, and his account of the development of the chapel structure is worth reproducing virtually in full; in it are some details not given so far because evidence and interpretation were impossible to separate.

'The Chapel proves to have been originally 15 ft 6 ins [4.72m] wide and about 27 ft [8.22m] long inside. On plan it was nearly, but not quite, a true rectangle. Along the north side and part of the west end, ridges of living rock have been roughly hewn to serve as wall footings. The walls themselves were built with slabs of the native slate laid in a clayey earth without mortar. Three feet seems to have been the average thickness of the walls, save on the south side, where proximity to the dangerous declivity had caused the builders to raise a foundation-wall 4 feet [1.21m] thick to the height of the floor inside, above which it was reduced to 32 or 33 ins [0.83m]. The floor was at first of the living rock, left in a very rough state, but having its chinks and crannies filled with gravel and earth to form a reasonably smooth surface. This surface however was not horizontal, but sloped gently from the north-west to the south-east, after the fashion of several floors to be seen in the Celtic monastery at Tintagel.



Fig 18 Lammana 1936. Cut stones photographed in the northwest corner of the chapel

‘Slightly west of the mid-length, two 4-foot [1.21m] doorways face one another: to go out by the north door one mounts three steps; to leave by the south door one steps down. Both of these doorways have been reconstructed at different times, so that it is impossible to say that either now represents an original feature, though there has clearly been a door on the north side from very early times.

‘Little trace remains of this building’s eastern wall, whose alignment would be important, since the presence or absence of a chancel, and the proportions of that feature, might help us to date the structure. My work on this detail is incomplete. I examined half of the chapel’s width last year without finding any trace of an original chancel; so that at present it seems that the building may rank with some of the very early Irish ‘oratories’ which on plan are quadrangular, without any eastern protuberance to contain the altar. So much for the original chapel. [From what he says later in the R.I.C. report, as well as the brief published notes of the site and private correspondence, Croft Andrew regarded a pre-Conquest origin for this chapel as unproven, but was hopeful that it would be proven. He did not think that the chapel was earlier than the ninth century].

‘Now the alterations made by the monks from Glastonbury are fairly obvious. They used the old chapel as a miniature nave and choir, removing its eastern wall and building on a comparatively big chancel of similar width and 13 ft [3.96m] length, floored with slate slabs. . . Then, eastward from a line joining the west jambs of the doors, they levelled the floor, cutting away the rock where necessary and filling up the south-eastern depression with slaty rubble. Between the doors and the new chancel, benches were raised against the north and south walls to act as choir-stalls. The south bench had to be built up with loose stones, but that on the north was largely provided by leaving a convenient rib of rock, which should otherwise have been cut away in the levelling of the floor.

'To the monks may also be attributed the cut-stone facings inserted in the north and south doorways. These are blocks of a green mud-slate such as might have been quarried in a variety of places within 2 miles [3.21km] of the site. . . A little pilaster buttress outside the west wall seems likely to have supported a bell-frame on the gable.

'Of the third period, lasting two and a half centuries between the sale by Glastonbury and the pillage under King Edward VI, we see several relics. The building having then become a parish church [sic], its chancel was separated from the nave (ie the ancient chapel) by the erection of a very inferior screen-wall. This had no foundations, its bottom courses being laid on the floor, and it reduced the aperture or chancel arch to 7ft [2.13m].

'A new east window of at least two lights with cut stone mullions was inserted about the middle of the 14th century—possibly at the time of [patron] Sir John Daunay's death. The large altar, about 5 ft [1.52m] long and nearly 3 ft [0.91m] deep, will probably belong to this period.

'Much use was made of mortar and plaster. The whole chancel interior was covered with good plaster, upon which the east wall and altar front were decorated with painting in at least four colours: red, buff, brown and black. I recovered fragments of this work sufficient to show that it had been of superior workmanship, but have not yet pieced together any recognizable design. I was rather surprised to find evidence of a puritanism before the Reformation in the fact that these paintings had been covered with six or seven coats of whitewash. (Windowsill seems to prove painting done before 14th century mullion went in).

'The interior of the nave (or original chapel) was similarly renovated; mortar and small stones being used to fill up faults in the ancient dry masonry, after which a general coating of plaster was applied. Mortar was similarly employed on the exterior of the ancient walls, and I found some evidence to suggest that the entire structure might at one time have been white outside with a coat of plaster.

'Toward the end of Lammana's ecclesiastical history the whole fabric seems to have been sadly decayed and I think its roof fell in.

'After this—perhaps about the time when the Earldom of Devon was recreated for [patron] Edward Courtenay in 1485, after the attainder of the sixth Earl—there was another reconstruction, for which some good materials were imported, and put into the hands of very poor workmen. It may be added that after the Reformation when the roof had fallen in the shell of the building seems to have been cleared out for use as a shelter ? for cattle. . . '

He goes on to discuss briefly 'some portions of other buildings' north of the chapel. It is too bad that they cannot be investigated fully, because they are in just the place for the dwelling of a person serving the 'original chapel. And there in fact is one end of a small structure matching the masonry of the first chapel, separated by a 3 ft [0.91m] gap (perhaps a doorway) from another ancient wall. To the east are other half-buried remains which seem to belong to the Glastonbury period'. For the Monk's House he gives the dimensions: 55 ft (16.7m) long × 24 ft 6 ins (7.46m) wide, divided into a room 27 ft 6 ins × 18 ft 6 ins (8.38 × 5.63m) and two smaller rooms each 19 ft 6 ins × 8 ft 3 ins (5.94 × 2.52m), and dates the pottery as mainly 12th-13th century (he is only one century out) 'thus tending to confirm our supposition that the structure was built and used by the Benedictine monks who served the two chapels, one on the hill above, the other on the island'.

Croft Andrew also gave J H Adams a couple of interesting pieces of information at some time: 1) there was a west gallery and external stairs to it at the northwest angle and postholes for gallery supports in the floor of the chapel, and 2) he felt sure the Lammana chapels were eventually used for beacons since they are in direct line with the Ranneys, dangerous rocks on the other side of Looe Island (Adams, 'Catalogue of mediaeval Cornish chapels' TS, no 306 'Lammana'). With the plans and sections, we have reached the extent of the information conveyed by C K Croft Andrew about his 1935-6 excavations of Lammana chapel and Monk's House. After these come the plan of the open chapel site as surveyed and drawn by Ann Preston-Jones and Peter Rose in 1988 (Fig 19), and the study of the pottery by Cathy O'Mahoney to whom in 1988 it could convey much more information than to Croft Andrew fifty years before.

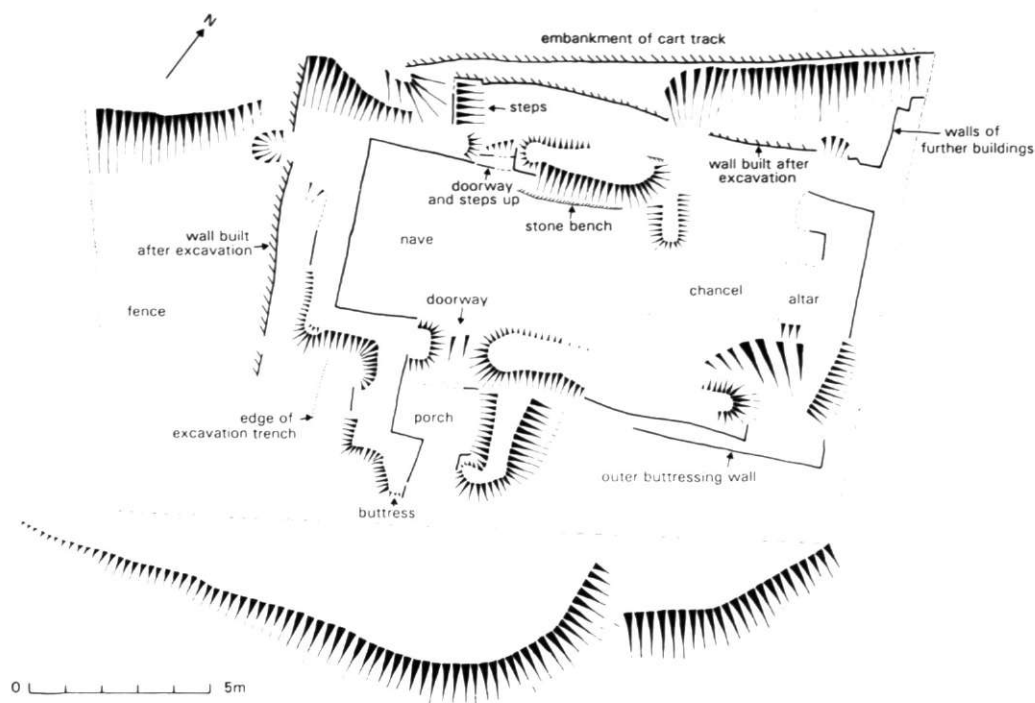


Fig 19 Lammana. The open chapel site as surveyed by Ann Preston-Jones and Peter Rose of the Cornwall Archaeological Unit in 1988

Pottery from Lammana: the mainland chapel and Monks House, by Cathy O'Mahoney

This material from Croft-Andrew's 1935 and 1936 excavations at Lammana is small in amount but varied in character. The precise locations given for some sherds enables a pattern of the distribution of different types to be established which gives some chronological picture of the activity within and around the chapel and Monks House. For the position of the excavated areas A-V see the plan Fig 4.

The collection consists of 182 sherds and 80 ridge tile fragments which can be assigned to 72 vessels and 39 tiles. Not all of the sherds are marked but 51 vessels were found in or around the chapel, and 9 at Monks House; only 12 vessels remain unprovenanced. Fifteen of the ridge tiles cannot be located; the remaining 24 were all found in or outside the chapel.

There are a small number of Romano-Cornish sherds and one extremely abraded piece of Samian. These are concentrated in one area on the south side of the Chapel in areas J, V and T. Two sherds from T may have been found beneath the chancel floor. The sherd of Samian was found with a skeleton more than 2 feet deep under the floor in the southeast of the chancel. There is a single sherd of imitation Black-Burnished Ware from Monks House.

The medieval and post-medieval pottery has been divided into types which have been given the following abbreviations. For ease of reference each vessel within these types has been given a number, eg CHA 1.

Chert-tempered	CHA	Unclassified	U
	CHB	North Devon Coarseware	NDC
Stuffle Fabric A	SA	Regional Import	REW
Fabric B	SB	Sandy Ware	SND
(St Germans type)	SBA	Saintonge	SU/SC
Lostwithiel type	LO	North Devon Post-Medieval	NDGF/NDGT
Cornish	CO	Other Post-Medieval and Modern	BGE/M

Identification of vessel forms is difficult as most are represented by only small fragments, but six vessels can be positively identified as jugs, four as cooking pots, and three as bowls, with single examples of a cucurbit and a chafing dish.

Type descriptions

Chert-tempered ware, CHA and CHB

There are eight vessels of these hand-made wares represented by 18 sherds. Two fabrics are present: CHA which contains abundant rounded quartz as well as chert, and CHB which has only sparse quartz. The illustrated vessels Fig 20 Nos 1, 2 and 3 are all in the first category. Chert-tempered wares are found at Exeter from the 11th to the early 15th centuries and are thought to have been made somewhere to the east of the city (Allan 1984, 4). They have been found in Cornwall at Launceston Castle and Tintagel. Evidence from several sites suggests that these products were replaced by those of the local industries sometime around 1200 (Allan and Perry 1982, 89).

Examples of CHA are very hard-fired and have brown surfaces which on 3 pots are heavily sooted externally. One sherd, CHA 5, from VE is reduced internally. Sherds of CHB 1 and 2 are not so hard and are of a slightly different brown colour. A further sherd, CHB 3, from VE is soft and light brown. All the sherds are probably from cooking pots but only two rims survive.

At Lammana both kinds of chert-tempered wares are concentrated in one area, south of the chapel, mainly around the porch. Four vessels, CHA 1 and 4, CHB 1 and 2, come from what is described as a sealed layer (V.1 V.2) beneath the turf and topsoil and chapel debris. Sherds of other types of pottery are found in this area but not at this depth. A further two sherds were found beneath the great corner stone at the southeast angle of the chapel (VE). It seems possible that the chert-tempered wares were associated with an earlier structure on the site, or they may have been used by the men who built the chapel. Possibly they were in use at the time when only the nave was built. There are no instances from Monks House and they are not found anywhere else in or outside the chapel.

Stuffle Fabric A, SA

This is the precursor or early version of Lostwithiel ware. The main inclusions are quartz, muscovite, greywacke, and a rock which may be greisen. It is thought to be of 13th or 14th century date, possibly extending into the 15th century (O'Mahoney 1989A). Only 14 sherds representing 11 vessels are found at Lammana, and of these seven sherds (six vessels) are from Monks House.

Most vessels are represented only by small undiagnostic sherds. There is one cooking-pot rim from Monks House (Fig 20 No 5) which is the commonest shape found in this ware (Form A, O'Mahoney 1989A), but not yet datable. There is also an abraded strap handle of a jug (Fig 20 No 4), from the building north-east of the chapel, (marked OAZ, OB), which is slashed diagonally with a sharp instrument on either side. This decoration is also found on two strap handles of this ware found at Tintagel (O'Mahoney 1989A, fig 1 No 8).

The surfaces of all these vessels are abraded but they appear to be hand-made. One sherd from Monks House has closely spaced horizontal ridges on the exterior surface and was possibly finished on some kind of turntable. This is heavily sooted externally. At Stuffle this ware was sub-divided into three categories, SA1, SA3, and SA4. Most of the Lammana examples correspond to SA1, three to SA4, and one to SA3.

Only three vessels are from the chapel site, from areas S, V, and J. It is possible that the use of these vessels overlapped with the chert-tempered wares.

Stuffle Fabric B, SB

This is characterised by rounded inclusions of quartz and greywacke. Sherds from Lammana correspond most closely to Stuffle type B5, not B2 (O'Mahoney 1989B).

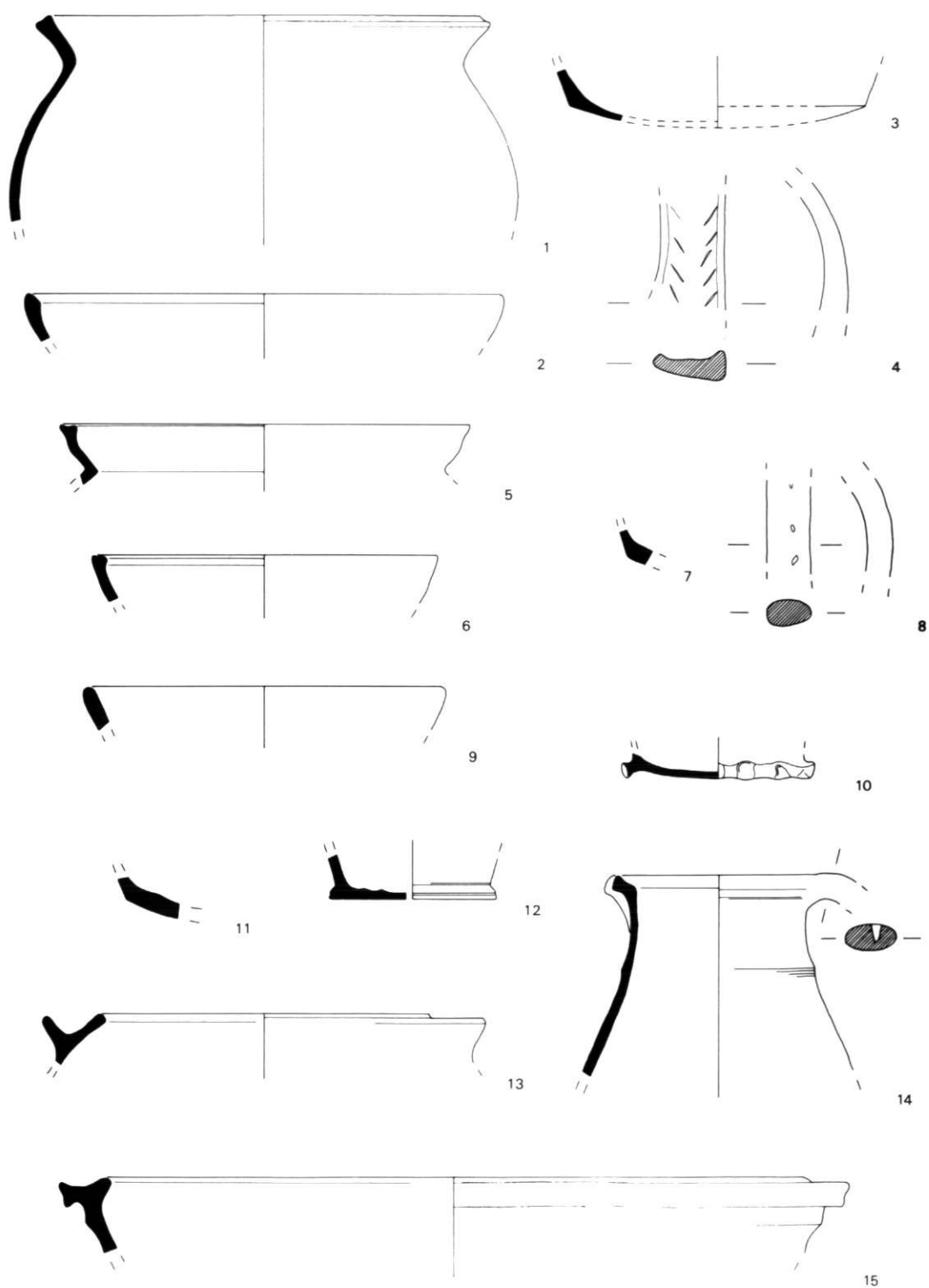


Fig 20 Lammana 1936. Pottery nos 1-15. Scale $\frac{1}{4}$

There is only a small amount of this material at Stuffle and its distribution there tends to suggest that it may be the earliest of the fabrics there, but the evidence for this is slight.

Three examples of this type which are consistent in fabric are concentrated around wall R, north of the Chapel. Two of these, SB 1 and SB 2, are very hard-fired base sherds, the latter reduced to a very dark grey internally. SB 3 is oxidised orange-red on both surfaces and consists of body and base sherds from L, R, CX and CS. There is one cooking-pot rim (Fig 20, No 6), from the south of Trench A, which compares well with examples of this form from Stuffle (O'Mahoney 1989B fig 4.1 No 10, fig 4.2 No 38). This has a few large voids and some calcareous inclusions. It is sooted externally. There is the broken lip of a jug from the dump west of the chapel (SB 4).

SB 6 has a similar assortment and distribution of inclusions to the above wares but stands apart and would appear to be of later date. It is very hard-fired and possibly wheel-made. The interior surface is pink and the exterior mostly covered with white slip which is possibly arranged in a geometric pattern. There is some calcareous material in the fabric.

Of the seven vessels assigned to this category only one can be identified as a cooking-pot and one as a jug. There are no examples from Monks House.

St Germans-type ? SBA

The type which occurs in greatest quantity on the chapel site, and dominates the whole collection, both by sherd (24%) and vessel (21%) count, corresponds most closely to pottery which has been called St Germans type. This is the only other major known source of pottery in Cornwall apart from Lostwithiel, and the name at present may be being used to cover a variety of different wares made in the area of the Tamar valley. Petrological work by Vince and Brown on material from the kiln itself (Vince and Brown 1981) has failed to characterise a distinctive St Germans fabric, but a number of samples have been tentatively assigned to this source. Type SB and Ridge Tile fabric SB5 (see below) correspond to Stuffle fabric B, thin-sectioned by Vince and Brown and compared to St Germans material but not identified as it (Vince and Brown 1989). Pottery Type SBA and Ridge Tile Fabric SB5A are finer in texture than Stuffle Fabric B and nearly always contain calcareous material. These may be closer to the fabric of material actually found in the St Germans kilns. However neither of these fabrics could be described as micaceous, and material from sites in Plymouth which has been called St Germans ware commonly contains black mica which this ware does not. Some sherds contain the odd flake of white mica but this is not conspicuous.

Fifteen vessels have been assigned to this category, comprised of 44 sherds. Few are recognizable as particular forms although there is one bowl (Fig 21 No 23). The other basal angles, body and neck sherds could be from jugs, jars or cisterns.

All these vessels are wheel-made, and the fabric of most contains a dense scatter of very small calcareous inclusions, or has pitted surfaces where these have leached out. Five vessels, Fig 21 Nos 21 and 22, and SBA 4, 5 and 8 have horizontal bands of white slip decoration. At the St Germans kiln vessels with this type of decoration only occurred in levels above the latest kiln, levels which are possibly early 16th century (Miles 1970). Several of these vessels are reduced and these may be later in date than the oxidised ones. One shoulder sherd SBA 13 (unmarked) has decoration of horizontal incised grooves.

The handle (Fig 21 No 18) has three vertical slashes at the base made with a sharp instrument. This may be a characteristic of the St Germans kilns; Lostwithiel examples tend to be stabbed with a large rounded instrument resulting in circular impressions (eg Miles 1976 fig 39, Nos 13-17).

The bowl (Fig 21 No 23) is in a slightly different fabric which has much fine white mica in the matrix and large irregularly spaced calcareous inclusions as well as the usual small ones. No parallels can be found for this fine vessel which is decorated on the inside of the rim with an incised wavy line and has stab marks on the shoulder. Bowls are generally thought to be post AD 1500 in date in the South-West and a 16th century date is appropriate for this vessel. Its sherds are distributed between Trenches A, B, and CG. The basal angle from CG does

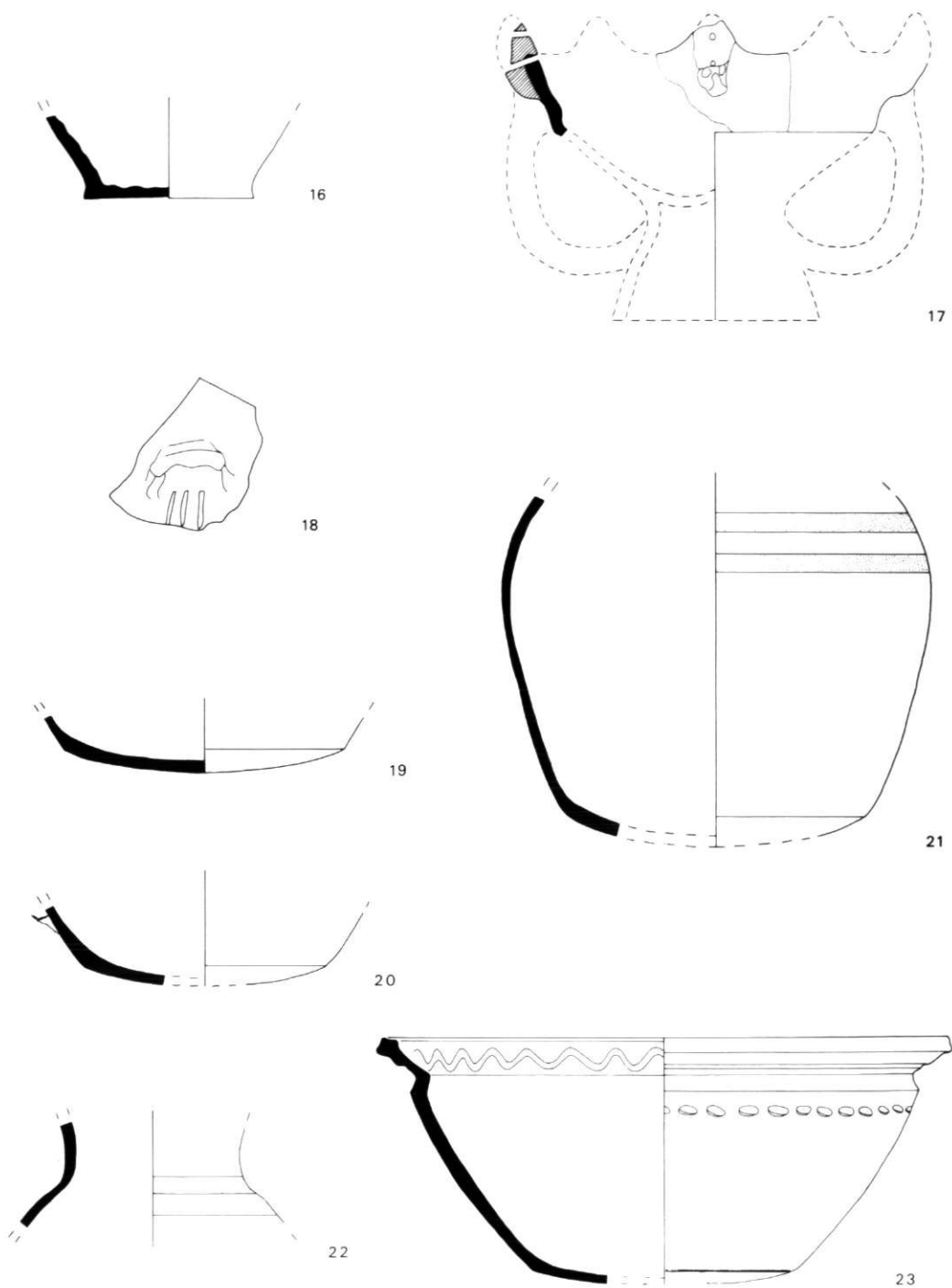


Fig 21 Lammana 1936. Pottery nos 16-23. Scale $\frac{1}{4}$

not actually join. This is irregularly covered with white slip on both surfaces and may come from the other side of the pot.

None of these vessels is glazed.

There are no examples of SB or SBA at Monks House.

Lostwithiel-type wares, LO

Three vessels are classified as this type of pottery, which is petrologically distinct from Stuffle-type ware and is thought to be of 15th-16th century date. It usually contains large amounts of large flakes of white mica.

It is not possible to say what form of vessel the unglazed basal angle Fig 20 No 11 is from; this was found in Trench B.

The bowl rim Fig 20 No 15 is wheel-made and has large splashes of green glaze externally and possibly some deliberate horizontal bands of white slip decoration internally. The rim form is broadly similar to vessels from Colliford (Austin and Litt 1989, fig 4.7 No 96, fig 4.9 Nos 107 and 109), and Plymouth (Broadly 1979, fig 21 Nos 184-188, fig 22 Nos 189-192), in both cases assigned a 15th-16th century date.

The cucurbit rim, Fig 20 No 13, is possibly a surprising find near a chapel but could be expected on a monastic site. Examples in South-Western micaceous wares are already known (eg Allan 1986, fig 5 No 13, found in a late 15th century context). On this vessel there is a full cover of green glaze internally which extends over the top of the rim. Sherds of this vessel come from V and V 28. Cucurbits are distilling bases (Moorhouse 1972); possibly liqueurs (Benedictine?) were being manufactured at the Priory.

Cornish wares, CO

These are a miscellaneous group which do not fit into any of the above categories.

Thirty-one sherds form the upper part of an unglazed wheel-thrown jug (Fig 20 No 14). A fair amount of medium-sized black and white mica flakes are visible on the surfaces. The predominant inclusions are of angular quartz although other minerals are present. Thin-sectioning would be necessary to define a source. The fabric is hard-fired and in a good state of preservation. It is mostly oxidised a light orange-red colour throughout although there is slight reduction in the core and a blue-grey patch on the exterior. There are horizontal bands of slightly lighter colour on the surfaces which are possibly the remains of white slip decoration.

The rim is lid-seated, with a simple pulled lip, and an oval-sectioned handle attached to the top of it. There is a single deep stab-mark at the top of this. A slight cordon is at the base of the neck. Jugs of similar form occur at Colliford (Austin and Litt 1989, fig 4.5 Nos 84, 88, fig 4.8 Nos 103, 105), although the rims are more developed and the jugs have rod handles. These are of late 15th-16th century date. There is also an example from St Andrews Street, Plymouth (Broadly 1979, fig 18 No 114) which is considered 15th century.

The sherds of this pot are distributed around the chapel porch in areas J and S. A single sherd from another vessel in a similar fabric is found in Trench C. This is sooted externally.

Four unglazed sherds from Trench A (CO 3) from the lower part of a cooking pot or jug are in a fabric similar to SB and SBA but containing large flakes of black mica. There is some white calcareous material. The vessel is hand-made, and has oxidised surfaces and a reduced core.

A basal angle (Fig 20 No 7) from Trench C is in a similar fabric to the above sherds. The inclusions appear to be mainly quartz, some rounded but most angular. There is some black mica. The interior is oxidised, the core reduced, and the exterior surface a dark brown colour.

The neck angle of a cooking-pot (CO 4), unmarked, has a bright orange exterior surface, a reduced blue-grey core, and a buff interior. There are minute dark grey inclusions in the matrix (as in Stuffle-type ware), some large angular and some rounded quartz, and possibly a piece of chert.

Unclassified, U

A single sherd with very abraded surfaces has been drawn as a rim (Fig 20 No 9) although it may be another part of a vessel. The top edge has been squared off in an unusual manner and the curvature is distorted as if at the side of a lip. Thin pale orange-buff surfaces remain outside a thick dark-blue core. The fabric contains much fine sand and several large inclusions which protrude through the surfaces, including quartz and some chert or flint. No mica is visible.

North Devon medieval coarseware, NDC

There is a single unglazed body-sherd (unmarked) of Okehampton Fabric 1 (Allan and Perry 1982).

Regional import, REW

Part of an oval-sectioned handle of a jug in a hard-fired gritty fabric was found in Monks House. There are no other instances of this fabric on either site. The fabric is a clear creamy-white colour and contains abundant inclusions of medium-sized (0.2-1.0mm) angular quartz with a single larger quartz inclusion. The back of the handle is irregularly pierced with a sharp instrument and covered with a pale green glaze which is largely stained brown from the addition of iron. This vessel may have been imported from Dorset. A possibly similar jug handle with sharp piercing occurs at St Andrews Street, Plymouth (Broadly 1979, fig 14 No 26) and examples of Dorset whitewares are known from Woolster Street, Plymouth (Allan 1986).

Sandy wares, SND

A jug base from Monks House (Fig 20 No 10) and a single body-sherd from the South of Trench A are in fine sandy fabrics which may also be imported from further east. The jug base is hard-fired with light orange oxidised surfaces and a pale blue reduced core. The edge of the basal angle has been turned up to form a narrow band, and thumbbed. There are large splashes of green glaze over this area and smaller ones beneath the base.

Saintonge wares, SU/SC

There are parts of two different vessels of this fine type of pottery imported from south-west France: the knob and rim of a chafing-dish (Fig 21 No 17), and basal angles and body-sherds of an unglazed jug (Fig 21 No 16). Part of the applied face on the chafing-dish is broken off and the remaining protrusions are scarred so it is not possible to illustrate precisely. The vessel is however easily identifiable as Hurst's Type 1 which is dated to the first half of the 16th century (Hurst 1974). On this example the section with the knob and face is glazed yellow and the adjoining section glazed green. There is a colour photograph of a similar complete chafing-dish in Hurst et al 1986, 79.

The jug has thick pink margins and surfaces and a white core. There are large (up to 4mm) red inclusions in the fabric. There are no signs of glaze on any of the sherds. It is not possible to reconstruct the upper part of the vessel but it probably dates to the late 15th or early 16th century when unglazed jugs were imported (Hurst 1974, 224).

Post-medieval North Devon wares, NDGF/NDGT

There are only two examples of these: an internally glazed gravel-tempered base sherd which is unmarked and could be from any form, and a finely wheel-turned basal angle from a jar in a gravel-free fabric (Fig 20 No 12), from Trench C. This is fully glazed internally and partially glazed externally. There is what may be the remains of the lower handle attachment on the outside. Both sherds could be 16th century in date, or later. Jugs or jars in the fine fabric with this type of basal angle are found in 16th century groups (Allan and Perry 1982 No 73, Austin and Litt 1989, fig 4.10 Nos 115, 116, 119).

Other post-medieval, BGE/M

Three sherds of brown glazed earthenware could be of 16th or 17th century date. One of these from F-G is the rim of a bowl with a groove beneath the top externally. A further five sherds from four vessels (earthenware and china) are 18th century or later date.

Ridge tiles

Most of these can be related to the pottery types above. There is no reliable dating evidence for ridge tiles in Cornwall. No tiles are complete and it is not possible to estimate their length. SA 1 15 pieces 5 tiles

This is Stuffle fabric A1 with the addition of green glaze. (There are no known examples of glaze on this type of pottery). There are no complete crests but the lower parts of crests that do survive are all knife-cut on one side, giving a steep edge, and finger-wiped on the other, where there is a shallower slope (Fig 22 No 26). There is faint horizontal ridging on the body. These tiles have no groove round the edge.

SB 5 46 pieces 24 tiles

This is closest to Stuffle fabric B5. The tiles frequently contain some calcareous material. The margins are usually oxidised but the actual surfaces are often darkened. Two of the 24 examples have green glaze. One of these is illustrated (Fig 22 No 25). On the other (SB5 2) the end survives and the first crest is at the end of the tile. On three other thicker unglazed tiles where the ends survive the first crest is 6 or 7cm from the end of the tile (SB5 6, 13, and 17). The crests can be either narrow, low and finger-wiped or high and pointed (SB54). There is a groove around all the edges that survive. Some tiles have possible remains of white slip decoration (eg SB58). There are deliberate stab marks on the lower surface of SB510. The illustrated example Fig 22 No 24 is totally reduced and has prominent ridges on the sides. A few other tiles have these but they are not so pronounced.

SB5A 11 pieces 6 tiles

As pottery type SBA this is finer and has smaller inclusions than pottery type SB and Ridge Tile type SB5. All the tiles have oxidised surfaces and some calcareous material. All except one corner (SB5A1) have a groove around the edge. On two tiles (SB5A3 and SB5A6, Fig 22 No 29) where this area survives there is a broad single incised wavy line along the bottom edge. On another, SB5A5, this occurs half-way up the tile instead. All crests are high and pointed and start from the end of the tile. One tile SB5A4 (Fig 22 No 28) has single vertical incisions on either side of the crests, while SB5A6 (Fig 22 No 29) has three of these on either side of each crest. On both these tiles there is a broad finger-wipe extending down from these incisions.

Unclassified 8 pieces 4 tiles

Four tiles cannot be fitted into any of the above groups. Three of these are variants of SB5 and SB5A. The fourth, (Fig 22 No 27), is unique on the site in both fabric and decoration. The reduced grey fabric contains some white mica, some small calcareous inclusions, and sparse large white inclusions which are not calcareous. There is a groove around the edge and an incised wavy line along the bottom edge of the tile. A vertical row of diagonal incisions is possibly part of a 'fir-tree' pattern, although these do not normally extend to the bottom of the tiles.

Several features of this tile collection are unusual when compared to other groups from Cornwall. Apart from SA1 which is mostly covered with glaze none of the tiles are micaceous, and only the tile described above has anything that resembles the fir-tree pattern which is characteristic of Cornish tiles. The chronological development of styles observed at Woolster Street (Gaskell-Brown 1986, 73), cannot be proved or disproved as there is no dating evidence, but it might be surprising if the tiles with high pointed crests were the earliest as they are in the fabric of the later pottery type. Possibly though, both pottery types and tile fabrics were in use concurrently. The combination of knife-cutting and finger-moulding on crests of tiles of SA1 also shows that the former method of finishing need not be earlier than the latter.

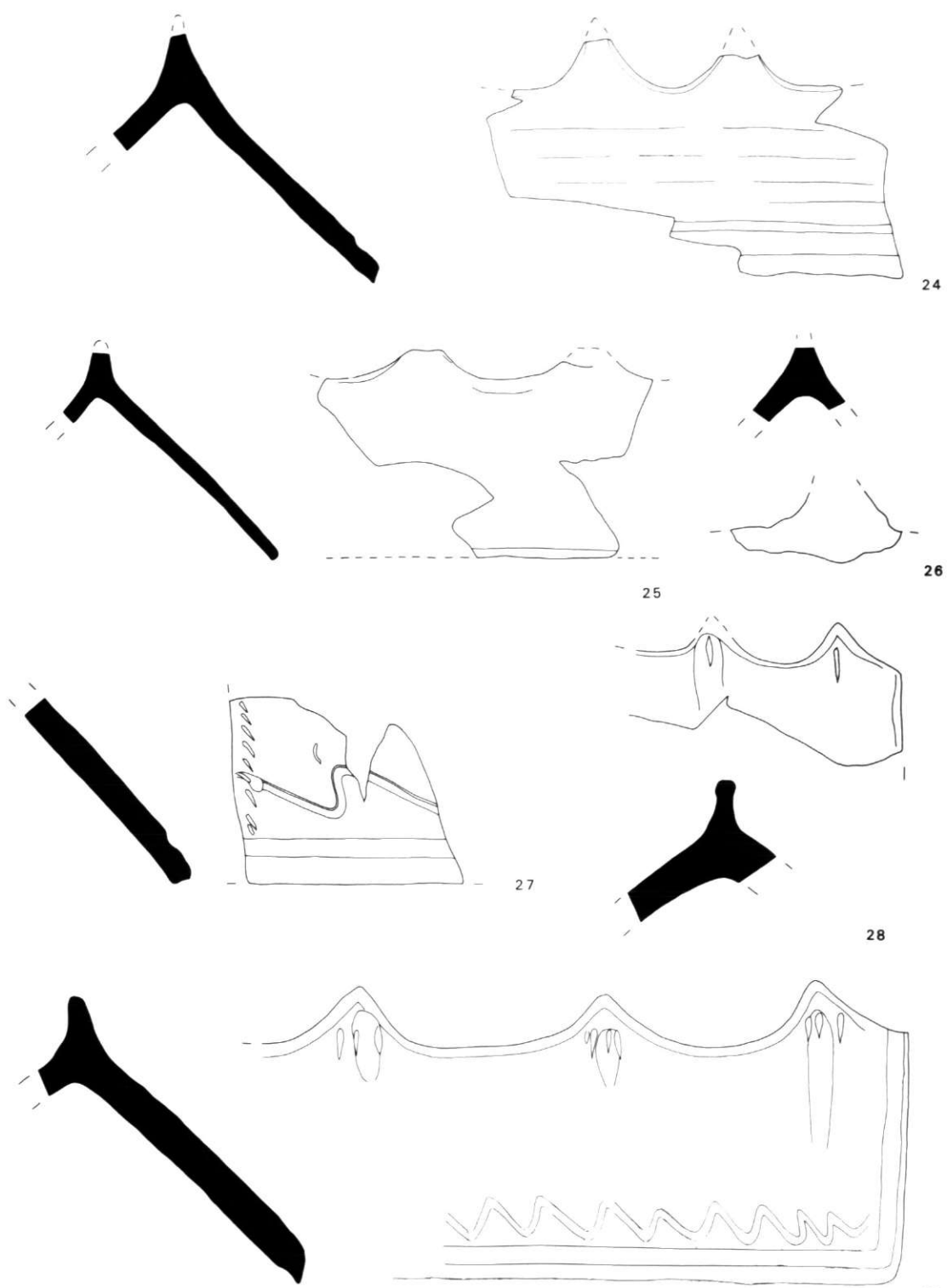


Fig 22 Lammana 1936. Tiles, pottery nos 24-29. Scale $\frac{1}{4}$

Most of the tiles are concentrated in Trench C outside the north wall of the chapel and few conclusions can be drawn from the distribution of the types.

Conclusion

The collection is rather large for a chapel site, especially one which has not been fully excavated and which was dug under rescue conditions in the 1930s. However large numbers of sherds are known from other chapel sites in Cornwall, for example Chapel Jane (Russell and Pool 1968) and St Ia's Chapel (Thomas 1967). It is possible that some of the vessels distributed around the north of the chapel, particularly those around wall R and slot OA, are associated with buildings to the north, but this explanation cannot be used for the sherds found inside the chapel itself, or most of those surrounding it. The distribution of sherds of some vessels, for example the unglazed Saintonge jug, suggests that pottery was broken in the chapel and shovelled out of either doorway.

Sherds of only ten vessels were found actually inside the chapel. Two of these vessels are Roman and one is possibly later than 16th century in date (BGE 1). Five of the remaining seven are either certainly or probably 15th or 16th century: SC 1 chafing dish; SU 1 jug; LO 2 bowl; SBA 1 and SBA 5, white slip decorated vessels, possibly jugs or cisterns. The other two, SB 6 with white slip decoration, and SBA 11, a sloping basal angle, could also belong to this period. Many of the vessels found in or around the chapel could have been used for the storage, transportation, or pouring of water. Both the Saintonge jug and the chafing dish were found in area H, near two post-holes. It is possible that these fine vessels were used in chapel ceremonies, and that the post-holes supported a structure on which they were normally placed. There are no signs of burning on the sherds of the chafing dish that survive, so it may not have been used for the normal function of keeping things warm. Although sherds of the ornate bowl SBA 9 were only found outside the chapel this too may have been used in ceremonies.

Apart from the chert-tempered wares which form a discrete group and can be assigned to the 12th century, the pottery found outside the Chapel is also dominated by 15th and 16th century types which were presumably in use at the time of the Dissolution. In contrast the few sherds from Monks House can be assigned to the intervening period, the 13th and 14th centuries, although further excavation of this building might extend this period.

Quantification is difficult because of the small size and variety of the collection; vessel and sherd counts, which sometimes work out as similar percentages, do not in this case; for example Saintonge sherds comprise 12% of sherds but only 2% of vessels. As could be expected Cornish wares collectively comprise the largest proportions: 64% of sherds, 57% of vessels. Positioned as it is on the coast between St Germans and Lostwithiel, Lammana would receive products from both centres, however those thought to originate from the former outnumber the latter both by vessel (31%-19%) and sherd (32%-11%) count.

The small collection from Monks House is dominated by Stuffle Fabric A, which is poorly represented at the chapel. The two regionally imported jugs from Monks House would fit with the 13th-14th century date assigned to this ware. These were possibly brought by visitors to the house.

The largest concentration of both pottery and Ridge Tiles is in Trench C, outside the north wall of the chapel.

Illustrations:

FIG	NO	TYPE	NO	CONTEXT
20	1	CHA	1	V
	2	CHA	2	S
	3	CHA	3	J
	4	SA	1	O
	5	SA	2	M.H.

FIG	NO	TYPE	NO	CONTEXT
	6	SB	7	A
	7	CO	5	C
	8	REW	1	M.H.
	9	U	1	S
	10	SND	1	M.H.

Illustrations (cont):

FIG	NO	TYPE	NO	CONTEXT	FIG	NO	TYPE	NO	CONTEXT
20	11	LO	1	B	21	SBA	2	O	
	12	NDGF	1	C	22	SBA	1	F	
	13	LO	3	V	23	SBA	9	B/A/CG	
	14	CO	1	J/S	22	24	SB5	14	Near South Door Outside
	15	LO	2	Q	25	SB5	1	L	
21	16	SU	1	H/J/C	26	SA1	1	C	
	17	SC	1	H	27	UX	1	V	
	18	SBA	7	C	28	SB5A	4	P/G	
	19	SBA	6	C	29	SB5A	6	Nave Inside N. door	
	20	SBA	11	H					

General discussion, by Lynette Olson

There are two especially useful ways to approach the problems and opportunities presented by the excavated Lammana sites. One is to ask who the buildings were for. The other is to compare Lammana mainland chapel with St Ia's chapel, Troon, in the parish of Camborne, Cornwall, excavated by Charles Thomas in 1966 (Thomas 1966, 1967a, 74-85, 1967b). For the whole complex of the medieval priory of Lammana and its successors, see Olson 1989, 97-103; Picken 1985; Padel 1991, 253-6. Lammana Priory was most likely founded in the early 12th century. Domesday Book records only secular manors in the area, but by AD 1144 Lammana is listed among the possessions of Glastonbury Abbey. By c 1200 it was certainly a priory; Prior Helia and his companion monk John, who witnesses a charter re-granting the island of St Michael of Lammana (Looe Island) with land on the mainland opposite, may well have been the only religious there. The priory church was on the island, the chapel on the mainland which Croft Andrew excavated being a later and secondary feature.

According to the testimony given near the end of the 13th century (above pp 96-7), the mainland chapel was built for the devout on St Michael's day (were they pilgrims?). Someone had to conduct religious services for them of course, so priory personnel must be added. The material remains attest to a considerable development of the mainland portion of the priory estate, and it may be that for reasons of convenience much of the activity of the priory came to take place there. That activity would have ceased however at the middle of the 13th century when Glastonbury Abbey farmed out Lammana to the lord of the local manor. The ceramic finds at Monks House rather suit such a period of limited use, although who that building was for—monks, servants, guests, animals?—is indeterminable; see further below, pp 126-7. Yet the vicar of Talland may have had cure of souls over 'all the men living in the lands of Lammana', but the mainland chapel continued to function as a chapel of ease for these people, a role which one suspects it had performed since it was built, Talland church being several miles to the west. From the mid-14th to the mid-16th centuries there are also references to a chantry at Lammana, which one chantry certificate explicitly sites on the island, as might be expected of the successor to the priory church, established and maintained by the secular heirs to Glastonbury's possession. One wonders how much any theoretical distinction between the chantry chapel on the island and the chapel of ease on the mainland was observed in practice however. So the mainland chapel was there for the local inhabitants, the chaplain, the patron (and his family), and, if one wants to take a medieval perspective, God and St Michael.

St Ia's chapel was also a chapel of ease. There are a number of similarities between this site, especially its phase 3, and Lammana. The range of finds included plentiful pottery inside and mostly outside the chapel, ridge-tiles, local slates of two types and some metalwork. The site is on a valley side, is itself slightly sloping, and much earth and debris from its walls had accumulated within it. The phase 3 chapel was rectangular with a north and south doorway in an identical relationship to Lammana. A porch may have been built at the north doorway. The south doorway was added when the phase 2 chapel was rebuilt, its east wall having been

removed, and extended to the east. Also added to the extended east end along the north and south walls and in the southwest corner were stone benches. There was a rectangular masonry altar-base centred against the east wall. A still later addition was a three-light mullioned window, but here in the south wall beside the altar. The walls of phase 2 were constructed of stones set 'in packed earth or stream-bed clay'; in the phase 3 rebuilding the stones were laid in regular horizontal courses. On the west side, facing down the slope, a large revetment was built. 'The chapel was at some stage pointed externally, and coated internally, with a white sandy mortar'. Eventually two types of mortar were respectively assigned to phases 2 and 3, with several coats of lime wash used on the phase 3 east wall and southwest corner. Floral or geometric painting on an intermediate layer on the east wall and also seen in the southwest corner is a rare feature in chapels, and of course one shared with Lammana. A dwelling associated with St Ia's chapel phase 3 even provides a parallel with the structures north of the Lammana chapel.

Where the comparison with St Ia's chapel is especially helpful in understanding Lammana chapel is in the difficult matter of Croft Andrew's views on the structural development of the latter. It is one thing to dismiss his misunderstood jambstone (p 101) and quite another to disallow his judgement on rebuilding. All of the later features of the site identified by Croft Andrew are paralleled at St Ia's chapel, except for the addition of the screen walls. That probably one burial underlay the south screen wall and another the east chancel wall provides some support for Croft Andrew's assertion that these were later additions, as do the 12th-century potsherds sealed under the ultimate foundation stone of the southeastern revetment. Evidence for different alignment of the chancel is also suggestive if it is not the result of the site's topography: ie limited room on the ledge. The subsequent phases of St Ia's chapel moreover are also datable largely by reference to associated pottery, of west rather than east Cornish types. Also considering the jambstone parallel at early 13th-century Penhallam, where the dimensions of the chapel altar block are also similar to Lammana's (Beresford 1974, 114), Lammana chapel may be assigned to the same period as St Ia's phase 3: AD 1200-1250. Phase 2 of the latter is dated to AD 1100-1150 or perhaps 1125-1150. If there was an earlier, smaller chapel of Lammana with one north doorway as Croft Andrew maintained, perhaps the interval between it and the extended chapel was even shorter than that which the evidence suggests for St Ia's. Chert-tempered ware is 12th-century; after rather than before AD 1150 would suit the documentary evidence a little better however.

There was also a phase 1 at St Ia's chapel, which produced no pottery but an earlier structure, as well as a stone cross and altar frontal dated to c AD 950. Nothing from the early Middle Ages was found at Lammana. While the occurrence of pieces of abraded Samian on early medieval British and Irish sites has been noticed (Jonathan Wooding, pers comm), the finds of Romano-Cornish potsherds near the Lammana Samian sherd suggest that they all belong to the same assemblage. With the Roman sherd from Monks House should also be mentioned a few sherds of Roman pottery found on a property within 150 yards [c 137m] east of the wall in the hedge. These Radford identified as: 'Fragments of black ware cooking pot. Native ware of Roman period, probably 2nd or 3rd century AD' (Truro Museum accessions file s.n. Hannaford). There were people on these sites in Roman times, but something else must have been here for them then.

The pottery from St Ia's chapel is apparently not later than AD 1400. The majority of Lammana pottery is 15th-16th-century, and is from the chapel and its environs, representing the site up to, and even beyond, the Dissolution. While no evidence of a hearth was found to support one or two suggestive hints in the ceramic finds that the chapel might have finished as a converted dwelling, the unknown users of the structures to the north may have continued on the site after the chapel lost its ecclesiastical function.

Two excavated structures require further discussion: the large building called Monks House, and the substantial, rather oddly-shaped chapel porch. There is no reason to reject the traditional association of the former with Lammana Priory. Although situated some distance from the chapel, Monks House lies between it and the field called Lemain Park and is certainly on

what was priory land, and is compatible in finds, mainly of Stuffle fabric A, and structure with having been part of the mainland development of the priory. What was excavated were remains of the undercroft. Such a building is consonant with monastic architecture; for example, remains of the cellar undercroft of the refectory are still to be seen at Port Eliot in St Germans. But it might alternatively have been a guesthouse or a barn. Even allowing for the unbonded interior walls to have been later insertions and for the incompleteness of its excavation, it does not look like a longhouse. The pottery, stone drain and possible hearth should be noted, but are not conclusive as to function. As for the chapel porch, there are a variety of explanations of its plan. Possibly the sizeable foundations were designed to take an upper storey (Charles Thomas, pers comm). On the other hand, its position at the top of the south slope should be recalled: there was a small buttress at the southwest corner of the chapel, and extensive footings outside the south chancel wall. Perhaps the particularly substantial west wall of the porch was intended to serve as a buttress, whereas less support was needed on the east because of the size of the footings there. Or the larger western wall may have been intended to withstand the prevailing southwest winds to which the site is so much exposed (W M M Picken, pers comm).

Finally, there is the problem of what the chapel is doing up on a steep hillside when there is sufficient level ground near the Monks House below. One explanation is that cult sites dedicated to St Michael belong in high places, whether on islands, coasts, or inland: a case of expectations determining the site. Following the excavator one can suggest a further, possibly related explanation: that a light may have been maintained in the chapel for guidance of ships. There are a number of reasons why this should be considered. 'Lighthouse chapels' are known elsewhere in Cornwall (Adams 1957, 57-8). The incumbent of the chapel of St Michael of Brea, situated on the last granite outcrop of the spine of Cornwall before Land's End, was entitled to 'byckenage' payments from the fishermen of two local ports to maintain a light there, according to a document of 1396 (Pool 1964, esp 29). Remains of a stone lantern for a beacon can still be seen in situ on St Michael's Mount, and at the other end of Cornwall the chapel of St Michael on Rame Head was a lighthouse for ships entering Plymouth Sound. We do not know how far back into the Middle Ages these practices extend (see Hague 1968 and 1973). Cary Nederman has kindly called my attention to the opening metaphor from Book 8 of John of Salisbury's *Policratus*, written in 1159 at Canterbury: '... They who sail the sea are accustomed to thank those by whose aid they have evaded dangers. Fires are lit, cries raised and signs put up by which the Scyllaeen whirlpool, the maelstrom Charybdis, hidden rocks, the tract and tenacity of Syrtis [sandbanks] might be avoided beneficially by sailors ...' drawn, with all its classical allusion, seemingly from real 12th-century experience. Also, the field which is the site of the mainland chapel of Lammana was named for a seamark on the 1839 Tithe Map. It was initially puzzling why the field was called 'White Rock' (divided into 'Higher' and 'Lower' portions) and only when returning on the boat from Looe Island did the reason become obvious in a large outcrop of light-coloured rock which was not obvious from within the field. Returning Looe fishermen took note of a feature in this field and named it accordingly. Modern ships in the Channel take note of this particular stretch of coast, because it bears the towers of the 'measured nautical mile'. Looe Island and harbour have long been points of maritime interest on an unwelcoming coast, the island noted as providing lee shelter for ships in high wind (Croft Andrew in Lewis, 16-20). Yet the island has bad shoals off its southeast tip and others between it and the mainland, making the small harbour of Looe tricky to approach. In these circumstances it is easy to conceive of the usefulness of two lighthouse chapels, one to mark the position of the island and the other of the mainland coast. Little charcoal was reported in the excavation of the chapel site, although the burning of oil is not ruled out. If the mainland chapel of St Michael of Lammana did function as a lighthouse, on analogy with the chapel of St Michael of Brea it would have shone for local fisherfolk and, if Hague's revision (1968, 66) of Pool 1964 be accepted, for sailors in ships out in the Channel.

Department of History, University of Sydney.

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Old Lanyon, Madron: a deserted medieval settlement The late E Marie Minter's excavations of 1964

GUY BERESFORD

With contributions by C. O'MAHONEY and P. A. S. POOL

Summary

Old Lanyon is an isolated deserted medieval farmstead situated on the moorlands of West Penwith. Excavation in 1964 by the late Mrs E Marie Minter for the Cornwall Archaeological Society revealed a sequence of superimposed houses divisible into three structural periods dating from c1050-1150 to the time of its desertion in the late 15th or early 16th century. Those of the first period were built of turf. Although their remains were few, they provide new information on the construction of this type of building in south-west England. During the second period, probably commencing in the 13th century, the turf-built houses were replaced by a stone-built long-house. The final structural period saw the development of a small prosperous farmstead comprising a long-house, a subsidiary dwelling and a barn. The excavation finds and archive are stored in the Chyandour Estate Office, Chyandour, Penzance, where they may be studied by appointment.

Introduction

Lanyon Farm, famous as the scene of J C Tregarthen's novel *John Penrose*, lies towards the northern end of the parish of Madron in the moorlands of West Penwith, the Land's End peninsula of Cornwall. The farm lies some 575 ft above sea level on the road almost midway between Madron and Morvah, about four miles north-west of Penzance, and about a mile and a half from the north Cornish coast (Fig 1). Lanyon has been chiefly noted archaeologically as containing one of the most celebrated antiquities of the district, the megalithic tomb called Lanyon Quoit, which lies by the road some 700 yds to the south-east of the farm, but it also contains the fallen remains of another such tomb known as West Lanyon Quoit. The deserted medieval settlement, long known as Old Lanyon, lies in the same field as West Lanyon Quoit, about 500 yds south-west of the farm, but about 75 ft lower (NGR: SW 422 337; close no OS268, 1908 ed) (Fig 2). Before excavation the remains of the medieval settlement were clearly defined by the high standing granite walls of two long-houses, a barn, and garden enclosures, which could be readily recognised in winter and early spring, but during the summer were partly concealed by tussocks of coarse grass, bracken and bramble. The site was Scheduled under the Ancient Monuments Act in 1957.

The land upon which the settlement stands slopes gently to the west towards a stream flowing in a southerly direction, to reach Mount's Bay at Newlyn. For much of its course the stream forms the western boundary of Madron Parish, but at Lanyon it divides that property from Bosulow which is also in Madron.

The geology of the area is complex. Towards the end of the Carboniferous period or at the beginning of the Permian age, granite was forcibly intruded into slightly metamorphosed and deformed sediments at a high level in the crust. The weathering of the granite by chemical and by physical means has resulted in a landscape of large expanses of open moorland. Beneath the top soil the upper part of the granite weathered to a weakly coherent material some 1-3 ft in thickness known as rab or growan. The soils upon which Old Lanyon stands, like those to the north of the settlement, are of the Moretonhampstead series (Note 1), but the site lies close to the boundary with soils of the Hexworthy series lying to the south and west, delineated by uncultivated moorland (Fig 2). The surface layer soils of the Moretonhampstead Series



Fig 1 Old Lanyon. Location Map showing position of Lanyon Farm

(Dearman, 1964; Waters, 1964) comprise a gritty loam varying from dark brown to almost black. It merges into a 3-9 inch layer of dark brown colour which is transitional to the ochrous horizon below. Although these soils are free draining and easy to work, they tend to be very acid. The soils of the nearby moorland of the Hexworthy Series, usually overlain by a thin horizon of amorphous peat, consist of some 3 ins of black humus loam merging down into a drab layer of similar thickness and then terminated abruptly by an iron pan approximately $\frac{1}{8}$ of an inch thick. The pan itself, covered with a mat of dead and living roots, restricts the percolation of rainwater and precludes the penetration of roots.

Although the subsoil is free-draining, the top soil is subject to water-logging for much of the year owing to the impervious nature of the iron pan. No clay has been recorded in the vicinity. Although exposed to the full fury of the Atlantic gales, the soils must always have produced good crops and grazing. Today, Lanyon Farm supports a herd of a hundred pedigree Guernsey cows and their followers and the land will produce up to two tons of barley to the acre. Early

LANYON



Fig 2 Location map showing position of Old Lanyon, Lanyon Farm, and fields mentioned in the text: 1, Higher Rissick; 2, Long Rissick; 3, Great Rissick; 4, Rissick Croft; 5, Park-an-Chapel

exploitation of this land is clearly attested by numerous hut-circles, standing stones, cairns, tumuli, and the Quoits (OS Map 203, 1:50 000). While the pattern of settlement must have changed considerably since the Bronze Age, the land was probably seldom out of cultivation. At Gwithian some 12 miles to the north-east the area has seen continuous settlement since the Bronze Age (Thomas 1958).

The distribution of Celtic place-names in and around the parish of Madron indicates that the pattern of early settlement in this area was dispersed, as in much of Cornwall (Gover, Place Names, 648). By the time of the establishment of the excavated site, Lanyon and much of the surrounding area was subject to the Domesday Manor of Binnerton (see below), although some of the Parish of Madron was included in that of Alverton (V C H 1924, 94).

When Mrs Minter directed the excavation at Old Lanyon for the Cornwall Archaeological Society in 1964, long-houses in the county had already been examined at Vendown in Minster (Dudley 1955-6, 147-48), Garrow on Bodmin Moor (Dudley and Minter 1964), Treworld near Boscastle (Dudley and Minter 1966, 39-43) and Crane Godrevy near Hayle (Thomas 1958, 29). The Society planned excavation of Old Lanyon in West Penwith in order to extend the area within the county in which such medieval sites have been examined. Old Lanyon was excavated between the 28th of July and the 19th of August, preceded by a short period of work at Easter. Mrs Minter was assisted by Mr John Lingwood and a total of fifty-one volunteers, most of whom were members of the Society. The camp was organised by the late Mrs F Nankivell and the late Mr Charles Woolf was the principal photographer (Note 2). Mrs Minter returned briefly to the site in the spring of 1965 to record features revealed by the weathering of the rab during the winter months.

During the last five years of Mrs Minter's life poor health and failing eyesight prevented her from writing up and publishing her excavation reports. Then, after her sudden death in October 1975, her executors very kindly presented all the plans, manuscripts, and photographs relating to her unpublished medieval research in Devon and Cornwall to the Deserted Medieval Village Research Group, whose Secretary passed the archive material to the writer to prepare reports for publication (Beresford 1979, 98-158). The Lanyon archive comprised original field-drawings, and draft tracings of the stone-walled buildings and the underlying stake-holes. The typescripts comprised interim reports for publication in both *Cornish Archaeology* (Minter 1965A, 44-45) and *Medieval Archaeology* (Minter 1965B, 208-10) and some general correspondence relating to the excavation and the history of the settlement. There are many photographs of the site taken during the course of the excavations.

In the absence of any draft report this text has had to be based on Mrs Minter's field drawings and their interpretations and the published interim reports. My own direct knowledge of Old Lanyon is a day's work on the site during the preparation of this report. Although I only spent one afternoon on the site with Mrs Minter, I had many long discussions with her about the structural remains and their interpretation. I have attempted to present the facts and conclusions which she had reached, but in some instances more recent research has led to the modification of the views originally held. Where this occurs, I have discussed the original interpretation and give my reasons for the alterations which appear in this report. The text, the figures with which it is illustrated, and the discussions of the parallels and ecology of the settlements, are my own contribution to this research. The excavation was recorded in Imperial measurements, and these are used in the text. Metric and Imperial scales are shown in the figures.

The historical background to the site, by P A S Pool, FSA

The name Lanyon might appear on first impression to include the Cornish element *lan*, meaning an enclosure and normally implying an early religious settlement (as at Landithy in the same parish), but this is misleading. The name is first recorded in 1214 as *Liniein*, *Leniein* and *Lenein* (Gover, Place Names 648), and these and other early forms (*Linyeine* 1244, *Lynyeyn* 1326) show that it is Cornish *lyn yeyn*, cold pool; the earliest recorded form with *lan-* is that of 1390, mentioned below.

Lanyon and much of the surrounding area were subject to the Domesday Manor of Binnerton,



Fig 3 Old Lanyon excavation. Looking east along the pathway between the houses; House 1 on the right, showing the neater coursing of the stones of the last period.

Photo: Charles Woolf

which had its centre in Crowan parish about twelve miles east of Lanyon, but which included this large detached portion in the north-west part of West Penwith. The family of Beauchamp (de Bello Campo) were lords of Binnerton from the 13th century until 1559, when the manor passed to Sir George Speke, who in 1567 sold it to John St Aubyn of Clowance; the St Aubyns retained it until the present century (Taylor, V C H Penwith, Crowan).

Lanyon in Madron was the centre of a sub-manor held of Binnerton, and from the 13th to the 18th centuries was the home of a family who took their name from the place. It has been asserted (Lamparter CRO) that the Manor of Lanyon was acquired by Roger de Linyeine from Hugh de Bello Campo prior to 1215. In 1224 (Fines 1914, 39) Hugh de Bello Campo granted to John de Linyeine and his heirs land at *Botuolo Bichan* (Little Bosulow, adjoining Lanyon across the stream to the west), and de Linyeine granted in return free flow of water in the stream from his land at *Retsic* (Rissick, later part of Lanyon, see below) to the mill at *Netcuran* (probably Nancothan). Reference is made in this fine to an earlier charter made between Roger de Linyeine, John's father, and Hugh de Bello Campo; this may have been the original grant of Lanyon.

The connection between Lanyon and the manor of Binnerton was very long-standing; as late as 1770 Philip Rashleigh, as owner of Lanyon, was paying a high rent due from Lanyon and Rissick to Sir John St Aubyn as Lord of Binnerton (Henderson RIC, Calendar XVI, 63; MS HA/9/30).

In 1390 (Exeter Ep Reg Brantyngham, 697) the Bishop of Exeter licensed the Vicar of Madron to hold services in the Chapel of the Blessed Mary of Laneyn. The field name Park-an-Chapel shows that the site of this chapel was in OS 217, on the south-west side of the road adjoining

the present farm buildings (Henderson, RIC, Penwith Topography 157, also *JRIC* 1958, 320); this suggests that by 1390 the main settlement at Lanyon was at or near the present Farm, not at Old Lanyon.

The Manor of Lanyon included not merely Lanyon and Rissick, but also Berries (Buryas), Hall Mitchell, Polgoon and Nancothan in Madron, Chun and Croftoe in Morvah, Brane and Bosence in Sancreed, Brewinney in Paul and a house in Penzance (Rashleigh, CRO nos 1152-1262, Henderson RIC, Calendar XIX, 305-12). In 1632 Richard Lanyon, who was then living at St Ervan, sold the manor to Jonathan Rashleigh of Menabilly (Rashleigh CRO 1178-80), a transaction confirmed by Richard's son and heir John Lanyon in 1638 (*ibid*, 1181). Thereafter Lanyon itself and Rissick, but not the manor, were leased by the Rashleighs to a junior branch of the Lanyon Family (*ibid* 1200, 1202-4), who thus continued to occupy the property as tenants until 1784, after which the old manor house was demolished and the present farmhouse built (Lamparter CRO). Another branch of the Lanyon family had in the late 16th century settled at Coswyn Wolward in Gwinear, the name of which they changed to Lanyon, probably in 1668 when they built a new house there, which they sold in 1786 (Taylor, VCH Penwith, Gwinear).

Lanyon in Madron continued to be owned by the Rashleigh family until 1908, when it was sold by John Cosmo Stuart Rashleigh to Thomas Robins Bolitho, of Trengwainton, by whose family it is still owned (Taylor, VCH Penwith, Madron; Lamparter CRO).

Part of Lanyon bore the name of Rissick. The fine of 1244 (above) refers to a property called *Retsic* belonging to John de Linyeine; this was called *Resyk* in 1334 and *Resic* in 1337 (Henderson RIC, Penwith Topography 153). The name is Cornish *res segh* dry ford, which also occurs at Rissick in St Buryan. Rissick in Madron seems originally to have been a property distinct from Lanyon, but the holdings were probably amalgamated at an early date. 'Resyk and Lanyeyn' are named together in 1334 and Lanyon is regularly called 'Lanyon and Rissick' in manorial documents from the 17th to 19th centuries. The approximate position of Rissick is indicated by a group of fields so called (Long Rissick, Great Rissick, etc) in the Madron Tithe Apportionment of 1841, along the slope between the excavation site and the ancient corn mill 400 yards to the north-west (Fig 2). The southernmost of these fields is very close to that containing the excavation site, and it has been suggested that the site may not be the original Lanyon, but Rissick, abandoned when the holdings were amalgamated. Though possible, this seems unlikely, since the field containing the site would probably have been called Rissick, and there was no evidence that it ever was. In a survey of 1670 (Rashleigh, CRO 3935/5) it is called, suggestively, Parke an Hingeowe (*park an henjow*, old houses field), but in the Tithe Apportionment this Cornish name is replaced by an English one, Deep Field.

The site was traditionally remembered as 'Old Lanyon' a century ago; an unsigned note (Penzance MDEP), roughly datable c 1860-80, mentions 'near the fallen cromlech, Lanyon (West Lanyon Quoit) remains of elliptical (sic) structures, known as Old Lanyon'.

Excavation, by Guy Beresford, FSA

The excavations at Old Lanyon revealed the site of a small homestead occupied from a date between 1050 and 1150 until the time of its desertion in the late 15th or early 16th century. Three structural periods were recorded (Fig 4). The houses of the earliest period were built of turf and the best preserved remains were found to the south of the excavated area. Similar to peasant houses of the period elsewhere (Beresford 1975, 19), they were probably rebuilt or extensively repaired by each succeeding generation. The position of these superimposed houses is clearly defined by lines of substantial stake holes (Figs 4 and 5). The remains of the last two houses of the sequence were well preserved, particularly the last where the turf walls were faced with stone.

The second structural period, probably commencing in the middle 13th century, saw the turf houses replaced by a substantial long-house built of stone, designated House 2, because it was the second building to be excavated. It stood on the same alignment as the early turf buildings but some 10ft to the north. It comprised a byre living room and an attached inner

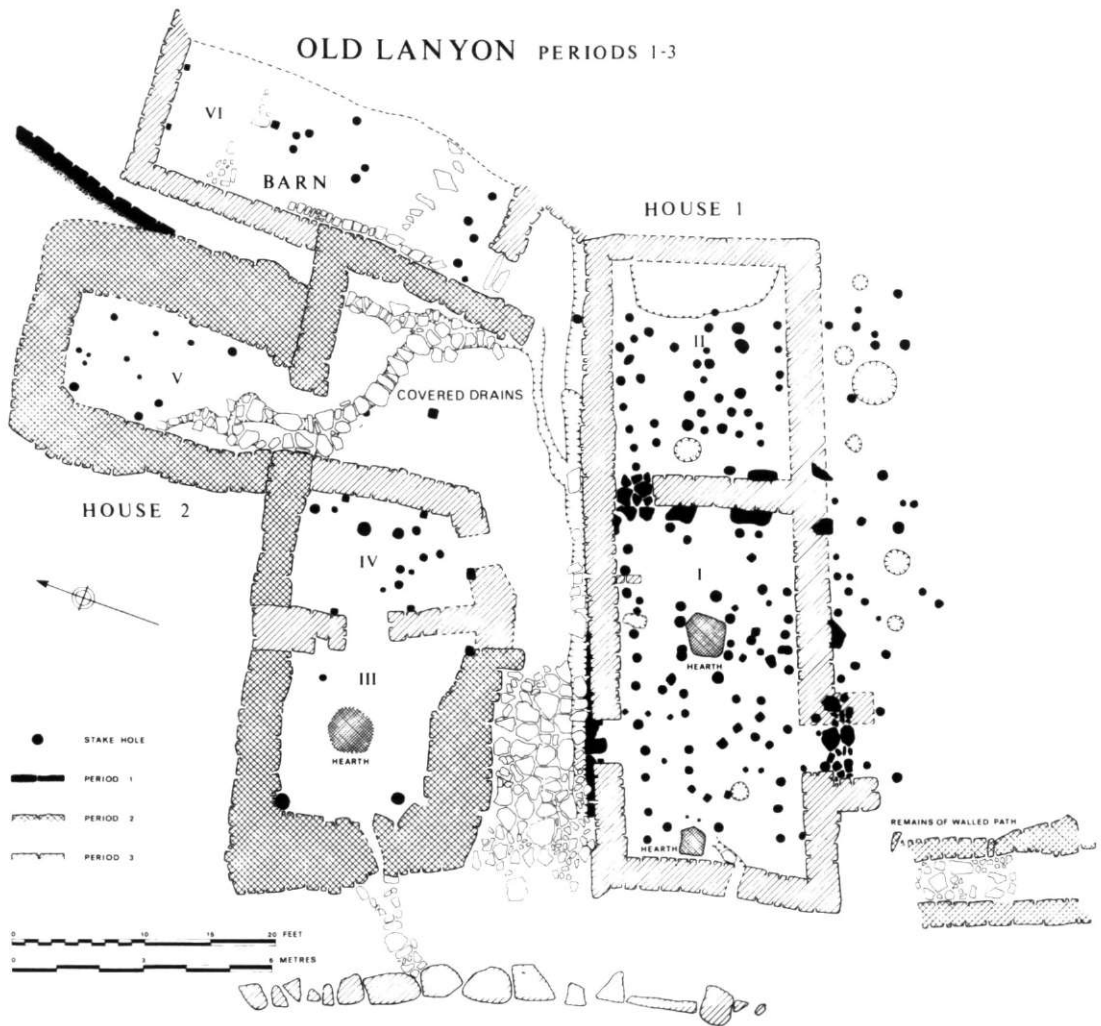


Fig 4 Old Lanyon, Periods 1-3. Showing the positions of the turf walled houses marked by lines of stake-holes, the 13th century long-house (House 2) and the later farmstead (House 1). Roman numerals I-VI delineate 'Areas' of ceramic finds

room. In the final period the early long-house was rebuilt some 10ft to the south on the site of the early turf-walled buildings. At the same time a barn was built into the north-eastern corner of the site and the early long-house was truncated to form a small subsidiary dwelling similar to that at the Houndtor Manor site (Beresford 1979, fig 27).

Period 1: turf houses

The excavation of the early houses was limited to an area beneath the floor of House 1 and an area along its southern side (Fig 4). Although a spread of stake-holes was recorded beneath the floor of House 2 indicating the one-time existence of further turf buildings, they could not have been elucidated without the complete destruction of the monument.

Houses built of turf—grass and earth—(Evans 1969, 80-81) have a long tradition in the British Isles, the Continent, and the United States of America. Among the early examples of buildings constructed with turf or turf and stone are those which were excavated at the Neolithic site

at Knochadoon, Loch Gur, Ireland (O'Riordain 1964, 297-459, 229) and the Iron Age promontory fort at Port Grenaught, Isle of Man (Gelling 1952, 307-15). In the Middle Ages houses of turf and stone were built at the early Christian and Norse settlements at Birsay, Orkney (Radford 1965) and at Jarlshof, Shetland (Hamilton 1956, 102). Documentary evidence provides information on turf houses in East Anglia (Glendenning 1948, 15-25) and literary sources of turf and wattles in Scotland (Boswell 1807, 125; Johnson 1825, 76). However, there is little archaeological evidence of turf walls in England except where examples have been excavated at Houndtor, Hutholes and Dinna Clerks on Dartmoor (Beresford 1979, 12-124) and in Cornwall at Tresmorn (Beresford 1971, 57-62), Treworld (Dudley and Minter 1966, 39-43), and those at Lanyon, the subject of this report. Many turf houses known as 'soddies' were built by the early settlers on the North American continent (Barnes 1970; Dick 1942) and the tradition persisted in the Western Isles (Curwen 1938, 261-89) and in Ireland (Evans 1969, 80-81) until very recent times. The remains of the turf-walled houses in south-west England are few and very confused, but their positions are clearly defined by lines of stake-holes left by the wattles which had lined the inner side of the walls, the wear of the floors, and by a number of hearths. However, since the time of their first excavation in the early 1960s there have been a few archaeologists who found it difficult to accept that these stake-holes represent the remains of houses and looked for other interpretations. The debate continued after the publication of 'Three Deserted Medieval Settlements on Dartmoor' (Beresford 1979) when it was argued that the stake-holes which were said to have delineated the early turf-walled houses should be reinterpreted as either the remains of summer sheilings pre-dating the 13th century stone-walled long-houses or the remains of sheep-folds or hay-stacks associated with the later occupation. However, the author replied to these reinterpretations in a published paper (Beresford 1988, 175-183) and these early turf buildings are now accepted by most archaeologists.

Peasant houses in Saxon and Norman England were usually of timber or timber and clay even in areas where an abundant supply of stone could be collected from the fields. However, recent excavations have revealed a few exceptions, principally in south-west England; at Gwithian, West Cornwall (Thomas 1958, 29), there was a long sequence of stone-built houses dating from the late Iron Age until the 17th century. On the exposed coastal uplands of Cornwall and on the open moorlands of south-west England, where either timber was stunted or in areas where clay deposits were few, as at Lanyon, the use of turf would have been an obvious choice for a community unable, or unwilling, to use the available supply of stone. Although cob could be made of loam, gravel, and sand, with heath as a binding material, as in Dorset (Innocent 1971, 137), it was not, even in favourable conditions, durable. Such walls without stone footings would not survive the heavy rainfall of the south-west peninsula.

Turf houses could be built with less labour than other materials (O'Danachair 1975, 61-74) and were reasonably durable: some in America (Barnes 1970; Dick 1942) and Ireland (Evans 1969, 80-81) are known to have lasted for more than forty years. Much information on the building of turf houses has been recorded in Ireland where houses were built of this material until recent years. Turf with a strong mat of grass and roots was carefully selected. After heather and long grass had been trimmed the sods were lifted. They were usually 3ft long and 2ft wide and the depth varied between 2 and 6ins depending upon the length of the roots. Since the walls were affected by both damp and frost they had to be wide in proportion to their height. Those on Dartmoor and at Lanyon were between 4ft and 5ft in thickness.

It was necessary to stabilize the walls inside the house to prevent the turfs from crumbling away when dry. In many areas stone was used for this purpose, but excavations in Devon and Cornwall have shown that most of the houses in this region had wattles, doubtless like those seen and recorded by James Boswell and Dr Johnson in the Hebrides in the 18th century (Boswell 1807, 125; Johnson 1825, 76). Gradual crumbling of the walls outside the house was of less importance so they were frequently left unprotected. There are examples of turf-built houses where the walls were faced on both sides with stone, like the examples at Jarlshof, Shetland (Hamilton 1956, 102) or Forntida Gardar Island, Iceland (Sternberger 1943, figs

58 and 63). In some such houses the walls were slightly battered to encourage the growth of the turf so as to prevent the walls from crumbling, as in the black-houses of Lewis, where the stone-faced turf walls are 5 ft to 6 ft at the base and about 3 ft 6 ins at the top (Curwen 1938, 264).

The last two of the sequence of turf-walled houses at Lanyon had a hipped roof supported by three ridge poles set some 7 ft apart (Fig 5). The scarcity of good timber on the exposed areas of the coastal uplands of Cornwall suggests that the rafters would have been more like those of the black-houses of the Hebrides (Curwen 1938, 264) than the turf cabins at Magilligan, Co Derry (Evans 1939, 207-22). The hipped roofs of the black-houses have no overhanging eaves since the rafters rest on the inner sides of the walls allowing water to percolate through their thick mass. At Lanyon the rafters were probably seated on flat stones set in the wall, as in some Irish houses (O'Danachair 1975, 63). The cladding of the roof was possibly supported by wattles like those which survive in the late medieval roof at Higher Tor, Widecombe, on Dartmoor (Note 3). Excavation of stone-built long-houses on Dartmoor demonstrated that some roofs had a layer of turf beneath the thatch (Beresford, 1979, 115). Mrs Minter postulated that the early roofs at Lanyon were also clad in turf (Minter 1965A, 44-45; 1965B, 208-10).

Discussion of remains of the turf-walled buildings at Lanyon

Each of the turf-walled houses was built upon the surface of the 'rab' after the removal of the top-soil or the remnants of the pre-existing building. The remains were few, but the position of two superimposed turf buildings—Houses A and B—is clearly marked by lines of stake holes, left by the wattles, the post-holes of the ridge pieces, and in House B by the stone facing of the walls (Fig 5). The remains of another wall built of earth and turf and faced with stone were recorded on the north-eastern corner of the excavated area, and the spread of further unrelated stake-holes shows that there were some earlier houses built upon the site, but no evidence was found to suggest that the early occupation was of long duration as at Houndtor (Beresford, 1979).

The wall of turf and earth faced with stone

An early wall, of unknown date, built of turf and earth and faced with granite, was incorporated into the construction of the eastern side of the inner room of the first long-house—House 2—in the middle of the 13th century (Figs 4 and 6). It was some 5 ft in thickness and built on a north-south alignment and required further excavation to elucidate its origin. Unfortunately, the matted roots of the strongly established gorse precluded further investigation when the writer visited the site in the early summer of 1993, but a colour slide in Mrs Minter's excavation archive shows a build-up of what must be interpreted as turf in a shallow section cut through the upper few inches of the 'earthen' part of the wall. Since most of the early field boundaries on the granite uplands were of stone it would seem that these remains must represent a wall of an early building. Although there are banks of earth and stone associated with medieval corn-ditches on the granite uplands of Dartmoor and elsewhere for the control of deer, there is nothing to suggest that one had existed in this position at Lanyon. Wall banks on Dartmoor are of late medieval date (Fleming and Ralph, 1982).

House A (Fig 5)

House A stood upon an east-west alignment and was about 22 ft long and 11 ft 6 ins wide, measured internally. The position of the building was clearly marked by lines of substantial stake-holes for the wattles to line the inner face of the turf walls. The stake-holes, some 6 ins to 9 ins in diameter, were set on average some 2 ft apart. However, the wider spacing of some could mark either the site of doorways or the positions of shorter posts which were not driven down into the 'rab'. The roof was supported by three ridge posts set some 5 ft to 6 ft apart.

House B (Fig 5)

House B was the best preserved of the turf walled houses and built on a similar alignment to House A, but stood some 5 ft further to the north. The interior of the building, like that

TURF HOUSES PERIOD 1

PLAN

INTERPRETATION

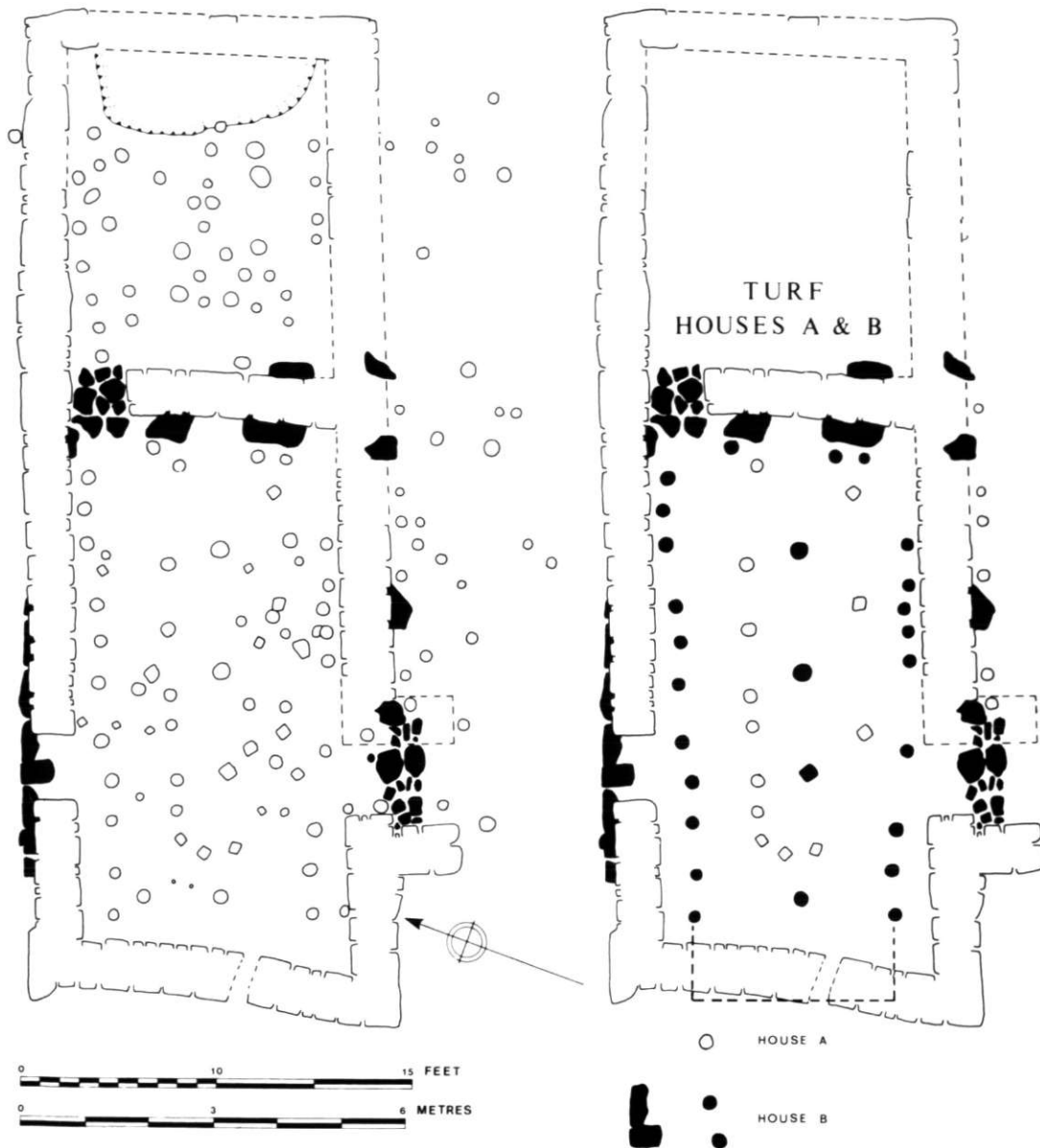


Fig 5 Old Lanyon, Period 1. Plan showing position of all related and unrelated stake-holes. Interpretation shows House A stake-holes white and House B black

of House A, was defined by similar stake-holes for the wattles and by the post-holes of the four ridge poles. The building, measured internally, was some 11ft wide and at least 28ft long. The precise length of the building could not be determined since its western end ran out beneath the granite wall of the later superimposed stone-built long-house. It is tempting

to associate some of the stake-holes lying to the east with this house, but there are no related post-holes for the ridge poles.

The walls of this house were 5 ft thick. Their width was clearly defined along the sides of the building, where the inner face was defined by stake-holes and the outer by the facing of stone. The eastern wall, built entirely of stones set back against the wattles, was without doubt a replacement.

Interpretation of turf-walled houses

Excavation of a long sequence of medieval turf houses at Houndtor and Hutholes (Beresford, 1979, 112-124) and shorter sequences at Dinnaclerks (ibid), Tresmorn (Beresford 1971, 57-59), and Treworld (Dudley and Minter 1966) have revealed that the walls inside the houses were lined with wattles the impressions of which were clearly marked by small stake-holes some 3 to 4 ins in diameter, set some 12 to 18 ins apart, but those at Lanyon and those of the last phases at manor sites at Houndtor and Hutholes Manor Sites (Beresford 1979, 122-3) were some 6 to 9 ins in diameter and set about 2 ft apart. Although no evidence survives to elucidate the differing sizes of stakes to support the wattles it would be reasonable to postulate that strong stakes were more readily available to the occupiers of the manor houses on Dartmoor and that of the farmstead at Lanyon than to those who occupied the other houses.

The construction of the turf walls of House B are open to several interpretations (Note 4). These remains are somewhat similar to the last of a long sequence of turf houses at Hutholes Manor site, on Dartmoor (Beresford 1979, 122-123) where the walls were originally lined on the inside with wattles. Then in the second phase the turf was either cut back and refaced with stone on both sides or the new stone-faced walls were constructed upon the same foundation. Although the early-Christian and Norse settlements at Birsay (Radford 1965) and Jarlshof (Hamilton 1956) and the black-houses of Lewis (Curwen 1938) had stone-faced walls, the combination of heavy inside wattling and outside stone facing as at Lanyon is difficult to parallel. Accordingly it would be reasonable to postulate that the stone facing might be a repair effected during the last years of the life of the house. This hypothesis is somewhat substantiated by the fact that the eastern end wall appears to have been completely rebuilt with stone set back against the wattles.

Evidence of the use of a ridge piece in the construction of the roof, attested by the ridge posts in the Turf Houses A and B, is of especial interest, since, as yet, no such evidence has been recorded in this type of house in south-west England.

Period 2: The stone-built long-house

The houses of the second and third structural periods were substantial stone structures built to last a long period of time. Documentary research and archaeological excavation have revealed the widespread distribution of the long-house in the British Isles where examples have been found in most rural areas excepting the central and east Midlands, Kent and East Anglia (Beresford 1979, 127). In modern times the term long-house was used by Dr I C Peate in the 1930s to describe a house type with a byre at one end of the house. It is a literal translation of the Welsh term *ty hir*, a name widely used by countrymen in Wales to describe this type of house (Peate 1936, 448-59; Peate 1940). The long-house is simply a long rectangular building planned so that, if the occupier so wished, man and beast could live at opposite ends of the building under a single roof and share a common doorway in the lateral wall, but recent excavations have clearly demonstrated that some houses of this type may never have contained animals (Beresford 1979, 124). This suggests that the byre was just one particular function of the 'lower room' of the long-house which, in some instances, may not have been permanent (ibid).

Houses in which man and his farm animals lived under a common roof have a long tradition on the Continent dating back to the Bronze Age (Beresford 1979, 124-5), but although long-houses occur in the British Isles at Jarlshof, Shetland (Hamilton 1956, 102), cAD 850, and an isolated example at Mawgan Porth, Cornwall (Bruce-Mitford 1956, 167-96), cAD 950,

THE LONG-HOUSE PERIOD 2

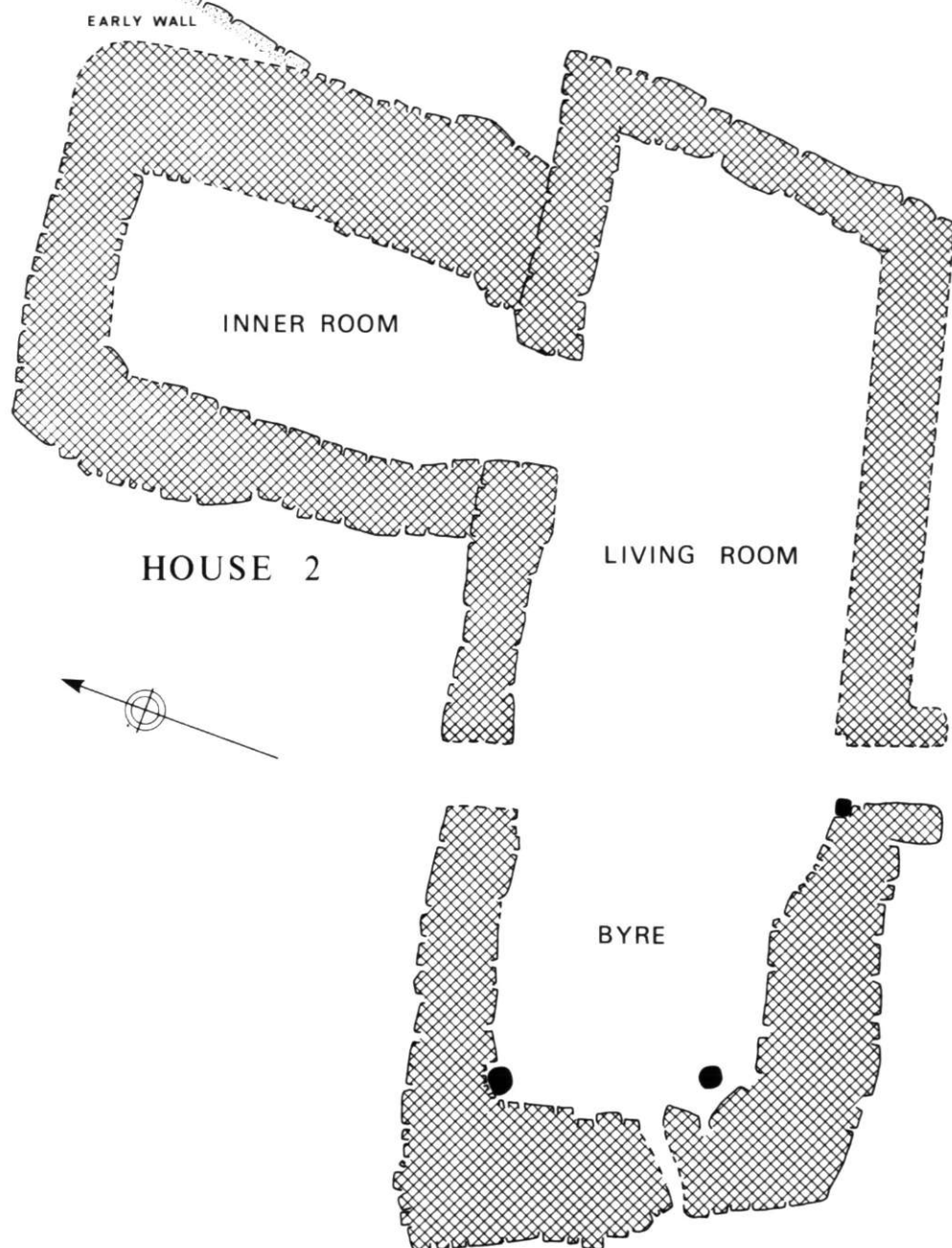


Fig 6 Old Lanyon, Period 2. The Long-House (House 2)

there is no evidence to indicate that there was widespread distribution until the late 13th and early 14th centuries. The apparent dearth of earlier long-houses may be attributed to the mean winter temperature of a maritime climate, like that of England and Wales, being warmer than that of places of similar latitude on the Continent. Consequently small numbers of cattle could always be outwintered, especially in periods of climatic optimum. However, the increasing number of cows held by the peasantry (Fogwill 1954, 107) and the climatic deterioration of the late 13th and early 14th centuries, led to the widespread construction of long-houses in the pastoral areas of Britain in order to protect the meadows from the treading of the animals during the winter months (Beresford 1975, 19). Across the arable areas of East Anglia and the East Midlands, cattle were outwintered until the 14th century, after which time they were kept in open yards. The distribution of the open cattle-yards and the long-house seem to depend upon the climate and the availability of bedding material (Grundy 1970, 2-5). Open cattle yards are practical in the eastern arable counties where bedding straw is plentiful and the drier climate would allow the cattle to lie out in the yard. The byre of a long-house, however, offers protection to the animals from the weather in areas of high rainfall, and indoor housing is particularly economical with bedding, a commodity often scarce in pastoral areas.

Construction of stone houses

Recent excavations at many rural sites in the British Isles have demonstrated that in areas where building stone was readily available it began to replace timber, clay or turf in buildings of the late 12th or early 13th centuries (Beresford and Hurst 1971, 93-5). A similar change was occurring on the continent at the same time (Grimm 1939, 1-56). In Exeter stone began to replace timber in the late 12th century (Note 5); in Barnstaple in the early 13th century (Note 6), and at Houndtor and Hutholes on Dartmoor the stone long-houses replaced the earlier houses of turf in the second half of the 13th century (Beresford 1979, 127).

The two stone-built long-houses at Lanyon, constructed upon an east-west alignment, were designated Houses 1 and 2 from the order in which they were excavated, although the current research indicates House 2 to be the earlier. House 1 was superimposed upon the remains of the old turf houses mentioned above and House 2 stood some 7 ft to the north. The upper ends of the two houses appear to have been let into the side of the hill as at Houndtor (Beresford 1979, 127), but the depth may be somewhat exaggerated by an accumulation of post-desertion hill wash. The lower ends of the byres were built up from the old ground surface after the removal of topsoil, and not upon built-up platforms as at Vendown (Dudley, 1955-6) in the north of the county. The walls, built without large footing stones or foundation trenches, were of similar construction to those of other moorland settlements in south-west England (Beresford 1979, 127). They were built of undressed weathered granite blocks gathered from the clitter slopes and from the plough soil. The spaces between the stones, which, in places, were roughly coursed, were packed with soil to consolidate the wall and to exclude draughts. At the commencement of excavations in 1964 there were walls standing up to 4 ft in height. They generally varied between 2 ft 6 ins and 3 ft in thickness, but some of the earlier walls of House 2 were over 5 ft wide. Although the remains stand in a position surrounded by fields which must have been in continuous cultivation since the date of desertion comparatively few stones seem to have been robbed from the site. Unfortunately, the amount of fallen stones removed during the course of the excavations was not recorded, but photographs in the excavation archive show the size of the pile collected, suggesting that the walls must have originally stood some 5 to 6 ft in height.

The positions of the door-ways were clearly marked in the high standing stone walls. Post-holes of those of Houses 1 and 2 show that the doors were hung within wooden frames probably similar to those which are to be seen in the Shetlands today (Hamilton 1956, 105). Owing to the acidity of the soil, no door furniture survived. There was no evidence to suggest the form of the windows. If they existed, it would be reasonable to postulate that they were small unglazed openings set high in the walls similar to those described by John Ray in an account of a journey through East Lothian (Hume Brown 1891).

Mrs Minter said in an early interim report on her excavation at Lanyon that the turf roofs of the two stone-built long-houses were carried on trusses resting on the stone walls (Minter 1965A, 44-45). Unfortunately, no evidence of the truss positions can now be recognised in any of the photographs of the granite walls; neither are any such positions marked on her carefully drawn plans. It would now seem that her statement must have been speculation. Although a number of post-holes were recorded which could have been associated with the occupation of these houses there was certainly no evidence to suggest that any had supported a ridge-piece as in the earlier turf-walled houses. Nevertheless, although some post-holes set in the floor of these houses could seem unrelated to the roof structure, the plan and the view of the interior of the farmhouse near Strata Florida Abbey (Williams and Smith 1899, 220-25) clearly demonstrate the difficulties in interpreting such features. Crucks and their derivatives have a long tradition in south-west England, examples occurring in both Cornwall and Devon (Alcock 1973, 28-29; 32-34) and could be considered as an alternative to a trussed rafter roof as postulated in the reconstructions of the Houndtor houses on Dartmoor (Beresford 1979, 128-9). The rounded end walls of House 2 might suggest that the roof of that building was hipped, but there was no such evidence in House 1.

Turf was widely employed as a roofing material in the Middle Ages and its use has persisted in Ireland (Buchanan 1957, 123-42), Scotland (Roussell 1974), and on the Continent (Innocent 1971, 214-15), where examples are still to be found. The turfs were usually cut and cleaned of surplus earth so that the matted roots could be pressed between the wattles or laths. In some counties in Ireland (Buchanan 1957, 126), the turfs were cut about 2 ft wide and up to 20 ft or more in length, running from the wall-plate to the ridge, where they overlap by about 1 ft. The houses which are the subject of this report could have been thatched with either straw grown on the farmstead or heather or rushes gathered from the surrounding moor-land. Although little is known of thatching techniques of this region in the Middle Ages, it is likely that the thatch was secured with grass or straw ropes. Rope thatch is the simplest of all to fix and is well adapted to withstand the Atlantic gales and heavy rainfall. Examples have been recorded in Scotland (Roussell 1974), Ireland (Buchanan 1957, 228-30) and the Isle of Man (Innocent 1971, fig 58); the method was widely used in Devon and Cornwall to cover ricks of hay and corn until the advent of the pick-up bailer and the combine harvester during the 1950s.

Houses 2 and 1 (Periods 2 and 3): The structural sequence

House 2 and House 1 are so designated from the order in which they were excavated. Although the mediæval remains of House 1 were described in some detail in the published interim reports (Minter 1965A, 44-45; 1965B, 210), little was written about the other house. However, Mrs Minter did postulate that House 2, after the desertion of the settlement, was used as an outlying farm-building before a barn was added to its eastern end in the 16th century. She also suggested that 'after a period of abandonment a single-roomed cottage and out-houses were built, probably in the 18th century, on the north side of the site. The barn was re-used, and the cottage developed finally into a two-roomed one with cock-loft'. Unfortunately, after careful examination of the excavation finds, site plans and photographs, there is no evidence to support use of the site after the abandonment of the settlement in the 15th or early 16th century.

Examination of the site plan (Fig 4) clearly reveals the complexity of the site in the second and third structural periods associated with the stone-built long-houses. It is immediately apparent that the construction of House 1 differs considerably from that of House 2. It is also apparent that House 2 is a multi-phase building. Further, House 1 was superimposed upon the remains of a walled pathway (Fig 4) which must have been associated with an earlier stone building, probably House 2.

Period 2: The long-house (House 2) (Fig 6)

House 2 stood upon an east-west alignment and was built on slightly sloping ground to facilitate the drainage of the byre. It was built as a long-house comprising byre, living room and an inner room extending out from the upper end of the building. The long-house, measured

internally, was 40ft long and about 13ft wide, but the lower end of the byre was not so wide, possibly due to a rebuild of its southern wall. The position of the original doorway on the southern side is clearly marked by the remains of a porch and the post-holes for the door jambs. The opposing doorway was blocked when the house was truncated to form a cot in the third structural period.

The walls of the early building were between 3ft and 6ft in thickness and, in places, stood up to 4ft in height when excavated. They were readily differentiated from the later walls of the third structural period by their rough appearance (Fig 3). The granite stones of the early walls not only varied greatly in size, but were also misshapen and very roughly laid. The variations in thickness and the way the stones were set suggests that the walls were either repaired or rebuilt many times during the period of occupation. The walls along the northern side and eastern end were between 3 and 4ft in thickness and yet those of the western end and southern side of the byre and those of the inner room were some 6ft in thickness. Archive photographs show that the footings of the walls of southern and western sides of the byre had been slightly eroded by the wear of the floor, possibly accounting for their movement and eventual reconstruction. The great thickness of the walls of the inner room built against the north wall at the 'upper end' of the house is of considerable interest. They were butted against the northern side of the long-house, but since there is nothing to suggest that the doorway is inserted the room must be contemporary with the main building. These walls, about 6ft in thickness, were built of misshapen stones like the rest of the building, except the northern half of the eastern wall which was of turf faced with stone, being of earlier date. The turf lines are clearly seen in some of the excavation photographs.

An inner room located at the upper end of a long-house is not infrequently found in south-west England with examples occurring at Houndtor (Beresford 1979, 129-135), Hutholes (ibid, 136-40), Dinnaclerks (ibid, 135-236) and Treworld (Dudley and Minter 1963) amongst others. However the inner room attached to the side of the house can only be paralleled by House 7 at Houndtor (Beresford, 1979, fig 17, 133). The position of the inner room suggests that it might have been occupied by a dependant relative.

Although the byre floor shows considerable signs of wear, there was no central drain leading to the outlet in the lower end wall, neither was there any evidence of the positions of cow-ties or of mangers like those at Garrow Tor (Dudley and Minter 1964), Houndtor (Beresford 1979, fig 10) and Treworld (Dudley and Minter 1966, 39-43). Perhaps the warmer climate of the Penwith peninsula facilitated the outwintering of cattle allowing the byre to be used for another agricultural function.

The remains of a walled and paved pathway (Fig 4) lying close to the south-west corner of House 1 are well preserved, with the walls standing up to 4ft in height. Although no archaeological evidence was recorded to elucidate the function, it would be reasonable to postulate that the feature is the remnants of the southern end of a path which once led from House 2 through the garden to the fields beyond to facilitate the handling of animals entering the byre. A similar cattle path was excavated at the Houndtor Manor House on Dartmoor (Beresford 1979, fig 17, 133) and at Viking House 3, Jarlshof (Hamilton 1956, pl xxvii).

Period 3: The farmstead

The third structural period saw the development of a farmstead comprising a new long-house (House 1), built with a large inner room and small byre, the barn, and the reconstruction of the early long-house (House 2) to form a small subsidiary dwelling (Fig 7). No certain date can be attributed to this development, but the general spread of pottery might suggest a date from the late 14th century.

House 1 (Fig 7)

House 1 differed from House 2 and many of the other long-houses built on the granite moorlands of south-west England in that the walls were carefully aligned and the corners were neatly built. The house also differed from most other excavated long-houses of this upland

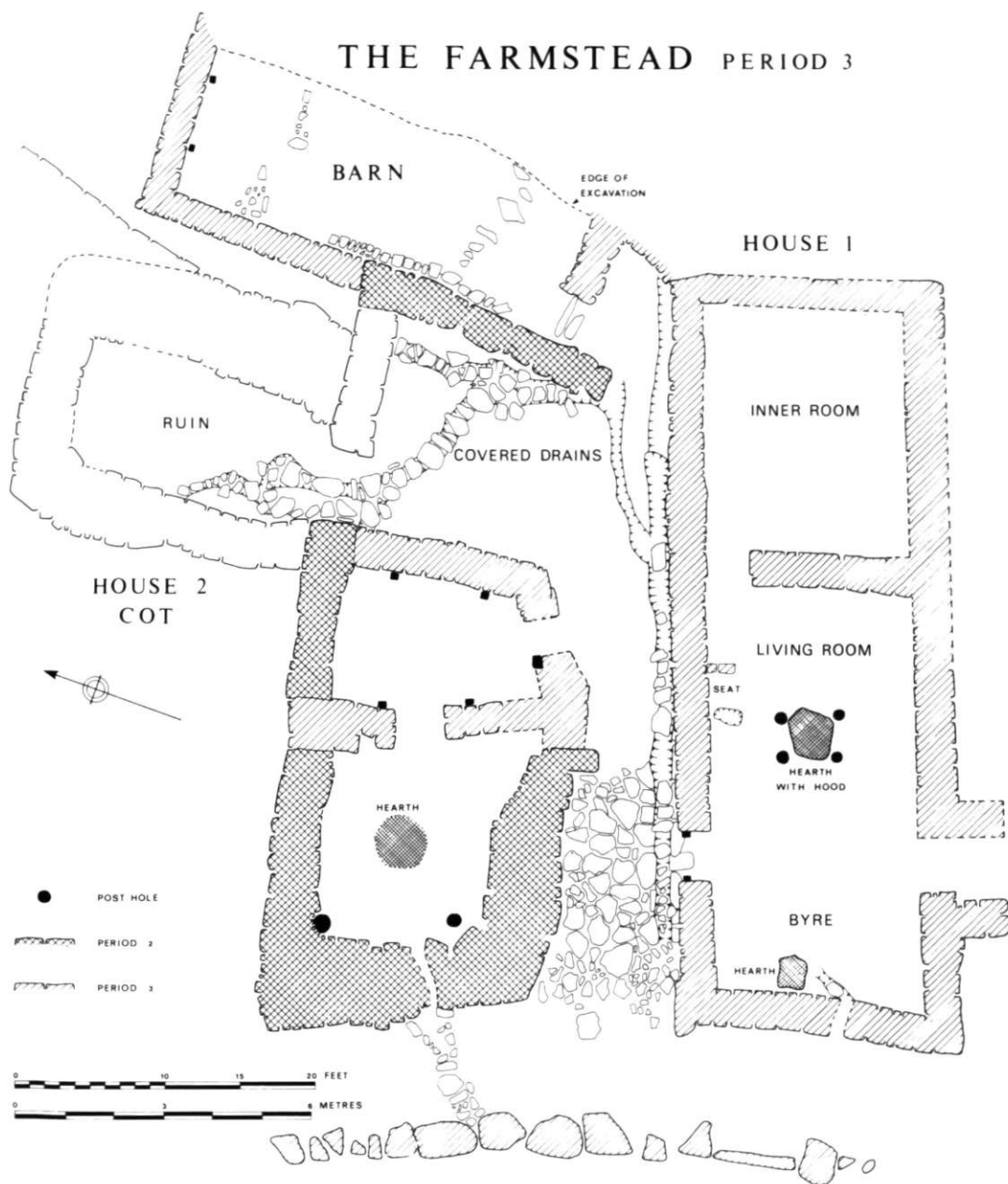


Fig 7 Old Lanyon, Period 3. The Farmstead: showing position of the farm-house (House 1), the cot and the barn

region in that the length of the byre was short in relation to the length of the house and the inner room unusually large (Note 7). Although the dating evidence for the construction and indeed the desertion is somewhat vague, it seems that the house dates from the second half of the 14th century or possibly later.

House 1 stands upon an east-west alignment, like House 2, to facilitate the drainage of the byre. The remains of the lower end of the house are well preserved where the walls stand up to 4ft in height, but those at the upper end have been extensively robbed. The walls, nearly

3 ft wide, were built of selected granite stones collected from the fields and clutter slopes and were neatly set in earth to provide firm seating and exclude draughts (Figs 8 and 9).

The house, 44 ft long and 13 ft wide, was divided into byre, living-room and inner room. It was entered by way of opposing doorways set in the lateral walls of the byre, which led into a cross-passage. The doors into the house were hung on wooden posts set in earthfast footings like those of some houses at Houndtor on Dartmoor (Beresford 1979, 127). The south door was entered through a porch which appears to have been added to the building, since its stone-work was not bonded with that of the wall of the house, but as so many porches of excavated long-houses of differing dates in Devon and Cornwall are similarly butted, some must be contemporary with the date of the construction of the house. There was no porch on the opposite side, but the doorway led out to a paved area alongside the lower end of House 2.



Fig 8 Old Lanyon. House 1, looking north-east. Photo: Charles Woolf

The entrance to the house led directly into the byre, but no remains of the screen survived. If one had existed it must have been of light construction and disintegrated after desertion leaving no visible trace, differing from the more substantial stone walls like those recorded at Houndtor, Houses 1 and 7 (Beresford 1979, 129-133), Treworld (Dudley and Minter, 1966, fig 13) Garrow Tor (Dudley and Minter 1964, fig 88), Dean Moor (Fox 1958, 141-152) and some other sites in England (Beresford and Hurst 1971, fig 20). In parts of Scotland there was a prejudice against screening the fire from the view of the cows (Curwen 1938, 274) but no such traditions have been recorded in Devon and Cornwall. Although there was the usual drain through the wall at the lower end of the byre there was no open drain along the centre of the floor. In the traditional moorland byre, cows were tethered to vertical posts: the lower end was either driven into the floor or, in post-medieval buildings, a granite kerb.

The upper end was held in a horizontal rail running the length of the byre some 6 ft above the floor, but no remains of timber or stone mangers or cow-ties were found at Lanyon. Accordingly the byre at the lower end of this house may have served some other function. A hearth set against the southern wall may represent the remains of an oven or possibly a corn-dryer.

The floor of the living-room was made up with trampled 'rab'. The room was heated from a central granite hearth beneath a wattle-and-daub chimney hood supported by four posts set on the angles of the hearth stone, a feature found in a number of peasant houses in Devon and Cornwall (Beresford and Hurst 1971, 98). The fallen remains of the chimney hood were, at the time of excavation, clearly marked by a deep spread of daub and soot. Possible remains of a stone base for a seat were recorded against the northern wall of the living room (Note 8). Here a slot some 2 ft in length extended at right angles from the wall to provide footings for two vertical stones standing 12 ins high (Figs 7 and 9). A similar slot was excavated 3 ft to the west and without doubt held similar stones. Other stone supports for bench seats have been recorded at Treworld (Dudley and Minter 1966) and Garrow Tor (Dudley and Minter 1964).

The inner room, 15 ft long and 13 ft wide, was entered by way of a doorway set in the north-east corner of the living room. Although no features were recorded within the room its size and extent in proportion to the rest of the house is of considerable interest, when compared with the inner rooms of any of the long-houses excavated in Devon and Cornwall. The ratio between inner-room, living room and byre in this house possibly reflects the late development of a long-house in this area in the late medieval period. The late date and the size of the inner room suggests that it may have been chambered over, but no archaeological evidence survived to support or refute this hypothesis.



Fig 9 Old Lanyon. Interior of House 1 looking west. The stone support of a seat lies just beyond the doorway leading into the living-room. Photo: Charles Woolf

The Cot (House 2) (Figs 7 and 10)

In the third structural period the early long-house (House 2) was truncated to form a small subsidiary dwelling to House 1. It is unlikely that House 1 would have been built long before the demolition of the upper end of House 2 since the space between the ends of the two long-houses would have been too narrow to have been practical (Fig 4). There is no archaeological evidence to suggest that this house was occupied in the 18th century as Mrs Minter postulated (Minter 1965 A, 44-45).

Subsidiary dwellings certainly occur at other sites in south-west England like Treworld (Dudley and Minter 1966), and the manor sites Houndtor (Beresford 1979, fig 17, 133) and Hutholes (ibid, 136-139), and standing examples have been recorded in Wales (Jones and Smith 1967, 53-56). The small size of the truncated house compared with the newly built House 1 suggests that it was either occupied by a dependent relative or by a person of servile position.

The walls built during this structural period can be readily identified in the site photographs by the more carefully selected stones with which they were constructed. The remnants of the house, after the demolition of the upper end, was divided into two rooms separated by a stone wall built upon the site of the cross-passage blocking the original doorways. This wall was pierced by a central doorway to give access between the upper and lower rooms. At the same time a new entrance to the building was made towards the western end of the southern wall, the position of which is clearly marked by a fill of loose stones across the threshold (Fig 4). The lower room was heated from a central hearth marked by an area of severe burning of the floor (Fig 7).

The post-holes set against the east and west walls of the upper room may have supported the floor of a storage space set beneath the rafters (Note 9). Those at the western end of the house may have been associated with the construction of the building since the stones of the wall seem to have been built around a post already set in position.



Fig 10 Old Lanyon. The Cot (House 2) looking north-west.

Photo: Charles Woolf

The Barn

The north doorway of House 1 gave access to a paved area extending to the wall of House 2, and thence to a pathway leading eastwards between the two buildings to a barn standing in the north-eastern corner of the farmstead. Although no certain date can be given for the barn's construction it must have been later than the demolition of the upper end of House 2, otherwise access to its doorway would have been extremely limited.

The remains of the barn stood upon a north-south alignment. The southern end of the western wall included the remains of the upper end wall of House 2 (Fig 7). The barn was 27 ft long, but the precise width was not completely established since the eastern side of the building had been destroyed by a deep build-up of plough soil from the hillside. The bank so formed had been roughly 'hedged' with fallen stones collected from the ruined houses. However, the well-preserved remains of the building clearly show that it was, in origin, at least 11 ft wide. The walls are slightly more than 2 ft in thickness and still stand up to 4 ft in height, the construction being similar to that of House 1. The building was entered by way of a doorway set in the south-west corner of the building clearly marked by the high standing walls and a stone threshold-piece. Although the barn appears to have been partitioned, no evidence survived to elucidate the function of the building.

Long-houses and farmsteads

Farmsteads comprising a house and a barn have been excavated either in isolation or on village sites dating from the 13th century. Excavations at Gomeldon, Wiltshire, revealed the development of a courtyard farm from a long-house during the 13th century. In some villages like Hangleton, Sussex (Holden 1963, 54-181), in the same period, farmsteads and long-houses were occupied simultaneously. Of the eight houses excavated at Houndtor, Dartmoor (Beresford 1979, 125-135), four were long-houses with byres capable of tying fully grown cattle, two were houses without working byres and two were subsidiary dwellings; there were also three corn-drying barns. Again, some 340 yds to the north-west of the village lie the remains of a farmstead of the same period comprising a three-roomed long-house with a large usable byre, a barn, a corn-dryer and a stone-built pen. Excavations at Garrow Tor, Bodmin Moor, (Dudley and Minter 1964) revealed a 13th century long-house with a substantial byre and a detached contemporary barn occupied until the 15th century. However at Wharram Percy, Yorkshire (Hurst 1979, 26-54) long-houses were built and rebuilt well into the 16th century. Although the long-house tradition prevailed in the South West, the ancillary buildings which do occur must represent either the prosperity of the occupant or more often the type of building most needed to suit the husbandry and climate. However, excavations at Caldecote, Hertfordshire (Beresford forthcoming), documentary research in Worcestershire (Field 1965, 105-145), and the records of great monastic houses like Battle Abbey (Searle 1974), clearly demonstrate how estate management led to the development of small farms in the later Middle Ages following the Black Death.

Agriculture

The area of excavations at Lanyon was limited and did not furnish sufficient evidence to elucidate the farming activities of the period. Nevertheless, it can be said that the land was easy to work, even if somewhat acid, but if a high level of soil fertility was maintained by frequent applications of sea-sand, manure and the burning of the outfield, as practised by the monks of Tavistock Abbey, excellent results for the period could have been obtained. The anonymous author of a 13th century treatise on husbandry (Lamond and Cunningham eds, 1890, 71) declares that oats should yield to the fourth grain, that is to say that a quarter of grain should produce four quarters at harvest. The Tavistock records show that up to 8 bushels were sown to the acre on their monastic farms in West Devon (Finberg 1951, 96). However it must be remembered that an acre in Devon was nearly one-fifth larger than the statute acre and that a bushel may have been larger than the standard bushel, as it certainly was in Exeter and Cornwall (ibid, 113). A bushel of an average sample of modern oats weighs 42 lbs. The

well-watered grass and heather moors to the west of the settlement must always have provided good open grazing.

The enclosure and gardens

The remains of the farmstead lie within an enclosure which may or may not be of medieval origin on the western side of Deep Field in which West Lanyon Quoit is situated (Fig 2). The five-sided enclosure measures about 150 by 130ft across its widest axes. The two westernmost sides are bounded by a dry-stone wall while the other three have been largely buried by hill wash, especially along the western side of the barn where the soil has been banked up to form a stone-faced Cornish hedge. The remains of two stone enclosures to the west of the buildings could be interpreted as gardens separated from the houses by a row of free-standing stones some 3 ft in height (Figs 3 and 4). Unfortunately the dense cover of rough grass and gorse precluded any accurate survey of these remains.

Conclusion

The dating of the structural periods of Old Lanyon is complicated by the fact that the pottery cannot be regarded as stratified, although over 2,100 sherds were found. However, the settlement may be approximately dated by the spread of the 11th and 12th century grass-marked wares associated with the earliest period of occupation, and that which includes Lostwithiel and Saintonge wares of the 15th and 16th centuries dating the abandonment.

A mid-13th century date has been attributed to the time in Devon and Cornwall (Beresford 1979, 124-30) when turf construction gives way to that of stone, but in the west of Cornwall, where the continuous use of stone may date from the Bronze Age to the 17th century, considerable caution must be exercised. Nevertheless, in the absence of any evidence to the contrary, the first stone long-house was probably built in the middle of the 13th century. Then beneath the floors of House 1 the distinct remains of two superimposed turf-walled buildings survive, and a further spread of miscellaneous stake-holes to the north and east suggest that others of still earlier date stood upon the site. However, there is nothing to suggest that the settlements could have been founded earlier than the ceramic evidence implies. Although the best remains of the early turf-walled houses lie to the south of the site, the greater percentage of the early pottery was recovered from the northern part, which might be expected since this area was protected by the construction and occupation of House 2, while the southern half would have been subjected to the constant wear of a farmyard.

House 2 was in both construction and plan like many of the 13th century houses on the moors of Devon and Cornwall: built with slightly bowed walls and rounded corners. Although the interior of this house was destroyed by later development of the farmstead, it was probably like those of early date in the region where the byres were generally long and the inner rooms, where they existed, comparatively short. However, House 1, in marked contrast, was built with carefully selected stones for the construction of well-aligned walls and squared corners. The layout of the interior also differed from the early excavated examples on the moors since the byre was smaller and the inner room so much larger. However, the size of the developed upper room must suggest a date in the late medieval period, possibly the late 14th or 15th century. Unfortunately there are no excavated late examples in this area with which this house can be compared.

The excavated settlement was occupied into the late 15th or early 16th century. Although these remains have long been known as Old Lanyon, the documentary evidence indicates that from the late 14th century the manor of Lanyon stood close to the present farm and not upon the site under discussion. It could possibly be argued that the early manor stood upon the excavated site until c 1390 and was then moved and rebuilt close to the site of the modern farm, but such a hypothesis could not be substantiated since the early buildings were not sufficiently large to have been the main settlement of a substantial manorial holding, as Lanyon was in the late medieval period.

Acknowledgements

The late Mrs Minter's excavations at Old Lanyon took place in the summer of 1964. It gives me much pleasure to thank the many people who interested themselves in the excavations and those who assisted me with the publication of this report. Unfortunately it is not possible to be sure that everybody's work has been acknowledged, since only a few names occur in the unpublished interim report. First and foremost Mrs Minter was especially grateful to Mr John Lingwood for his able help as assistant director; to the late Mr Charles Woolf for the photography; and to the late Mrs F Nankivell for her invaluable work of organisation which contributed so greatly to the success of the excavation and camp. Mrs Minter was also most grateful to the fifty-one volunteers, mostly members of the Society, who participated in the work. Mrs Minter was also most grateful to Dr C A Raleigh Radford and to Professor A C Thomas for their generous help and encouragement. Opportunities for discussion were provided by visits to the site by Professor and Mrs Jope, Mr and the late Mrs J G Hurst, the late Miss D Dudley, Mrs Jean Le Patourel, Mr A D Saunders, Mr P Jewell and Dr P V Addyman, which were greatly appreciated.

As author of this report, first and foremost thanks are due to Mr J G Hurst for inviting me to write the excavation report and to Mr Robert Iles of English Heritage for facilitating a grant to bring this project to fruition. Particular thanks are due to Mr P A S Pool for the report on the historical background of the settlement and to Ms C O'Mahoney for the report on the pottery.

Finally I would like to express appreciation of the late Sir Edward Bolitho for his permission to excavate on his estate in 1964 and my most sincere gratitude to his grandson Major Edward Bolitho for allowing me to visit the site whilst writing this report. Special thanks are due to Mr J E G Scobie, the estate agent, for discussions on the soil at Lanyon and for facilitating my visit to the site, and finally to Mr Lanyon Thomas the tenant in 1964 and to Mr Collin Bone who now farms Lanyon.

NOTES

- (1) I am most grateful to Mr Peter Bowden of ADAS, Truro, for this information.
- (2) The Charles Woolf Collection of Photographs is now housed at the Institute of Cornish Studies.
- (3) I am most grateful to Dr N W Alcock for this information.
- (4) Mrs Minter postulated in the interim reports that the walls were built up of alternate layers of turf and stone. However, since there was no archaeological evidence to support this hypothesis, the excavated remains would suggest that the walls were only faced with stone.
- (5) I am most grateful to Mr Trevor Miles for this information.
- (6) I am again grateful to Mr Trevor Miles for this information.
- (7) Mrs Minter postulated in the published interim reports that the upper room of the house was an addition to the building. Although the walls of this room, near the point where it was attached to the lower end of the long-house are much robbed, there is no evidence to suggest that the doorway between the upper room and the living room had been inserted. Further there are similarities in the construction of both parts of the building identified by large flat stones set up on the narrow edge some 2 to 3 ft apart and the space between packed with smaller pieces.
- (8) Mrs Minter also postulated that these stones represented the surviving part of a raised platform, like a dais, across the upper end of the living room. However, since there was no evidence of the slot continuing in a southerly direction across the room, a seat support seems a more likely interpretation.
- (9) Mrs Minter again postulated in the published interim reports that 'the cottage finally developed into a two-roomed one with cock loft'. However, although a few post-medieval sherds were found on the site there were not enough to indicate that the settlement was occupied again in the 18th century.

The pottery from Old Lanyon, by Cathy O'Mahoney

The 1964 excavations at Old Lanyon produced over 2100 sherds of pottery. These come from 167 numbered contexts, 142 of which were assigned to 'Houses I-VI' (in this report 'House' has become 'Area' to avoid confusion with the description of the excavated buildings). Of the others three have descriptions relating to two houses, 12 are from sections, and ten are not related to individual houses. The Area numbers have been allocated as shown in Fig 4, although by following this at least one context description, 182, does not make sense. Eighty-eight of the contexts are in and around House I, and this is where over half of the total sherds are found. Areas I and II here are the equivalent of House 1 in the excavation report, and Areas III and IV the equivalent of House 2.

Three hundred and eighty-five sherds are recorded as coming from 'sections'. The position of these sections has not been determined, and it is not possible to tell if these are the sides of baulks or the edges of trenches. The quantity of pottery suggests that these were in fact baulks that were later removed. Mrs Minter's records list other categories of finds: bronze; iron; stone; bone; charcoal and slag, but only a few small fragments of iron and stone were boxed with the pottery. The current whereabouts of the rest of the material is unknown.

Methodology

This report is divided into two main parts. The first summarises the types of pottery found, and the second gives a brief analysis of the material in meaningful contexts.

Typology

Knowledge of the Cornish medieval ceramic sequence is limited as few sites with dating evidence have been excavated (Preston-Jones and Rose 1986, 174-177).

Fabric descriptions below are grouped under the following headings:

Local wares (1, 2)

Stuffle Type Wares (3, 4, 5, 6)

15th-16th century wares (7, 8, 9)

Post-Medieval Wares (10, 11, 12, 13)

Unclassified

The Type Series comprises a variety of classifications. Types 1 and 2 have been created during the examination of material for this report. Types 3, 4, 5, 6, and 7 have been recognised for some time and only brief descriptions of them are given here. More information about them can be found in the reports referred to, and elsewhere in this volume (Lammana, pp 115-25). Type 8 is a well-known foreign import. Some varieties of Types 9 and 10 have now been found on several excavations (eg O'Mahoney 1987, 189; O'Mahoney 1994; Litt and Austin 1989, 159) but the sherds have not been compared, and these may really be broader categories. Type 11 is well-known throughout the South-West and further afield. Types 12 and 13 are familiar post-medieval categories.

As in previous collections from Cornwall, much of the material is abraded, and in some cases this has caused difficulty when assigning sherds to types, determining the method of manufacture, and identifying vessel forms.

In the Type descriptions, unless otherwise stated, glaze, which is rare, is green. No chemical analysis has been undertaken to determine its composition, but this is generally assumed to be lead. There are no examples of the emerald green colour produced by the addition of copper.

Quantification

It has been possible to identify some individual vessels with sherds coming from several contexts, but much of the material is too abraded for this to be done, and sherds rather than vessels have been used as the main unit of quantification. Types 1 and 2 are in a better state of preservation than the rest of the medieval material, and this will have affected the quantities of sherds created; there is actually more of Fabrics 1 and 2 than is suggested by the sherd counts and resulting percentages. Weight was not used because in the past results seemed to differ little from sherd counts (O'Mahoney 1989a, 138). Under the circumstances it might have been useful to use weight as well to see if this corrected the imbalance created by the state of preservation. However with so many contexts containing only small amounts of material

it would be difficult to produce any meaningful results. EVES (Estimated Vessel Equivalents, another method of quantification) have not been used because it is not considered practical to use this approach on material which is mostly hand-made and unstandardised.

Illustrations

The pottery drawings are arranged primarily in fabric order, but vessels of the same form have been displayed together when this does not substantially disrupt the sequence.

Fig 11: Pre-medieval, grass-marked platters and grass-marked cooking-pots of Fabric 1, and rims of Fabric 1 which may have grass-marked bases.

Fig 12: Other cooking-pots of Fabric 1

Fig 13: Cooking-pots and cistern of Fabric 2

Fig 14: All Stuffle type wares except bowls

Fig 15: Bowls of all fabrics and Lostwithiel wares

There is a catalogue giving information about illustrated sherds (see p163). This lists the Illustration Numbers, Context Numbers, Areas, and Fabric Numbers.

In this report numbers in brackets: (34), are Illustration numbers, numbers unbracketed: 104, are context numbers.

Archive

The archive is stored with the site records and consists of:

- 1 A table of the numbers of sherds of each type found at each context. Here the following abbreviations are used for different categories of fabric 1: 1P grass-marked platters; 1G other grass-marked and associated sherds; 1N non grass-marked sherds.
- 2 A table giving the total number of sherds, latest date and illustration numbers of the pottery in each context.
- 3 Marie Minter's list of contexts and finds.
- 4 A physical pottery Type Series of Fabrics 1-7, 9 and 10.

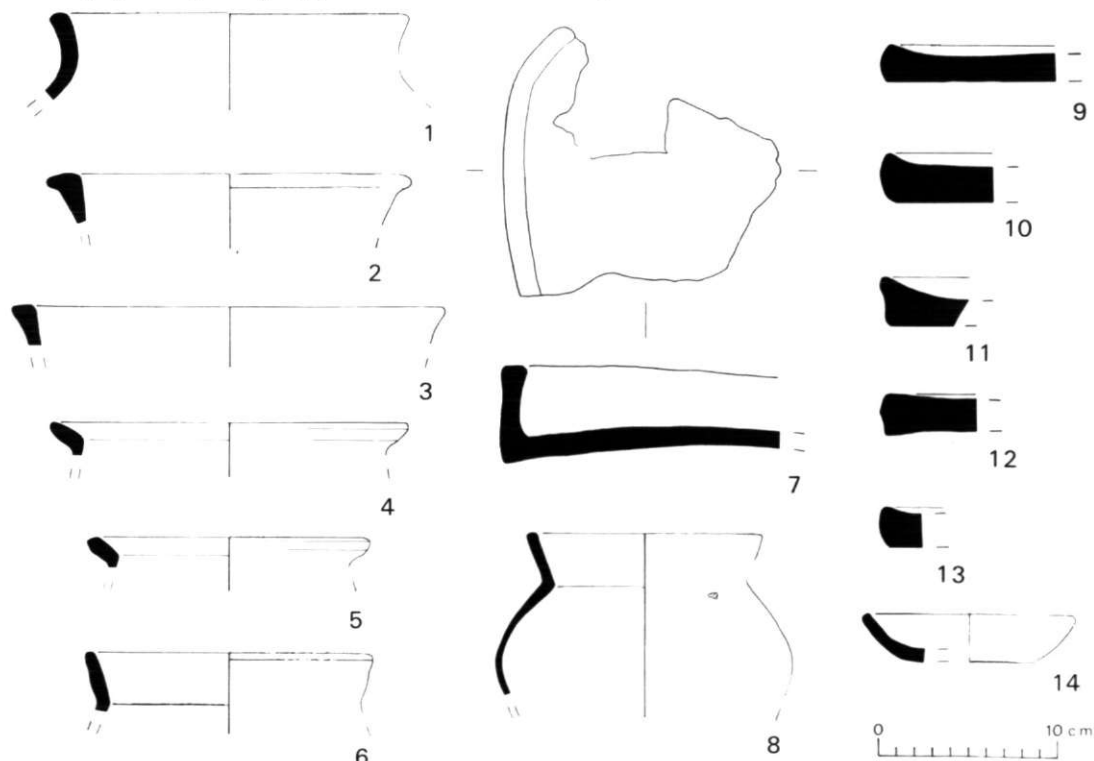


Fig 11 Old Lanyon pottery nos 1-14. Pre-medieval cooking-pot (1), Fabric 1 cooking-pots possibly with grass-marked bases (2-6), with grass-marked base (8), platters (7, 9-13), dish (14)

Local wares

Fabric 1

Grass-marked wares

A handful of sherds may belong to the Iron Age or sub-Roman periods. With this exception the earliest pottery on the site is grass-marked platters and cooking-pots. 7% of the total pottery found on the site is either grass-marked or thought to be part of grass-marked vessels. Although grass-marked pottery has been found on about 50 sites in Cornwall and the Isles of Scilly, dating of this material is complicated, and uncertain (Hutchinson 1979). There is little well stratified material, and much unpublished work, notably Gwithian, where a long sequence does exist (Thomas 1958, 1968b).

Platters

31 sherds are from platters. Only one grass-marked platter at Old Lanyon (7) has substantial walls. This vessel is heavily sooted on both surfaces and over the rim. The other platters (9-13) are almost flat with only a slight rim. Most of these have heavily blackened interior surfaces, with some sooting, and clean exterior surfaces. The exterior surfaces are frequently broken or eroded but show no sign of the blackening which penetrates some distance into the sherds on the upper surface. On one example (13), the interior blackening extends to a clear line halfway down the side. An unillustrated sherd has scraping marks on the interior surface. These vessels may have been used as baking stones, or griddles, as the more recent cast-iron baking plate in Zennor Museum (Wigley and Dudley 1960, 40), but the exact way in which they were used is not understood.

Although shallow platters are found in abundance in layers B and C at Gwithian, in association with imported pottery of 6th and 7th century date, they do not appear to be restricted to this period. A sherd of an oxidised wall-less platter of a similar form to Nos (9-13) from Old Lanyon occurs amongst material from Sandy Lane, Gwithian, thought to be 12th century (Thomas 1964, Bag 42, not illustrated in the report). An oxidised walled example which may also be 12th century has been found at Tregaminion, St Keverne (unpublished). The form of platters does not appear to have any chronological significance, several different forms probably being in existence at the same time for different purposes. There is also a small grass-marked dish-shaped vessel (14). No parallel has yet been found for this.

Illustration Nos: Fig 11. 7, 9-13.

Cooking-pots

In addition to the platter sherds, 112 sherds are either grass-marked or appear to be from the same vessels as grass-marked bases, but no complete profiles of grass-marked cooking-pots have been reconstructed. All the grass-marked basal angles have flat bases. Several of the variety of rim forms on Fig 11 may be associated with these. Some, (2) and (3), may be assigned to Thomas's Sandy Lane Style 1, dated 11th century, but most seem more appropriate to Sandy Lane Style 2, 12th century (Thomas 1991, 88). Many sherds are very thin and some show signs of the finger manipulation previously noticed (Thomas 1964, 57, pl 1 and fig 17), but others are quite thick and do not. All, however, appear to be hand-made. There is a base and lower parts which would appear to be part of the same vessel as the rim (8), although actual diameter measurements prevent a reconstruction of the profile from overlapping sherds. This vessel is almost black, with heavy sooting externally, and a hole, presumably for suspension, in the shoulder. This is slightly irregular in shape and appears to have been made after the vessel was fired.

Illustration Nos: Fig 11. 2-6, 8.

There is also a thick reduced sherd incised with a three-pronged device. This mark appears to be post-firing and was possibly done after the pot was broken. The sherd is uneven and hand-made and it is not certain what form of vessel it is from.

Fabric

All of these vessels are in a fabric with abundant large white inclusions and smaller black inclusions (Fabric 1). Most of the white inclusions are thought to be some kind of felspar. A notable feature of this fabric is the lack of mica. Colour and degree of oxidation/reduction

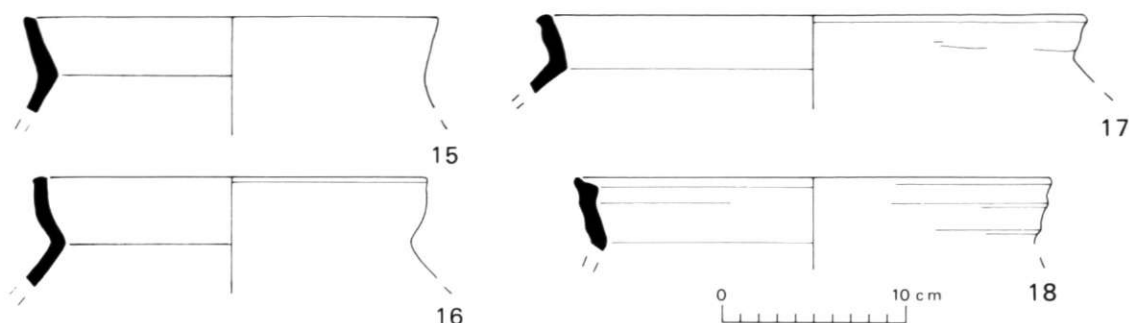


Fig 12 Old Lanyon pottery nos 15-18. Fabric 1 cooking-pots

varies considerably but a brown tone is characteristic. The majority of this material is most likely to have been made locally, (although there is apparently no clay in the close vicinity), but is superficially similar to grass-marked pottery found throughout West Cornwall and the Isles of Scilly, considered to be derived from weathered gabbro (Peacock 1988, 302; Quinnell 1987). Thin-sectioning will be required to determine the exact relationship of Old Lanyon Fabrics 1 and 2, which collectively comprise 35% of all the pottery found on the site, to those of the surrounding areas.

There is one exception to this general fabric type. It is also part of a grass-marked platter, but in a granitic fabric. The remains include part of the edge and are formed from nine joining sherds from 165. A very thick fragment from 158, which must be the lining of some kind of oven or furnace, is made of the same material. This fabric may be related to Fabric 2, below, but has large granite inclusions which do not occur in that.

Non grass-marked cooking-pots

It appears that the same fabric continued to be used, or was used simultaneously, to make thicker-walled cooking-pots with deeper everted rims and sagging bases, which are not grass-marked. 282 sherds are classified here. These can be considered the equivalent of Sandy Lane Style 3 at Sandy Lane, Gwithian (Thomas 1968b, 56-7) dated late 12th/13th century. Both hand-made (eg 17) and wheel-finished vessels (18) are included in this category at Old Lanyon. ((18) does contain a few flakes of mica and lies on the border-line between Fabric 1 and Fabric 2 below).

Illustration Nos: Fig 12. 15-18

20% of the total pottery on the site is Fabric 1 (this includes all the categories described above).

Fabric 2

There are also cooking-pots of similar forms made in a micaceous fabric. Under a X20 binocular microscope the presence of mica appears to be the only difference between this and Fabric 1, and may merely reflect a change to a different clay source, in the same general area, but closer to the granite. (This might be related to the confusion over the presence or absence of mica in the gabbroic fabric (Peacock 1988, 303)). 316 sherds have been assigned to this category, which comprises 15% of the total pottery found on the site. Some of these vessels show signs of wheel-finishing (eg 20). There are also a few examples of jugs in this fabric, which are probably post AD 1250 in date, and two sherds with white slip decoration which are probably post 1300. (This dating comes from Devon (Allan 1978, 227), and whether it can be applied to the far west of Cornwall is questionable, but there is no other evidence). There is also one cistern (25); no front view of the bunghole has been drawn because this is incomplete. Cisterns are generally considered to be a later medieval form although earlier examples are known. There is one from Tresmorn (Beresford 1971, 68), and two from Penhallam (Beresford 1974, 129-30), which may be 13th century. The shape of the Old Lanyon example is similar to the cooking-pots, for example (22), which may mean that it is contemporary with them.

Illustration Nos: Fig 13. 19-25

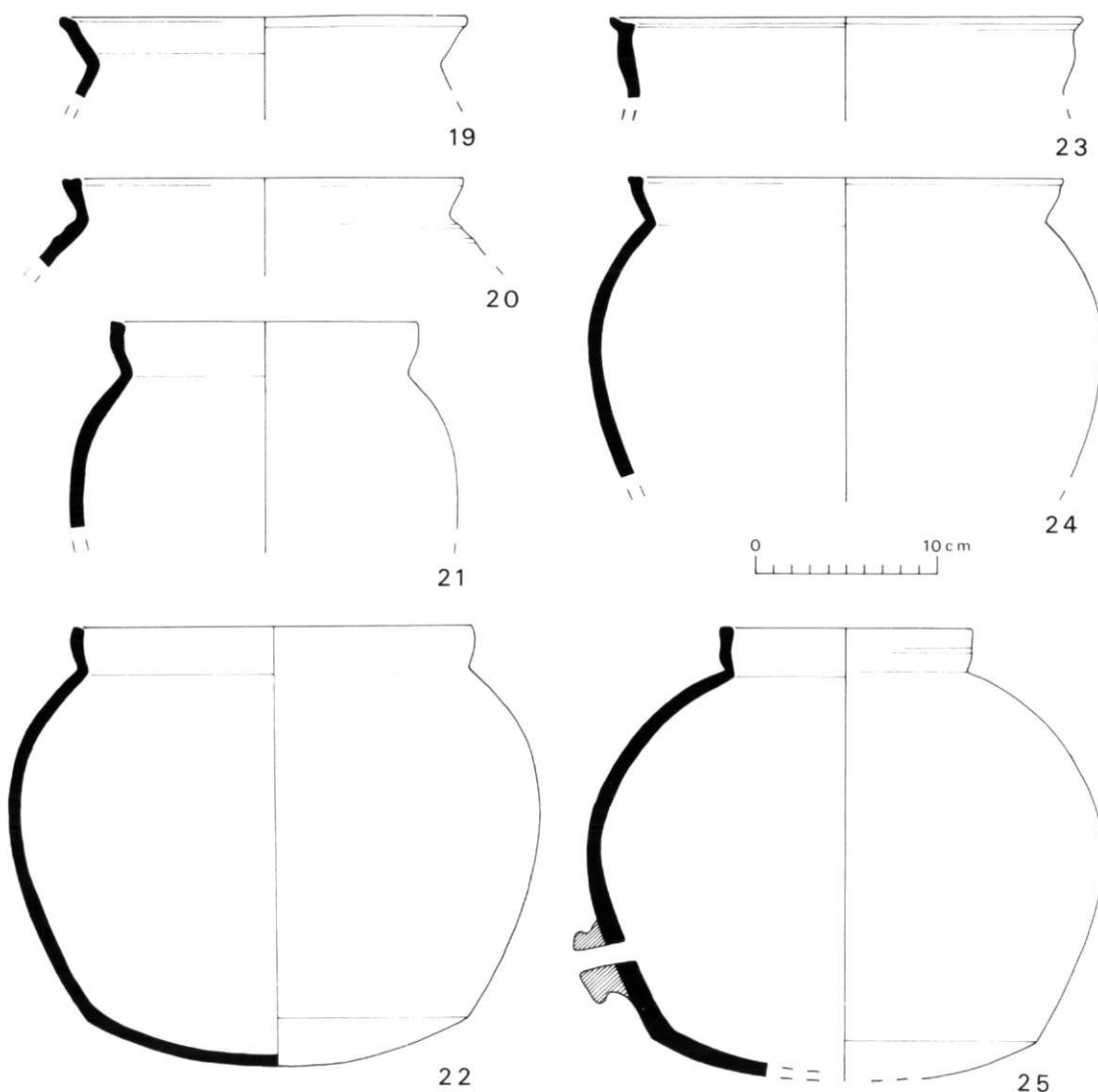


Fig 13 Old Lanyon pottery nos 19-25. Fabric 2 cooking-pots (19-24) and cistern (25)

Stuffle-type wares

These are unglazed hand-made wares first classified at Bunning's Park, near St Neot, and described in detail in the Bunning's Park pottery report (O'Mahoney 1989a). They are generally harsh to touch, but vary considerably in superficial appearance and colour. A total of 558 sherds at Old Lanyon are of Stuffle-type, comprising 26% of the whole assemblage.

Fabric 3 Stuffle B5, 12th-13th century?

Generally a light brown fabric containing opaque white angular quartz and hard dark fragments. There is one rim, and basal angles and lower parts which may be associated with it. These are from a cooking-pot with a flat grass-marked base. There are only a few other sherds (total 46). This fabric was thought to be the earliest at Bunning's Park and is only found there in a small quantity. The grass-marking suggests that its use began in the 12th century, and that it may originate in West Cornwall. The end date of production is not known.

Fabric 4 Stuffle A1, 13th-15th century

This encompasses many variations in colour and amount of inclusions. There is a total of 139 sherds (87 of these appear to be from one vessel, a jug with a small rod handle with a single thumb impression at the bottom. The upper portion of the handle was not found, and the sherds are too small and abraded to reconstruct any more of the vessel). Most of the other sherds are probably from cooking-pots. Decoration is rare but there is a sherd with an external groove in 122, and one with an applied strip in 185.

Three pancheons have been included in this classification (37-39). The presence of bowls may indicate that the Stuffle fabrics continued into the 16th century, or that bowls were used in the medieval period in Cornwall. Several were found at Tintagel (O'Mahoney 1989b, 10, fig 5, nos 66-75).

Illustration Nos: Fig 15. 37-39

Fabric 5 Stuffle A3, 13th-15th century

This is generally distinguishable by an orange colour and more large and medium sized inclusions, with prominent flakes of white mica. At Old Lanyon there is only a small amount (53 sherds), and most of it is very abraded. One characteristic cooking-pot rim is illustrated (26). Rims of similar form are found at contexts 142 and 30. There is one bung-hole from a cistern (27). A rim with an external groove from 116 may be from a jug. There is one vessel decorated with a thumb-impressed strip in 185, and one bowl (40). The rim angle of this suggests that it may in fact be a large storage jar, but it is heavily sooted externally.

Illustration Nos: Fig 14. 26, 27; Fig 15, 40

Fabric 6 Stuffle A4, 13th-15th century

This again occurs in many variations of fabric, but in general it is finer than the other Stuffle fabrics with fewer and smaller inclusions. It is found at Old Lanyon in greater quantity than the others (total 320 sherds). Most of the sherds may be from jugs, but there is one completely oxidised cooking-pot (28). The collared rim form of another (29), which is very thin-walled, is unusual for Cornwall.

Two joining sherds from 194 are decorated with bands of incised horizontal straight lines above and below a single wavy line. Sherds from 82 are decorated with horizontal ridges and grooves on the neck and body. These are probably from jugs, as are the rims (30) and (31). There are also parts of jug strap handles: decorated with incised diagonals meeting at the top of the handle, from 189; with single holes pierced in each of three sections at the base of the handle, from 110; and with five long parallel vertical slash marks at the base of the handle, from 175.

Many sherds are thick and show little curvature. These may be from very large vessels suggested by the rim and decorated handle (32), and a basal angle with a diameter of 36 cm, from 80 and 89. (35) may be the lower part of the handle of (32), but this is not certain. There is not a suitable point from which to draw a section of it, but as far as can be seen the section would be similar to that of (32). Joining bodysherds from 54, 41, 7, 45 and 10 also show little curvature and may be from the same or a similar vessel. These body-sherds are decorated with an applied horizontal thumb-stripe met by diagonal and vertical strips with smaller impressions probably made with a tool. There are other sherds decorated with applied thumb-strips from 83, 111, 170, and 172. The illustrated rim and handle (32) may be from a cistern but there is no bung-hole. There is however one small bung-hole in a different fabric variation from 168.

One base (33) has a hole made at a slight angle in the direction not shown in the drawing. It is uncertain whether this was made before or after firing; it is even, but the surfaces of the pot are very abraded and the edges of the hole on the surface worn away. The walls of this vessel do not survive. Secondary holes may have been made in pots for a variety of reasons (Moorhouse 1986, 111-112). The original purpose of the pot may have been adapted so that it could be used as some kind of strainer. Alternatively, if the hole was part of the original construction of the pot, it may have had a similar use to West Country and incurved dishes (Sell 1984), possibly for making cheese, although these are more common in Wessex and South Wales.

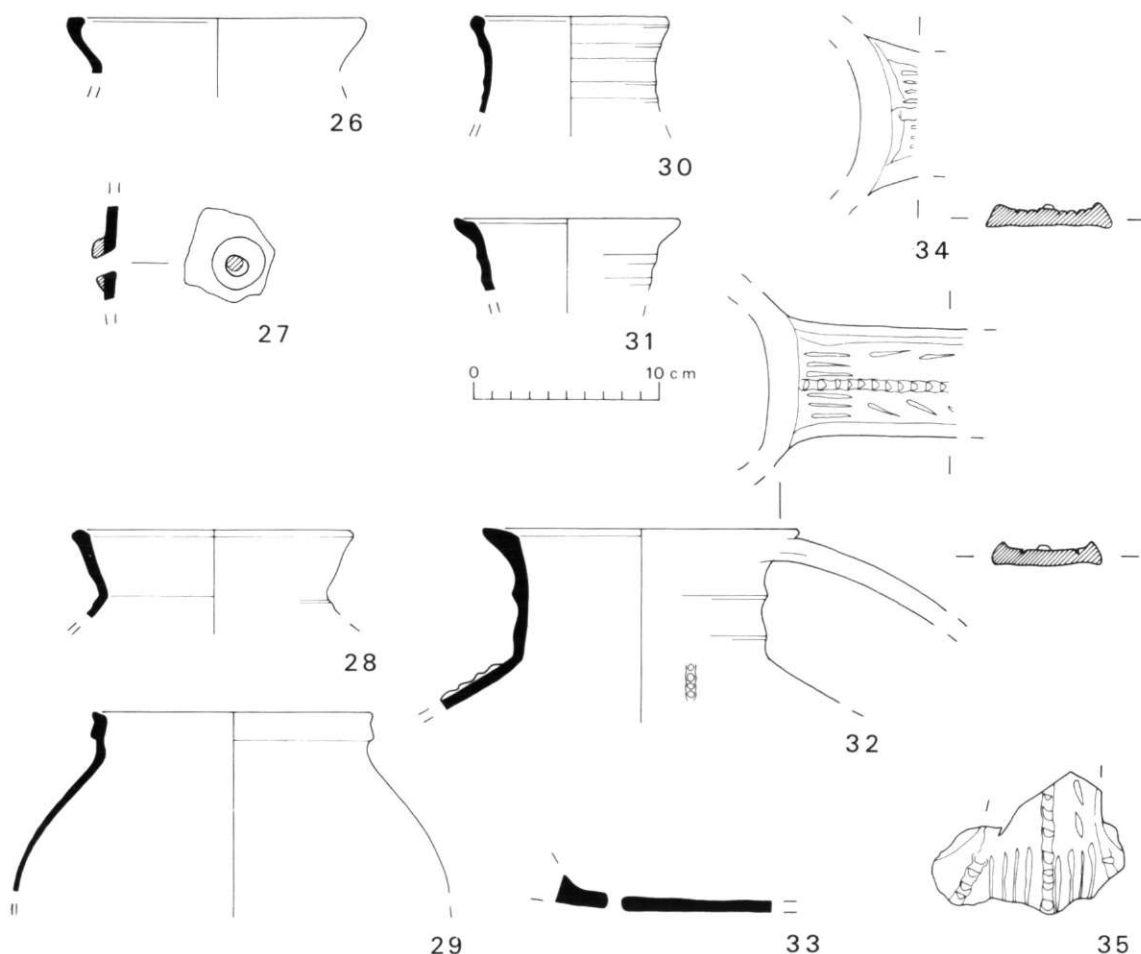


Fig 14 Old Lanyon pottery nos 26-35. Stuffle-type wares. All forms of Fabrics 5 (26-27) and 6 (28-35)

A small post-firing hole occurs in what appear to be bowl wall sherds from 41. There is one pancheon or bowl rim (36).

Illustration Nos: Fig 14. 28-35; Fig 15. 36

Wares of 15th-16th centuries

Fabric 7 Lostwithiel wares

These are coarse fabrics, often similar to Stuffle A3 in the hand specimen but petrologically distinct, often thicker, and frequently reduced. Prominent flakes of white mica are again a distinguishing feature. At Old Lanyon Lostwithiel wares form a large proportion, 698 sherds, almost a third, 32%, of the total pottery. 11 varieties of Lostwithiel and Lostwithiel-type fabrics were identified at Colliford, which related to forms (Litt and Austin 1989, 151-159). No attempt has been made to fit the Old Lanyon material into these classifications, because few rims survive to assist with the identification of forms, and most of the sherds are too abraded to fit into the fabric classifications. However some forms are comparable.

Lostwithiel wares are generally considered to be of 15th-16th century date (Miles 1979; Litt and Austin 1989). Most sherds are very abraded, but probably wheel-thrown and from jugs. Strap, rod, and oval handles are all present. One strap handle from 68 is pierced with

small holes along the centre. The form of the jug rim (45) is comparable to Illustration no 84 at Colliford (Litt and Austin 1989, fig 4.5). There are 2 bowls: (41) and an abraded rim from 201. There is also a thick cylindrical object with a thumb impression at one end. The function of this is uncertain but it does not appear to be part of a handle.

Decoration is rare, but there is one sherd decorated with a wavy line from 14, and sherds decorated with straight horizontal lines from 7 and 173. A sherd from 62 has what appears to be part of an applied strip.

A small proportion of these wares have some glaze. There is a good full internal dark green glaze on jug sherds from 136, 151, and 20, which are in a slightly different fabric. This glaze has been applied as a liquid and some has splashed over the exterior of the rim. There is one example of a pipkin or skillet handle (43) on which glaze appears to have been applied by the same method. There is glaze on the top of this and inside the vessel, and a kiln scar on top. The rim (44) has small splashes of glaze on the exterior surface.

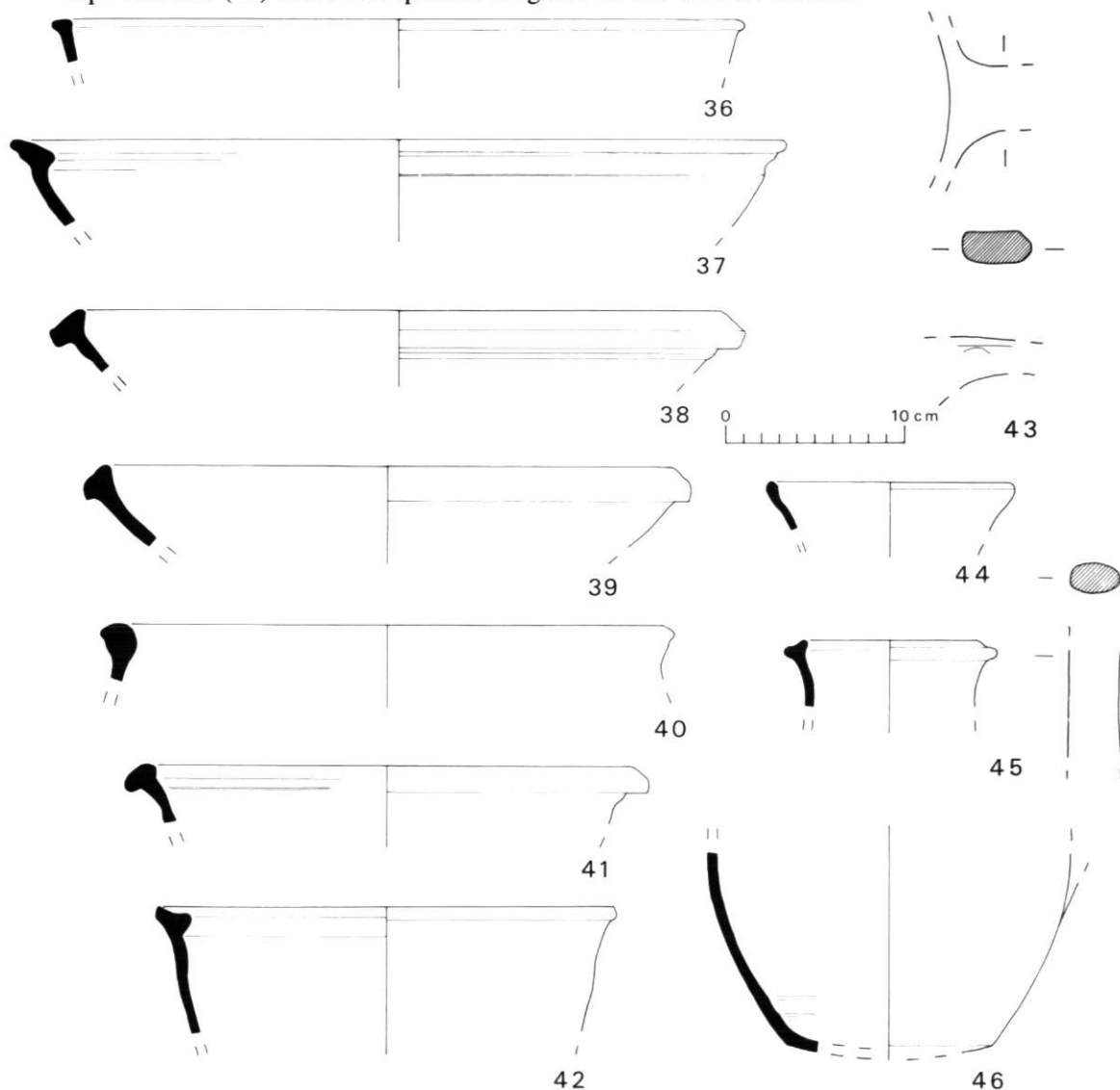


Fig 15 Old Lanyon pottery nos 36-46. Bowls of types 4, 5, 6, 7 and 9, and all Lostwithiel wares (Fabric 7)

There are no examples with white slip decoration, which is often found on these wares, but this, as with the glaze in some cases, may have worn off.

Illustration Nos: Fig 15. 41, 43-46

Fabric 8 Saintonge, 15th-16th century (Hurst 1974)

There is a basal angle of an unglazed jug of 15th-16th century date from 129. One sherd decorated with an impressed applied strip from 183 may be earlier in date.

Fabric 9 Sandy ware, 16th century

The few examples of this material are all wheel-thrown. Most sherds are abraded but have a full internal glaze. There is one bowl rim (42) which has only some splashes of glaze internally and externally. This may be a regional import comparable to Colliford category 13 (Litt and Austin 1989, 159).

Illustration No: Fig 15. 42

Post-medieval wares

Only 5% of the total assemblage is post-medieval

Fabric 10 Cornish Gravel-Free, 16th-17th century

This appears to be a local equivalent of North Devon gravel free or calcareous ware but does not contain calcareous inclusions. The sherds are thin-walled, abraded, with internal glaze, and may be from jugs or jars. All are wheel-thrown.

Fabric 11 North Devon Gravel-tempered, 16th-18th century

There are only five sherds, two rims and one basal angle of pancheons, and one jug rim and bodysherd. All are wheel-thrown.

Fabric 12 Black-glazed red earthenware, 18th century

Wheel-thrown sherds from the shoulder of a large jar with heavy rilling externally.

Fabric 13 China 19th century

Clay pipes

There are two bowls of these, both 17th century. One, from 151A, has a rosette stamp on the base, and is comparable to Exeter no 23 dated 1620-40, and Exeter no 85, 1650-70. The other, from 23, is similar to Exeter no 26, dated 1660-80 (Oswald 1984, 283-293).

Unclassified sherds

A total of 33 sherds have not been assigned to fabrics. Some of these are too black or abraded for this to be possible. In addition to the rim (1), black sherds from 33, 82, 88, and 201, may be pre-medieval. A further rim from 106 in a light brown fabric may also belong to an earlier period. Three sherds, from 75, 125, and 189B, appear to be North Devon medieval coarsewares, which are otherwise absent from the site.

Site Analysis

The pottery cannot be regarded as stratified. Although some contexts can be located precisely, most contain very mixed material. The distribution of grass-marked sherds gives no indication of which is the earliest part of the site, and the joins between 132/180 and 83/174 indicate considerable disturbance of this material. In one case grass-marked sherds and 15th-16th century Saintonge are found in the same context (165, floor of Area IV). A few contexts do contain only grass-marked wares.

Area 1 (House 1)

The 88 contexts here produced a total of 1244 sherds

One context contains only one sherd, which is grass-marked: 18 'In S. Wall. Near cross wall at upper end'.

There are some large portions of single vessels coming entirely or largely from various contexts within or outside Area 1, (20), (22), (25). These three vessels, two cooking-pots and a cistern, are all of Fabric 2. Locations in which sherds of all three vessels are found are 33 and 50, both 'Lower end. In black'. Locations in which sherds of two of the vessels

are found are 3, 41, 45, 46, 54, 73, 86, 91 and 192, widely dispersed around Area I.

On the central hearth, 30, are three sherds of a Stuffle A3 cooking-pot of similar form to (26), and one sherd of the Fabric 2 cistern (25). 12 further sherds of the cistern came from the filling round the hearth, 86. The other four sherds in this context are from the Fabric 2 cooking-pot (20).

Two contexts, 65 and 141, are 'Floor. Upper end'. From 65 there is only a cooking-pot rim of Fabric 1. From 141 is the rim (3), plus two sherds of Stuffle A4 and six joining fragments of Lostwithiel ware. The latest date for material here is 15th-16th century.

Pit 1 156/174/176/180

Collectively these contexts contain a large proportion of early material. 22 of the total of 44 sherds may be 12th century. There are parts of grass-marked platters in 156, 174, and 180 (7) (10) and (13). However there is also later material, Stuffle Type ware and part of a Lostwithiel jug with an oval handle (45).

Pit 2 61/85/97

These contexts collectively contain only seven sherds, the latest in date again being Lostwithiel ware. There is no grass-marked ware although the one sherd from 85 may be 12th century. Drain 93/103/107/108/114/126/192

These contexts contain a total of 73 sherds ranging in date from 12th-16th century, the latest again being Lostwithiel ware.

4% of the material assigned to Area I is grass-marked, 36% Lostwithiel ware, and less than 1% post-medieval.

The concentration of pottery in and around this area appears to indicate that House 1 was the building used for general domestic occupation throughout most of the medieval period. Contrary to normal practice it does not appear to have been regularly cleaned out, or if it was some pottery was left behind, as illustrated by the collection on floors 65 and 141, which includes material ranging from 12th to 15th/16th century in date. The contents of both pits and the drain contain material of the same broad date range. The remains of the Fabric 2 cooking-pots and cistern, (20), (22), and (25), which are found largely in or around this house, suggests that they were in use close to the end of occupation, or use of the hearth. This could indicate that these vessels are in fact contemporary with Lostwithiel wares.

Area II, House 1

The 12 contexts here produced a total of 51 sherds

Again, one context, 200 'S.E. corner. Int. on yellow floor' contains only one grass-marked sherd. Floor 184 has two sherds of a grass-marked basal angle, three further sherds of Fabric 1, and three sherds of Stuffle A4. Five contexts 17, 19, 36, 121, and 127, contain bowls or pancheons, which are relatively rare on the site, suggesting use of this building as a dairy. The unidentified cylindrical object is also found here in context 36. 10% of the total sherds are post-medieval (this does not include the bowls which may be 16th century).

Area III (House 2)

The 17 contexts here produced a total of 238 sherds.

The Posthole 154 contains only one sherd, of North Devon Gravel tempered ware, 16th-18th century. In 94, the 'corner near big stones', there are only sherds of Fabric 10, 16th-17th century. These are also found in contexts 70, 102, 112, 124, all at the west end or outside the west end of the house. Unglazed Saintonge is found in 129 and 155, also outside the west end.

Drain 189 contains 28 sherds of six types; the latest are Lostwithiel wares. 21% of the total sherds are post-medieval.

Area IV (House 2)

There were only seven contexts in this area, producing a total of 32 sherds.

Floor 113 has only one sherd, of a grass-marked cooking-pot, and Floor 88 only an unidentified black sherd which may be pre-medieval.

24 sherds are from Floor 165. Six of these are from one grass-marked platter, and a further six are from the dish-shaped vessel (14). This context also contains the sherd marked with a device, and unglazed Saintonge. There are also Stuffle type wares of 13th-15th century date.

A grass-marked platter is also found in context 75, the stone and rubble in the north-east corner.

Post-Hole 109 has only one sherd, of Stuffle A3.

42% of the material in Area IV is grass-marked, 56% of the material consists of Fabric 1 (there is no Fabric 2). No Lostwithiel or glazed material is found in this area.

Area V (House 2)

Seven contexts here produced a total of 42 sherds.

Floor 153 and Posthole 152 contain only single grass-marked sherds. Grass-marked sherds make up 17% of the total in and around this room. All sherds of Fabric 1 (including the grass-marked sherds) form 40% of the total. All sherds of Fabrics 1 and 2 together (all local wares) form 71%. This is a much higher percentage of Fabrics 1 and 2 than elsewhere.

From context 140, outside the room, is a large portion of the profile of a Fabric 2 cooking-pot (24), joining a sherd from 137 (House 1). From 134, also outside, are two Stuffle A4 jug rims, (31) and (34), the latter with a broad strap handle decorated in a similar manner to that of (32) in 135, the space between Areas V and II. From 111, the east wall, is a shoulder sherd of Stuffle A4 decorated with a vertical impressed strip, joining the jug or cistern rim and handle sherds from 135 (32).

From the west wall 99 is the rim of a Lostwithiel jug with spots of glaze (44). Lostwithiel sherds make up only 5% of the total, and there is no later material.

Area VI (Barn)

11 contexts here produced a total of 70 sherds

Floor 194/87/90/96

There are 18 sherds from these contexts, most of general late medieval date although one is grass-marked. The material includes Stuffle A4 sherds decorated with horizontal and wavy lines, and Lostwithiel wares, one with remains of internal glaze.

Drain 104/128/139

These contexts contain eight sherds: one of Fabric 2; six of Stuffle A4 and one Lostwithiel. Walls 84/83

There are only two sherds in 84, both of Fabric 1; one is from a grass-marked platter and joins a sherd from 174, the other is a thick basal angle and joins a sherd from 82. 83 contains 20 sherds of 12th-15th/16th century date.

There is no post-medieval material in this Area.

Conclusion

The technique of grass-marking appears to have been introduced to Cornwall about AD 600, but no early forms, such as straight-sided bucket shaped vessels, (Thomas 1968a fig 72, Nos 1-3), have been identified at Old Lanyon. Most of the grass-marked vessels would seem to fall within the range of Sandy Lane Style 2, although a few may be Sandy Lane Style 1. No sherds can be positively identified as parts of bar-lug vessels, now thought to have been out of use by 1100, but, as with the wall-less platters, this may have a functional rather than a chronological explanation. There is no decoration on the rims of either cooking-pots or platters. The lack of decoration on the rims, and the forms, combined with the other evidence, suggests a 12th century, or 11th century date at the earliest, for the grass-marked material.

It appears that most pottery was made locally at first, but this production died out when the industries producing Stuffle-type and Lostwithiel wares flourished. There are, for instance, no bowls made in either Fabrics 1 or 2, no jugs in Fabric 1 and only a few in Fabric 2. However the Fabric 2 cistern may indicate that production of this fabric continued into the later medieval period. The range of forms (platters, cooking-pots, jugs, cisterns, a possible press or strainer, and bowls) and quantity of pottery suggests continuous domestic occupation. The presence of Saintonge does not indicate anything out of the ordinary, as it is now being found elsewhere at farm and village sites. However the general lack of imports and small quantity of glazed wares is usual for comparable settlements in Devon and Cornwall. The small quantity of medieval North Devon wares and lack of Somerset chert-tempered wares can be explained by the location

of the site in the far west of Cornwall. 15th-16th century St Germans wares are probably absent for the same reason.

The presence of bowls and high quantity of Lostwithiel material suggests that occupation continued into the 16th century. The small amount of later post-medieval pottery, for example North Devon gravel-tempered ware, which was widely distributed in the 17th and 18th centuries, suggests that there was not much use of the buildings after this date.

A few vessels appear to be integral to House 1, but joining sherds show that some of the material is very disturbed. However the percentages of types of pottery found in each Area show higher figures for grass-marked wares in Areas III, IV, and V (ie House 2) than elsewhere.

Acknowledgements

I am grateful to Charles Thomas and Carl Thorpe for assistance with the grass-marked pottery, and to Sarah Jennings and David Austin for their comments on the text.

Catalogue of illustrated pottery

Ill.No	Context	Area	Fabric	Ill.No	Context	Area	Fabric
Fig 11				Fig 14			
1	14	II	X	26	25	I	5
2	4	I	1	27	45c	I	5
3	141	I	1	28	82, 83	VI	6
4	188	III	1	29	173, 160,	I	6
5	148	III	1		181		
6	180	I	1	30	158, 135	III/V-II	6
7	180, 132	I/ III-IV	1	31	134	V	6
8	124, 143,	III/I	1	32	135, 111	V-II/V	6
	138			33	142	S	6
9	50	I	1	34	134	V	6
10	180	I	1	35	135	V/II	6
11	75	IV	1	Fig 15			
12	141	I	1	36	125	S	6
13	174	I	1	37	17, 19	II	4
14	165	IV	1	38	193	-	4
Fig 12				39	19	II	4
15	4, 10	I	1	40	127	II	5
16	3	I	1	41	121	II	7
17	110	S	1	42	35	I	9
18	160	I	1	43	119	I	7
Fig 13				44	99	V	7
19	178	I	2	45	182	I	7
20	45, 54	I	2	46	180	I	7
21	31	I	2				
22	39, 40, 45,	I	2				
	10						
23	67	I	2				
24	140, 137	V/I	2				
25	86, 91, 32,	I	2				
	3, 5						

Nos 20, 22, 25 have sherds from additional locations not listed here as they are not the sherds illustrated.

Catalogue of pottery by context

No	Area	Context description	No of sherds	Latest date	Ill No
1	I	Interior. In and among rubble	4	C13th-C15th	
3	I	Interior. On black surface in rubble	16	C13th-C15th	16, 25
4	I	Exterior of cross wall (E) in rubble over gully	8	C16th-C18th	2, 15
5	I	Exterior. South wall near cross wall	3	C15th	25
6	I	South wall below south entrance. On rubble on wall	2	late C13th-C15th	

Catalogue of pottery by context (cont)

No	Area	Context description	No of sherds	Latest date	Ill No
7	I	Exterior of lower end wall	6	C15th-C16th	
8	I	Exterior. Lower end west wall. In rubble	3	C12th	
9	I	Exterior of south wall. In rubble near cross wall. ext.E	5	C12th-C13th	
10	I	Exterior. Upper cross wall. In and on rubble	23	C16th	15, 22
14	II	Interior. In rubble	10	C18th	1
15	II	Near open end. In rubble	2	C12th	
16	I	South entrance—with bronze	1	late C13th-C15th	
17	II	In top rubble	1	C16th	37
18	I	In south wall. Near cross wall at upper end	1	C12th	
19	II	Rubble over floor	8	C16th	39
23	I	Upper end. In rubble on black	CP	C17th	
25	I	Upper end. Under rubble on black	31	C14th-C15th	26
28	I	Extension of north wall	4	C12th-C13th	
30	I	On central hearth	4	C13th-C15th	
31	I	Inside north wall in shallow depression west of vertical slab	3	C13th-C15th	21
32	I	Inside north wall in shallow depression east of blocked entrance	35	C15th-C16th	25
33	I	Lower end. In black	36	C15th-C16th	
35	I	Extension. East. In rubble under grass	6	C16th	42
36	II	On wall in grass	3	C16th	
38	I	Inside. North wall in corner near cross wall	4	C14th-C15th	
39	I	East extension. Near south wall in depression in black	14	C15th-C16th	22
40	I	South entrance. From rubble on paving	6	C13th-C15th	22
41	I	East extension. From rubble	30	C16th	
42	III	In grass roots—high	1	C12th-C13th	
43	I	Upper end. In black	9	C15th-C16th	
45	I	Extension. Near south wall. West of bag 31	16	C15th-C16th	20, 22, 27,
46	I	Upper. Above entrance. In black	5	C13th-C15th	
49	I	North entrance. In blocking stones	7	C15th-C16th	
50	I	Lower end. In black	64	C15th-C16th	9
54	I	Extension. East. In black	164	C15th-C16th	20
56	II	North end. i.e. outside longhouse underneath	1	C13th-C15th?	
57	I	Extension east. In rubble over Pit 2	1	C12th	
58	I	Extension east. Gully against cross wall	9	C15th-C16th	
59	II	South end. i.e. floor of house underneath	5	C14th-C16th	
60	I	On steps of blocked entrance through east wall leading to upper room. Found when blockage cleaned	2	C16th	
60	I	Outside south wall. Under grass	2	C15th-C16th	
61	I	Upper end. In rubble of Pit 2	1	C15th-C16th?	
62	I	Extension of north wall. Above entrance in fallen stones	2	C15th-C16th	
63	I	Extension north. In centre of floor	12	C15th-C16th	
65	I	Floor. Upper end	1	C12th-C13th	
66	I	Exterior. North wall. Below entrance	2	C15th-C16th	
67	I	Exterior. North wall. Lower end. In lower part of wall of house III	3	C15th-C16th	
68	I	Exterior of north wall. Upper end	6	C15th-C16th	
69	I	Exterior. South wall	36	C15th-C16th	
70	III	In wall at west end	4	C16th-C17th	
72	I	Exterior. North wall. Lower end	2	C15th-C16th	
73	I	Lower end	3	C13th-C15th	
75	IV	North east corner. In stone and rubble	2	C13th-C15th	
77	I	Exterior. North wall over drain	15	C15th-C16th	
78	I	Exterior of north wall	1	C13th-C15th	
79	I	Exterior of north wall. Upper end. On top of rubble between Houses I and II	11	C14th-C15th	
80	IV		2	C14th-C15th	
81	I	Outside west wall	5	C15th-C16th	
82	VI		20	C15th-C16th	28
83	VI	From wall when clearing grass etc	20	C15th-C16th	28

Catalogue of pottery by context (cont)

No	Area	Context description	No of sherds	Latest date	Ill No
84	VI	Wall. When clearing grass roots	2	C12th	
85	I	Pit 2	1	C12th?	
86	I	Filling round hearth	16	C13th-C15th	25
87	VI	Floor	3	C15th-C16th	
88	IV	Floor	1	C12th?	
89	IV/V	Outside in angle between	21	C15th-C16th	
90	VI	Floor	4	C15th-C16th	
91	I	In shallow pit under stone west of vertical stone	21	C15th-C16th	25
93	I	Exterior. North wall. Lower end. Drain	6	C15th-C16th	
94	III	Corner near big stones	4	C16th-C17th	
95	I	Exterior. South wall	9	C15th-C16th	
96	VI	Floor	1	C12th	
97	I	Upper end. Pit 2	5	C13th?	
98	III		1	C13th-C14th	
99	V	Inside. Cleaning down west wall	14	C15th-C16th	44
100	section	Main section North-South	3	C13th-C15th	
102	III	Outside west wall	22	C16th-C17th	
103	I	Drain	2	C13th-C15th	
104	VI	Drain	3	C15th-C16th	
105	I	Exterior of south wall. Upper end	3	C15th-C16th	
106	-	In soil excavated for rubbish pit	2	C13th-C14th	
107	I	Outside north wall. Lower end. Drain	1	C12th-C13th	
108	I	Exterior north west. Drain. Upper end	2	C14th-C15th	
109	IV	Post hole	1	C13th-C15th	
110	section	Main section	17	C15th-C16th	17
111	V	Clearing down of east wall	4	C14th-C15th	32
112	III	In stones outside lower end	29	C16th-C17th	
113	IV	Floor	1	C12th	
114	I	North wall. Outside. Lower end of drain	3	C15th-C16th	
115	III	Outside. West end	3	C12th	
116	section	Main section E-W beyond lower end. North face of Wall 2	14	C15th-C16th	
117	V	Inside. Cleaning of east wall	6	C14th-C15th	
118	I	Exterior of south wall. Upper end	1	C13th-C15th	
119	I	Outside east wall. Below hump	7	C16th	43
120	IV	Outside north wall	1	C14th-C15th	
121	II	Outside east wall in hump	7	C16th	
122	section	Main section. Area between walls 1 and 2	38	C15th-C16th	
123	-	Outside wall 1	9	C15th-C16th	
124	III	West end	67	C16th-C17th	8
125	section	Main section. Stones against field wall. Lower end	22	C19th	36
126	I	Extension of north wall. Lower end of drain	31	C15th-C16th	
127	II	East	1	C16th	40
128	VI	Drain 1	1	C14th-C15th	
129	III	Outside west wall. On terrace above Wall 1	1	C16th-C17th	
130	I	Exterior. South side. Below lower entrance	1	C16th-C17th	
131	I	Outside. West end	2	C12th	
132	III/IV	Outside north wall	15	C15th-C16th	7
133	I	Exterior. South side	12	C15th-C16th	
134	V	Outside north wall	3	C14th-C15th	31, 34
135	V/II	Space between	7	C14th-C15th	30, 32, 35
136	I	Upper end	11	C16th	
137	I	Outside south wall. Lower level. In rubble	26	C13th-C15th	24
138	-	Outside Wall 1	1	C12th	
139	VI	Drain 1	4	C14th-C15th	
140	V	Rubble on west side of wall extending north from east wall of House V	13	C15th-C16th	24
141	I	Upper end. Floor	9	C15th-C16th	3, 12
142	section	Main section. Area between walls 1 and 2	71	C15th-C16th	33
143	I	Outside west wall. On terrace	106	C15th-C16th	
144	-	Blocked entrance between House III and House IV	1	C12th-C13th	

Catalogue of pottery by context (cont)

No	Area	Context description	No of sherds	Latest date	Ill No
146	I	Extension. Outside east wall	4	C15th-C16th	5
148	III	Extension west. Under stones	9	C15th	
149	III	Exterior. West. In drain	4	C12th	
150	VI	Upper end	2	C13th-C14th?	
151	I	Exterior. East end. Grass roots	10	C16th	
151	I	Exterior. East end. Grass roots	CP	C17th	
A					
152	V	Post-hole	1	C12th	
153	V	Floor	1	C12th	
154	III	Post-hole	1	C16th-C18th	
155	III	West. Under stones	28	C15th-C16th	
156	I	West exterior. Under stones. Pit 1	10	C15th-C16th	
158	III	Exterior. West. Under stones	22	C15th?	
159	-	Trench on west side of Wall 1 on exterior of House III. North of section	4	C13th-C15th	
160	I	Exterior. South side. Lower end Walls 1 and 2	28	C15th-C16th	18, 29
162	-	Area of hearth. Between upper end of House 1 and House II	1	C12th	
164	I	West exterior. In grass roots against Wall I	28	C15th-C16th	
165	IV	Floor	24	C15th-C16th	
168	-	East of Pit 2. Cleaning down	2	C14th-C15th	
169	-	Under big boulder on top of drain	1	C13th-C15th	
170	section	Main section. Area between Walls 1 and 2	50	C15th-C16th	
171	section	Main section. Area between Walls 1 and 2	73	C15th-C16th	
172	I	Exterior. South side. Lower end. In rubble on west side of Wall 2	9	C14th-C15th	
173	I	Exterior. South side. Lower end. On paving between walls	32	C15th-C16th	29
174	I	Exterior. West. Under stones. Pit 1	11	C15th-C16th?	13
175	section	Main section. Between Walls 1 and 2	31	C15th-C16th	
176	I	Exterior. West. Pit 1. Under stones	2	C12th	
177	section	Main section. Area between walls 1 and 2	2	C15th-C16th	
178	I	Exterior. South side. Lower end. In rubble	30	C15th-C16th	19
179	I	Shallow gully north of main drain. Against House 1	4	C15th-C16th	
180	I	Exterior. West. Pit 1	21	C15th-C16th	7, 10, 6, 46
181	I	South exterior. Lower end. Paving between walls	17	C15th-C16th	
182	I	West exterior. Area between Houses I and II. Under stones	75	C15th-C16th	45
183	I	South side. Lower end. Under paving beyond porch	8	C15th-C16th	
184	II	Floor	8	C14th-C15th	
185	section	Main section. Area between walls 1 and 2	24	C15th-C16th	
186	III	West exterior. Between walls 1 and 2	13	C15th?	
187	I	Exterior. South side. Lower end. Between house wall and walls 1 and 2	2	C15th-C16th	
188	III	West exterior	1	C12th	4
189	III	West exterior. Drain	28	C15th?	
190	section	Main section. Between walls 1 and 2	17	C15th-C16th	
191	I	South side. Lower end. Under paving beyond porch	18	C15th-C16th	
192	I	Exterior. West end. Under stones. Main drain	28	C15th-C16th	
193	-	Earth excavated from second rubbish pit	1	C16th	38
194	VI	Floor	10	C15th-C16th	
197	-	Post-hole between walls 1 and 2	1	C13th-C15th	
198	II	Hump at east end	4	C13th-C15th	
200	II	South east corner. Interior on yellow floor	1	C12th	
201	I	Outside south entrance	19	C16th	

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The medieval garden at Tintagel Castle

PETER ROSE

Introduction

The walled garden at Tintagel is a well-known feature of the castle complex though it is fair to say that its importance and its rarity as a survival are little appreciated. The general character of medieval gardens is well recorded in documentary sources but the identification or the survival of the layout at individual sites is exceptional. The Tintagel garden allows a dialogue between the generality of the documentary evidence and the archaeological evidence of a specific site. The documentary evidence for medieval gardens provides a clear idea of the possible treatment of a garden in such a context as this, and this evidence can be applied to the interpreted layout at Tintagel to allow a number of possible reconstructions. In this way the documents provide a way of addressing the archaeological evidence. Conversely the archaeological site at Tintagel can help to illuminate the general documentary record by providing a rare physical example of an actual garden layout, showing how the framework of a garden was designed and organised in practice. Furthermore a more detailed consideration of the garden and its cultural context reinforces and develops current interpretations of the thinking behind the 13th century castle of Richard, Earl of Cornwall. This discussion depends on some key questions: what is the date of the garden, what type of garden was it, and how much survives of its medieval layout? Indeed can we be sure it is a garden at all? From the outset it must be stated that definitive answers are in short supply in this study; for example, there is no firm date for the garden from either archaeological or historical evidence. Instead, a balancing of probabilities is necessary throughout; the answers put forward here are those which seem most reasonable to me in the light of the available evidence.

Setting

The garden is set on the exposed plateau of Tintagel Island, though its position towards the north-eastern edge of the plateau, a little down from the highest ground, offers it a modicum of shelter from the full blast of the westerlies. The site of the garden is on a slight slope down to the north-east. A rock-cut spring is on higher ground 40m to the north-west. Lying 50m to the south-east is the ruined chapel of St Julitta. Both garden and chapel are components of the castle complex, though both lie beyond the defences of the Inner Ward, which protects the sheltered area above the narrow neck linking the headland to the mainland. The garden lies some 130m from the Inner Ward.

Early references

The garden enclosure is referred to as early as the mid-16th century when John Leland records 'a ground quadrant walled as yt were a garden plot'. Sir Richard Grenville's plan of 1583 labels the enclosure 'a garden walled'. It appears again on Norden's drawing of c 1600, but without annotation (Thomas, 1993, 27, fig 17; 42, fig 31; 45). Thomas suggests that Leland and Grenville 'would have been familiar with similar little herb-gardens in their own time' (*ibid*, 45).

Sometime in the 19th century the enclosure was interpreted as a burial ground, for example by Francis Kilvert who visited on August 3rd 1870 (Maber and Tregoning, 1989, 92). Kilvert observed some 'small footstones still standing erect at the foot of the graves'; presumably these were amongst the stones subsequently interpreted by Radford as edgings to a path. In the principal account of this period Maclean preferred to see the site as a small garden (1873, 205).

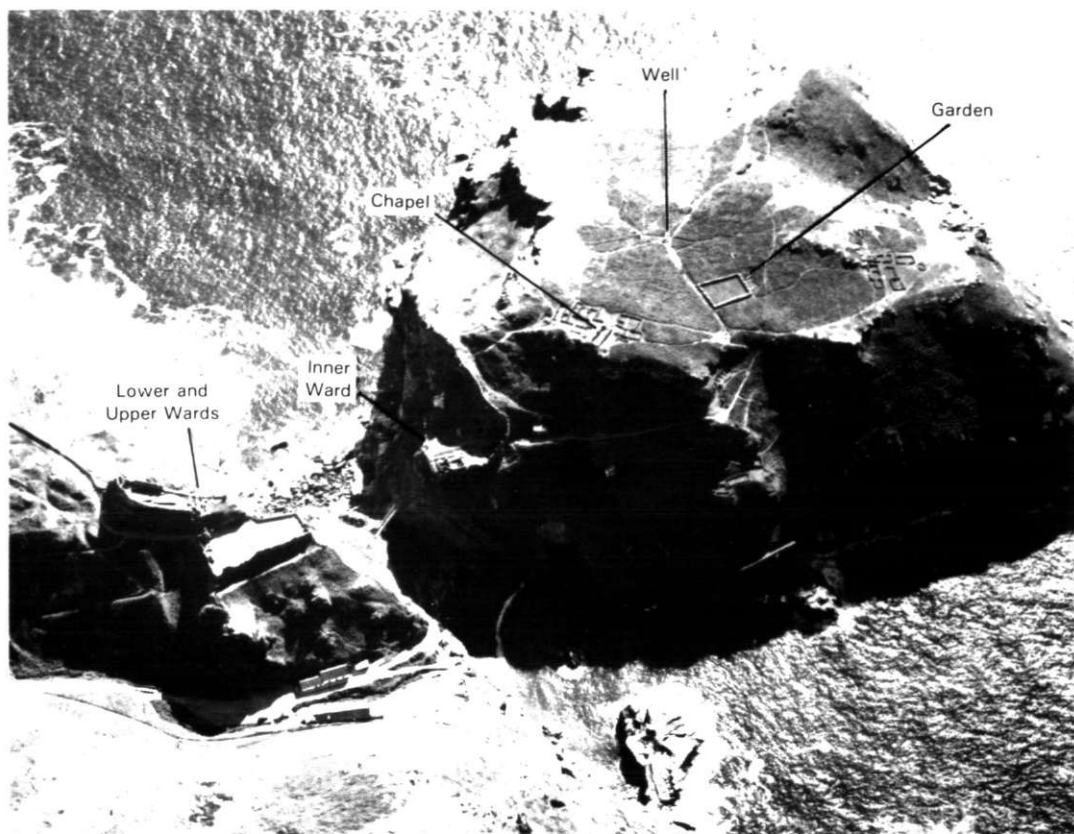


Fig 1 Tintagel from the east-north-east (photo: Steve Hartgroves, CAU ref F20/102/SX 051890)

Investigation in the 1930s

Its character was finally clarified by C A R Radford's excavations for the Office of Works in 1935 and 1936 (Radford, 1935, 464):

'Sixty yards north-west of the chapel is a square enclosure. The walls are set in clay, but the upper courses were mortared. On clearing, it was found that a path marked by slabs on edge ran near the inner face of the walls, with a further path dividing the central bed into two parts'.

Remains of earlier walls, presumably belonging to the 5th to 6th century AD Post-Roman phase, were also found within the garden and extending beyond it. Radford's published site plan (1935, pl LV) shows the garden at a small scale and differentiates between identified and conjectural lines of slabs; this plan is a reduced version of the unpublished site plan at 1:96 scale, drawn in 1935 with amendments in 1936. This drawing (held by the English Heritage Historic Plan Room) also records two sections through the enclosure. Dr Radford's notes and report did not survive the 1939-45 war.

Radford 'stripped the whole area down to the medieval surface and cut several trenches to provide sections' (Radford, *in litt*, 1994). From the sections it is clear that before excavation the walls had a more banked appearance, being partly obscured by tumble and the development of a topsoil and turf cover. Layers are shown in the section drawings but not numbered or described there. In general two layers are shown within the enclosure, a thin upper layer presumably of turf and associated humic material, less than 0.3m thick, and a thicker layer

presumably of garden soil, mostly around 0.3m thick: 'the soil in the beds had been dug to a depth of over 30cm. This was not normal [on the island] . . . ' (Radford, *in litt*, 1993). The soil is shown as deeper on the north-east side of the interior, and the enclosure wall is set on the upper part of the layer, giving the impression that the ground has been platformed out slightly to create an even slope. At the uphill end of this section the enclosure appears to have been levelled slightly into the slope and the south-west enclosure wall was then set on soil raised above that level. The wall also overlies a broader shallow cut though it is not clear whether this is associated with the construction of the enclosure or with earlier activity.

Fig 2 shows the position of the recorded upright slabs which formed the basis for Radford's interpretation and reconstruction. The edging slabs of the path appear in the section drawings to be set within and through the cultivation layer and are shown as having overall heights of from 0.35m to 0.65m. Interpretation of the layout of the paths depended not just on the

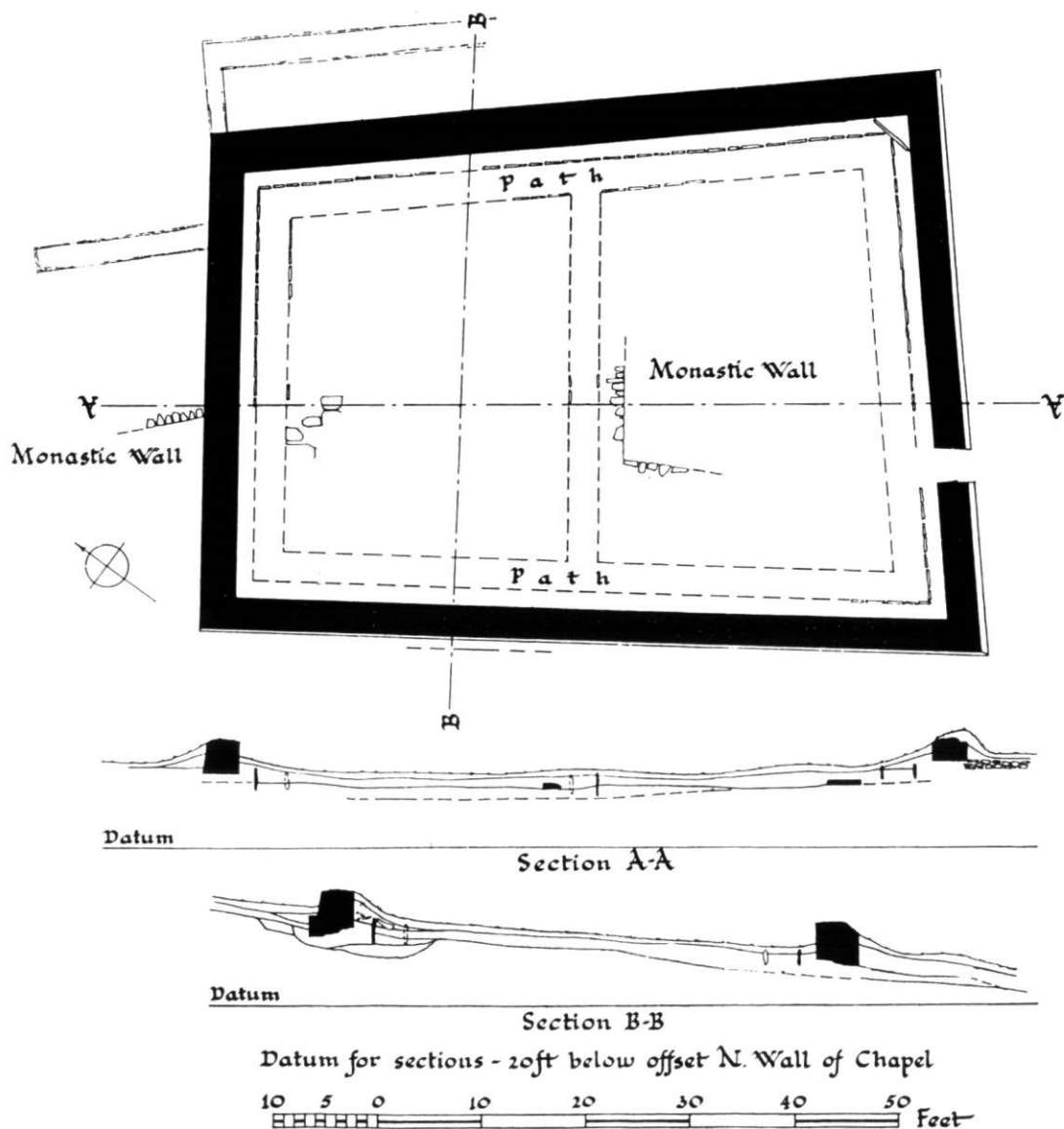


Fig 2 Tintagel, the garden; Office of Works plan and sections, 1935 and 1936

survival of the edging slabs: 'the paths were marked by the undisturbed soil levelled up with small stones; in places they retained a paving of small slabs' (Radford, *in litt*, 1994). In one corner a further feature survived—a single slab was set to define a tiny area in the south-east angle of the enclosure. No further features of the garden were recorded. A small area of flat slabs is shown on the 1935 plan in the north-west part of the enclosure, but from the section these appear to be at a relatively low level and may therefore belong to the Post-Roman phase.

The medieval layout, as interpreted in the 1930s excavations, was restored in the 1930s to the form seen today: 'Sufficient remained to allow this to be restored with certainty' (Radford, *in litt*, 1993). Radford's work has left little room for doubt that the feature in question is indeed a garden; it does not obviously fall into any other class of medieval monument, but its form, features and associations all allow for its reasonable interpretation as a garden.

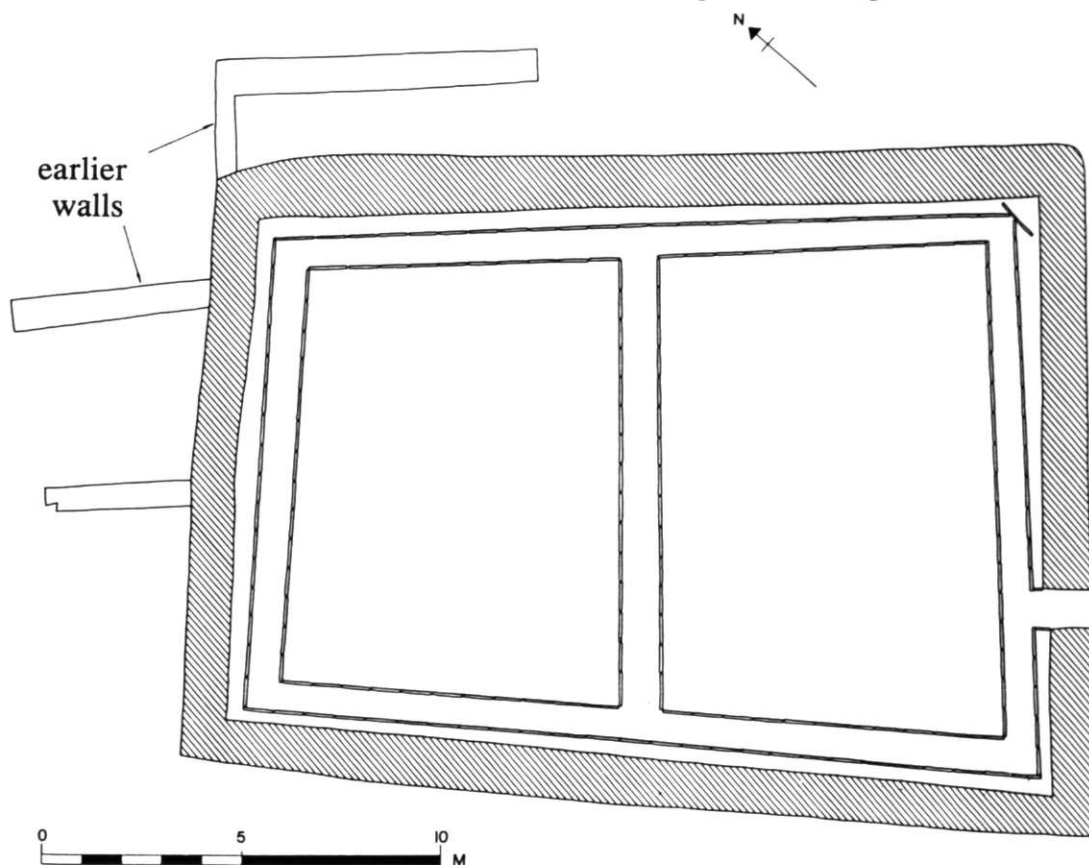


Fig 3 Tintagel; the garden as surveyed in 1988 by the Cornwall Archaeological Unit for English Heritage

The site today

A plan of the garden in its present, reconstructed, form was made in 1988 for English Heritage by Nic Appleton-Fox, Tricia Fox and Andrew Waters (Cornwall Archaeological Unit) and is given in Fig 3. It remains possible that the layout was actually more complex; but this reconstruction represents the simplest reasonable interpretation to be derived from the information available.

As seen today the enclosure wall is thick, some 1.2 to 1.5m wide and 0.9m high. It is built of good sized slate stones laid flat but uncoursed, and appears to be a true stone wall rather than an earth bank with a stone face; certainly the wall top is extremely stony with many big

slates in place, but of course it is possible that the character of the walling changed at a higher level, now missing. Variations in the thickness of the walls in some places suggest that more detailed study of the stonework may provide evidence for rebuildings or other changes. The face of the wall is ragged and eroded in places and in some places appears to have a slight batter. It was consolidated and pointed in the 1930s but the extent of any rebuilding at that date is not immediately apparent. Tufts of grass have colonised here and there. The quadrilateral enclosure measures some 20 by 14m internally and has a gateway 0.95m wide placed off centre on the south-eastern short side, facing towards the chapel. The walling to the north of the gateway is on a slightly different alignment from that on the south, suggesting that the off-centre entrance is an original feature of the layout. A socket for a wooden jamb for a gate can be seen on the south-west side of the gateway and perhaps on the north-east side. That on the south-west is not a continuous vertical line but is slightly offset in the middle: a single straight piece of wood could not have been set in the length of the slot. Perhaps this is the result of a rebuild. On the north-east side of the gateway is a tapering slot, 0.07m wide at the wall face and 0.15m deep; this is different in character from the rectangular slot opposite it.

The enclosed area is slightly levelled into the slope, creating an almost level surface on the north-west to south-east axis, with only a slight slope to the north-east. The management of the garden area today, as an area of mown grass, helps contrast it with the surrounding rough vegetation of extremely tussocky grass. After the excavations of the 1930s Dr Radford 're-dug the beds in the garden and planted them with local flora; the rabbits settled that' (Radford, *in litt*, 1993). A path 0.7 to 0.9m wide runs around the perimeter of the garden and another bisects it. Both are raised very slightly above the adjoining ground and defined by slate slabs set on edge, typically 0.3 to 0.7m long, 25mm to 70mm thick, and projecting up to 0.1m above the turf. It is not readily apparent whether slabs exposed in 1935 have remained *in situ*. The 1988 plan shows the slabs schematically. A narrow space of around 0.5m has been left between the path and walls. The south-east angle of the enclosure has been cut by a single slab to define a small corner feature. The layout overall is firmly rectilinear but by no means perfectly regular.

Medieval gardens

A wide range of documentary sources provides evidence for the character of medieval gardens from the 12th to 15th centuries. These include estate records, medieval text books, depictions (mostly from the 14th and especially the 15th centuries), and literary descriptions and allusions such as Chaucer's. From these it is possible to identify orchards and vineyards, kitchen gardens, herb gardens and pleasure gardens, both larger pleasancess and smaller 'herbaria'; these are described by McLean (1981) and by Harvey (1981) whose accounts provide the framework for interpretation here. The archetypal garden was relatively small, rectangular and enclosed, often filling the spaces between ranges of important buildings or else well enclosed by wall, hedge or fence. However, the residences of the elite, the royalty and greater nobles, might have a diversity of gardens, sometimes with the larger pleasure grounds broadening out into the park in a manner more normally expected in later centuries (Harvey, 1981); but descending through the social scale the size and extent of the gardens would be expected to decrease and utility would come to the fore, though some aesthetic features could have been retained at even the humblest level, with a mix of herbs and vegetables, flowers and trees.

The garden at Tintagel—its character and date

What sort of garden would one expect at Tintagel? Castles normally had either no gardens at all or else just pleasure gardens, though there might also be orchards or vineyards outside the walls (McLean, 1981, 96). It seems unlikely that the garden at Tintagel was purely utilitarian. If it was a kitchen garden, would it have been expected to supply the needs of Earl Richard and his retinue? If so, would the produce have been adequate? Any consumables required for the Earl's occasional visits could have more easily been brought in from the manor of Bossiney, within which Tintagel stands, or from other manors in the Earldom, rather than



Fig 4 Tintagel; the garden seen from the north-west; beyond is the chapel

from a kitchen garden cultivated with great difficulty in this exposed location. Or perhaps it was intended for the castle's skeleton staff, a rather fine patch for their leeks, onions, cabbages and pot herbs. This cannot be disproved but, conversely, there are good reasons to expect that the castle would have had a pleasure garden as one of its components. This is tied up with a consideration of the garden's date.

Thomas suggests that the garden could date from any time from the 1230s, when the castle is generally believed to have been constructed by Earl Richard, to the 15th century, when it was in ruins (Thomas, 1993, 45). Even by the time of the Black Prince's survey in the mid-14th century the castle was run down and neglected. Though it cannot be ruled out it is doubtful whether the various Constables in the 14th or 15th centuries would have been responsible for the construction of the garden. The honorific duty of Constable of Tintagel was normally assigned to the county's sheriffs, who are unlikely to have been resident at the castle (Maclean, 1873, 200-203). More reasonably, the garden should be associated with the principal phase of the castle, and was most probably laid out under the orders of Earl Richard in the 13th century; indeed it would be surprising if such a man had not included a garden in his design, for himself and for his lady. Richard was the second son of King John; born in 1209 he would have been in his early twenties when he established a castle at Tintagel (c1230; Padel, 1989). Until the birth of the future Edward I in 1239 he was next in succession to the throne. He campaigned in France, he went on crusade and in 1257 was elected King of the Romans; his place was in national and international politics. Each of his three wives was regarded a beauty—Isabella of Gloucester (daughter of the Earl of Pembroke), Sanchia of Provence, the sister of Eleanor, wife of Henry III, and Beatrice of Falkenberg, niece of the Archbishop of Cologne. There were also mistresses, including one who may well have been Cornish: Joan, who became wife of a de Valletort of Trematon, and gave the Earl two children, Walter and Joan (Taylor, 1911; Elliott-Binns, 1955, 159-62; Denholm-Young, 1947). There are occasional records to

show that the Earl did visit Cornwall (Denholm-Young, 1947, 38-40, 72-3, 125); none mentions Tintagel, but this tells us nothing.

Gardening for high society

Gardening was taken up enthusiastically by English high society in the 13th century (McLean, 1981, 32) and the pace was set by the royalty, notably Richard's brother Henry III whose marriage to Eleanor of Provence in 1236 accentuated the move towards the sophisticated and luxurious. Continuing work on gardens of all sorts is recorded at many of the royal castles and palaces at this time (McLean, 1981, 92-102; Harvey, 1981, 79-82). At Windsor, for example, the Queen's chamber had glazed opening windows facing on to the King's herb garden, another garden was set up between the hall and apartments, and another was enclosed with a ditch (McLean, 1981, 94-95). At Clarendon Palace, Wiltshire, a herb garden was made for the Queen in 1247 overlooked by the Queen's chamber; and the King's garden had a bench all around the wall. He had another garden beneath his chamber and had paling put around the burial garden of his brother, Geoffrey de Lenzignan (McLean, 1981, 98). The palace at Woodstock, Oxfordshire, had a complex of enclosed gardens and linked to it was Everswell, a walled pleasance of springs, fountains, pools and wells, cloisters and trees. Established by Henry II in 1165 the garden was famous as Rosamund's Bower (Harvey, 1981, 11, 80).

McLean suggests that the exotic, romantic feel of the gardens at Woodstock and Everswell may even have been a conscious imitation of the popular Tristan and Iseult story (McLean, 1981, 101). Certainly gardens feature regularly in contemporary literature and are part of the package of romance and courtly love. It is particularly relevant to pursue the way in which gardens feature in the various versions of Tristan and Iseult because the story is set firmly in Cornwall, and usually features Tintagel as King Mark's castle (Padel, 1981a). In Beroul's 12th century version the lovers contrived to meet by a pine tree beside a spring in the garden at King Mark's court, (presumably Tintagel but possibly Lantyan; Fedrick, 1970, 56); here they succeeded in fooling Mark as he eavesdropped from the branches of the tree. This is a standard episode in the stories. In Eilhart Von Oberg's 'Tristrant' (late 12th century) the tree is a linden, beside a brook in Isalde's orchard, next to the palace at Tintanhol. This provides a setting for several episodes, including the penultimate meeting of Tristrant and Isalde, when they spend the night there (Thomas, J W, 1978, 14, 86, 141). Gottfried of Strassburg's 'Tristan' (c1210) is thought to follow closely that of Thomas (c1160), whose patron may have been Eleanor of Aquitaine, the wife of Henry II (Hatto, 1967, 355-7). Gottfried sets three key episodes in gardens. The first is the usual scene of Mark's deception. Eight times in as many days the lovers meet in the shadow of an olive tree in an orchard at Tintagel, beside a brook which flows from a spring. The second episode is not actually in a garden, but the setting is garden-like in its qualities of peacefulness, beauty and shelter. The lovers have been banished to the wilderness, and Gottfried makes much of the contrast between the rocky open heath and the area around their refuge, the exotic 'Cave of Lovers', a little apart from which was a level glade through which flowed a cool, fresh brook, sheltered by three stately limes. Here were bright flowers and green grass, the sweet singing of birds, shade and sunshine, air and breezes. 'The bench beneath the lime tree was flowers and grass, the best-painted lawn that ever lime-tree had'. Here they debated and discussed, told stories and played music. In the third episode, back at Tintagel, Isolde had a magnificent bed made up in a cool, sheltered part of her orchard and waited there for Tristan: King Mark found them in the garden 'sleeping very peacefully after some exertion or other'. Here Gottfried makes an explicit parallel with a biblical garden: Tristan 'took the fruit which his Eve offered him and with her ate his death!' (Hatto, 1967, 231-35, 261-70, 280-83, 364). The story's association with a garden is unmistakable and abiding; 600 years later Wagner set Act II of his 'Tristan and Isolde' in the garden at Mark's palace.

Returning to the wider literature, medieval gardens it seems, could be enjoyed for walking and resting in, for dancing and music, games, conversation, reading and relaxation, and, of course, for love trysts (McLean, 1981, 118, 160). Gardens and flowers were also very important

as symbols, primarily religious but secular too. Whilst the Garden of Eden provided one model and source of symbolism for medieval gardens, the enclosed medieval garden had a more important biblical counterpart in the 'garden enclosed' of the 'Song of Songs' attributed to King Solomon. This contains a dialogue between the lover and the promised bride, whose symbol is a garden. At one level the imagery was secular and erotic; at another it was religious, variously symbolising the soul's quest for union with god, or else the inviolate person of the Blessed Virgin Mary, a sealed garden only penetrated by God. In courtly love this symbolism could be transferred to love for a human lady. Flowers too were symbols, very often of the Blessed Virgin Mary. In particular the rose was a symbol of her perfection and virginity; the white lily was a symbol of purity, the violet of humility (McLean, 1981, 120-137).

Gardens for pleasure and repose, gardens as symbols, literary gardens and biblical gardens, all would have been a familiar part of the cultural milieu of Richard Earl of Cornwall. Oliver Padel (1981b; 1989) has proffered the persuasive hypothesis that Richard acquired Tintagel and established a castle there precisely because it was focal in the internationally renowned romances of Tristan and Iseult as well as having significant associations in local folklore. The romantic castle which Richard created would naturally have had a garden as one of its components. At one level he was re-creating a literary landscape, complete with King Mark's castle, a garden where the lovers met, and, already in place (Thomas, 1993, 111-14), the cliff-top chapel from which Tristan made his escape (described by both Beroul and Eilhart; Fedrick, 1970, 68; Thomas, J W, 1978, 94-5).

The layout and components of medieval gardens

What would this garden at Tintagel have consisted of? Before returning to this question it is helpful to look at the abundant documentary evidence for the character and appearance of small enclosed medieval pleasure gardens. Much of it pertains to the higher levels of society, but this is of course no drawback in looking at Tintagel. The most vivid impression comes from medieval illustrations, though mostly these are rather late (15th century). Estate records of the 13th century are generally rather vague in their details about gardens, but it is clear that many if not all the features that appear in later records and depictions were already present (Harvey, 1981, 11, 80, 110-114; McLean, 1981, 95-108). The garden would be well enclosed with a live hedge or a fence or a high wall, perhaps with a ditch outside. A stout locked gate might be expected. Within the enclosure the main feature would generally have been a turfed lawn. Water features are common—fountains, wells, streams, pools, fishponds. Paths of sand or gravel are described, and sometimes more elaborate cloisters and covered walkways. Railings and trellises, along paths, separating parts of the garden, or around seats, could have supported roses, vines and honeysuckle. Benches of turf were a common feature. Occasionally a dovecote is mentioned in association with gardens, adding to the atmosphere of relaxation and romance. Planting could certainly include ornamental trees and fruit trees—sweet bay, apple, pear, cherry—but the details of planting and the information about the flowers and herbs used are generally not supplied in the estate records. For this, a clearer impression comes from the later illustrations and also from treatises and encyclopedias, some of which are of the 13th century and earlier. These are thought, generally, to reflect contemporary practice rather than to be theoretical guidelines (Harvey, 1981).

Albertus Magnus, Count of Bollstadt, writing about 1260, describes the planting of pleasure gardens (quoted in full by Harvey, 1981, 6). He describes the work needed to make a square turfed lawn. Then around it should be planted 'every sweet-smelling herb such as rue, and sage and basil, and likewise all sorts of flowers, as the violet, columbine, lily, rose, iris and the like'. A turf bench, itself planted with flowers, should be built between lawn and herbs, and other seats set in the middle of the lawn. Also on the lawn, trees should be planted or vines trained, variously for their shade and their perfumed flowers; for example grapevines, pears, apples, pomegranates, sweet bay trees, cypresses. He also recommends a central fountain.



Fig 5 Tintagel; the garden gateway

Layout and components at Tintagel

Returning to the site at Tintagel, at its simplest it may be interpreted as a small enclosed garden, probably of the type referred to in documents as an 'herbarium' or 'herber'. Entered through a single gateway, the enclosed area was probably mostly a lawn. A path led around the perimeter of the lawn and also bisected it. A narrow strip between the path and the enclosing wall would have been suitable as a bed for flowers and herbs. A more detailed consideration of the likely arrangements can be approached with two questions in mind. Firstly we can look at the sort of permutations that could theoretically have been applied to a garden of this layout. The consideration of this question may serve as much to shed light on the character of small gardens of this period in general, with the benefit of an actual (interpreted) garden layout before us, as to examine what was intended at Tintagel; that becomes the subject of a second question: in the light of the enclosure's exposed position, and the requirements of its owners, how would we expect the Tintagel garden to have been worked?

The garden at Tintagel, as interpreted from the evidence of the 1930s excavations, has five main structural components: wall, gateway, paths, narrow beds against the wall (flower beds?), and two large rectangular areas surrounded by and separated by the paths. These components can be considered in turn to recreate the likely appearance or intended appearance of the medieval garden. Within the framework of the recorded layout there is considerable scope for variety of detail and planting which would make a huge difference to the appearance of the garden. In the light of the wider documentary evidence we can consider the possible options that could have been available for each component, but it is more difficult or impossible to establish what was actually effected. Consideration of what would have been feasible has been guided by discussion with Alistair Rivers, Garden Curator of the Probus Demonstration Garden.

Before looking at the components of the garden we can consider the decisions and design involved in its positioning. It appears to have been sited in the only available position on the headland that could come close to meeting the criteria of a level, sheltered location. It is in a little fold in the summit plateau, with the ground rising on three sides. Though down a little

from the summit this is still a windy spot; but it is decidedly windier on the summit. Inside, the ground is close to level on the long axis, but there is a slight slope down to the north-east; advantage has been taken of the lie of the land to achieve this but the enclosure also had to be slightly levelled into the slope on the south-west side and especially in the north-west corner. Indeed the slope appears to have constrained the layout of the garden; to have completed a symmetrical layout matching the north-east half of the enclosure would have involved considerably more levelling into the slope. Instead, the north-west side was made relatively short and a less regular shape created. Whether or not deliberately, this shortening of the north-west side will have caused a slight illusion that the garden, as seen from the entrance, was larger than it actually is (A Rivers, pers comm).

Medieval folk attending the chapel, on higher ground just fifty yards away, would have had a full view of the garden, which is actually set square to the line of sight from the chapel porch, the one place from which the garden would certainly be regularly seen. This could be fortuitous but is more probably deliberate, creating a striking effect of order and design in a wild place. This juxtaposition of the elemental with order and sheltered enclosure highlights the potential effect that could have been achieved by this garden, the (potential) contrast with its surroundings generating a sense of surprise and enchantment. The appearance of the garden as seen from the chapel also suggests that it was approached from that direction; the gateway is placed in this side though, interestingly, not set centrally.

A stout gate, perhaps with a lock, might be expected in the gateway. The walls defined and enclosed the garden, offering shelter and (potentially) privacy, and could themselves have supported plants, both trained against them and growing out of them. If the wall had stood only at the height which survives today (0.9m) there would have been no privacy and little shelter; this may have been acceptable in some contexts, and seems to be shown in some medieval depictions (McLean, 1981, opposite 145 and 160), but seems inappropriate here. The walls are thick and well built and tumble was removed from around them in the excavations of the 1930s; they could well have been considerably higher than now. It is possible that additional height was gained by a fence of boards or hurdles (or less probably a live hedge) surmounting the wall, though the wall top as seen today is extremely stony, making it difficult to see how this could have been achieved. An overall height twice that of today (say 1.8m), whether just a wall or a wall plus fence, would give a good measure of both shelter and privacy. Parts of the garden would still be overlooked by high ground to the south, west and north-west, but some 50m off. From inside, the headland would mostly have disappeared from view apart from some higher ground (including the chapel, which could have been visible from much of the garden). To the north-east the immediate seascape and nearest headland would have been hidden, but beyond, the cliffs would be seen receding to the horizon.

The two oblongs presumed to be turf lawns may have been either simple grassed areas or else 'flowery meads' (McLean, 1981, 159-160), turf lawns planted with low-growing flowers such as violets, primroses, periwinkles and daisies. These, along with lady's bedstraw, should have succeeded in this location, and the violets might also have established themselves at the sheltered foot of the wall. The reasonable depth of soil in these oblongs, a spade's depth, could suggest that they were beds used for cultivation at some stage, rather than permanently down to lawns; but equally it could show the preparation involved in the initial setting out of the garden and establishing the lawns.

The paths, defined by slabs on edge, paved with thin slabs, have been described above; in addition they could have been edged with railings or trellises or even arched with tunnel arbours. Any of these could have been used to support roses or vines, for example. The use of trellising and the like at Tintagel is very unlikely unless a high degree of repair and replacement was accepted: the winter storms would have guaranteed thorough structural damage. Whatever the detail of the paths, their existence suggests one of the more obvious ways in which the garden could have been used, namely for perambulation. The paths are not broad, but would be well suited for a companionable arm-in-arm stroll!



Fig 6 Tintagel; the slab-edged paths are as reconstructed in the 1930s, on the basis of excavated evidence

The narrow strip (0.5m wide) edging the outside of the path under the immediate shelter of the walls was presumably intended as a bed for flowers and herbs. The most obvious feature of this border is its narrowness, which would have restricted the scope of any planting here. Very many species are documented in the 13th century (eg Harvey, 1981, 126-133 and 163-180; McLean, 1981, 139-186) presenting a wide selection from which gardeners could have drawn according to availability and suitability. Roses and lilies were the two most important flowers of the medieval garden and ought to be expected, as might flag iris, another popular plant. Roses would have done well enough as low bushes, though held back by the exposure and acid soils. Lilies require a good depth of soil—that at Tintagel should have been adequate. Violet, periwinkle and daisy have already been mentioned. Other possibilities are peony, primrose, celandines, marigold, the strongly scented catmint and sweet woodruff, aromatics such as vervain, balm, marjoram and mint, and thyme, sage and borage; and many more besides. Apart from sage these are all tolerant and should have done well at Tintagel.

In theory the lawns could have been liberally scattered with trees to create a leafy, shady oasis in the surrounding wilderness. A few trees would certainly have been desirable, such as apple, pear, cherry, sweet bay (*Laurus nobilis*), but at Tintagel they would not have survived. Hazel and blackthorn could tolerate the exposure but the salt gales would keep them trimmed to no more than the height of a person. Some sort of seating must have been arranged, but there is no evidence for the turfed benches which feature in the documentary records. Either they have not survived in an identifiable form or else temporary seating was used. It is difficult to see how there could have been any water features here such as running water and fountains, and certainly there is no evidence of any. There is however a rock-cut well 45m uphill directly from the entrance of the enclosure; its position could be seen as linking it to the layout of the garden as it is in line with the wall containing the entrance.

The overall layout is interesting. The lines are very straight and formal, and there is symmetry in the arrangement of the two lawns. What is perhaps surprising is that there is not greater

symmetry; the gate is offset from the centre instead of opening onto a path leading straight across the enclosure or to some central feature. This gives the impression that that was not at all the effect desired; instead the entrance is not a focal point but merely the way through into the self-contained and intimate small world of the garden.

When we think further about what may actually have been effected at Tintagel, such is the range of variables and unknowns that it is easy to become lost in conjecture. Detail is unlikely to have been static. During Earl Richard's time one might expect change, according to the extent of his interest (which may, for all we know, have been short-lived), the frequency of his visits, and changing fashions. How long the site continued in use as a garden we do not know; nor whether, for example, with declining use of the castle, it was converted into a kitchen garden or saw use as a sheepfold.

An exposed location need not preclude the successful cultivation of a garden—witness St Michael's Mount and Tresco today—but it will certainly have influenced the character of the medieval garden at Tintagel. Trees and trellises probably had to be ruled out; a more open effect is likely, with the paths surrounding the lawns edged by a narrow border of herbs and flowers, beneath the sheltering wall. Management of the lawns, replacement of dead plants, control of invasive ones, and structural repairs as needed—the maintenance of such a garden would have been along these lines and would not have been a major consideration. However, it may be that the challenging climate and only sporadic use of the castle combined to focus activity in the garden very closely on Earl Richard's visits, resulting in a strong element of 'instant gardening' whenever a lordly visit was scheduled; (I am grateful to Mr B K Davison of English Heritage for this suggestion). As well as the repair or installation of door, fencing, trellises (if any) and other fittings, this could have involved the temporary placing of plants in containers (eg wicker baskets or pots; Moorhouse, 1991), perhaps even including small trees. These would have required watering from the well, at least 50m away.

Nevertheless it is pleasing to suppose that with the first flush of enthusiasm for his Tintagel project the youthful Earl Richard would have wished to establish and maintain a properly fitted and planted garden in keeping with whatever vision he—or indeed his lady—had for this special place. Such a garden would have had meaning at various levels, as a real garden in the real world, as a garden imbued with the concepts and symbols of contemporary culture, and, in this special setting, as a shadow of the world of myth, folklore and courtly literature.

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Many useful details of the structure of the garden have been described to me by Dr C A Raleigh Radford, who has patiently answered all my letters. Dr Oliver Padel has guided me through the Tristan literature and together with Brian Davison, Peter Herring and Ann Preston-Jones has provided valuable comments and suggestions on an early draft. I am particularly grateful to Alistair Rivers, Garden Curator of Cornwall County Council's Demonstration Garden at Probus, for discussing the practicalities of gardening in exposed places.

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A huer's hut, Cribba Head, Penberth, St Levan

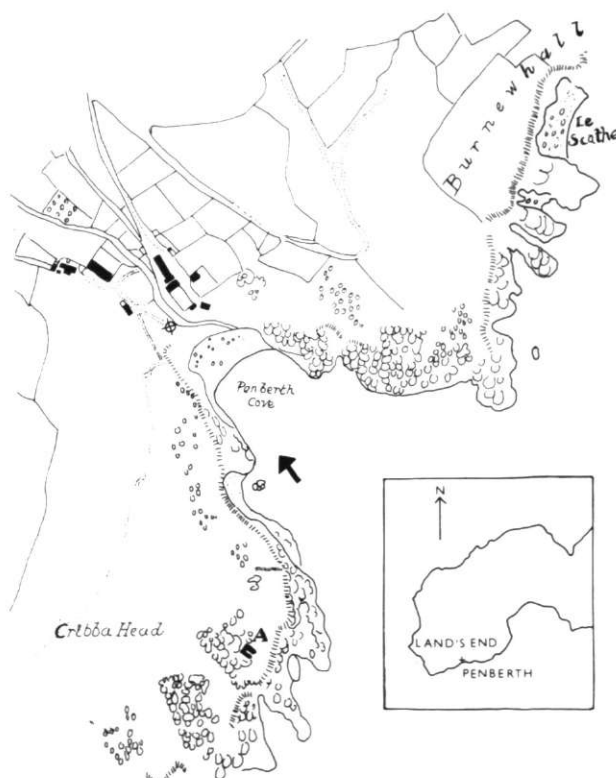
MICHAEL TANGYE

The deep valley of Penberth in West Penwith is divided by a stream which marks the boundary between the parishes of St Levan to the west, and St Buryan to the east. The valley floor and slopes have been won in the past from a granite landscape, to form small fields flanked by trees, used for agriculture and for the cultivation of early daffodils. At the seaward end of this valley lies Penberth Cove. An active fishing industry survives here, typical of others which once flourished in numerous coves of the Land's End and Lizard peninsulas (Fig 1).

Above, to the west, situated in a somewhat sheltered position, below the crest of the hill, is the hamlet of Treen, taking its name from the great promontory cliff-castle of Treryn Dinas a few fields away (see Herring, this volume). Pool gives us 'Trethyn' in 1321 = *Tre-Dyn*— 'farmstead of the fort' (Pool 1973), and on an undated sketch map at the Royal Institution of Cornwall, possibly of the 17th century, we find the cliff-castle named 'Tretheene Castle' (RIC HJ/8/153).

The hamlet of Treen, a compact cluster of haphazardly placed cottages and farm buildings, with its small Methodist chapel of 1834, once represented a tightly knit Celtic settlement, typical of many in West Cornwall which must overlie dwellings of the Iron Age. Here too is the 'Logan Rock Inn', once the stopping place for Victorian and Edwardian excursionists who came by horse-bus from Penzance to traverse the defensive banks and ditches of Treryn Dinas and view the famous Logan rock, perched on the summit of its granite promontory.

Fig 1
Penberth, the huer's hut at A.
Inset: location. Arrows indicate
north



In the Census Report of 1851 for St Levan parish we find that of the 74 inhabitants of Treen, all were Cornish, and most were born in the parishes of St Levan and St Buryan. Most of the males were employed in agriculture and, surprisingly, we find no fishermen resident there at that period, illustrating the sharp divide between those who dwelt in the cove, the 'Covers', who obtained their living from fishing, and those who lived beyond its confines—at Sennen known as 'awver hillers' (over hillers).

Traditional fishing activity is today represented by hand-lining carried out from 14 vessels in full-time and two in part-time use. Vestiges of the once-flourishing pilchard fishery remain in a slipway of smooth granite boulders, backed by a reconstructed wooden capstan, its eight great arms confined within a circular surrounding wall of granite rocks; beyond lie fish-cellars and associated buildings and dwellings, most now maintained by the National Trust.

Cliffs of granite flank the seaward approach to the slipway; to the east is Burnewhall Cliff, taking its name from Burnewhall Farm, still showing, with its mullioned windows, some of the architecture of the manorhouse of BODENEWELL of 1301 (Henderson, West Penwith I, 130), which is possibly aptly interpreted as '*Bos yn newl*', meaning 'dwelling in the fog' (Pool 1973). To the southwest lies Cribba Head, from Cornish *Cryb*—'hill crest' or 'rocky ridge'.

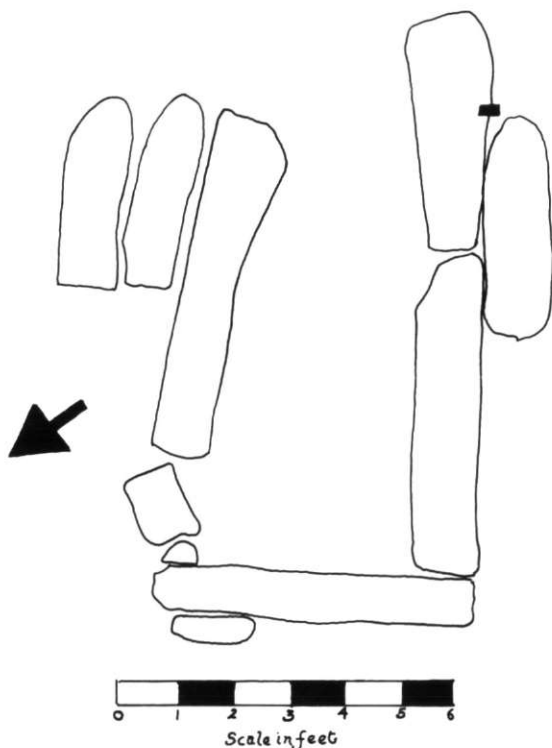


Fig 2
Penberth. Plan of huer's hut.
Arrow indicates north

Description of hut (Fig 2)

On a level natural terrace below the summit of Cribba Head (SW 402 224) is a crude rectangular structure of granite slabs, constructed on a shallow layer of turf-stabilised soil overlying a granite mass; in appearance it resembles the ruined chamber of a megalithic tomb. It is orientated northwest-southeast, with its entrance facing southeast. The rear wall is formed by a single large slab 5ft 6ins (1.67m) long, and 4ft 7ins (1.39m) high, being 11ins (0.27m) thick. The sides consist of single slabs, the tallest 2ft 7ins (0.78m) high, set on edge. On the north side two slabs have tumbled inwards. Whilst the structure bears no evidence of rock-drilling, remnants of an iron fitting are seen on the west side of the entrance. Local knowledge states that the structure represents a huer's hut, associated in times past with the fishing industry in the cove below.

Discussion

The site is typical of those once chosen by huers—situated high above the cove, from where it is clearly visible, with extensive views of the adjoining coastline. From such a vantage point they spent many hours scanning the seas for the approach of pilchard shoals, identified by a purple hue in the water and by the tell-tale movements of sea-gulls. The huer's signals, on a positive sighting, both activated the 'covers' to launch their boats and, once afloat, directed their movements to enclose the shoal within the great seine net.

There are clues to support the tradition of a huer's hut here. On the sketch map of the area mentioned previously, Cribba Head is significantly named as 'Beacon Hill' (RIC, HJ/8/153). Beacon is probably, in this case, a corruption of 'Bawken', referring to a 'Bawken-house', or 'Balking-house', a stone-built hut in which implements needed by the huers were stored and a signal pole erected. The name derives from 'Bawke', to shout (Nance 1963), reflecting the shouts of the huer which accompanied his signals.

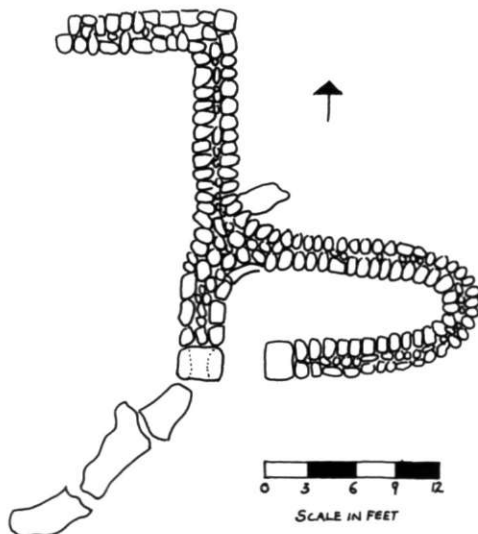
We find a parallel site at St Ives in 1881, where it was reported: 'Sunset was announced by the lowering of the ball at the Beacon House' (*Cornish Telegraph*, 10.11.81)—an obvious reference to the huer's hut above Porthminster, and to a 'time-ball', which replaced flags and furze bushes (gorse), in the larger fishing communities, as a means of signalling to fishermen at stem (Noall 1972, 25).

Nance recorded a now lost cliff-name at Porthgwarra, 'Bawken Hill', where a similar fishing community dwelt in its isolated cove. This must have been an alternative name for the 'The Hella', the cliff on the northwest side of that cove, where the huer traditionally stood when the pilchard shoals approached from the Land's End, and directed the fishing boats, using furze bushes (information from the late Mrs Derrington, née Jackson, aged 84; 1976).

There is little indication of how the small hut at Penberth appeared originally. Tumbled stones on the north side suggest that its side walls were probably once higher, to afford more shelter from the wind and rain. Such open shelters were not uncommon, and we can look to Scilly for comparisons with numerous old pilot look-outs which were situated in similar positions on exposed hill-tops presenting extensive views in all directions. Long hours were spent scanning horizons for vessels approaching the islands, just as the huers spent long hours watching for fish.

Most of the pilots' look-outs consisted of a windbreak of single boulders in a circular or semi-circular lay-out, behind which they sat, on the ground or on a plank supported by two rocks. On Tinkler's Hill, St Martins, F Rodda recorded such a feature in 1893: 'Leaving Bab's

Fig 3
Bryher, Scilly. Pilot's look-out on
Watch Hill. Arrow indicates north



Carn, Tinkler's Hill is soon reached. On top of this hill is a look-out, composed of a semi-circle of large stones, about six feet high, which is now used by the pilots' (Rodda 1893, 59).

On Timmy's Hill, Bryher, an extant arc of large granite boulders was used (Tangye, Bryher) as an alternative to a more popular and ancient look-out on the summit of the aptly named 'Watch Hill', overlooking New Grimsby channel (Fig 3). The latter was succeeded by a coastguard building a few yards away, which was eventually destroyed. It is built with drystone walling, and in addition to an open area, with a wall as a windbreak, the look-out survives as, significantly, a roofless boat-shaped structure, with its 'bow' facing to the east—suggesting that an upturned boat was used as a roof in this exposed position (Tangye, Bryher), although no local knowledge of this fact remained in 1976.

Although it is not boat-shaped, the Penberth huer's hut could still have been roofed in such a manner. Maintaining any other form of roof in such an exposed position, where shelter was only afforded by the cliff behind, would have been extremely difficult. The piece of iron remaining in one of the side walls could have served as a catchment to which one of several ropes was fastened to hold the roof down, or perhaps as a support for a signal pole.

Prior to 1972, a small stone bait-house in Penberth Cove was thus roofed, as was a surviving smoke-house at Porthgwarra, once used for smoking herrings and pilchards, and still retaining its obvious boat-shape (Tangye, Fishing coves).

The Penberth huer's signals to the fishermen were probably made using two furze (gorse) bushes as at Porthgwarra. Launching a large seine-boat at low tide would have presented a considerable problem in such a rocky cove; valuable time would have been lost and the pilchards would have moved on. To avoid this one suspects that the seine-boats were kept afloat in readiness, at anchor in Le Scathe Cove, adjoining Penberth to the east. 'Scath' is Cornish for 'boat' and the area is visible from the hut.

On the summit of the headland between Le Scathe Cove and Porthguarnon, which adjoins it, is a fairly flat granite outcrop, traditionally used by the huers on that side of Penberth (information Mr R Matthews, fisherman, Penberth, 1993). In the sea below is Pulpit rock (OS 1880) perhaps taking its name from the rock above, where the huer appeared as if in a pulpit.

It is impossible to date the huer's hut at Cribba Head, but the place-name 'Beacon Hill' on what appears to be a 17th century map, suggests that it could even pre-date that period.

Redruth 1994

Acknowledgements

The Courtney Library, Royal Institution of Cornwall, and the Cornwall Local Studies Library, Redruth.

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Landrake-with-St Erney: an archaeological check list

V K and J A B GRAY

Foreword

Counties organise archaeological check lists to provide information for their Sites and Monuments Registers. These are normally done parish by parish using ecclesiastical boundaries. This parish check list was prepared for the Cornwall Archaeological Unit in Truro and we are grateful for their permission to publish it. The work started in February 1990 and was brought to a close in September 1994 although we are aware that there are probably many omissions.

As archaeology is mainly concerned with physical evidence this is not a parish history, but many documents have been used to establish the purpose of features found on the ground.

The information was submitted to the County Sites and Monuments Register on their forms and these contain an expanded version of the information set out in the tables in this publication, including a brief description of the evidence discovered by us.

A big advantage of using ecclesiastical parishes as units for check lists is that 19th century tithe apportionments (1841 for Landrake) (STA) and tithe maps (1846 for Landrake) (MTA) provide a very good starting point for a parish study. Buildings and fields are listed by name and shown on the maps. The field names often allow one to work backwards in time and relate to other older documents and maps.

This parish interested us particularly as in many respects it has been relatively little changed by time. This is perhaps more obvious north of the A38 road.

It is important to remember that most of the sites in this check-list are on private land and can only be visited with permission from the occupier.

Geography

The parish of Landrake with St Erney lies in the southeast corner of Cornwall and has access to the sea via the Tamar (Fig 1A). It consists of two old parishes: Landrake in the north and St Erney in the south. Although the boundary between these two is still shown in the 1846 tithe map, records show that at least since 1269 one vicar has had charge of both. The parish, which has an area of 1475 hectares, is bounded on the east by the Lynher river, a tributary of the Tamar. The northern boundary runs west from the Lynher to Blunts and then the western boundary runs south to the river Tiddy, about half a kilometre east of Tideford. It follows the Tiddy south to its confluence with the Lynher, just opposite the village of St Germans.

Apart from its old division between Landrake and St Erney, the parish has two distinct geographical parts. The southern part of the parish, which is largely St Erney, is bounded by rivers on both east and west up to the limits of navigation which were originally set by the limits of the tide. These limits are at what are now Notter and Tideford, and at both these bridges were built before or during the 16th century. This means that this southern part was more easily accessible than the northern part at some times and for certain purposes—perhaps it was easier of access in prehistoric times and it was certainly important for transporting stone from the quarries in recent times. The northern part of the parish is by contrast relatively difficult of access. Both rivers are in flooded valleys (Rias) which have been silted up, producing, particularly in the Tiddy valley, areas of saltmarsh and making land available for reclamation.

The parish is hilly; although high points are only around 100 to 130m, gradients are steep—up to 280m per km. About a third of the parish is agricultural land graded 1 or 2.

Geologically the parish is on upper Devonian grey or grey-blue slates and there are igneous deposits including volcanic lavas and diabase intrusions. Some antimony has been found and mined.

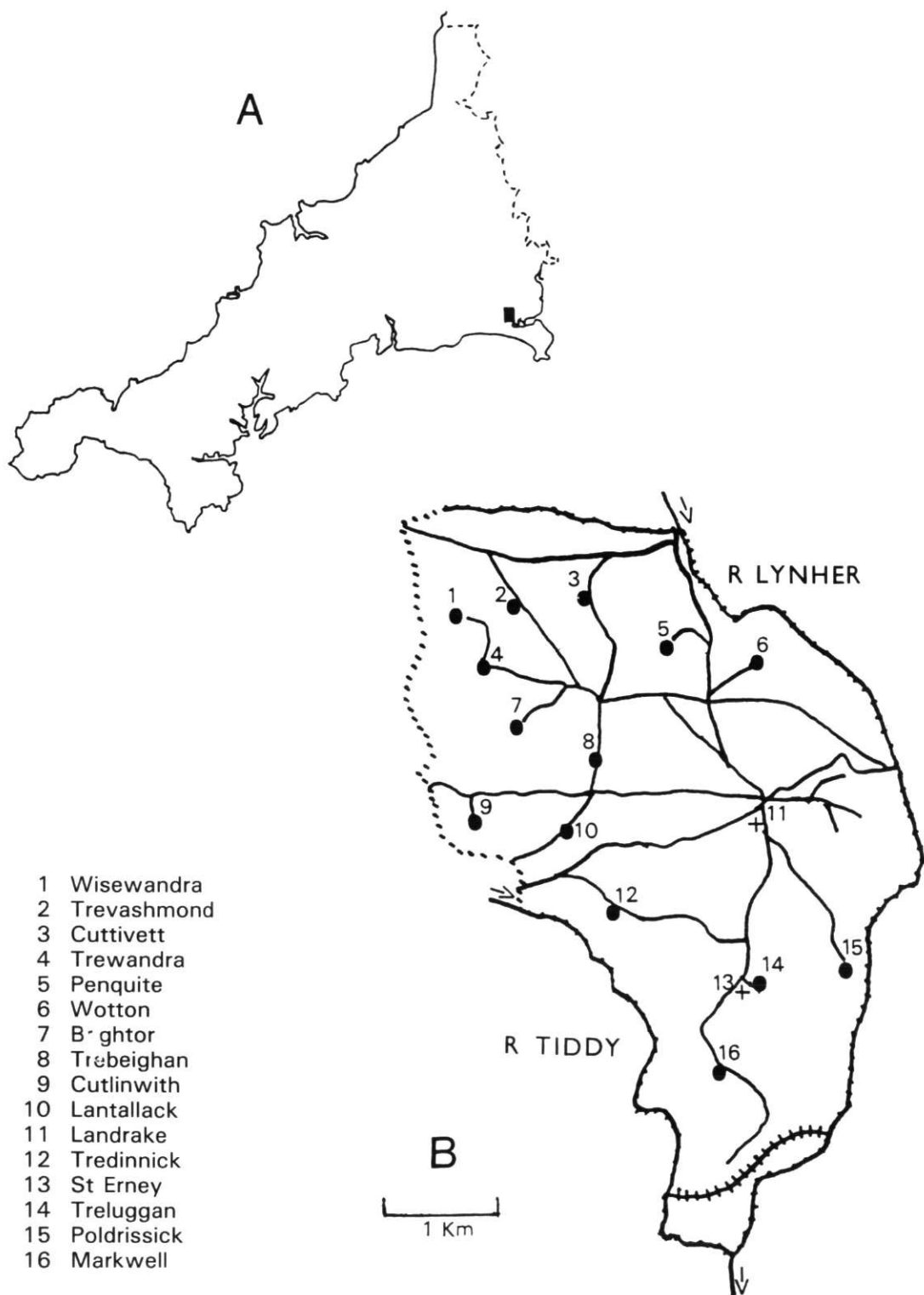


Fig 1 A. Location of Landrake-with-St Erney B. Plan of modern parish

Human geography is represented by settlements and roads (Fig 1B). There is a central village, Landrake itself, and series of settlements most of which have been hamlets with a number of households. The settlements listed in the table are all of early medieval or medieval origin (st.1-22). The earliest map showing a number of settlements and the principal roads is that of Gascoyne 1699 (MGY). Surveys, which do not include maps, of 1578 (SME) and 1580 (SPE) describe settlements giving the boundaries, including roads, tenancy and usage of fields and other property. Such surveys are not common and we are lucky to have had access to two. From these it has been possible to work out that the geography of the parish was clearly almost that of today. The road from Landrake to St Germans still continues the line of the village street (see below) to Tideford then across Tideford bridge. In the 16th century a 'Highway to Liskeard' went north from Landrake and then west through Trewandra and down the holloway to the ford (o.4). The road to Saltash from Landrake went and still goes to Notter bridge (br.6). Another road from Notter Bridge goes north of Landrake and joins the 'Highway to Liskeard'. This is Frenchman's lane and may have been the road from Saltash to Liskeard; we have not discovered the origin of the name, which was in use in 1580.

History

Evidence of settlement in prehistoric times in Landrake with St Erney is rare. A number of worked flints and a spindle whorl (a.1-12) have been found, mainly in St Erney, which suggest probably Neolithic and Iron Age activity. There are also several sites (e.1 and 5-6) whose names and configuration suggest the existence of defended settlements. Two of these have 'castle' in their names and the Trewandra site has 'berry' each of which suggest a possible round or hillfort.

Early medieval activity is shown by the embankment round the churchyard at St Erney (e.2); this is a Lann, an early Christian enclosure, normally round a burial ground, focused on a cross or hermit's cell and later on a small church with founder's tomb. The Celtic prefixes, 'tre' (st. 3-5 and 17-19), 'pen' (st.13) and 'pol' (st.1), to the names of a number of settlements in the parish are a further indication of early medieval origins.

The earliest known written record of the parish is in a charter of 1018 when King Cnut confirmed the gift to Bishop Burwhold of land in Landrake and St Erney by King Edmund, in exchange for land the king wanted in Devon. This charter describes the bounds of the land given but the description has defeated many attempts to interpret it. It does, however, mention three existing settlements, Markwell, Poldrissick and Brightor.

From the medieval period there are a number of small stone mullioned windows incorporated in buildings (fb.3, 7 and 9, h.3, st.2).

In the first year of Edward I, 1272, the manor of Landrake was said to be one of the most valuable in the county. The manor and other land within the boundaries of the parish which passed to the Minster at St Germans after the death of Bishop Burwhold, remained in the hands of the Priory of St Germans until the dissolution of the monasteries in 1539. The Priory's land was much sought after by those in the King's favour and by the time of Elizabeth I the manor was owned by Henry Killigrew of Ince Castle. Since then there have been many changes of ownership but over the last four centuries two landowners stand out, the Eliots who still have the Priory buildings as a residence and the Hobarts whose holding became Edgcumbe property by marriage. The Carew-Poles, another of the long-standing land-owning families of the district, also had land in the parish.

In modern times land ownership has become divided into smaller areas and now in many cases holdings are of single houses. The alteration in pattern is associated with the changes in the pattern of farming and its associated crafts and the disappearance of mining and quarrying. There has been a big increase in the number of those working outside the parish as transport has improved, notably because of the building of the Tamar bridge and its associated roads. A major part of this increase has been in new estates in the village of Landrake.

The population of the parish has grown steadily—an estimate from church returns in 1745 gives the population as 276 (JO9), at the first census of 1801 the population was 613, in 1981 it was 809 and by 1991 had become 1053.

Churches and Chapels

There are two churches in the parish. The Church at St Erney (c.2-5) is first recorded in 1269 and is dedicated to St Terninus, about whom nothing seems to be known. The building is mainly of the 14th and 15th centuries but the Lann (e.2) which surrounds the burial ground indicates that it stands on an early Christian site which could be from Celtic times. The lane alongside is lower than the churchyard probably because of the use of the burial ground for many centuries.

The other and larger church is in Landrake village and is dedicated to St Michael, but in some 19th century maps called St Peter's (c.6-9). The use of this name is attributed to an annual fair being held on June 29th, St Peter's day. The earliest parts of the church including the font are Norman, but the building is basically 15th century with later renovations.

A licence for a chapel is said to have been given to Adam de Markwelle in 1309 and in 1841 fields in Markwell were recorded as Chapel Parks. This has led to a derelict building in these fields being considered as a possible site of an ancient chapel even if it had other later uses (c.1); in 1861 it appears to have been the home of an agricultural labourer (RC3).

There was also a licence given to Oliver Wise in 1443 for a chapel at Wisewandra. It is possible that this was contained in the house of that time. In the early 19th century a room in the present house (fh.8) was again used for religious purposes, this time by the Methodists.

Two Methodist chapels have since been built. The larger is a Wesleyan Methodist Chapel, the first part of which was built in 1812 with a large addition dated 1895 (c.10). Following the splits in the Methodist movement a Primitive Methodist Chapel was built in 1860, but has now been converted into a private house (c.11).

The Village of Landrake

The village of Landrake is on a hill and lies between Tideford and Notter where there were the lowest crossings of the two rivers, Tiddy and Lynher.

The earliest large scale map we have of the village is that of 1779 (MML). This is part of an estate map of the manor of Landrake showing the property of the Hobart family (to become Mt Edgcumbe a few years later). A sketch made from this map is shown in Fig 2. There is however a survey of the 'freelands' of the manor by the reeve dated 1578 (SME). There is no map but the survey gives the north, south, east and west boundaries and nature of each such property within the manor. This enables us to identify certain features and roads. The 'Street' is the name of the road that runs from Lowertown House (A in Fig 2) at least as far as the cross roads in the centre of the village. West of this point it is usually called the 'Way to St Germans'. Running north from the cross roads is the 'Way to the Pound'; the pound (B) lying immediately north of Pound farmhouse. Beyond the pound the road passes Gallow's Park and becomes the 'Way to Odwell Cross', which we believe to be Wotton Cross where there is still a well with a pump. Running south of the cross roads is the 'Way to the Church' and further on this becomes the 'Way to Trewint'. The other road coming into the centre of the village on the 1779 map (Fig 2) is the one, part of which still exists as the way onto the A38, about 70m east of the crossroads. This we believe is the road referred to in the 1578 survey as the 'Way to Ladywell'. A well is marked at D on the 1779 map; this is still the site of a spring and a modern well-like structure. Wells were obviously important as they occur in the names of roads. Another well, the top structure of which disappeared in this century, is now seen as a manhole cover; it is in the main road—the 'Way to St Germans'—near the church (C); this is marked on the 1779 map (F).

Thirty-five properties in the village are mentioned by the reeve in 1578 and we believe we can identify all but five. For example three lie north of the 'Way to St Germans' and south of what was then and until recently, Barton meadow (E). Most houses lay on the 'Street'; on the north side there were four east of the cross roads, four between the 'Way to the Pound' and the 'Way to Ladywell' and another three east of that. To the south of the 'Street' there were nine houses east of the 'Way to the Church' and probably two to the west. The boundaries of many properties appear to fit boundaries existing in 1841 and even today. It is not known

Landrake Village in 1779

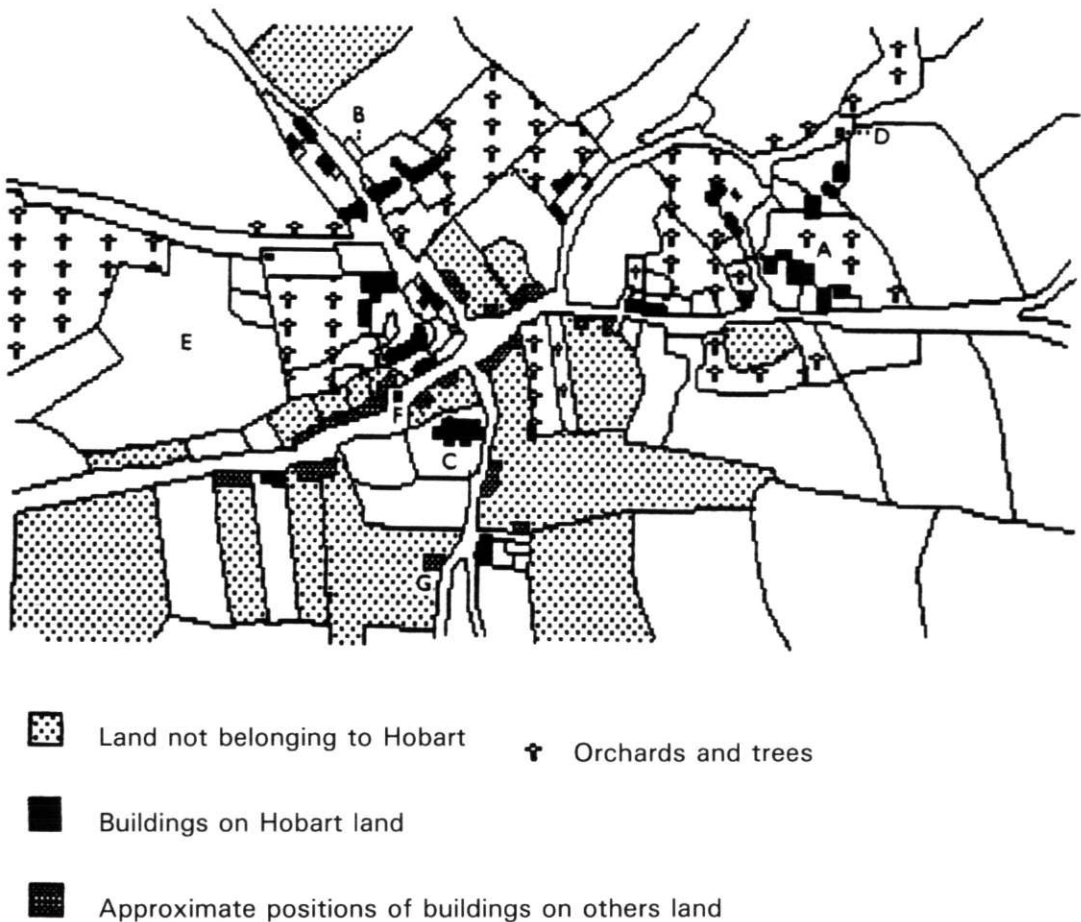


Fig 2 Computer-drawn map of the village of Landrake based on the map of 1779. The map is detailed where the land is owned by the Hobart family. Where it is owned by others only the boundaries of each owner's property are marked, not field boundaries. Buildings on such land are only indicated approximately. The map is distorted for technical reasons in that the horizontal axis is larger by 11% than the vertical. Letters on the map referred to in the text: A: Lowertown; B: Pound; C: Church; D: Ladywell; E: Barton Meadow; F: Well; G: former school

whether any traces of these old houses are within or beneath those on the same sites today. The map of 1779 (Fig 2) shows a similar pattern of houses though there are uncertainties because other peoples' property was only outlined and housing indicated, not mapped. The modern village is attractive but not exceptional for its architecture. There are several listed buildings (h.14-17). The 19th century almshouses are on a site shown in the 1779 map as housing and on land labelled on that map as belonging to 'the poor of Landrake'.

Of the farms, the Barton and Mera Parks are mentioned in 1578 and Lowertown and Pound are shown on the 1779 map. While the farms of the Barton and Lowertown still exist the farm buildings have moved out of the village; the old Barton farmyard being submerged by a bypass and a housing estate.

Inns are central to any village. There was an innkeeper in 1684—Francis Rous. By the mid-18th century there were two inns: the Old Inn, now a private house called Manor House, and the

New Inn which was to become the Buller's Arms. There is in 1752 a reference to 'The Tyger'. It is not clear whether this was an early name for what became the New Inn or refers to an ale house elsewhere.

Nineteenth century directories show that the village had, at that time, a whole range of shops and craftsmen; grocers, bakers, butchers, drapers, tailors, saddlers, smiths, wheelwrights, shoe and clog makers, carpenters and masons. Today there is one general shop.

Schools

In 1703 Sir Robert Geffery left money for a school teacher and by 1731 there is a record of a school. Sir Robert was brought up at Tredinnick (st.3), moved to London and became Master of the Ironmongers' Company and Lord Mayor. In the 1820s the school moved to Beechwood (s.2), opposite the Barton, and the schoolroom building with two privies (which were not previously available for the children) is still there. In 1881 the Sir Robert Geffrey school, by then a Public Elementary School, moved to a new building in School Road. This has now been demolished and a fine new building erected thanks to the generosity of the Ironmongers' Company.

There is a building (s.1), still standing, marked on the 1779 map (G) and which on the first edition 25" Ordnance Survey map (MO4) is described as an infant school.

In the 19th century there were a number of private schools in the village. In 1856 Mr Henry Sergeant owned an academy and the Misses Spiller ran a seminary, later described as a ladies' boarding school, at Prospect cottage. In Rose cottage (h.14) in 1887 Miss Charity Lee had another ladies' school which was still there in 1901.

Fields and Farming

Most of the settlements in Landrake parish are old and until recently what are now single farms were hamlets. Certain aspects of farming development deserve comment.

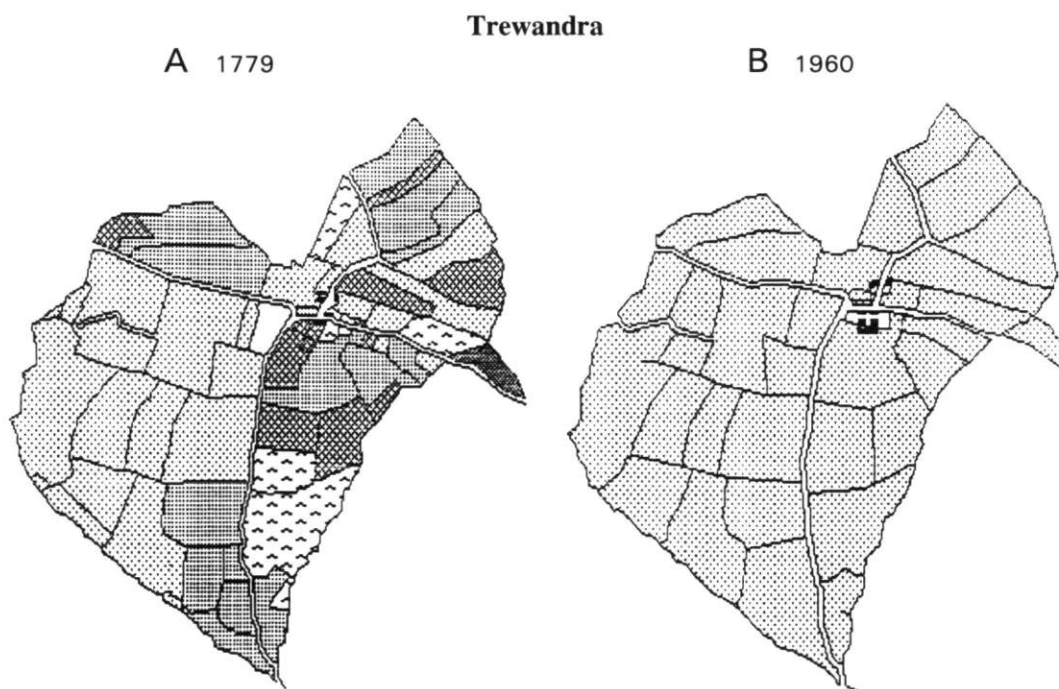


Fig 3 Outlines of Trewandra field boundaries. A: from 1779 map, shadings represent different occupiers B: 1960 boundaries. Distortions are the same as in Fig 2

Strip fields—Brightor. Field boundaries shown in the 1779 estate map (MML), some surviving today, in Brightor (fs.11), Trewandra (see Fig 3A, northeast corner) and across the north of the parish, could have originated in strip boundaries. There is good documentary evidence that there were strip fields in Brightor in a survey made in 1580 (SPE). This survey of 1580 covers many other parts of the parish but only in Brightor is there mention of 'Common Fields' and their division into pieces (fs.12). Perhaps 1580 marked the end of common field cultivation in this area. There is a field (fs.12) where something which could be ridge and furrow can be seen; this ridging is shown in the first edition 25" O.S. map (MO4).

Field patterns and usage—Trewandra. We have been able to look at field boundaries and usage by using Trewandra (SX 351 617) for analysis. This has been possible, because for this area we have adequate sets of details. The 1580 Port Eliot survey (SPE) gives the names, type, area and north, south, east and west boundaries of every field and its tenant. The estate map of 1779 (MML) shows all the field boundaries and distinguishes the holdings of different tenants. The tithe apportionment of 1841 (STA) together with the tithe map of 1846 (MTA) gives names, boundaries, area and tenants. By projecting slides of the maps including early and current ordnance survey maps and adjusting magnification, it has been possible to superimpose all maps at the same scale and show that only a few changes were made in field boundaries between 1779 and the current 1963 6" map (Fig 3). This is in line with findings elsewhere in the country (see B36) and with less systematic study elsewhere in the parish. There have been bigger changes since the survey of the 1963 map. Looking at the names, boundaries and areas given in the 1580 survey and comparing them with those in the tithe apportionment it has been possible to fit together a field pattern of that date and it appears that the field pattern in 1580 must have been very similar to that in 1779. The total area of Trewandra in 1580 is given as 189 acres while in 1841 it is given as 186 acres.

However, although the pattern of fields remained stable their usage changed considerably between 1580 and 1841 as is shown in the following table.

Use	Acres 1580	Acres 1841
Arable	79	173
Pasture	98	—
Trees and coarse pasture	—	2
Orchards	4	5
Other	9	7

In 1580 the land was divided between 3 tenants, John Jory, Richard Hellier and John Cornish, with holdings of comparable size including houses in the hamlet. In 1779 there were 5 tenants, who remain unknown, of which one had only one very small field and another field belonged to somebody whose house and farmbuildings lay elsewhere. In 1841 there were two tenants, Richard Popplestone and Francis Steed, each with a comparable holding and farm buildings in the hamlet. In this century the whole farm became one, then took over the neighbouring Wisewandra and finally the joint farm was divided into two but not along the original division.

Cider and beer. Cider was clearly made widely: Trewandra still has a pound-stone from a cider mill in one of its fields, Poldrissick has a complete cider mill and also a cider press, and Lower Cuttivet and Markwell still have cider mills. Hopyards occurred on several farms and beer was no doubt brewed.

Lime burning. Lime kilns are found or suspected close to the navigable parts of the rivers (1.1-4). Poldrissick limekiln has its own quay (q.1). The alleged limekiln at Trewandra (1.5) probably did not exist; the 1580 name for Kiln Park was Kyll Park (possibly Cornish for corner park, BPD).

Power and transport. There were other facilities developed by individual settlements. Those on the navigable waters built their own quays (q.2,3 and 7). One import was dock dung from Plymouth and Devonport; this came from cattle housed in the urban area and was used as fertiliser. The dock dung often contained quantities of broken pottery, pipes etc and these can be found in the mud round the quays today. Quays for quarries are dealt with below. Power for use on the farm was developed; this took the form of horse rounds and water mills. The remains of horse rounds exist at Penquite (fb.5) and Wotton (fb.9). Water mills are considered in the next section.

Mills

In the parish there are grist mills to which presumably all farmers took their corn to be ground, and private farm water mills used for a variety of farming tasks.

There was probably at least one windmill on Windmills Hill (ml.1) and this presumably ground corn. By 1779 only foundations are marked on the map (MML). There have been three water grist mills of which we know. It seems these developed to increase their capacity, which depended on the power that could be harnessed from water. This capacity depends basically on the water power available, which is a function both of the head of water and of its flow, and also on the equipment available to convert this power into grinding. In the case of Pencarvo (ml.4-6) the mill was driven by a small stream and it was therefore presumably important to get as much head of water as possible across the wheel. In 1378 there was a mill there (BGV); in 1580 records (NH5) state there was one mill with an overshot wheel. The 1779 map (MML) shows two mill buildings. One of these (ml.5) is at the bottom of the valley with a leat, said in 1580 (SPE), to be taken off 18 poles (ie c 100yds) higher up stream. The 1779 map shows the leat with a pool at its head taken off about 250yds upstream. This lower mill building could only have had a small overshot wheel. The other mill building (ml.6) is on the side of the valley and its water was taken by a leat from a point on the stream much higher up the valley with a mill pool on the hill side above the mill building. The head of water as judged from maps and remains must have been at least 5m greater than the lower mill and the wheel could be much larger. The 1846 tithe map (MTA) shows that the lower leat had gone by then. In 1901 (RP2) there was still a miller and today the remains of the upper leat and its mill pond are visible. It appears that sometime, probably in the 18th century, a more powerful mill was needed and the upper leat and a new mill were built. In 1779 both were physically still there though the lower was certainly out of use by 1841.

Coombe or Wise mill (ml.7) was there in 1610 (NH5). This mill takes its water by a leat from the Lynher which could provide a large flow of water. Presumably any upgrading of the mill between earlier times and the construction of the mill whose remains are there today, would have been mostly directed to improving its mechanical efficiency and possibly increasing the flow of water to the mill.

The third mill, Bridge mill (m.3) was supplied from a small stream and disappeared some time ago. Perhaps its decay is related to the growth of another mill across the Lynher which took its water directly from the river itself.

The other water mills listed (m.2, 8 and 9) appear to be power sources for use within the farms for work such as chaff cutting, apple crushing etc.

Mines and Quarries

A small mine (mn.1) is recorded as having produced a small amount of antimony (JO6) but is marked as 'Old lead mine' on the first edition 6" Ordnance Survey map (MO1).

Some of the quarries listed were known to have been of more than local importance. Tartan Down quarry (qr.7) is in the northern part of the parish between Landrake and Tideford. Its stone is of volcanic origin and was used in the building of the Priory Church at St Germans in Norman times. The other quarries of commercial importance were all on the banks of the Lynher in its navigable part and all had quays so that the stone could be shipped directly (bt.1-2). Slate was produced at Driller's quarry (qr.8) in the 18th century, and from the 19th century

until after the last war roadstone was produced at the diabase quarries at Poldrissick (qr.1) and Treluggan (qr.3).

The other quarries listed were probably made for building in the immediate vicinity.

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Seaways, Kingsand, Cornwall

Abbreviations

Types of site used in setting out the tables

a.	Artifact (inc. working site)	l.	Limekiln
bt.	Boat	ml.	Mill (water or wind)
bg.	Bridge	mn.	Mine
bu.	Burial (inc. cemetery)	qr.	Quarry (inc. clay pit)
c.	Church (inc. chapel)	q.	Quay
e.	Earthworks (inc. lann and suspected enclosures and rounds)	s.	School
fb.	Farmbuilding (inc. barn)	st.	Settlement
fh.	Farmhouse	sn.	Stone (inc. mile or boundary)
fs.	Field system	w.	Well
h.	House (inc. inn)	o.	Other

Dates

px	Prehistoric undated
ia	Iron age
rb	Romano-British (43 AD to 410 AD)
em	Early Medieval (410 AD to 1066 AD)
md	Medieval (1066 AD to 1540 AD)
pm	Post Medieval (1540 AD to present)
17	Seventeenth century
18	Eighteenth century
19	Nineteenth century
20	Twentieth century

Other

PRN	Primary record number used by the Cornwall Sites and Monuments Register
*	Suspected site—no conclusive evidence, but suspected because of a field name, markings on the ground or possibly map or documentary clues
+	Provisional number
CAU	Cornwall Archaeological Unit
CRO	County Record Office
RIC	Royal Institution of Cornwall
WDRO	West Devon Record Office

References

Maps

MGY	1699	Gascoyne's map of Cornwall, 1991 Ravenhill, W D, and Padel, O J, Facsimile
MMT	1748	Martyn's map of Cornwall, RIC photocopy
MNT	1775	Map of Notter, CRO CE/C/27
MML	1779	Map of the manor of Landrake, CRO ME/2392
MCM	c1800	Map of Coombe, CRO CE/C/41
MTA	1846	Tithe award map, CRO
MO1	c1870	Ordnance Survey 6", 1st edition
MO2	c1905	Ordnance Survey 6", 2nd edition
MO3	c1963	Ordnance Survey 6"
MO4	c1880	Ordnance Survey 25", 1st edition
MO5	c1907	Ordnance Survey 25", 2nd edition
MO6	1954	Ordnance Survey 1:2,500
MO7	1982	Ordnance Survey 1:25,000
MAC	1984	Admiralty Chart No 871, Taunton

Surveys

SME	1578	Survey, Manor of Landrake by the reeve and written by Rawe, R, CRO ME/1591
SPE	1580	Survey of the Manor of Landrake. Port Eliot Muniments 277
STA	1841	Tithe Award. TA Landrake and St Erney
SCS	19--	Institute of Cornish Studies, Index of Cornish Place Names
SAU	1992	Thomas, N, Survey of gas pipeline. CAU
SSP	1959	Squires, C J, County Surveyors plan. CR/259/1

Registers

RL1	1588	Landrake Parish Registers. CRO FP106/1/1
RL2	1613	Landrake Parish Registers. CRO FP106/1/1
RSE	C17	St Erney Registers. CRO P58/1/1
RC1	1841	Census return, Landrake
RC2	1851	Census return, Landrake
RC3	1861	Census return, Landrake
RP1	1887	Venning, Post Directory
RP2	1901	Venning, Post Directory
RP3	1856	Kelly, Post Directory

Listing Descriptions

LIS	Descriptions of listed buildings and monuments by the Historic Buildings and Monuments Commission
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Unpublished Notes

NDH	Douch, H L, Notebook, Inns of Landrake, RIC
NH1	Henderson, C, 1925, Materials for a parochial history of East Cornwall, RIC
NH2	Henderson, C, 1925, Cal 21, RIC
NH3	Henderson, C, 1925, Cal 23, RIC
NH4	Henderson, C, 1925, Port Eliot Catalogue, Cal 24, RIC
NH5	Henderson, C, 1926, East Cornwall Topography, RIC
NH6	Henderson, C, 1926, Cal 20, RIC
NH7	Henderson, C, 1926, Notebook X East Cornwall, RIC
NH8	Henderson, C, 1929, Records of the Church and Parish of St Germans, RIC
NH9	Henderson, C, 1929, Introduction to the survey of the manor, Port Eliot mun 277
NSC	Shaw Collection File L, Chapels, RIC

Original Documents

D21	c.1250	Port Eliot Muniments, 211
D22	1386	Grant, CRO CY/1929
D32	14C-1600	Extracts of the Court Rolls of the Manor of Landrake, CRO BM/17
D41	1450-1469	Manorial Accounts, CRO 1/1/27/3
D42	1470	Grant, CRO CY/477
D51	c.1596	Port Eliot Muniments, 22
D52	16 & 17C	Port Eliot Muniments, 24
D61	c.1600	Notes extracted from the Rolles of the Manor of Landrake, Anthony House Muniments CRO BM/17
D62	1601	Glebe Terrier Landrake, Lapthorne, A, CRO ARD.TER/59
D63a	1609	Lease, WDRO 72/722
D63b	1618	Survey, CRO ME/1592
D64	1623	Rowse, CRO SN/266
D65	1667	Will, copy of, Rous, F, WDRO 107/694
D66	1668	Rent Roule, CRO ME/1593/1
D67	1679	Rental, CRO ME/1594
D68	1684	Indenture, CRO AM/87
D68a	1684	CRO CY/2475
D68b	1690	Particulars of part of the manor of Landrake, CRO ME/1595
D69	1692	A Rental of ye Manor of Landrake, Bassett, W, CRO ME/1596
D69a	late 17C	Tenements delivered by the Sheriff, CRO ME/1597
D71	1734	Lease, WDRO 180/18/1
D72	1737	Indenture, WDRO 107/695
D73	1752	Will, copy of, Dyer, J, CRO X/793/181
D74	1763	Indenture, Port Eliot Muniments
D75	1769	Leases, Manor of Landrake, CRO ME/1130
D76	1784	Field Book, Port Eliot Muniments, 504
D77	1784	Port Eliot Muniments, 281
D78	1772	Lease, CRO ME/1136
D81	1803	Lease, WDRO 73/4/5
D82	1804	Port Eliot Muniments, 403
D83	1817	Settlement, WDRO 314/8
D84	1818	Church Wardens Rate, Port Eliot Muniments, 403
D85	1834	Port Eliot Muniments, 26
D86	1839	Land Tax Assessment, WDRO 106/4
D87	1861	Port Eliot Muniments, 63
D88	1866	Port Eliot Muniments, 405a
D89	nd	Port Eliot Muniments, 409

Books

BGV	Gover, J E B, 1948, <i>The Place Names of Cornwall</i>
BPD	Padel, O J, 1985, <i>Cornish Place Name Elements</i>
B01	Beche, de la, 1839, <i>Report on Geology of Cornwall</i>
B02	Bizley, A C, 1965, <i>The Slate Figures of Cornwall</i>
B03	Booker, F, 1967, <i>Industrial Archaeology of the Tamar Valley</i>
B04	Carew, R, 1602, <i>Survey of Cornwall</i> , ed Halliday, F E, 1953
B05	Chope, R P, 1918, <i>Early tours in Devon and Cornwall</i>
B06	Daniell, J J, 1906, <i>A Compendium of the History and Geography of Cornwall</i>
B07	Davis, A Lane, 1970, <i>Holy Wells of Cornwall</i>
B08	Dines, H G, 1956, <i>Metalliferous mining region of South West England</i>
B09	DOE, (HHR), 1960, <i>St Germans RDC</i> August 1960
B10	<i>Domesday Survey of Cornwall</i> , 1086, Ed Morris, J, 1979

Books (cont)

- B11 Douch, H L, 1963, *Cornish Windmills*
- B12 Green Lanes Project, 19--, *Green Lane walks in South East Cornwall*
- B13 Henderson, C, and Coates, H, 1928, *Old Cornish Bridges*
- B14 Henderson, C, 1964, *Cornish Church Guide*
- B15 Kinvig, D, and Scales, R, 1981, *Sir Robert Geffery's school*
- B16 Langley, M, and Small, E, 1984, *Estuary and River Ferries of South West England*
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- B19 Meyrick, J, 1982, *Holy Wells of Cornwall*
- B20 Miles-Brown, H, 1973, *What to look for in Cornish Churches*
- B21 Padel, O J, 1988, *A popular dictionary of Cornish Place Names*
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- B23 Polsue, J (ed), 1867, *Lakes Parochial History of Cornwall*
- B24 Potts, R, 1974, *A calendar of Cornish Glebe Terriers, 1673-1735*
- B25 Quiller-Couch, M and L, 1894, *Ancient and Holywells*
- B26 Rowse, A L, 1941, *Tudor Cornwall*
- B27 Sedding, E H, 1909, *Norman Architecture in Cornwall*
- B28 Stevens, F, 1990, *A brief history of Landrake Church* (unpublished)
- B29 Stoate, T L, 1981, *Cornwall Hearth and Poll taxes*
- B30 Todd, A C, and Laws, P, 1972, *Industrial Archaeology of Cornwall*
- B31 Ussher, W A E, 1907, *The Geology of the country around Plymouth and Liskeard*
- B32 Venning, (), 1901, *Historical notices of 20 parishes in South East Cornwall*
- B33 Douch, H L, 1984, *Cornish Muster Roll 1569*
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- B35 Clinker, C R, 1963, *Railways of Cornwall 1809-1963*
- B36 Rackham, O, 1986, *The history of the countryside*

Journals

- J01 Adams, J H, 1957, *Journal of the Royal Institution of Cornwall*, **3**
- J02 Binnall, P B G, 1940, *Devon and Cornwall Notes and Quarries*, **21**, 307
- J03 Davidson, J B, 1889, *Journal of the British Archaeological Association*, **39**, 287
- J04 Hamilton-Jenkins, A K, 1967, *Mines and Miners of Cornwall*, **14**, 59
- J05 Oliver, Dr, and Jones, P, 1849, Charter, time of Edward III. *Archaeological Journal*, **6**, 393
- J06 *Memoirs of the Geological Survey*, 1907, Sheet 348
- J07 *Mining Journal*, 1851
- J08 Taylor, M, 1992, *Western Morning News* 17.11.92
- J09 Thomas, P, 1990, *Journal of the Royal Institution of Cornwall*, **10**, 416

ARTIFACT (a)

	Grid Ref	Date	References	PRN	Comments
1. Markwell/Scraper	36 57	px		6434/06	In possession of the finder
2. Markwell/Blade Core Flake	374 587	px		6434/07	Now held by CAU
3. Markwell/Flint	368 572	px	STA	6434/08	Now held by CAU
4. Markwell/Flake	370 582	px		6434/09	Now held by CAU
5. Markwell/Flake	367 579	px	STA	6434/10	Now held by CAU
6. Markwell/Pottery Glass	365 582	md pm		6434/11	Now held by CAU
7. Markwell/Pebble Flake Core	367 584	px pm	STA	6434/12	Now held by CAU
8. Markwell/Blade Scraper Core	365 582	px		6434/13	Now held by CAU
9. Tredinnick/Flint	364 598	px		6584/02	Not removed from site
10. Trewandra/Flint	349 616	px	STA	10262/03	Not removed from site
11. Markwell/Spindle Whorl	36 58	ia		6434/25	Held by finder
12. Markwell/Arrowhead	376 579	px		6434/26	Now in Saltash Heritage collection

BOAT (bt)

	Grid Ref	Date	References	PRN	Comments
1. Poldrissick/Millom Castle	3819 5938	19 20	B17 B18	6433/07	Remains of tops'1 schooner in mud, built 1870
2. Poldrissick/Lynher	3819 5936	19 20	B17 B18	6433/08	Tamar barge now being rebuilt at Morwelham Quay, Devon. Built 1891 by James Goss

BRIDGE (bg)

	Grid Ref	Date	References	PRN	Comments
1. Markwell/St Germans Viaduct	3646 5729	20	LIS MO1 B35	6434/21	Carries main line railway
2. Markwell/Notter Viaduct 2	3791 5781	20	LIS B35	6434/22	Carries main line railway
3. Markwell/Notter Viaduct 1	3723 5728	19 20	LIS MO1	6434/24	Site of former wooden viaduct, replaced when route of railway changed
4. Tredinnick/Church Bridge	3664 5960	pm	NH1 STA MO4	6584/06	Probably a footbridge and ford
5. Trewandra/Pennicke Bridge	3503 6080	md pm	NH5 STA SPE	10262/04	Crossed 'Trewandra Lake'
6. Bridge/Notter Bridge	3849 6092	md pm	B13 B04 MTA B05 MNT	10279/01	Crosses Lynher. 'Brigge' in charter in 14 cent

BURIAL (bu) (including cemetery)

	Grid Ref	Date	References	PRN	Comments
1. Poldrissick/Old Stick Hill *	3795 5937		STA	6433/04	Site known as boney park in STA. Suggests possible burial site
2. St Erney Church/Pryn Monument	3710 5905	19	LIS J08	6467/05	Chest tomb of William Pryn of Markwell
3. St Erney Church/Headstones	3710 5905	18	LIS	6467/06	3 slate headstones; Mary Matthews, Judith Westcott and Judith Mathews
4. St Erney Church/Headstones	3710 5905	18 19	LIS	6467/07	6 slate headstones; E Gill 1809, A Brewer 1805, W Brewer 1789, J Brewer 1807, M Brewer 1820
5. St Erney Church/Chest Tombs	3710 5905	19	LIS	6467/08	3 unidentified
6. St Erney Church/Chest Tomb	3710 5905	19	LIS	6467/09	Richard Rogers 1834; slate top
7. St Erney Church/Headstone	3710 5905	19	LIS	6467/10	Thomas Harris 1818; slate
8. St Erney Church/Headstone	3710 5905	19	LIS	6467/11	Ann Lang 1811; slate

BURIAL (bu) (includ'g cemetery) (cont)

Grid Ref	Date	References	PRN	Comments
3710 5905	18	LIS	6467/12	William ? 17--; slate, 2nd burial illegible
3740 6050	19	LIS	10256/05	John Austin
3740 6050	19	LIS	10256/06	Slate inscription tablet; Ruby Reed 1829
3740 6050	19	LIS	10256/07	Nicholas 1840 and Thomazin Littleton
3740 6050	18	LIS	10256/08	James Martyn 1796; slate
3740 6050	18	LIS	10256/09	Peter Littleton 1794; slate
3740 6050	19	LIS	10256/10	Slate inscription tablet not all legible;
				'Catherine his wife 1810'
3740 6050	18	LIS	10256/11	James Wedge 1759

Many of these listed tombs have fine carving and inscriptions.

CHURCH (c) (including chapel)

1. Markwell/Chapel *	md	B14 B23 STA B06 MO1 MO2 MO5 J01 RC3	6434/02	Remains of ruined building
2. St Erney Church/-	em md pm	B20 B22 B27 B09 B14 LIS	6467/-	
3. St Erney Church/Early Church	md	B20 B22 B27 B09 B14 LIS	6467/02	
4. St Erney Church/Later Church	md	B20 B22 B27 B09 B14 LIS	6467/03	
5. St Erney Church/Porches	pm	B20 B22 B27 B09 B14 LIS	6467/04	
6. Landrake/Landrake Church	em md pm	B20 B22 B27 B02 B28	10256/01	Dedicated to St Michael but St Peters on
				19 Cent. maps
7. Landrake/Early Church	md	B20 B22 B27 B02	10256/02	
8. Landrake/Later Church	md	B20 B22 B27 B02	10256/03	A number of memorials in Church.
9. Landrake/Church Fittings	pm	B20 B22 B28 B02	10256/04	Earliest to Edward Courtney 1509
				Methodist
10. Landrake/Chapel South	19 20	MO4 RP3 NSC	10256/27	Former Primitive Methodist
11. Landrake/Chapel North	19	MO1 NSC	10256/26	

EARTHWORK (e)

1. Markwell/Castle Floor *	ia rb md	STA	6434/05	Field name 1841. Steep, flattish top, ? banks. Possible round or motte and bailey
2. St Erney Church/Lann	em	B20 B22 B27 B09 B14	6467/01	Well defined bank around church yard; section cut off to make a way to church
3. Tredinnick/Tredinnick Hill Plantation *	em	STA BGV	6584/05	Hilltop site; possible round. Name Tredinnick suggests fortified site
4. Trewandra/Hillfort *	px	STA NH5 SAU SPE	10262/02	Field called Berry Park
5. Lowertown/Paddy's Castle *	px	STA BPD NH1 SPE	11/01 +	Field called Partridge castle 1580, Paddy's castle 1841
6. Pound/Alleged Round *	ia rb	SAU	12/02 +	Found from aerial photograph by CAU

FARMBUILDING (fb)

1. St Erney House/Barn	pm	LIS STA	3/01 +	Originally a house
2. Brightor/Store	md pm	MTA	10253/05	Possibly former house and later shippon; remains of pigsties in rear

3. Brightor/Garage	3533 6126	md	MTA	10253/06	Stone mullioned lancet windows
4. Brightor/Dovecot	3528 6128	pm	MTA NH3 STA	10253/07	Possibly on site of dovecot 1404. On large approx rectangular raised flat area N of house
5. Penquite/Barn	3665 6184	19		10258/02	Threshing barn with horse round
6. Trebeighan/alleged Bakehouse *	3590 6090	md	SPE STA MML	10260/03	Field name only, no remains
7. Trewandra/Bakehouse	3516 6181	md pm	MTA NH5 MML NH1 SPE	10262/01	Oven; mullioned windows; now a haystore
8. Trewandra/Old Farmhouse	3513 6181	pm	MML MTA STA	10262/05	Occupied cottage may be part of former farmhouse on this site
9. Wotton/Barn	3734 6168	19	MTA	10263/02	Barn with horse round. Stone lancet window
10. Pound/Pound	3731 6068	md	STA SME MML	12/01 +	Gives name to farm
11. Landrake/Mera Parks	373 604	md pm	SME D66 STA D69	10256/25	
12. Poldrissick/Cider House	3807 5919	pm	MO2 MO7	6433/11	Recently used for cider making
13. Poldrissick/Barn	3800 5921	pm		6433/12	Formerly used for cider milling. Water mill wheel pit
FARMHOUSE (fh)					
1. Poldrissick/Farmhouse	3805 5920	pm 18 19	STA LIS D67 MML	6433/01	
2. Markwell/Markwell Farm East	3698 5840	pm	STA D87 D88 D89	6434/15	House demolished; was Benny's Markwell
3. Tredinnick/Farmhouse	3615 5967	pm	SME NH4 RSE B29	6584/01	
4. Brightor/Lower Brightor	3545 6111	pm	MML STA MTA SPE	10253/02	
5. Cutlinwith/House	3507 6049	17 18	LIS STA RL2	10254/01	
6. Landrake/Landrake Barton	3735 6061	pm	SPE STA NH9 D63b D67 SME	10256/18	Former farmhouse on site of Court Place, the medieval Manor House
7. Wotton/Farmhouse	3732 6170	md pm	J05 SME B04 D65 D72 B29 STA LIS	10263/01	Early 19 Cent. probably earlier house remodelled. Peter Courtney lived at Wotton in 1602
8. Wisewandra/Farmhouse	3484 6213	19	LIS B32 STA D82	4/01 +	Early 19 Cent. Probably enlarged later. Methodist services held there in early 19 Cent
9. Pound/Farm	3734 6067	pm	STA MML	12/- +	L-shaped house, one wing possibly late 18 Cent
FIELD SYSTEMS (fs)					
1. Brightor/Fields General	35 61	md pm	MO1 MO3 SAU SPE	10253/08	Site of extensive strip fields
2. Brightor/Elmore Common Fielde	3568 6164	md pm	SPE STA D68	10253/09	Divided into pieces 1580
3. Brightor/North Down	3615 6200	md pm	SPE STA	10253/10	Divided into pieces 1580
4. Brightor/Pennal More Common Fielde	3600 6160	md pm	SPE STA	10253/11	Divided into pieces 1580
5. Brightor/Culverwell Common Fielde	3562 6146	md pm	SPE STA	10253/12	Divided into pieces in 1580
6. Brightor/Tor Common Fielde	3586 6147	md pm	SPE STA	10253/13	Divided into pieces in 1580
7. Brightor/West South Down	3520 6100	md pm	SPE STA	10253/14	Divided into pieces in 1580

FIELD SYSTEMS (fs) (cont)

8. Brightor/East South Down
9. Brightor/Gratt Common Fielde
10. Brightor/Golhill Common Fielde
11. Brightor/Fields
12. Morcoms Wood/-

Grid Ref	Date	References	PRN	Comments
3533 6091	md pm	SPE STA	10253/15	Divided into pieces in 1580
3510 6083	md pm	SPE STA	10253/16	Divided into pieces in 1580
3532 6147	md pm	SPE MO3 STA	10253/17	Divided into pieces in 1580
354 612	md	MO3 MML	10253/18	Some signs of strip field divisions
3820 6075	md	MML STA MO4	13/-+	Signs of ridge and furrow

HOUSE (h)

1. Poldrissick/building
2. Treluggan/Treluggan Manor
3. St Erney House/-
4. Landrake/House
5. Brightor/House
6. Brightor/Brightor Green
7. Brightor/Ruined House
8. Landrake/Mera Park Cottages
9. Landrake/Old Inn
10. Landrake/Buller's Arms
11. Trebeighan/House
12. Trebeighan/Outbuilding
13. Coombe/House
14. Landrake/Rose Cottage
15. Landrake/Salmon Cottages
16. Landrake/Penwyn
17. Lowertown/House
18. Cuttivet/Lower Cuttivet

3809 5923	pm 16 17	LIS MML D67 D78	6433/02	Wall paintings, decorative, prob. in solar of house—ruinous
3737 5898	17 18 19	STA LIS	6586/01	Stone mullioned window in garage
3710 5909	17 18 19	LIS STA	3/-+	Former vicarage
3712 5955	pm	B24 LIS B29 STA D62	9/-+	Largely rebuilt
3538 6124	pm	STA MTA MML	10253/01	Occupier 1841, J Littleton. Still occupied
3539 6117	pm	STA MTA	10253/03	Appears to have been house in 1779 and 1841
3539 6119	pm	MML STA MTA	10253/04	Site of former almshouses
3727 6045	pm	B32 MML MO4	10256/14	No longer an inn
3738 6057	pm	B29 D68a NDH D84 STA B23	10256/16	Formerly New Inn
3743 6055	pm	D73 NDH	10256/17	Formerly a house
3599 6091	pm	MML MTA	10260/01	Formerly private school for girls
3605 6092	pm	MML MTA	10260/02	Former farmhouse
3667 6267	18	MMT	8/-+	
3732 6051	pm	LIS RP1	10256/20	
3732 6051	19	LIS	10256/21	
3732 6051	pm	LIS	10256/22	
3760 6064	pm	STA MML LIS B29	11/-+	
3603 6224	md pm	STA MTA	10255/01	

LIMEKILN (l)

1. Poldrissick/Limekiln
2. Markwell/Kiln Park *
3. Morvah/Limekiln
4. Bridge/Limekiln
5. Trewandra/Kiln park *

3817 5931	pm 19	STA MTA MO4	6433/05	One kiln
3655 5810	md pm	STA	6434/14	Exists in name only
3545 5985	pm	MO2 STA MTA RC1	6587/01	2 kilns
3842 6069	pm	MNT MO4	10279/02	No remains found
3468 6183	em md pm	STA MML SPE B21	10262/08	'Kiln' probably a corruption of Cornish 'Kil' implying corner field

MILL (ml)

1. Poldrissick/Windmills Hill *
2. Markwell Mill
3. Bridge/Millpool

3737 5969	md pm	STA B11 MO3 NH5 D84	6433/03	Millstone found by farmer
3698 5834	19 20	MML SPE	6434/20	Used for chaff-cutting. Remains of wheel, leat and millpool
3800 6100	md	SPE SME D66 STA MO6 MO5	10279/04	Remains of leat only

4. Pencarvo Mill/-	3540 6010	md pm	BGV STA MO1 MO3 NH5 MML D67 D75 D81 D83 RP1 RP2 D32 NH5 MML SPE	13234/-	Mill recorded here in 1378. By 1779 there were 2 mills
5. Pencarvo/Pencarvo Mill 1	3542 6012	md pm		13234/01	Only slight remains of this mill and its leat
6. Pencarvo/Pencarvo Mill 2	3545 6013	pm	MML RP2 MO4	13234/02	In use until early 20 cent; corn
7. Coombe/Wise Mill	3676 6268	md pm	NH5 D84 STA J05 D86 MCM	8/01 +	Remains of leat and building
8. Tredinnick/Water Mill	3620 5965	pm	MO5 MO1	6584/07	Used to operate farm machinery
9. Landrake/Barton Mill	3720 6050	19	MO4 SSP	10256/19	Ran long endless chain for operating farm machinery
MINE (mn)					
1. Tredinnick/Tredinnick Mine	3598 5964	pm	B08 MO4 J04 B01	6584/03	Reported to have been worked for lead and/or antimony
2. Cutlinwith/Cutlinwith Mine	3538 6059	20	J04	10254/02	Antimony ore
3. Lantallack/Lantallack Mine	3562 6053	19	J04 J07	10257/01	Lode said to contain silver, lead, antimony and copper
QUARRY (qr)					
1. Poldrissick/Poldrissick Quarries	3812 5954	19 20	MO4 J06 MO3	6433/09	Were important roadstone quarries
2. Markwell/Benhore Quarry	3754 5772	pm	MO3	6434/18	
3. Treluggan/Treluggan Quarry	3783 5840	19 20	B31 B18	6586/02	Was large roadstone quarry; still working in 1947
4. Brightor/Brightor Quarry	3563 6121	md pm	SPE STA	10253/19	Probably used for local building and filled in possibly by 1580
5. Penquite/Clay Pit	3645 6152	md	NH1 STA SPE	10258/01	Now a green meadow
6. Bridge/Landrake Quarries	3837 6055	pm	D67 MO2 MO3 SPE	10279/03	Position of Landrake quarries uncertain
7. Tartan Down/Quarry	3632 6093	md	B30 B22 MO2 MO3 NH1 STA	6/- +	Large quarry from which stone was used to build St Germans church
8. Lowertown/Drillers Quarry	3842 5986	pm	MML STA MO3 MO2	11/02 +	Slate quarry
9. Brightor/Quarry	3568 6118	pm	STA MO3	10253/20	Probably all used for building in immediate vicinity.
10. Cutlinwith/Quarry	3492 3556	pm	STA MO1 MO3	10254/03	All now disused
11. Cuttivet/Quarry	3590 6221	pm	STA	10255/02	Disused. Probably for local building.
12. Landrake/Glebe Quarry	3680 5971	pm	MO2 STA	10256/28	
QUAY (q)					
1. Poldrissick/Limekiln Quay	3819 5935	19	MO2 MAC	6433/06	Remains of 2 boats for stone carrying here recently
2. Poldrissick/Poldrissick Quay	3816 5909	pm 19	MO3 MO4	6433/10	Farm quay. Remains of dock dung landed here still visible
3. Markwell/Markwell Quay	3645 5852	md pm	MO3 BO3	6434/03	Farm quay. Still considerable remains of dock dung formerly landed here
4. Markwell/East Waters Quay	3723 5734	pm	MO3 MAC	6434/04	Spring with stone collecting basin nearby
5. Markwell/Lower Benhore	3729 5749	pm	MO3	6434/16	Quarry quay
6. Markwell/Benhore Quay	3741 5750	pm	MO3	6434/17	Quarry quay
7. Tredinnick/West Down Quay	3645 5888	md pm	MO3 MO1	6584/04	Farm quay

SCHOOL (s)		Grid Ref	Date	References	PRN	Comments
1. Landrake/Old School		3738 6042	17 18 19	LIS MO4 MML	10256/12	Semi-ruined
2. Landrake/Beechwood		3738 6063	19	STA B15	10256/15	Former site of Sir Robert Geffery's school
SETTLEMENTS (st)						
1. Poldrissick/-		380 592	em md pm	NH5 J03 BGV NH8 D61	6433/-	Mentioned in charter of 1018
2. Markwell/-		369 584	em md pm	BGV SME D41	6434/-	Mentioned in charter of 1018. Stone mullioned window in barn
3. Tredinnick/-		361 596	em md	BGV BPD STA B10 B23	6584/-	
4. Trewint/-		371 594	em md pm	BGV BPD B33 SME RC1	6585/-	
				B34 D69a		
5. Treluggan/-		374 590	em md	BGV BPD SME	6586/-	
6. Morvah/-		358 599	md	BGV BPD SME	6587/-	
7. Upton/-		372 592	md	SCS SME STA SPE	13236/-	Name no longer survives. Probably on site of St Erney house
8. Brightor/-		353 612	em md	BGV MO3 SME D63a NH4	10253/-	In charter 1018. 2 occupiers in 1580; 7 houses in 1841
9. Cutlinwith/-		351 605	md	MGY NH2 D69a NH3	10254/-	
10. Cuttivet/-		360 622	md pm	BGV BPD MO3 SME	10255/-	
				D42		
11. Landrake/-		37 60	em md	BGV BPD MO3	10256/-	
12. Lantallack/-		358 604	md	BGV BPD MO3 STA LIS SME	10257/-	Prob. 17 cent. with later stair tower, salting room and other additions
13. Penquite/-		366 618	md	RL1 D71	10258/-	Prefix Pen suggests early medieval site
				BGV BPD MO3 B29 D51 D74		
				D76 SME D66 STA D68b		
14. Talvans/-		3747 6115	md	SCS MO3	10259/-	
15. Talvans/Este Weste Talvans *		37 61	md	BGV B26 SCS NH1 SPE STA	10259/01	Subject of dispute of ownership after dissolution of priory
16. Talvans/Este Talvans *		379 609	md pm	NH5 STA MTA SPE	10259/02	
17. Trebeighan/-		360 609	em md	BGV MO3 SPE D67 RC1 STA	10260/-	
				MGY BPD		
18. Trevashmond/-		354 622	em md	BGV BPD MO3 J05 SME D31	10261/-	
				RL2 STA		
19. Trewandra/-		351 617	md pm	BGV BPD MO3 D52 STA D21	10262/-	3 tenants in 1580; 5 in 1779; 2 in 1841.
				D31 NH6		Prefix Tre suggests early medieval site
20. Wotton/-		372 617	md	BGV MO3	10263/-	
21. Bridge/-		384 608	md pm	J05 SME MML STA	10279/-	Ricardo atte Brigge testator to charter 14 cent
22. Wisewandra/-		349 622	md pm	NH7 D52 D77 D85 BGV SME	4/- +	
				D31 D61		
STONE (sn)						
1. Landrake/Mera Milestone		3726 6048	19	LIS MO3	10256/13	By Mera house, Tideford Rd
2. Pencarvo/Bridge Boundary stone		3540 6007	18	LIS MO3	13234/03	In middle of bridge. Incised L 1½ i.e. 1½ miles to Landrake

3. Thyrlestane/- *	37 57	em	BGV J03	13235/-	Means holed stone. Mentioned in bounds 1018 between Poldrissick and Markwell On N side of Morvah Hill, former turnpike road
4. Morvah Hill/Milestone	3578 6005	pm	MO3 MO4	14/- +	
WELL (w)					
1. Markwell/Marks Well *	3690 5849	em md	B07 B25 B19 B14 J02 B23 MO1	6434/01	Situation uncertain; Aelmarches well in charter of 1018
2. Treluggan/Horsewell *	3759 5882	em	J03 STA MO3	6586/03	May be site of "Horsewell" named in 1018 charter
3. Landrake/Street Well	3736 6053	pm	MML	10256/23	Beneath manhole cover
4. Landrake/Ladywell	3762 6073	md pm	SME MML MO2 STA	10256/24	Beneath concrete slab
5. Wotton/Odwell Cross	3688 6139	md pm	SME MML MO3	10263/05	Well with pump in garden
OTHER (o)					
1. Markwell/Ferry	364 572	md pm	B16	6434/19	Connection with St Germans quay
2. Markwell/Rail Cutting	3700 5729	19	LIS MO1	6434/23	Abandoned when new Natter viaduct built
3. Morvah/Malthouse	3560 5975	pm	STA MTA MO1 RC2	6587/02	Ruined building on river bank
4. Trewandra/Holloway	349 618	md pm	SPE MO3 MML B12	10262/06	Old route to Liskeard
5. Trewandra/Mill way	351 612	md pm	SPE B12	10262/07	Route to Pencarvo mill
6. Wotton/Beacon Park *	379 612	pm	D64 STA	10263/03	Presumed site of beacon
7. Wotton/Weir	3835 6134	pm	MNT	10263/04	Probably built to fill leat to Natter Mill. Fish pass and/or trap on Landrake bank
8. Gallows Park/- *	3687 6121	pm	NH5 D69 D67 STA SPE	10/- +	Toll gate, for turnpike road
9. Tideford Gate/-	3544 5985	18	MO1	15/- +	
10. Poldrissick/Orchard	3818 5925	pm	MML MO2 STA	6433/13	
11. Markwell/Orchard	3689 5843	pm	STA MO1	6434/27	Field names in 1841 tithe apportionment
12. Tredinnick/Deer Park *	3591 5975	md	STA	6584/08	'Culver Park' (Culver=pigeon) in 1841 tithe apportionment
13. Cuttivet/All. Dovecote *	3618 6222	pm	STA	10255/03	'Culver Meadow' near house recorded 1623 and 1841
14. Wotton/All. Dovecote *	3742 6175	pm	STA D64	10263/06	Field name 'Lockgate' in 1580. Perhaps gate to moorland
15. Lowertown/Gateway *	3812 6050	md	STA SPE MO3 B21	11/03 +	

Numerals on Cornish church sundials

LEN BURGE

A new survey of Cornish church sundials undertaken by the present writer has so far recorded nearly a hundred extant dials (more or less, according to definition), and it is not thought likely that more than a small handful remain to be discovered. The pattern of their distribution over the county can be seen from Fig 1, whilst Fig 2 sets out, for such dials as carry dates, their distribution over the period in which they were made.

The notes which follow are interim comments; a comprehensive account with a full listing is intended later. It is only extant dials with which the survey has been concerned; some of the present dials are known to have replaced earlier ones, whilst some churches now without dials are known to have had them formerly. St Blazey is a case of the first, with two dials recorded as preceding the present one; St Ervan illustrates the second sort, with a dial seen and listed in the 1960s but now missing.

The sundials most obviously to be considered 'church' dials are typically fixed to the wall of the building, usually over the entrance to the porch on the south side; they are of the 'vertical, south-facing' type. A few dials which have been included in the survey are of the 'horizontal' variety, mounted on pedestals in the churchyard, and if there are any church dials remaining to be discovered in the county they may well prove to be of this type. Such a dial would seem to have less claim to be considered 'church' where it amounted to a monument beside a grave; as for dials contrived on facets of memorial stones, these must be, for the purposes of this survey, only marginal.

Previous surveys and listings include the work of Mrs Jeanie Crowley, which she wrote up for this journal (No 2, 1963, 34-46). Mrs Crowley found 55 dials in the 142 Cornish churches she visited. As well as listing their dates and the mottoes they bore, she made careful drawings of certain dials and their gnomons, and presented the whole in a general framework of sundial history and theory exemplified by local trends and features.

Major Baird and Lady White added the recording of church sundials to their work on monumental inscriptions; the Royal Institution of Cornwall acquired these sundial particulars in 1961. Their manuscript has records of individual dials, and includes simple drawings; they also made abstracts of dial makers, dates, etc. They quoted from earlier records and accounts, their sources including Gatty's *Book of Sundials*, 1872, the *Western Antiquary*, and 'Miss Midlin's pictures'.

The present survey has not in the main gone to written sources. Whilst acknowledging that this would have thrown some light on what has been found in the field, and might have guided further investigation, it has seemed of immediate importance to get on with recording the dials in photographs and measurements and putting together a body of facts for subsequent analysis and explanation. The condition in which they are found often arouses concern; many dials do not enjoy good health. Despite their centuries of devotion to it, Time has not been on their side. Slate is flaking, iron gnomons and supporting clips are rusting down to wispy frailness, and much more than the time-keeping is shaky. Morvah's jig-saw puzzle of a dial stands as a reminder of the need for maintenance. Many years ago it fell, to smash; laboriously restored, it went on to lose its gnomon (Fig 3).

A number of things are to be recorded, calling for three dozen fields in a computer database. The dial is photographed from the front and side, and in close-up detail as necessary; many of the particulars needed can be discerned later from these pictures. The time indicated is noted, to be compared with what the dial should have been showing, which is 'Local Apparent Time', derived from clock time less allowances for the longitude of the church and the Equation of Time for that date, minus again the Summer Time hour in season. Compass bearings are

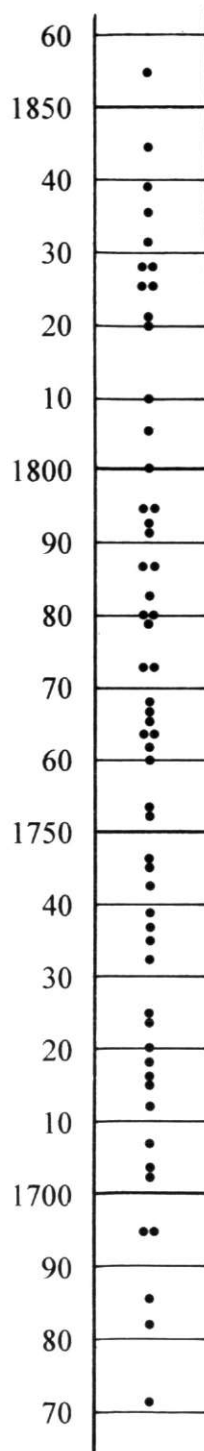


Fig 1 Church sundials extant in Cornwall



Fig 3 The reconstructed dial at Morvah

Fig 2
Two-thirds of
Cornish church
dials bear
dates. This
sequence leaves
out three
modern
restorations and
one ancient
scratch dial



taken of the church wall and the dial plate itself, and the latter and the gnomon are measured for size. The materials from which the dial plate and the gnomon are made are noted.

Things to be added later include grid reference and latitude and longitude. To be derived from the primary data are such things as the apparent reason for any error in time keeping. Among other procedures is that of checking the offset of the gnomon on a 'declining' dial to see if this agrees with the theoretical value calculated for that latitude and the declination of that church wall.

Before leaving the site one rounds off the visit by looking inside the church, if it should be open, for any mention of the sundial in the literature provided for visitors. It is a fairly forlorn hope. As Mrs Crowley noted thirty years ago, there is a wealth of reference to 'Holy Water stoups, piscinas, aumbries, etc' but a general neglect of sundials.

Some of the recorded particulars outlined above are needed by the British Sundial Society for their national survey of sundials, and abstracts are accordingly sent there; the rest are useful in personal studies.

The Cornish church dials are numerous enough, and sufficiently diverse, to support their description and appreciation from several possible standpoints. Approaches might include their time-keeping, the design in and on them, the state of technique or astronomical theory which they reveal, or the philosophy behind their mottoes and texts. Any of these aspects would also serve to provide perspective for a view of the whole subject, an approach which many find more readable than the exhaustive detail of a full confrontation.

One such fruitful aspect of the subject is the varied numbering of the hour lines. Consideration of this apparently minor facet may not only reveal significant patterns but also serve to outline the rich resource of church dials in the county.

The numbered scale of hours

The shadow on a vertical south sundial moves round the dial in the opposite sense to that on a horizontal, garden-type dial. It was the direction of the movement on the horizontal dial which laid the foundation historically for the term 'clockwise'. This leaves the vertical dial with 'anti-clockwise' movement and hence numbering, starting with six a.m. at the top left. (Note that vertical direct south dials can only ever show the six hours on either side of noon; beyond this the sun, if it is up at all, will be off the face of the dial (and round the other side of the church).

Fig 4 sets out the hour lines as they would be on a vertical dial made to suit the average latitude of Cornwall.

The lines are not, of course, spaced evenly as on a clock; the gaps increase the further one goes from mid-day in either direction, as they must do when the sun's progress round its tilted track at 15 degrees per hour has been projected obliquely onto the vertical plane of the wall. On traditional church dials it is only these basic hour lines that are numbered, though the lines marking half hours will often carry a triple-dot symbol, or one like a small fleur de lys, or even a heart (Fig 5). Where the dial undertakes to divide time to five-minute intervals, a hierarchy of shortening lines will usually subdivide the hour down through halves, quarters and eventually

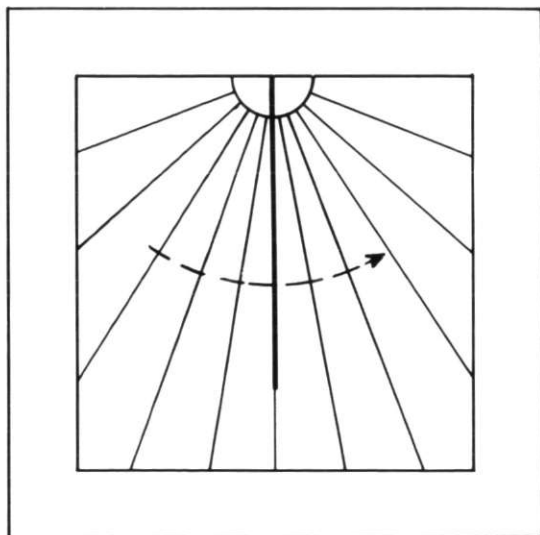


Fig 4

twelfths, and this helps to make the parts of an hour clear (Fig 6). St Wenn's dial is so divided, and has the look of the new (1865) precision engineering that the Victorian engineers were then inventing (Fig 26).

The most common way of numbering the hour lines is to set the numerals in the margin around the rectangle (often it is a square), standing each numeral upright against the end of the hour line. The most common numerals used are Roman. Fig 7 shows this style, which may be considered a standard way of putting numerals on a Cornish church sundial. Roman numerals were not of course the ones in everyday use, even three centuries ago when the first church dials now extant were being made. It was their straight lines that recommended them to dial-makers, as being easier to carve than the curvaceous Arabic ones; perhaps too a touch of classical prestige went with the Roman form.

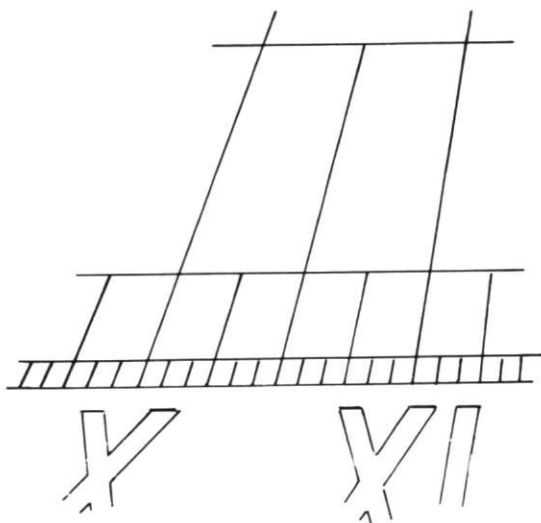


Fig 6

corners. An alternative three-sided arrangement can be made in which the side numerals are set the other way round, to be read from the inside outwards as in Fig 9; this is done on quite a few dials, but at some risk, as will be revealed.

The three-sided layout makes a tidier picture than the upright style insofar as the unequal length of the numerals (eg VIII compared with V) is less obtrusive when they are laid on their sides. Their heights being all the same, side numerals placed like this are a regular fit within their borders. Such tidiness, though, if one is awarding marks for general effect, has to be weighed against the upright mode's virtue of a single viewpoint; looking around a scale in the upright mode, the eye does not have to stir, as it were, from its normal stance.

Radial numerals

After the two standard forms of numeration, the 'radial' principle must be mentioned. This is familiar from horizontal dials, the common garden sort, of which a simplified form is illustrated in Fig 10. In this version the working edge of the gnomon emerges from the centre of the circular dial plate, so that the shadow and the hour lines all radiate from this point. Numerals

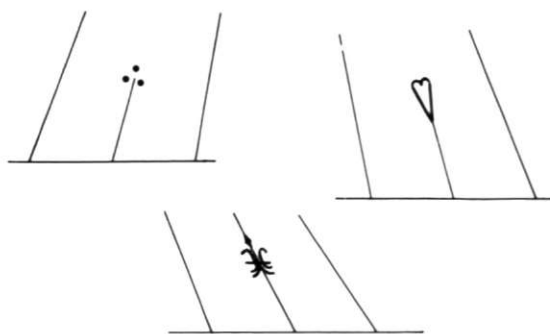


Fig 5

This 'upright' mode of numeration has to be considered against other modes, but the general effect is regular and pleasing; modern clocks often favour it. Linkinhorne has a splendid, clear layout in this mode on a generous and uncluttered dial, though it does sacrifice two hour marks in order to accommodate the necessary mention of a benefactor.

Almost as common as the upright mode is what may be called the 'three-sided' scale, in which the numerals are set in three postures (Fig 8). The logic, if that is the word, behind this second standard layout is that the numerals to left and right should stand 'on' their side lines just as those on the bottom line stand on theirs. As your eye passes down the side and along and up, it continues to view the scale from the outside inwards; time marches smoothly round the dial with no more than a left-wheel on the

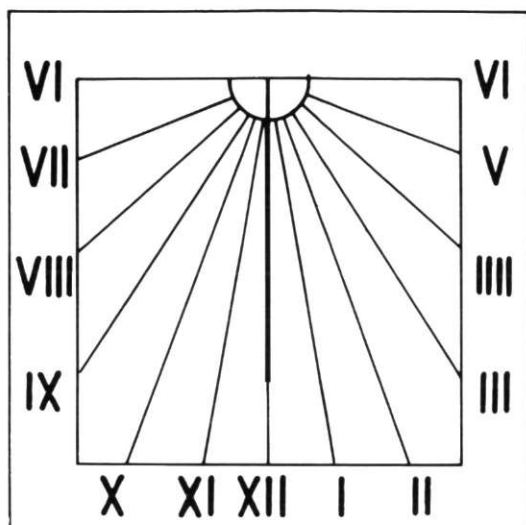


Fig 7

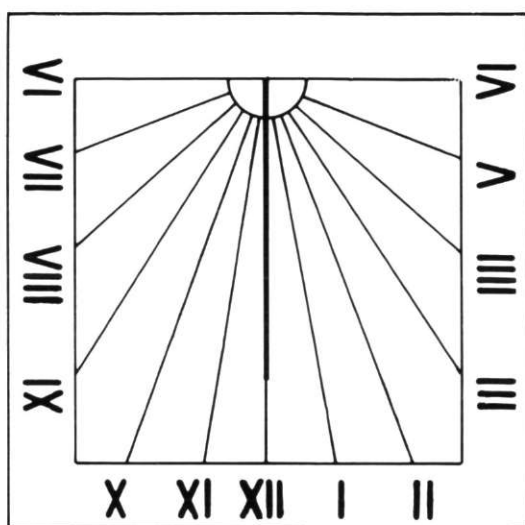


Fig 8

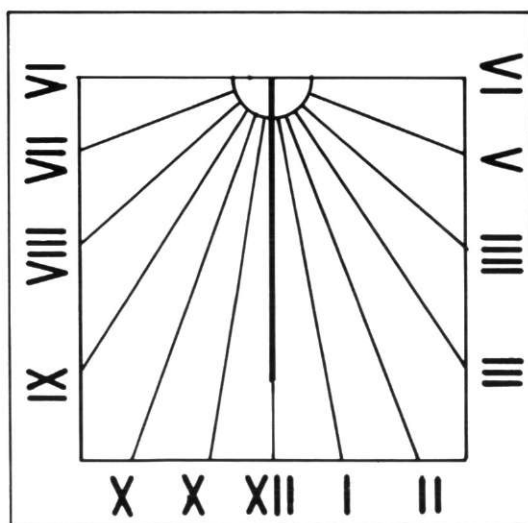


Fig 9

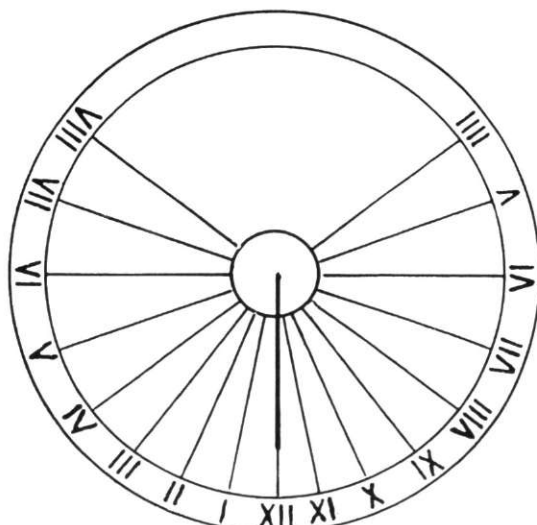


Fig 10

run around the rim, written radially, the elements of each being aligned with its hour line. Here the numerals have been set to be read from the outside, as if looking inwards towards the centre; viewers can walk up to the dial on any side, preferably the side where the shadow currently falls, and find the numerals ready facing them.

However, much of the dial space on such an arrangement is wasted; fuller use can be made of the circle, as shown in Fig 11, if the gnomon and the centre for the radiating hour lines are placed away from the centre of the disk. The numerals are now able to stretch further round the rim, most of them gaining more room. A close look however at the detail of an individual numeral (VIII on Fig 11) will show that the radial principle in this common arrangement is somewhat compromised. The component strokes of a numeral like eight are aligned with the hour line, ie radially, but the numeral as a whole still runs along the line of the rim, following the arc of the scale. The result is a 'tilted' look to most of the numerals,

as if in italics; see the dial at St Gluvias, Penryn (Fig 13). This stands on a pillar near the church porch, almost completely shaded from the sun but brightened by a quotation from Herrick, and like so many horizontal dials sadly lacking its gnomon.

Fig 12 illustrates the option of putting radial numerals as if to be read from the inside looking outwards. There is of course a long tradition of arranging for instruments, from the magnetic compass to the speedometer, to present their indications as if from the instrument's own point of view, looking outwards. For an example of the style, see the sundial in Helston Museum.

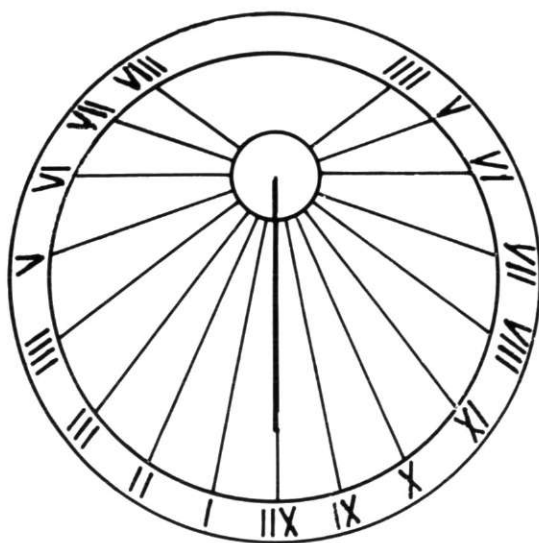


Fig 12

a full twelve hours. The numerals close to noon are to be read from outside (suited the observer standing below), but beyond these the numerals are inverted. If this is meant to help with readability, the effect is the opposite; the eight, for instance, which at Padstow tilts 60 degrees from the vertical, tilts here at 120, which is worse than putting it to lie on its side. Perhaps the maker was influenced by the common 3-sided rectangular dial design, or even by the layout on clocks, which often began with upright radial numbering at twelve, to reverse beyond the hours of nine (or three), and so on to the bottom where six came again upright. Clocks of course have more reason to consider the reader's comfort, having to cope with 180 degrees of radial difference between top and bottom, compared with the vertical sundial's range of only half that. The inversion on the Liskeard dial contributes nothing to legibility, and it happens to put the numerals at the upper ends so as to be viewed from inside, a posture which has proved, as was hinted, a fertile source of error.

Mixed principles and tilted numerals

The radial principle is described above in what is its most natural application, the circular form of scale. It also influences rectangular layouts, and can be found modifying the numerals

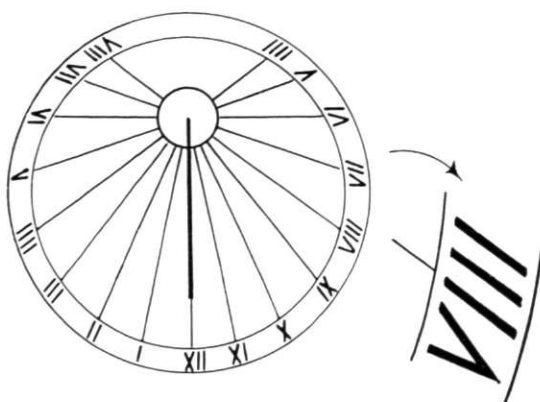


Fig 11

This was rescued from St Michael's churchyard a few years ago, a noble piece now beautifully restored, which Baird and White had found in a sorry state. The dial has its numerals placed to be read from the inside (and a lot more to reward a visit).

To return to vertical dials, the main subject of this study, Padstow church has an odd little sundial, unlike anything else found in the county, the numeration of which is radial as far as it goes. It goes in fact no further than from eight in the morning to four in the afternoon (Fig 14), its range being limited by the triangular form of the plate. Over this shortened span it manages to keep all of its numerals the right way up; the radial numeration here has not felt obliged to make any concession to the upright viewing posture of the observer.

Liskeard, however, has a semi-circular scale (Fig 15) which is radially numbered for

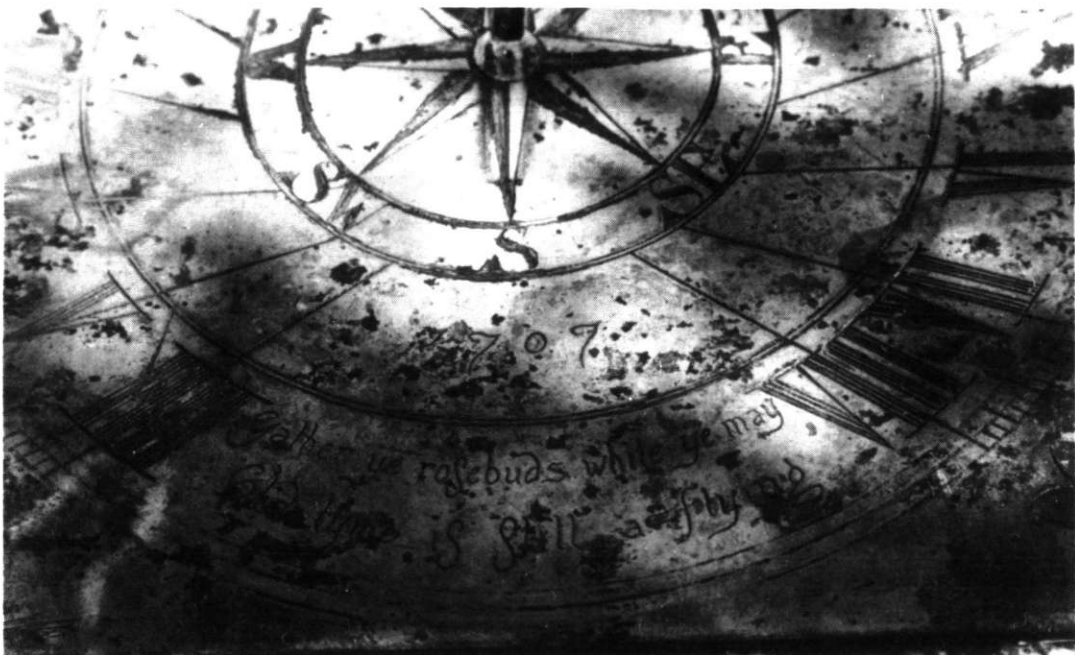


Fig 13 Penryn, St Gluvias: a horizontal sundial with radial numbers facing outwards

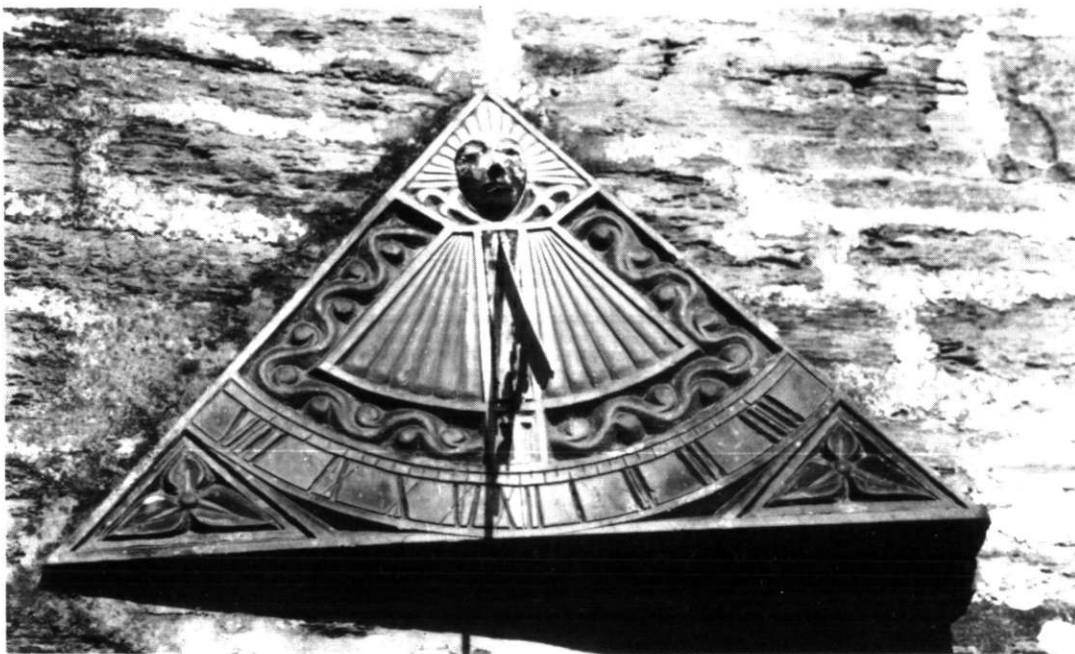


Fig 14 Padstow: a small vertical sundial numbered radially

of every kind of vertical church dial in the county. Dials in the rectangular upright mode and the two types of three-sided mode are affected by it; beyond these, 'radialisation' may also be discerned in circular and in horseshoe dials, and with Arabic numerals as well as Roman. It seems to operate as a kind of temptation away from the standard orthodoxies, some dials going quite overboard whilst others yield to it for only a number or two.

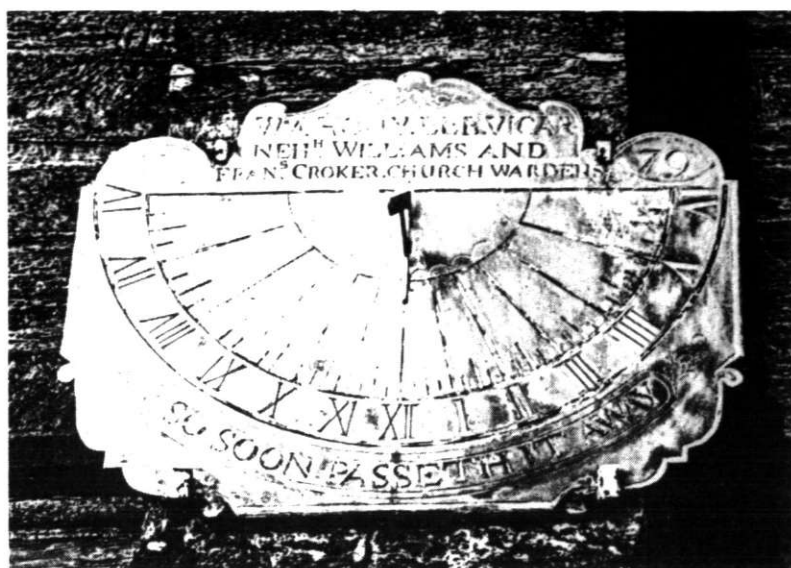


Fig 15 Liskeard: sundial with radial numerals, some inverted

An advanced case of modification is Boconnoc's dial (Fig 16). The layout is three-sided, with the side numerals to be viewed from inside, in the mode of Fig 9. The numerals stand along the line of the scale, but the separate strokes making up each numeral are aligned with the nearest hour line, ie radially. This gives a rakish appearance, especially on the sides, but the effect is more odd again where the element 'V' is not rendered consistently with the rest. One can guess what happened: whereas single strokes, as in 'II', were easy to align with the hour line, for a 'V' it was necessary for the carver to conceive an imaginary centre line; starting from such a line, aligned radially, he might have succeeded in splaying the arms of the V

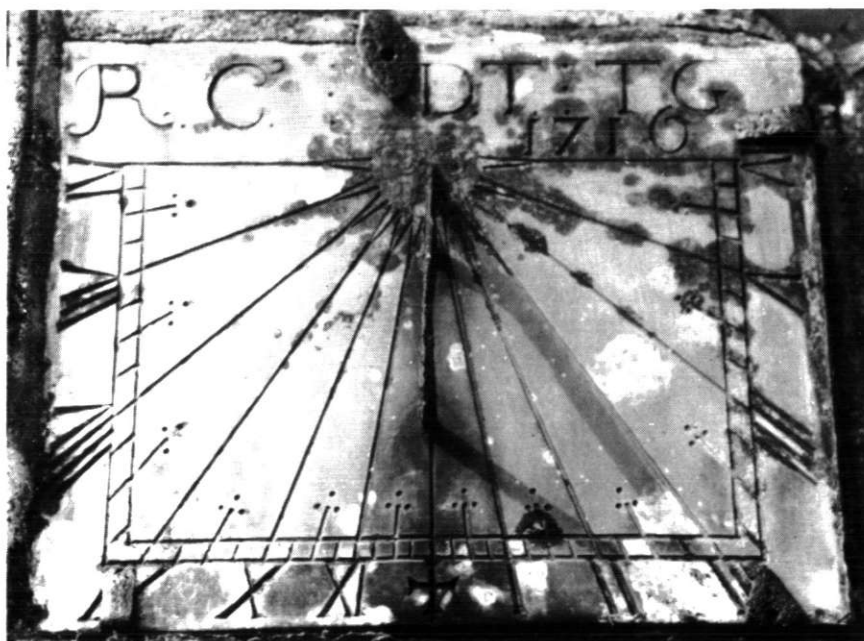


Fig 16 Boconnoc: sundial in 3-sided inwards mode, showing much radial influence

around it. This procedure seems to have been conceptually beyond him, for all his skill with the chisel; he settled for lining up one arm of the 'V' radially and left the other to droop. With 'X', however, he succeeded, somehow.

There are several dials which attempt the Boconnoc radial treatment, with similar results. Towednack has a three-sided layout, and all of the numerals are radialised except, curiously, 'IX' (Fig 17). The tilted numerals riot up and down the sides, like those at Boconnoc. However, at Towednack they are set to be read from the outside, and in that mode Towednack's dial manages to avoid the considerable error, to be explained below, into which Boconnoc and some close relatives fell.

St Endellion's dial was, in great contrast, hardly radialised at all (Fig 18). It is a horse-shoe dial with Arabic numbers that go resolutely down the side, across the bottom and up, in a mode consistently upright, save on the corners where the 10 and 2 yield momentarily to the attraction from the centre, the 10 tilting a little and the 2 rather more.

Between Endellion's case on the one hand and that of Boconnoc on the other, there extends a range of radial influence, of which a table will give some idea. The term 'Tilting' proposed above has been used there to indicate which numerals were affected, these being marked 'T' (Fig 19). Tilting may seem, as a description, to carry a note of stricture; perhaps all some dials like Boconnoc were doing was trying to be radial within a rectangular frame. True, many of the 15 appear to make a start in one of the standard modes and then to fall away from it. The offence, if it is one, is against readability, but these experiments in orientation remain refreshingly human and naive in an area notable for monumental rectitude.

Incorrect numerals

It remains to confront the considerable error to which allusion has been made, to try to account for it, and to make such allowances as we are able. There is probably no need by now to point out that on one or two of the dials illustrated the Roman numerals have an odd look, and you may well have decided that some of them were actually written backwards;



Fig 17 Towednack: sundial with 3-sided numeration facing outwards

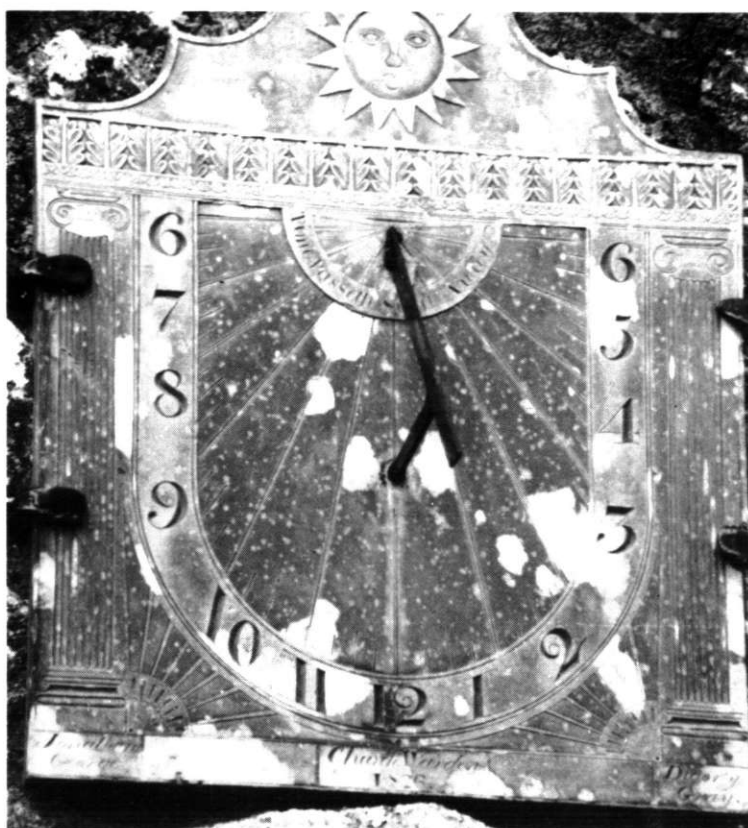


Fig 18 St Endellion: sundial with mainly 'upright' numeration

that is to say, in composing the numeral the component symbols I, X or V were sometimes used in the wrong order. This, whilst it has an innumerate look to it, would have mainly mattered only in practice where nine might have been confused with eleven; four for six was less of a problem, because the Roman IIII was the predominant style for four, rather than IV. The latter style only occurred on one quarter of Cornish church dials, none of them belonging to the delinquent group we are considering.

These dials, nine of them, all have the same few numerals written backwards, those for six to nine a m and that for six p m. Fig 20 shows the typical erroneous form, drawn in a mild, un-tilted version. Fig 21 is a table of the churches concerned and the dial dates. All of these dials were numbered in the same style, the three-sided mode read from the inside, with the exception of Liskeard, from the earlier description of which you will see that, though a radial layout, it too had certain numerals, the early and late ones, set to be read from the inside. It is in this feature, in fact, that the explanation of the error lies.

There is a fertile potential for confusion when side numerals are set in this stance. A Roman numeral that contains more than one element runs to the right, so that VII means 'two after five', equals seven. IX is similarly 'one before ten', equals nine. In Fig 9, where the numerals were correctly written in this mode, each numeral does indeed run to its right, that is to say clockwise. That, however, is the opposite direction to the progress of time, which on a vertical sundial is anticlockwise.

Consider the dial maker completing the right hand side of the dial shown in Fig 20. He has come from noon up through I, II, III, IIII and V without any confusion there, and now has to make a Roman six, which he knows has to have a V 'followed by' a I. Keeping on the way he is going, anti-clockwise, he carves first a V, then a I. 'V followed by I' ought

NUMERALS FOR HOUR	6	7	8	9	10	11	12	1	2	3	4	5	6	MODE	DATE
Towednack	T	T	T		T	T		T	T	T	T		T	3S,O R	1720
St Stephen by Saltash		T	T	T	T	T		T	T	T	T	T		3S,O R	1783
Tregony		T	T	T	T	T		T	T	T	T	T		U R	
Boconnoc		T	T	T	T	T		T	T	T	T	T		3S,I R	1716
South Hill			T	T	T	T		T	T	T	T			U R	1845
Camborne		T	T	T						T	T	T		U R	1793
Lansallos		T	T	T						T	T	T		3S,I R	1760
St Martin by Looe		T	T	T						T	T	T		3S,I R	1769
St Issey				T	T	T		T	T					U R	1718
St Columb Minor					T	T		T	T					U A	1826
St Keverne					T	T		T	T					U R	
Morval					T	T		T						U A	1671
St Neot						T		T	T					U R	1682
St Endellion					T				T					U A	1826
Illogan												T		U A	

Tilted numerals	- T
Modes:	Upright - U
	Three-Sided, seen from Inside - 3S,I
	Three-Sided, seen from Outside - 3S,O
Style:	Roman - R
	Arabic - A

Fig 19 Table of 'tilting' in sundials; note the association of tilt with mode

to give a six, but we see a four. If this seems a merely careless error, it is a strangely seductive one, and it actually proved to be so in the preparation of the drawings to go with these notes, necessitating erasure. There was no erasure on slate.

Boconnoc scored one error less than the others, but this was a lucky accident; the scale was in the case of this church drawn around a rather elongated rectangle and this gave room for an extra numeral on the bottom line. The vulnerable IX was pushed round the corner into safety.

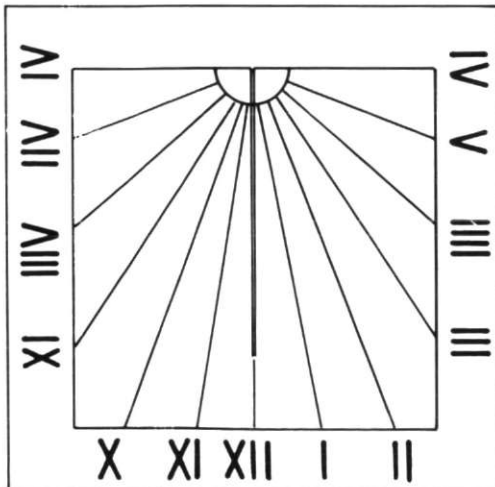


Fig 20

Local cluster

Not much is known, at least by the writer, about the background and personal qualifications of the makers of Cornish dials; nor is it known how far they specialised and perhaps toured the countryside with their tools and skills; neither again, for the most part, are even their names available. Only one maker is known with more than a single dial to his individual credit: B Nancarrow at Newlyn East and St Enoder. One other, Robert Oliver from St Minver, may have done the dials at both St Columb Minor and St Endellion, to judge by style and date. From their carvings of inscriptions it seems the dial makers were sometimes less than wholly literate. It is also unlikely for some of them that their numeracy would have stretched to much understanding of Roman numbers.

Plotting the nine churches with incorrect numerals on the map, with the dates they bear, does suggest a little about the relationship between the dials concerned (Fig 22). The nine, which are, it is repeated, the only churches in the county whose dials include Roman numerals composed backwards, lie together in a corner which amounts to about one sixth of the county. Their dates span 84 years, less than half that of the whole range for the church dials of the county. As a group, then, they are localised on the ground, and somewhat close in time. The classroom maxim may be applied here: it is the mistakes that confirm the copying. More politely, what we may have here is a minor case of cultural diffusion, and one that proceeded outwards from St Ive, to go by the dates.

If St Ive was the source, the virtues of that dial were not imitated along with its errors. St Ive's dial is conspicuous for shapely lettering and numerals; it is unique within the county in possessing a symbol of the serpent of Eternity swallowing its tail; and it has the only instance of the motto *Quotidie Morior*, which is among the neater reminders of mortality.

One can regret even more that the dial at Morval was not taken as model by its neighbours (Fig 23). Morval is geographically within this cluster. It was available from 1671, the oldest church dial in the county, and arguably the most beautiful. It was made 'per me Jacobum Couch', whom I should like to see proved among Q's ancestors, and it is as full of grace as Mozart, a whole century before him.

St Ive	3S,I	R	1695
Menheniot	3S,I	R	1702
Boconnoc	3S,I	R	1716
Lansallos	3S,I	R	1760
Quethiock	3S,I	R	1764
Maker	3S,I	R	1768
St Martin by Looe	3S,I	R	1769
Liskeard	Radial	R	1779
Botus Fleming	3S,I	R	1787

Fig 21

Table of sundials with errors in the numerals

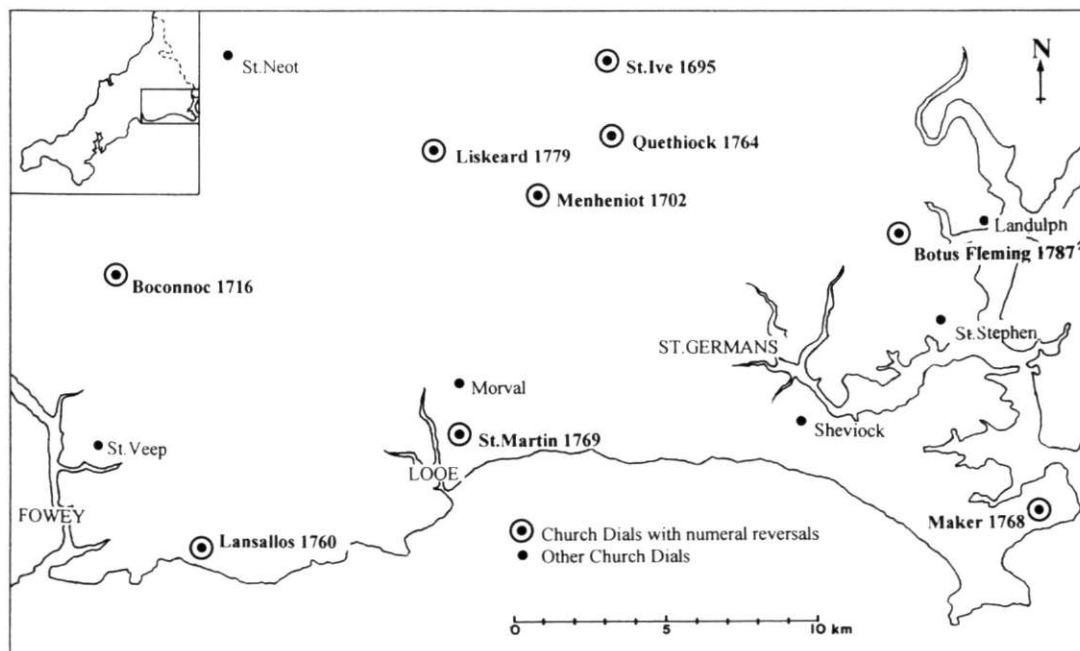


Fig 22 Map showing group of church dials with numeral errors in south-east Cornwall



Fig 23 The church sundial at Morval

Numeration oddments

To these few observations on numeration might be added one or two further points bearing a little on the measurement and indication of time by Cornish church dials. Noon, always vertical on vertical dials, is given a special mark in a few cases, instead of the numeral. Examples include a cross, a Tudor rose, or a double fleur de lys. In one instance, a Roman X is used in the place of XII noon, not very helpfully. One otherwise Roman dial uses an Arabic 12 there. One dial has at noon no numeral or symbol, but instead a rectangular hole. This might be a gap where a prefabricated symbol was inserted, later lost, or the gap where something was subsequently cut out; perhaps a symbol found objectionable.

Some vertical dials can be quite properly marked with hours before or after six am and pm; such are 'declining' dials, made to suit a wall that does not look due south. Because of this orientation such a dial is able to show, at the ends, either extra early or extra late hours, and thus to accommodate the sun in a part of the wider traverse it makes on summer days. Even a declining dial, however, is unable to make any use of numerals placed above the horizontal line running left and right across the top of the gnomon. What, then, are we to make of the dial at Lanteglos by Camelford (Fig 24) and its supernumerary hours placed above the line? Nothing less than the Day of Judgement could find a use for these, and then only if an overheated sun managed to shine uphill, through the dissolving crust. These improbable hours, perhaps included from a spirit of 'just in case', have not turned up elsewhere in the county, though I have found the equivalent in Brittany, at St Herbot.



Fig 24 Lanteglos by Camelford: church sundial with extra hours above the line

A couple of further numerical queries will have to await some research for their resolution. The first concerns the Equation of Time. Sundialling is able to progress from the simplicity of Local Apparent Time to the more sophisticated Local Mean Time if certain allowances can be made through the Equation of Time. Three dials in the county carry tables of such allowances. The 'complicated tables' on the Camborne and St Blazey dials have been explained as 'correcting local time by Greenwich', but such correction would not of course need a whole table: simply a single figure derived from the degrees of longitude. Multiplying the latter by four will give the number of minutes by which local sun-time at a place is behind that at Greenwich. Thus St Blazey is found to be 18 minutes 53 seconds behind Greenwich, Camborne 21 minutes 12 seconds, and Helston, 21 minutes 5 seconds.

What the table on the dial (see Fig 25 for the one at Camborne) has to offer is correction for the inherent irregularity of sun-time. This is caused by variations in the length of the day (not the period of daylight, that is, but the interval from one noon to the next). Briefly, slight inequalities in the length of day arise from the earth's behaviour in orbit. These differences accumulate from day to day, so sundials will now and then quite naturally get perceptibly ahead or behind over the months, and by as much as a quarter of an hour. The standard against which they are gaining, or losing, is 'Mean Time', the average rate for the whole year, and dials exhibit the same seasonal departures from this whether they are local, or at Greenwich, or anywhere in the world.

The pattern of minutes to be added or subtracted according to the time of year was worked out over three centuries ago. Its accurate determination allowed the precise regulation of mechanical clocks by the sun, contributing thus to astronomy, navigation and the art of clockmaking itself. Over the centuries the values of the variations themselves also change, and already those on the three Cornish dials (Helston 1792, Camborne 1793 and St Blazey 1839) are sufficiently out-dated to differ by up to a minute from our modern values. The Camborne and Helston figures are identical, and they use the same scheme of weekly dates, beginning on January 1. St Blazey's framework of dates uses the 7th, 14th, 21st and 28th in every month, so the values there are not comparable with those on the other two.

As to sources for these figures, the figures in the Camborne and Helston tables are entirely consistent with Tompion's (more detailed) table of 1690, itself based on Flamsteed's table



Fig 25 Camborne: an 'equation of time' table to convert local apparent time to local mean time

which had been produced eighteen years before, the first accurate work in the field. The St Blazey figures, however, depart a little from those of Tompion. Leaving aside the possibility of inaccurate copying, it may be that the St Blazey designer in 1839 had access to tables calculated for some year—perhaps the current one, 1839—in which the values came out a little differently on the chosen dates, as they will do from year to year over the leap-year cycle. Identifying the sources of these tables might throw a little light on the transmission of such information in the locality.

A similar area for enquiry is the assignment of latitude to the site of a dial. A few dials bear figures for the latitudes of the places for which they were designed, and there are interesting differences between the values which a modern map gives (for Newlyn East, or Gwennap, for example), and those claimed on the dials.

It was of no practical consequence for the timekeeping if the figure for latitude was out by a few minutes of angle, and the nominal value may not have even entered into the design, since dials could be made without calculation, using graphical construction, accurate perhaps to half a degree; but it would be nice to learn the origins of the values stated on the dials. It is well known that early maps were perceptibly out in latitude, which could be of more than theoretical interest around the Lizard on a dark night. The local determination of latitude eg from Polaris, is not easy, and accurate apparatus is unlikely to have been available in a Cornish village, so the discrepant values are probably to be sought in published sources.

This brief look at some of the numerical aspects of Cornish church sundials has turned up a few errors and anomalies, but all in the context of positive appreciation. It has been a privilege to follow the footprints of the artisans who contrived and erected these dials, and a hundred complimentary things remain to be said about their creativity and skill. As for looking into the errors, which have provided a hint or two of the manner in which church dialling spread, it has been a sympathetic process.

Putting up a carved slate to show the passage of time amounted to more than the provision of a public utility. Sundials, one feels, owed something to the emerging awareness of ordered Nature; they might be considered minor responses in a remote corner to the great dawn of the European Enlightenment. Perhaps it is not altogether without significance that the oldest of the extant Cornish church dials appeared within a decade of the birth of the Royal Society.

However, that is a matter of History, and beyond the scope of these notes or this contributor. The latter would be glad to hear (Truro 73361) of any Cornish church sundials that have so far escaped him. Here is a list of all the church dials, including marginal cases, surveyed to date:

Advent	Just, St, in Penwith	Mylor
Austell, St	Keverne, St	Neot, St
Blazey, St	Kew, St	Newlyn East
Blisland	Landulph Church	North Hill
Boconnoc	Landulph Churchyard	North Petherwin
Botus Fleming	Lanlivery	North Tamerton
Boyton	Lanreath	Padstow
Breage	Lansallos	Paul
Breward, St	Lanteglos by Camelford	Penryn Churchyard
Buryan, St	Lawhitton	Penzance, St Mary's
Callington	Lelant	Perranuthnoe Churchyard
Camborne	Levan, St	Quethiock
Cardinham	Lewannick	Ruan Lanihorne
Carmellis Cemetery	Lezant	Sancreed
Clement, St	Linkinhorne	Sennen
Colan	Liskeard	Sheviock
Columb Minor, St	Madron	Sithney
Davidstow Churchyard	Maker	South Hill
Endellion, St	Manaccan Churchyard	Stephen, St, in Brannel
Enoder, St	Manaccan, Scratch Dial	Stephen, St, by Saltash
Erth, St	Martin in Meneage, St	Stoke Climsland
Ervan, St	Martin, St, by Looe	Stratton
Eval, St	Mawgan in Meneage	Teath, St
Gulval	Menheniot	Towednack
Gwennap	Merryn, St	Tregony
Helston Church	Mevagissey	Veep, St
Helston Museum	Michaelstowe	Week St Mary
Hilary, St	Minver, St	Wenn, St
Illogan	Morvah	Withiel
Issey, St	Morval	Zennor
Ive, St	Morwenstow	
Ives, St	Mullion	



Fig 26 The sundial on St Wenn church

Palaeoenvironmental research on Bodmin Moor

B R GEAREY, D J CHARMAN AND M KENT

This note is to report on palaeoenvironmental investigations being carried out on Bodmin Moor, and presently nearing completion. The recent publication of the Bodmin Moor survey (Johnson and Rose, 1994) confirms the importance of the archaeological remains on the moor, but surprisingly little is known about the nature of the early Holocene environment, or of the nature and extent of human impact associated with the prehistoric settlement of this Cornish upland. The main palaeoecological study for the moor remains that by Brown (1977), but his primary concern was the vegetational changes associated with the Lateglacial/Holocene transition, and his latest radiocarbon date is 6451 BP. Studies more concerned with human impacts tend to be small-scale excavations linked with archaeological investigations (eg. Brisbane and Clewes, 1979; Caseldine and Maltby, 1980). The lack of any comprehensive investigation of human-environment relations in Cornwall was pointed out by R J Mercer and P M Christie in the 1986 Silver Jubilee volume of *Cornish Archaeology*, a situation which is a marked contrast to the large body of palaeoecological study on neighbouring Dartmoor. Andrew Fleming has stressed the exceptional preservation of prehistoric remains in parts of Bodmin Moor, and pointed out the '... opportunity, not yet fully exploited, for the comparison of visible remains of fields and settlements with the vegetation record indicated by fossil pollen preserved in neighbouring peat bogs' (Fleming, 1987, 111). Nothing has been done to address this situation since the publication of these works and the nature of human-induced environmental changes on Bodmin Moor remains generally unclear.

Two main reasons for the lack of palaeoenvironmental research on the moor can be identified. The first is the perceived lack of suitable deposits for palaeoenvironmental study. Bodmin Moor was outside the maximum extent of the last (Devensian) glaciation and therefore lacks glacially deepened basins for the accumulation of long sedimentary sequences. Secondly, tin streaming and peat cutting are thought to have destroyed many of the valley peats on the moor.

Work currently in progress in the Department of Geographical Sciences at the University of Plymouth has demonstrated that the views of some researchers (eg Caseldine, 1980) regarding the potential for palaeoenvironmental investigation on the Moor were over pessimistic, and sediments suitable for environmental archaeology remain for the diligent fieldworker. While many of the more extensive valley mire deposits have indeed been destroyed, conformable sequences remain in undisturbed mire edge areas. In addition, a number of organic deposits have developed in association with spring lines. Field research in the Rough Tor area, and on the East Moor have revealed a number of such sites, and are providing considerable information on both the natural and anthropogenically modified vegetation patterns on the moor during the last 10,000 years.

Five peat cores and monoliths have been obtained from an area centred on Rough Tor of approximately one-square kilometre. These profiles have been analysed for pollen and microscopic and macroscopic charcoal content. The information derived from the sequences provides extensive information on the nature of the vegetation cover of the prehistoric landscape, and the character and extent of the landscape changes resulting from human settlement and activity. One of the peat cores, at nearly 3 metres in length, is the longest sequence yet obtained from Bodmin Moor. Samples have been submitted for radiocarbon analysis, and will provide information on the timing of the environmental impacts of anthropogenic activity on the natural vegetation cover of the moor. The data obtained should also shed considerable light on the complex field archaeology present on the Rough Tor Moors, which includes considerable numbers of hut circles, field systems, ritual monuments and the possible Neolithic enclosure on Rough Tor itself.

Further sequences have been obtained from the East Moor of Bodmin Moor. This part of the upland is characterised by the extensive East Moor co-axial field system, as well as other prehistoric and historic remains. The analysis of pollen from cores from Tresellern Marsh, Watery Marsh and the East Moor plateau itself allows the reconstruction of a transect across a fossil landscape. The variation in the natural vegetation cover from the valley bottoms to the higher areas of the moor, and the impact of human communities on these different vegetational communities can therefore be examined. A further and more detailed report on the project will be submitted to this journal in the near future.

Department of Geographical Sciences, University of Plymouth

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Finally bypassing Indian Queens—The A30 project

JACQUELINE A NOWAKOWSKI

A long campaign of archaeological fieldwork along the route of the Indian Queens bypass (which began in October 1992; Nowakowski 1993) came to an exciting end in March 1994. Over the winter a significant quantity of worked flint and some prehistoric pottery was found in an area at the extreme western end of the road scheme at a place which came to be known as Penhale Moor (SW 9034 5714). There were no above ground traces of any definite site and a geophysical survey which had been carried out by the Ancient Monuments Laboratory in 1993 did not provide a clear picture of any buried remains. However the survey did detect ditched linear features—although of unknown date—so it was with much excitement that prehistoric artefacts were found at this location. Over a five week period during a very wet February and March a small team led by Anna and Andrew Jones excavated the remains of two structures which can be dated by pottery to the Middle Bronze Age. Both structures were set in hollows. One was a circular building—perhaps primarily used for domestic activities—whilst the other (which lay adjacent and may have been rectangular in shape) was perhaps used as an outbuilding. Occupation surfaces, internal pits and postholes were well-sealed and contained sizeable quantities of pottery decorated with the cord-impressed motifs so familiar for the Cornish Middle Bronze Age. Around the periphery of both structures pits, post and stakeholes were found. Preservation of deposits within the hollows was excellent and will therefore permit the modelling of intra-site behaviour and some contextual analysis. Stone quern fragments, flint and some metalwork was found. Of particular interest was the fragile but complete remains of a copper alloy spearhead which was found embedded into the floor of the larger structure. The arrangement of these two structures at Penhale Moor suggest the site of a small farmstead—reminiscent of the type of settlement excavated at Trevisker Round

in St Eval in the 1950s (ApSimon and Greenfield 1972). Penhale Moor is further evidence for the varied character of the early prehistoric farming landscape of the area and the artefacts show that the site is contemporary with the structures uncovered during excavation at Penhale Round some 12 months earlier (Nowakowski 1994, 34-35). It will of course be of no surprise to learn that the excavation of this extremely significant discovery was a pleasing and fitting end to the final phase of archaeological fieldwork along the bypass.

Cornwall Archaeological Unit, Truro

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A Neolithic stone axehead from Barn Pool, Mount Edgecumbe

KEITH RAY

A large ground stone axehead was recovered from a rocky reef at a depth of 20 feet at the northern margin of Barn Pool at SX 4565 5307, in April 1993. The axehead was found wedged between and protruding from the rocks, and was reported to Plymouth City Museum by the finder, Mr Andy Garswood, an Australian diver attending a Fort Bovisand training course, who brought the object in for identification. Unfortunately, Mr Garswood could not be persuaded to deposit the item with the Museum, and it is now believed to be in Perth, Western Australia. The axehead was nevertheless photographed and measured at the Museum.

The dimensions of the axehead (in mm, length $\times$ maximum width $\times$ maximum thickness) are: 270 $\times$ 75 $\times$ 40 (see *Figure 1*). The elongated shape of the axehead (L/W ratio 3.6:1) is a marked feature, as in plan are its asymmetrical blade and pointed butt. In cross-section it is also asymmetrical. It is finely ground on all surfaces, with only slight traces of unground flake scars and some possible grinding striations. The blade is narrow and convex in section, and undamaged.

The surface colour is very dark grey, except where obscured by the eroded encrustations of small marine molluscs (*illustrated only on the upper drawing in Fig 1*). The dense fine-grained rock is unfamiliar in a southwestern context, and appears similar to Breton dolerite or chloromelanite.

The axehead is at the larger end of variation among British axes (Chappell, 1987). The asymmetry between its upper and lower surfaces indicates deliberate styling for hafting, and the asymmetry in its blade suggests its intended use in timber-working. Its deployment in prestations would obviously not have been precluded, but it was also clearly suited to heavy-duty service.

Its discovery location could be taken to be of particular interest in the light of claims (eg Cummins, 1979) for the maritime transport and redistribution of axes. Given its dissimilarity from the greenstone axes of Cornish origin, if the Barn Pool axehead was being transported by sea it might be viewed as a direct Breton import into the southwest, or a recirculation of an axehead brought in elsewhere. On the other hand, a broad similarity of the stone of this artefact to that of at least one other local find (another large axehead, from Tavistock, in Plymouth City Museum) may point to a closer origin; especially since there are deposits of dolerite and

other igneous rocks at as yet unexplored locations such as Lyneham Wood northeast of Brixton, only 11km due east of Barn Pool. Moreover, with an hypothesised neolithic shoreline some three metres lower than at present, it might be suggested rather, that the axehead was lost or deposited on or near the former shore.

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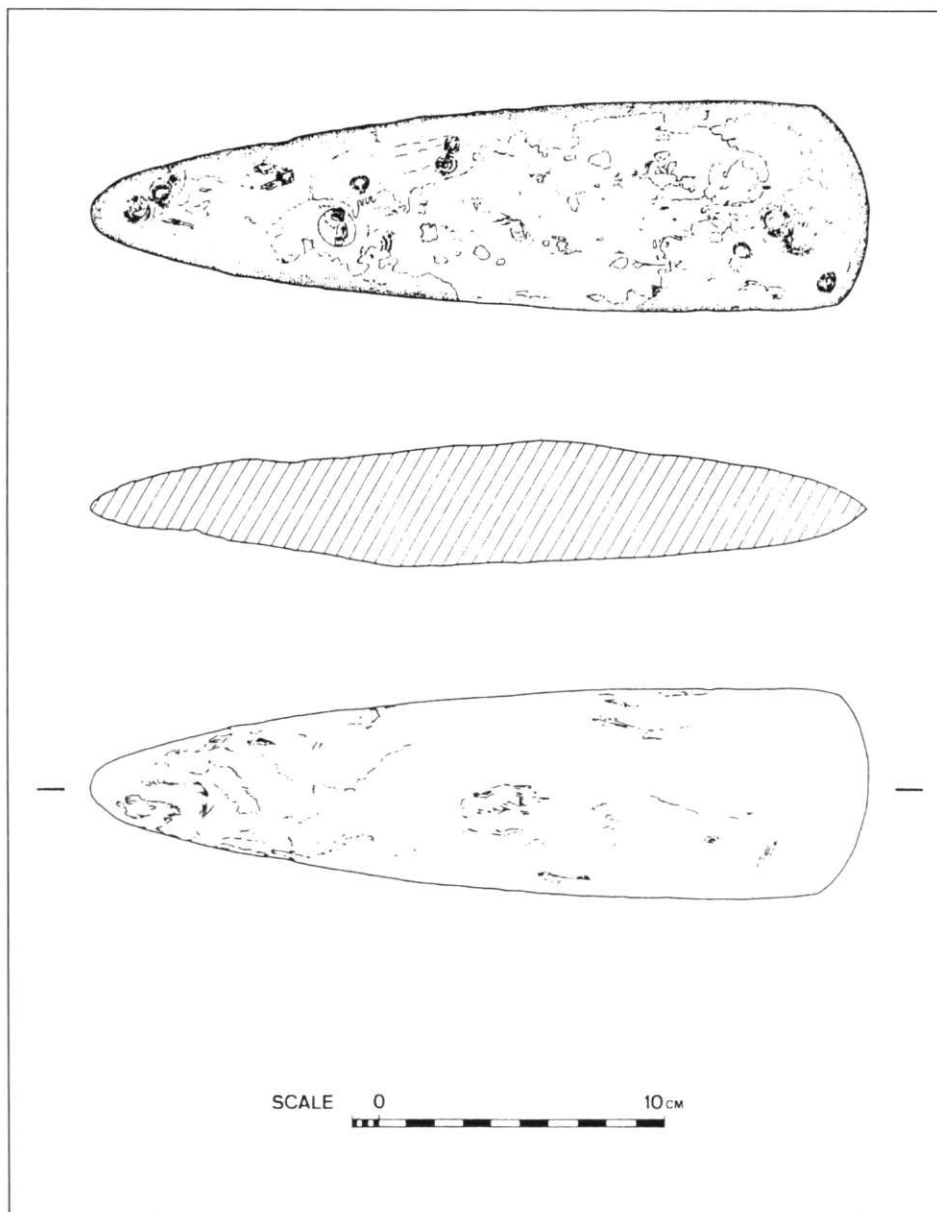


Fig 1 Stone axe from Barn Pool, Mount Edgecumbe

Bury Down, Lanreath: investigations in 1994

KEITH RAY

Background

At Bury Down, in the northeastern corner of the parish of Lanreath, there survives as a prominent field monument what is at first sight a bivallate enclosure typical of the larger end of the range of Iron Age defended settlements in Cornwall. It occupies the crest of a west-facing slope of the Down, in a prominent location at 202m OD (and at SX 188 594). The fort comprises an imposing inner circuit of bank and ditch with a single original entrance on its western, downslope, side; and a much slighter outer circuit which is incomplete on the southern side.

Ordnance Survey fieldworkers who surveyed the site in 1972 described this outer circuit as featuring a bank up to a metre high with a shallow ditch around the eastern and northern quadrants, and which deteriorates westwards into intermittent ditch and dump construction. This deterioration, together with the apparent absence of the rest of the circuit on the southern side was taken as evidence that the earthwork was unfinished.

However, aerial photographs in the NMR and elsewhere show that traces of the southern arc do survive, although much of the earthwork has been obliterated by the construction of a recent fieldbank over it. These photographs also reveal a certain regularity to the ditch and dump segments. The slighter nature of the outer circuit could be assigned to its uncompleted construction although it has also been suggested that ploughing has reduced it.

Antiquarian observations (for example by Lysons in 1814) suggest that the slighter construction of the outer earthwork and the substantial nature of the inner enclosure have long been a feature of the site. This raised the possibility, strengthened by close ground observation early in 1994, that the actual reason why the outer earthwork circuit is and always was slighter is because it is of very much greater antiquity. This, together with a comment reported by Lake in his Parochial History of 1870, that a third circuit had also once existed, served as a spur to more detailed study of the site in the summer of 1994.

Fieldwork in July 1994

A short season of intensive fieldwork took place in July 1994. The limited investigations were directed by Keith Ray on behalf of Cornwall Archaeological Society, with the voluntary assistance of members of the Caradon Archaeology Group and the University of Sheffield, and permission, help and encouragement of the landowner, Mr David Tamblyn. The work was designed as part of a wider study of the Neolithic and Early Bronze Age settlement of the area south and east of the river Fowey, loosely centred on the parish of Boconnoc. This process of settlement gave rise to the well-known distribution of 46 and more round barrows clustered in groups such as those on the Taphouse ridge.

This exploratory fieldwork sought to establish whether a third circuit of earthworks had once existed. It was also aimed at discovering if further evidence either from this feature or from other finds or more intensive surface survey could help to determine whether there had indeed been an earlier phase of activity on the site, and if so whether the intermittent bank and ditch represented a Neolithic causewayed enclosure.

A series of test-pits was dug to the east of the monument in Kit Hill field. These pits, dug in 'permanent' pasture, produced some flint flakes from the former ploughsoil but no archaeologically significant features were present. A 20 metre trench was sited to intersect the line of a grass-mark feature visible on a 1977 aerial photo. No trace of a linear feature was observed, but a stone-packed pit was revealed and emptied. A further trial pit dug at mid-slope on the northern flank of the hill registered the extent of recent downslope ploughsoil

movement, but was otherwise also sterile archaeologically. A small pit dug at the base of the same slope produced (from undifferentiated hillwash) comminuted sherds of a thick-walled prehistoric pottery vessel.

A measured survey of the western and northern arc of the outer circuit of bank and ditch revealed a more complex structure than expected. A series of bank dumps were recorded through the whole arc, with the bank at no point forming a continuous level profile. In the length surveyed, comprising just over half of the former circuit, seventeen such dumps were distinguished and mapped. Outside these dumps and apparently directly related to them were a series of ditch segments separated from one another sometimes by marked and sometimes by slight causeways. These became more difficult to distinguish upslope and eastwards, but 14 were observed and recorded.

As a localised test of these observations, a 60m × 20m area was selected for still closer survey. A contour survey here confirmed a marked change in direction in the line of the earthwork, as well as the existence of marked ditch segments, dumps and causeways. A resistivity survey across the same sample area not only clarified the location of the causeways and the shift in direction, but also showed the clearly-recognised butt ends of the ditch segments.

Observations of the inner circuit revealed the site of an otherwise unrecorded trench excavated across the bank on the northeastern side of the enclosure. This had apparently revealed a well-preserved section of drystone revetment wall, which had subsequently been partially cleared. As well as being inturned, the ditches flanking the broad entrance also appear to have been deepened to emphasise the proportions of the gate which presumably once protected the causeway. The nature of the inner enclosure is such as to suggest a rather large round, perhaps created within or even partly over an earlier earthwork.

Some interim conclusions

No unequivocally Neolithic finds were recovered from the 1994 investigations. On balance, it now seems unlikely that a third circuit of defences ever existed: from inside the outer circuit a natural break in slope to the northwest could have suggested to earlier visitors that it represented the vestiges of such a further enclosure.

The form of the interrupted ditch segments and bank dumps, if observed on a site on the South Downs or in Wessex, would long ago have given rise to an identification as a 'causewayed camp'. The resistivity results so far obtained appear to lend weight to such an identification here, but they will need to be supplemented by further work. In the meantime, the plan of the outer circuit also provides some clues as to its possible identity. Eccentric to the inner enclosure, the causewayed line also wanders inwards and abruptly changes direction at three points. In general, this is reminiscent of sites such as Robin Hood's Ball and Whitehawk. More interesting still, a marked inward kink in the surviving bank in the southeastern corner of the enclosure is closely similar to the 'facade' feature identified in the inner enclosures at Briar Hill and Windmill Hill.

Only further investigation will confirm or refute the interim identification of the site as a causewayed enclosure, and this is planned for 1995. However, it is of interest finally to reflect that in east Devon in 1994, two sites (at Honiton and at Raddon north of Exeter) which had been discovered from aerial photography and classed as Iron Age or later enclosures proved during rescue excavation to encompass major Neolithic phases.

The barrow group at Viverdon Down, St Mellion: some observations

KEITH RAY

A Caradon Archaeology Group visit to a number of prehistoric sites in the Callington area on 24th April 1994 included a walk to the round barrows on Viverdon Down in the northeastern corner of the parish of St Mellion. Access to the fields concerned had been arranged by Geoff Walford.

The surviving barrows occupy the northeastern-facing flank of the Down, not far from its summit (at SX 3815 6745). They therefore overlook, and before field enclosure of the downland (post-1784, judging from the Gardner Survey maps) would have been prominently visible from, the Balstone Down neolithic stone axe working sites.

Two barrows remain as prominent surface features, but erosion is being accelerated due to continued ploughing. The latter has nevertheless revealed the structure of the barrow mounds, with turf stacks capped with (now leached) orange clay presumably dug from encircling ditches. This degraded capping forms a near-continuous ring around the larger, more northerly, barrow. Both within this ring and outside it, dark organic weathered blocks of turf indicate something of the former extent of the stack. Between the barrows, and slightly westwards, a further area of darker material in the ploughsoil suggests the former existence of a third, smaller, barrow.

A sample of a turf block was collected from the larger barrow by Dr Dan Charman, lecturer in palaeoenvironmental studies at the University of Plymouth. Microscopic examination of the sample revealed a predominance of *Calluna vulgaris* (ling) which implies that the turf for the barrow mound was cut from an area of open heathland vegetation nearby.

The condition of the barrows is deteriorating rapidly, and the Down is further threatened by the planned upgrading of the Callington—Saltash road, a re-routing of which will pass close by to the west of the barrow group. It is to be hoped therefore that necessary archaeological investigations will be carried out both in advance of and during the road-building works.

A medieval hall at Shillingham Manor near Saltash

KEITH RAY

A chapel once forming part of the Manor of Shillingham (parish of St Stephens, Saltash) is Scheduled as an Ancient Monument, and stands as an ivyclad ruin in the corner of a group of farm buildings at SX 4072 5725. A mansion built in 1603 by the Buller family was abandoned in the 18th century and later demolished, and a barn associated with both Manor and mansion was the subject of local controversy when also summarily demolished in the 1950s.

Late in 1993, a programme of refurbishment of the former farmhouse was begun by Simon, Lord Boyd of Merton, the present owner. Following the discovery of medieval masonry a rapid survey and recording exercise was organised and carried out over a bleak December weekend. The farmhouse was found to have been constructed in four principal phases, the first being a medieval hall to which the chapel was formerly attached.

The hall building was aligned east-west on almost the same orientation as the chapel, and comprised a first-floor room with a divided undercroft below. This room was contained within the full length of the building, and featured two-light trefoil-headed windows at either end, with circular gable openings above each window. The jambs of all the medieval openings were finished in Roborough stone, presumably from the Abbot of Tavistock's quarries. The outlines and in one case the sill of two further medieval windows were also noted in the north and south walls of the first-floor room (see Fig 1).

The relieving arch of a ground-floor entrance to the hall survived in the south elevation, together with the base of the western jamb. This door led into an undercroft divided by a

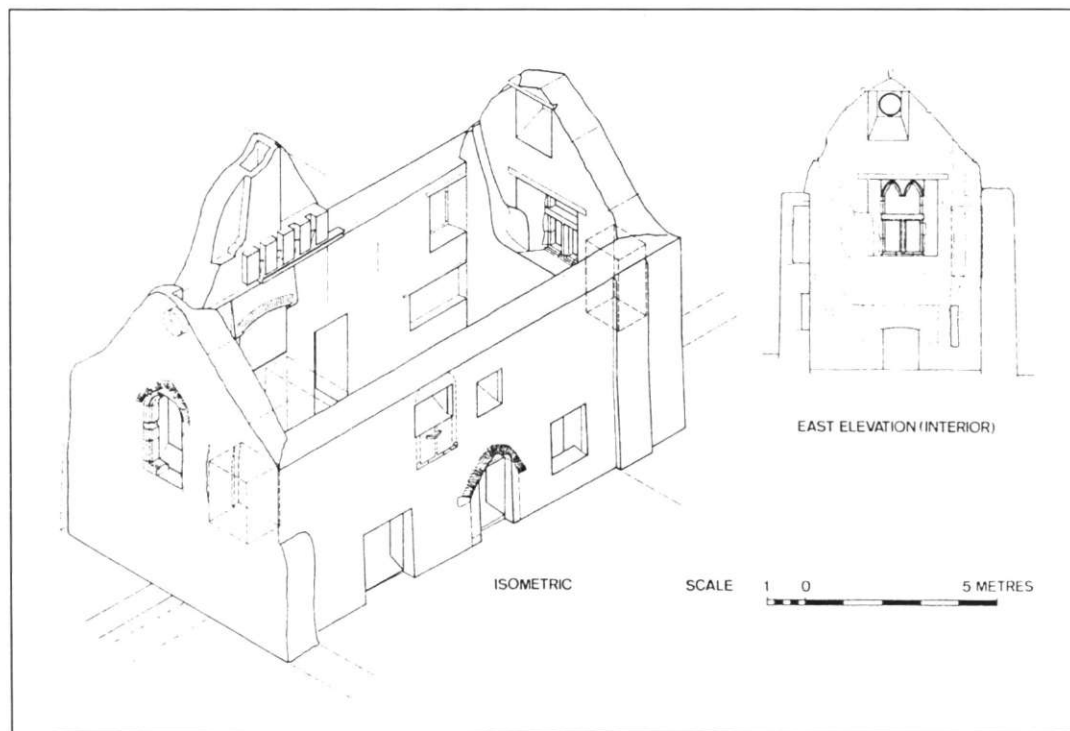


Fig 1 The medieval hall at Shillingham Manor

cross-wall which had supported both the timber flooring and a heavy slate hearthstone. The latter fronted an elaborate first-floor fireplace framed by an arched mantel resting on twin corbels.

The massive lateral stone stack which carried the flue for this fireplace formed the major feature of the northern elevation of the hall, rising originally beyond the height of the steeply-pitched roof. Of this latter only one length of an extravagantly moulded carved timber baseplate survived. However, the remains of rafter-ends inserted into the stack above the baseplate suggest that it was also a complex structure.

In the southeastern corner of the hall, traces of a first-floor doorway were noted at the point where the chapel had once clearly been attached. A similar doorway south of the window in the west gable wall apparently linked the hall again at first-floor level to a further, western, range of buildings now vanished. Details of the construction are noteworthy, including the careful coursing of larger and smaller stones in the wall fabric, and the presence of many putlog holes dating from the construction phase.

The survival of so much of the fabric of a medieval manorial hall is of obvious interest, as is the inclusion of such an 'advanced' feature as an integral first-floor fireplace in a domestic building which on stylistic grounds dates to the end of the thirteenth or beginning of the fourteenth century. Part of the interest of the building arises from the fact also that, unlike better-known medieval survivals such as Trecarrel and Cotehele, Shillingham did not suffer later medieval remodelling or 19th/early 20th century 'restoration'.

The second phase of the Shillingham farmhouse appears to date from the 17th century when, with the construction of the mansion on its own elevated earthen platform (still surviving to the north-east of the farmhouse complex), the medieval structure was converted into the home farm. Several of the hall windows were blocked and new openings were created. The main medieval gable windows were reduced in size with the insertion of two-light granite mullioned windows with heavy mouldings. A stone-built north wing was added, with its gable set axially upon the north side of the medieval stack. This new north wing was divided by a cross-passage and featured a kitchen served by a fireplace in the north gable set into an externally-projecting stone stack.

A third phase is characterised by an 18th-century gentrification of the building through the construction in brick of a further northern wing, transforming the structure into an H-plan. Substantial remodelling of the cross-passage building took place, including the relocation of the kitchen southwards and the construction of a large oven beside a new lateral stack built in the west elevation.

The fourth phase identified appears to date from the 19th century, and involved the extension of two of the arms of the 'H' westwards, with new building in brick and stone. Careful coursing of the stonework is a feature of this phase of building, as is the re-use of granite mouldings retrieved from the demolition of the mansion. The re-sited kitchen appears to have received a new floor of Plymouth limestone during this phase, and it was probably at this time also, that several elevations were hung with slate tiles. The medieval hall now ceased to form part of the farmhouse itself, and was used as a byre.

An interesting discovery made during recording concerned the two principal doors to the later house. These doors were central to the List description of the property, the pediment and Tuscan pilasters of the north door being dated to c. 1700, and this feature being used to date the whole house. In fact the doors were shown to be reproductions, probably of the 1930s and not necessarily in the style of the doorways they replaced. The present refurbishment has included the demolition of the ground-floor cross-wall of the medieval building (before an alternative could be suggested) and the re-blocking of the larger medieval openings. It has nevertheless ensured the continuing use of a fascinating early historic building, which its latest function had consigned to degeneration.

Rescue excavation of a building at Stonaford, near North Hill

MARTIN ROSEVEARE

It was brought to the attention of the Cornwall Archaeological Unit in August 1994 that an ostensibly 17th century building near the Trebartha estate at North Hill (SX 256 780) was undergoing extensive and intensive renovation, and that the stripping of internal plaster had brought to light the bases of upper crucks, sawn through on the upper floor. The remains of such a structure were an immediate indication of a far greater antiquity for the building. Since the intended installation of a concrete sub-floor would involve the removal of all surviving floor deposits a small area was tested. This revealed the presence of at least one former floor, cut into which were stake- and postholes. A large backfilled hollow was also noted, which proved on further investigation to be a drain lined with granite blocks, the fill of which contained early ceramics.

An excavation team formed from Caradon Archaeological Group members undertook a fortnight's work, during which the whole of the lowest room was stripped to natural, and the sole remaining floor in the central room subjected to a quick examination. A scaled record of the building was drawn, both in plan and elevations, and the vicinity of the building was examined for evidence of further structures. At all times there was close cooperation between the contractors, Darrock and Brown of Bodmin, and the archaeological investigation, and it is felt that although time was limited a significant amount of factual evidence has been recovered, sufficient both to determine the nature of the building's origins and to trace its development through to the present day. It seems likely that the building has seen usage as a dwelling for at least 600 years, and still incorporates within its fabric remains dating from the earliest phases.

Five principal phases were identified from the results of the excavation and the standing building record—indeed the opportunity to correlate stratigraphy with an existing building is unusual and has proved a great asset to the project, reinforcing the archaeological aspect of old buildings, as opposed to a straight architectural study. There is a significant number of finds from the site, all of which have been subjected to a preliminary examination, especially the ceramics, some of which have a postulated 13th or 14th century origin, and are associated with the upper fills of the central drain.

The earliest identified phase is that incorporating the deepest floor of trodden natural, with occasional reinforcing of rammed stone, cut into which were large numbers of post and stakeholes, identified as representing mangers along one side of the building, and with postholes and impressions marking the line of a timber screen between the cross-passage and the byre. Two postholes near one end of this seem to indicate the position of a doorway, and are accompanied within the byre by multiple alignments of stakeholes at regular spacing, and confined to the gap between the two postholes; it seems likely that these indicate the use of hurdles to form a barrier between the byre and the cross-passage. It should also be noted that there was no evidence of tethering posts, as have been found elsewhere, especially in Devon. The most interesting feature of this first phase, and an integral part of these longhouse-type structures, was the central drain. At Stonaford, this is of a form which would seem to be unique amongst the excavated examples—it is very deep, and was lined on both sides with crude walling of granite, coped with large blocks set slightly below the surrounding floor level. It is quite narrow, and would almost certainly have been covered, either with some permeable material, or with a system of stone slabs with gaps between, to prevent livestock from slipping into the slot. The floor would appear to have sloped down to the drain on either side, although erosion and later disturbance has made the angle of slope unclear. Looking at the structure as a whole, the lack of tethering posts (assuming that animals were not tied to eyes in the walls), the postulated hurdles across the doorway, and the construction of the drain, based

on the assumption that it was actually covered, would all suggest that livestock were not tethered within the byre of this building but were loose, and there are also signs that the drain was cleaned out occasionally. A covered drain would also allow the use of the byre for other purposes during the warmer months when animals were not brought in for shelter, in a similar way to a modern general purpose barn.

The second phase is indicated by the presence of remains of upper crucks, found embedded into the front wall of the building (the rear wall having been rebuilt in a later phase). In Devon these have been noted as 15th century features, but there are few known examples within Cornwall with which to compare this form of construction. Two blades remained *in situ*, and a third was indicated by a roughly patched slot in the wall, giving a structure of four bays, with the entrance at the downhill end between the two lower crucks. There are various sections of walling which can be identified as part of this structure, and it is the earliest phase for which a general plan of the building can be drawn (the longhouse lacks both gables, although the width is known). It would probably have had a central hearth as in the longhouse, although post-medieval alterations have removed all trace of this; a darkening of internal wall faces was noted during the investigation.

The 'Great Rebuild' of the 17th century (phase 3) saw the development of the property from its medieval form to one more typical of the times, with gable chimneys and a prominent storied porch on the front wall. An upper floor would appear to have been added at this time, and the roof structure was replaced by one consisting of arched collars with unpierced straight principals. A lean-to structure was added to the front wall, and formed part of the fabric of the porch, and the whole rear wall of the building would appear to have been replaced, apart from the lower end. This phase seems however to have been short-lived, with alterations on a massive scale occurring in phase 4, presumed from structural evidence to belong to the 18th century. The whole of the building, again apart from the lower end (presumably to preserve the porch), was rebuilt, incorporating some structure from the previous phase within the rear wall, and the building would appear to have been shortened at its upper end, leaving the former gable as a retaining wall in the garden. The new structure was built to be taller than the older building, and consequently the gables and the rear wall have been raised quite considerably. Architecturally this phase is marked by the introduction of windows and a fireplace with arched heads, one window having a true arch, while that in the rear wall of the central room has a false arch cut into the external face of the granite lintel. The gable stack of the upper end is finished with an elaborate moulding around the top, carved from several pieces of granite, and seated on the rubble-stone masonry of the flue. Archaeologically this late phase is represented by a floor surface of granite cobbles bedded in a mixed gravel, and cut into a former earth floor of phase 3 below. Most of this was robbed out in phase 5, presumed to be of 19th century date, when slate floors were laid throughout the building, and the lower end would appear to have been built up to a level comparable with the rest of the structure. Various small additions were made to the building, eg a porch and a modern doorway were created on the upper end, and the front lean-to was extended along the whole of the front wall, although this latter could conceivably be even more recent.

Acknowledgements

The support and enthusiasm of Caradon Archaeological Group members throughout the fieldwork is gratefully acknowledged, and thanks are offered both to the owners, the Lathams of Trebartha, and to the contractors, Darrock and Brown of Bodmin.

Stowe: the pre-1694 painting

† MICHAEL TRINICK

I was delighted to read 'Stowe; the country house and garden of the Grenville family' (*Cornish Archaeol* 32, 1993, 112-27), which materially increases our understanding of the site of this once-great house. We are much indebted to Mr Wilson-North, and to the Royal Commission on Historical Monuments of England, which financed his work.

I write only to correct two points which arise from a misreading of my article on the house from which he quotes (*J Royal Inst Cornwall*, 1979). He describes (*CA* 32, 113) 'a pre-1694 painting, now lost' to which I had referred. The painting is not lost, indeed I stated that it was at Tonacombe, where I saw it again comparatively recently.

He also writes (*CA* 32, 119) 'Trinick suggests that the building' (a single storey building immediately north of the house) 'was perhaps the stable block for the earlier house at Stowe and was demolished by 1694', and goes on to say, 'This suggestion is inherently unlikely' and gives his reasons, based on architectural grounds. I did not suggest that the stable block and coach house, clearly depicted in the pre-1694 painting, had belonged to the earlier house at Stowe, since the building is clearly of the same date as the house. It seems very likely that the building was contemporary with the house, and was later demolished, its purpose, thereafter, being served by the large stable block erected to the west of the house.

I make these points only because there seems no reason to doubt the accuracy of the Tonacombe painting, which has proved remarkably accurate in all it depicts.

Newton House, Lanhydrock

Recent Work by the Cornwall Archaeological Unit

Roughtor Holy Well

A survey of the 'holy' well on Roughtor, Bodmin Moor, was made in advance of a partial re-building of the collapsed structure; this included a plan and internal elevations. The work is being organised by North Cornwall District Council and the National Trust, owners of the monument, with archaeological advice and help from CAU and the English Heritage Field Monument Warden.

Ann Preston-Jones

St Piran's Old Church, Perranzabuloe near Perranporth

This church was abandoned to the sand dunes in 1805 when a new church was built further inland. The church was 'lost' until excavated by T F G Dexter from 1917. The exposed walling, open to the elements ever since, has gradually crumbled and fallen away. Consolidation of the ruins has now been organised by the owners, Perranzabuloe Parish Council, with the help of grant-aid from English Heritage; preliminary recording was carried out by CAU and a report produced. The east wall in particular was found to have had a complex history.

Ann Preston-Jones

Foage, Zennor

National Trust Acorn volunteers cleared vegetation and then repaired walls in the mowhay at Foage, Zennor as recommended in a CAU management report commissioned by the Trust. The mowhay was used by the farmer-diarist James Stevens in the last decade of the 19th century and still contains four stone-lined rectangular stack platforms. Work was preceded by a detailed survey by CAU who also advised on the repairs and the mowhay will now be re-used as an element of the working farm at Foage.

Peter Herring

St Michael's Chapel, Rame

This isolated and windswept building was surveyed for Cornwall County Council and English Heritage to provide plans in advance of repairs. In spite of its setting on the exposed Rame Head the 14th century building is remarkably well preserved due to its solid construction, including a stone roof. In the 15th century (and presumably earlier) a 'watchman' was paid to maintain a beacon here. The building also saw use during the two World Wars when gun platforms were constructed beside it.

Nigel Thomas

Hensbarrow Downs

The remaining block of upland heath on the northern slopes of Hensbarrow Downs had been identified by CAU as an area of particular historic importance in a report on the archaeology of the St Austell China-Clay Area commissioned by English China-Clays International (Herring and Smith 1991). It contains extensive remains of surface mining, leats, reservoirs and a well-preserved early 19th century china-clay works. ECCI made provision for CAU to produce a measured survey of a part of the Downs in advance of the extension of a waste tip. This was one of a number of preservation-by-record surveys of archaeological remains to be damaged or destroyed by the China-Clay Industry undertaken in 1993-4.

Peter Herring

Stratton Hundred, Rapid Identification Survey

The far north of Cornwall—the ancient Hundred of Stratton and the parishes of Poundstock and St Gennys (in Lesnewth Hundred)—is an area significantly under-represented in the County

Sites and Monuments Record (SMR) and also the National Archaeological Record (NAR), held by the Royal Commission on the Historical Monuments of England (RCHME). Remote from Truro and centres of archaeological learning, it has seen relatively little antiquarian or archaeological fieldwork compared to areas like Bodmin Moor, West Penwith and Scilly. Local archaeology and history is poorly understood and the scanty record makes development control difficult. It is just this sort of area that RCHME had in mind when it designed its Rapid Identification Surveys (RIS) and the Stratton survey, undertaken by CAU with funding from the Commission, was one of a number of pilot RIS projects organised throughout England in 1993.

All sites which would normally have found their way into the County SMR were plotted and a brief descriptive note was made on each. No attempt was made to fully record them as the aim was simply to identify as many new sites as possible. The more important discoveries would be flagged up for further, more detailed recording at a later date. A simple RIS form, prepared by RCHME, was filled in for each site and the results were placed in RCHME's NAR, to be transferred to the County SMR as part of a data exchange exercise. Both archives would therefore be enhanced.

Results were spectacularly good. A total of 699 record forms were completed, more than tripling the number of sites previously in the NAR for this area. As expected, most new sites were post-medieval (58%) but 75 (11%) were either prehistoric or Roman. These were mainly Bronze Age barrows and included a fine cemetery on the cliffs at Crooklets, overlooking Bude Haven. Many new barrows were found elsewhere on cliffs and inland on the edges of known groups. Several later prehistoric rounds, defended farming hamlets, were identified, mostly as aerial photography sites, the outer ditches showing as cropmarks, but one, called Webb's Castle on the 1840 Poundstock Tithe Map, survives as a distinct earthwork.

Among the most exciting discoveries were two possible Roman signal stations, both square and visible on aerial photographs, on cliff tops 20km apart at Oldwalls, Morwenstow and High Cliff, St Gennys, the latter being also visible on the ground as a distinct earthwork. Further research is needed to confirm their identification, but if these are signal stations they may help us to explore the nature of the Roman occupation of Cornwall.

From the medieval period the most important discoveries were a large number of either wholly deserted or significantly shrunken farming hamlets (21 of the former, 87 of the latter). The former survive as earthworks in irregular enclosures within field systems, the latter as earthworks on the edges of working farms. Among the most important of the deserted sites is Trefreock in St Gennys, an Early Medieval (pre-Norman) settlement recorded in the Domesday Book and containing clearly defined house platforms and garden/mowhay enclosures. The RIS paid particular attention to the search for traces of medieval settlement in this 'lowland' part of Cornwall to set beside the much better documented long-house sites of 'upland' Cornwall.

A Norman castle was found close to the stream a little way to the west of Poundstock church. A simple low motte with outer ditch and no obvious bailey, it is similar in scale and form to the motte at nearby Week St Mary.

Later medieval deer parks were identified at Stowe (Kilkhampton), Penhallam (Jacobstow), Bennacott (Boyton) and Hornacott (North Tamerton), and several patches of ridge-and-furrow were also recorded, usually where medieval fields had been colonised by woodland.

Circular medieval cemeteries were recorded at Hill and St Gennys church, both in the same parish, and a number of possible holy wells and medieval chapels were identified, mainly from field-names or local tradition.

The post-medieval period yielded a bewildering array of sites, too many to be even summarised here. They range from cob or brick-built walled gardens to overgrown ha-has, from fully-equipped cider-houses and apple-tree filled orchards to redundant public houses, from stone-lined sheep-dips to field barns, butterwells to well houses, from cliff-top slate quarries in St Gennys to tileworks in North Tamerton, and from a First World War airship station at Langford, Marhamchurch, to the nearby crash-site of a Second World War fighter aircraft at Bowdah in Week St Mary. There are newly recorded cock pits and bowling greens, slipways and sea

defences, non-conformist chapels and meeting houses, smithies, saw mills and cornmills, World War Two pill boxes and tank-traps, and many examples of early 20th century farm machinery (threshing machines, winnowers, chaff-cutters, lathes, saw-benches etc), all still in place in barns and workshops.

In short, the Stratton Hundred RIS has drawn into the record the great wealth of material remains of a busy rural society affected by regional and national events, social trends and economic forces. The potential for further research is now considerable and the record needed for reasoned development control is now in place. The success of the Stratton Hundred RIS has led to RCHME commissioning a similar survey in part of East Wivelshire Hundred, bordering the Tamar river.

Peter Herring

The National Mapping Programme

The Air Photography Unit of the Royal Commission on the Historical Monuments of England (RCHME) has inaugurated an ambitious project, called the National Mapping Programme, to transfer details of archaeological sites from every available aerial photograph onto 1:10,000 maps for the National Archaeological Record. Cornwall and Scilly is one of three pilot areas to be looked at. The first task is to quantify the number, type (oblique or vertical, high or low level), and geographical distribution of the coverage, and to identify where each photo collection is held.

Results of this study have been surprising. At the moment, only 427 sites in the SMR are recorded as discovered from aerial photos (APs), slightly less than 1.5% of sites. However, recent flights carried out by CAU have revealed at least 200 additional sites which when entered into the database will increase this figure to slightly over 2%. Furthermore, the opportunity to scan all the available APs will produce a huge increase in the number of AP sites.

The total number of APs for Cornwall and Scilly at the time of the quantification is 47,492, with photos dating back to 1926; the majority are black and white, with only around 4000 colour photos and a small number of false-colour infra-red prints or slides. Two sources of complete (or almost complete) stereo high-level vertical coverage exist—those taken by the RAF during the late 1940s and those taken for the County Council in 1988. Both of these sets are housed in the County Council Offices in Truro. Other major collections are held by the Ordnance Survey, English China Clays International (which has sponsored regular aerial surveys, but mostly over a fairly restricted geographical range) and the Cornwall Archaeological Unit, whose programme of aerial reconnaissance is adding around 1000 images a year to the collection. It is estimated that the plotting of details from all of these photos will require around 7 person-years to complete—by which time at least ten thousand additional images will have accumulated.

Andrew Young

Bodmin Moor Landscape Assessment

The Unit has developed considerable expertise over the last 15 years at recording, analysing and interpreting historical landscapes, taking a hill, a valley, an island, or a region and piecing together its historical development making archaeological, environmental and documentary evidence dynamic by the application of well-reasoned models of land use and cultural change. It has also produced detailed archaeological management plans for the landscapes studied. Because of this unusually rich experience with historic landscapes, and in the knowledge that the Unit had been closely involved in the extensive Bodmin Moor archaeological surveys of the 1980s (culminating in the recent publication of Vol 1 of the Bodmin Moor survey), the Countryside Commission made close consultation with CAU a requirement of the landscape assessment it had commissioned from the independent company Land Use Consultants (LUC), of the Bodmin Moor part of the Cornwall Area of Outstanding Natural Beauty (AONB).

The intention was to consider the extent to which the character of the present landscape could be seen to be derived from archaeological or historical factors, a theme which the

Countryside Commission, with input from English Heritage, has been pursuing over the past year or two. The Bodmin Moor assessment was regarded, then, as a pilot study into the relationship between land use history and the present day landscape and the Unit was pleased to be involved in such important work.

After discussing the likely appearance of the Moor if people had never settled, farmed or used it as summer grazing grounds, in an attempt to show the fundamental impact of human activity on the landscape in removing forests and accelerating soil deterioration, the Moor was systematically characterised so that every spot could be assigned to one of several historic landscape types, from open moorland, through abandoned prehistoric and medieval fields to post-medieval fields, mines, quarries, reservoirs, airfields and conifer plantations. The highly detailed map produced by this exercise was then simplified by the mapping of fewer zones of repeating historic landscape character, each accompanied by text which outlined the typical history of the zone and range of archaeological features to be expected within it. It was then possible to see at a glance the areas of ancient enclosure (mainly medieval) on the hillslopes and sheltered valleys, the areas of recent enclosure in the more industrialised parts and in the more marginal areas, and the impact of wholly modern features.

The vulnerability, likely forces for change, and basic management recommendations for each zone were incorporated into relevant sections of the LUC report. CAU also commented in detail on the whole of the LUC text, adding much historical or archaeological information or background to virtually every element of the report so that the Bodmin Moor assessment differs markedly from other Countryside Commission landscape assessments in that history and archaeology, which are normally dealt with only in a discrete section, are properly integrated with all other aspects from ecology and land use to the distinctive features and past poetic perceptions of the Moor. The Bodmin Moor assessment was the first stage of a county-wide historic landscape assessment to be carried out in 1994.

Peter Herring

Hayle Town

In 1993 Cornwall Archaeological Unit was commissioned by the Civic Trust and Hayle Town Council to undertake an 'historic audit' of Hayle town. This was to include an assessment and gazetteer entry for every historic building and site within the town. The aim was to bring together for the first time all of Hayle's Listed Buildings, Scheduled Monuments, and historic sites in one report, and to provide Councillors, Planners and the general public with a definitive resource document to ensure that the town's historic importance is properly taken into account in guiding decisions for the future.

The basis for the Historic Audit was the Tithe Map of 1842, the Ordnance Survey 1st and 2nd Edition maps of 1877 and 1908, and the CAU Sites and Monuments Record. Many other documentary sources were consulted, including the Department of the Environment List of Buildings (Greenback) for Hayle. An arbitrary cut-off date of 1914 was set to define the limits of the study. The survey, carried out by John R Smith and Colin Buck, was divided into three parts; the desk-based study of the available maps and documents, the compilation of this information onto base maps for fieldwork, and a systematic examination of all surviving buildings and historic sites in Hayle.

Although Hayle has been recognised by many previous authors as having a unique place in Cornwall's industrial history, the CAU Audit drew together many strands and highlighted several important aspects of the town which have until now been overshadowed by the great foundries of Harvey and Copperhouse. Buildings such as the Brewery, intact but not listed; Riviere Cottage, derelict and at risk; fine terraces of mid-19th century industrial housing; and a strange system of tunnels to the rear of Harveys, purpose unknown. More of Harvey's great Foundry survives than is obvious at first glance, and it has been possible to precisely locate the position of John Harvey's original foundry of 1779.

The CAU Report, '*Hayle Town Survey*', identifies 185 sites of historic importance, including the 97 Listed Buildings and 6 Scheduled Monuments afforded statutory protection by English

Heritage. The individual Gazetteer entries range from a milestone to a complete terrace of houses. Also included are a historical overview of the town and its development, phase maps showing the development of Hayle, and detailed section maps keyed to the Gazetteer.

John Smith.

The buildings of Samson, Isles of Scilly

In 1993 CAU published its assessment of the post-medieval houses and farm buildings on Samson, the largest uninhabited island in the Isle of Scilly. Written by historic buildings consultant, Eric Berry, with Jeanette Ratcliffe of CAU, this report contains the results of a rapid survey of the nineteen surviving buildings carried out during 1992. These buildings represent the final phase in the occupation of the island, from the late 17th century to the mid-19th century when its few remaining inhabitants were evacuated by the proprietor of Scilly, Augustus Smith. The object of the 1992 survey, funded by English Heritage, was to assess the importance of the buildings, establish their original design and function, assess their condition and the threats to their future survival and recommend how they should be consolidated and repaired.

The Samson buildings represent the best opportunity in Scilly (and perhaps nationally) to unravel the story of a post-medieval island community and Samson itself is a rare example of a completely fossilised post-medieval landscape. The buildings are also important for emotional and sentimental reasons, being the physical monuments to the harsh existence endured by many Scillonians during the 17th-19th centuries. A variety of building techniques and design characteristics were found to be displayed in the surviving structures, which can be seen to represent much of the building tradition of Scilly during the 17th-19th centuries. The houses were of one or two-roomed plan and one-and-a-half or two-storeyed. Walls were constructed of granite rubble (dressed pieces reserved for quoins, jambs, lintels and chimneys) bedded in rab mortar and either unpointed, pointed, or lime washed. Most of the buildings were roofed with roped thatch, though a couple were subsequently roofed with slate. Wooden roof and floor structures were supported on stone ledges on the inside of the walls. Lower floors were probably of swept earth or sand. Two of the houses had stone porches, all would have had panelled wooden doors and the windows were predominantly hornless sashes, the openings being small, internally splayed and having ground floor window-seat ledges. Internal features would have included wooden partitions and stone-sided, stone or wooden linteled fireplaces and cupboards (some of which still survive). The non-domestic buildings are of generally similar construction to the houses but two have walls of drystone construction. They represent the remains of barns (one for threshing), animal or potato houses and a gigshed (boathouse).

All the Samson buildings have lost their roofs and in most cases all that remains are their external walls, which vary in height from just above present ground level to their full height. All the buildings have structural problems and some walls are in imminent danger of collapse. The main threats are damage caused by plants growing in the rab mortar of the walls, exposure of wall tops to weather penetration and visitors' feet, lateral pressure on walls caused by fallen masonry and drifted sand, and movement caused by missing stonework and failing lintels.

General principles for archaeological recording and consolidation and repair are laid out in the 1993 report with the emphasis being on intervention only when absolutely necessary and the use of sympathetic and compatible materials. Detailed documentation of this work and the production of a popular guidebook is also recommended. A phased programme of work is proposed, to be carried out over five years by a carefully selected team incorporating archaeological, historic buildings and conservation expertise. The Samson buildings report can be obtained from CAU for £5.50 incl p+p.

Jeanette Ratcliffe

Restormel Castle

In 1992 English Heritage sought to update its presentation of Restormel and requested CAU's help. A research programme was designed to extract as much information about the castle

as was practically possible without undertaking excavation. English Heritage produced a new plan of the entire castle. Research undertaken by CAU took two forms; firstly, a compilation of documentary and pictorial material relating to the castle (by Colin Buck) and secondly (by Nigel Thomas), a survey of earthworks in the castle bailey and a thorough re-examination of the surviving keep buildings (by Nigel Thomas and Eric Berry). A geophysical survey of the bailey was also commissioned, and undertaken by Geophysical Surveys of Bradford, to identify sub-surface features in the bailey.

Several discoveries concerning the bailey were made. It appears to have always retained earth and timber defences; there is no trace of any curtain wall along the defensive banks. This hypothesis is strengthened by the lack of recognition of the bailey in the castle's post-medieval history. The medieval bailey gateway appears to have been situated on the south side adjoining the keep (the present entrance appears to be modern). Beside the keep there is a gap in the defensive line and a slight inturned bank. This location would mean that the bailey gateway, a weak point in the defences, could gain protection from the keep. This pattern is typical of Cornish medieval castles and is visible at Launceston, Trematon and Cardinham. At Restormel additional protection is represented by two arrowloops in the shell keep wall which overlook the approach to the bailey. Medieval and later documents mention buildings in the bailey. The sites of these are represented by banks and platforms and were also picked up as geophysical anomalies.

Inside the keep, re-examination of the structures challenged the guidebook chronology of the site. Hitherto the buildings inside the shell keep have been regarded as 13th century additions to an earlier shell and gatehouse. The gatehouse is undoubtedly the earliest feature and was probably originally attached to an earth/timber ringwork of similar diameter to the later shell. When the shell keep was constructed the gatehouse appears to have been heightened and a drawbridge tower added to its front. The shell wall contains features that directly relate to the interior buildings including large windows, fireplaces/flues, stairs, floor joist holes and roof supports. In all cases these can be demonstrated to be original to the shell. There is similarly no evidence to demonstrate that the chapel was added to the shell (this would have entailed demolishing and partly rebuilding a section of curtain wall), although the chapel has seen many alterations since it was first built. The shell and interior buildings are stylistically of 13th century date and their character suggests status rather than defence was primary to the design. The re-development of the keep from the ringwork changed the role of the castle to a stylish residence and almost certainly represents the period when Restormel was taken over by the Earls of Cornwall.

Nigel Thomas

Pendennis Castle

Implementation of CAU proposals for the future management of Pendennis Headland (see *Cornish Archaeology* 32, 167-8) began with an archaeological evaluation, funded by Carrick District Council and English Heritage and undertaken with the purpose of determining the location and character of the 17th century Hornworks, the forward defences of Pendennis Castle, with a view to producing recommendations for their reconstruction. The evaluation demonstrated that although the earthwork fortifications had been levelled in the earlier part of the 20th century the outline of the former defences, including the bastions and central ravelin, was marked by deep rock-cut ditches.

Comparison of the fieldwork results with Christian Lilly's 1715 survey of the Castle and headland indicated that refurbishment of the Civil War defences during the Napoleonic Wars involved re-excavation of the ditches and rebuilding of the western traverse on a strategically superior alignment. The new defences are shown on the plan to accompany Lt. General Mercer's Inspectional Report of 1811. CAU recommended that the ramparts, bastions and ravelin should be represented by low earthen banks with gently rounded tops and battered sides. The effect of the completed reconstruction work will be that of a grassy, slightly eroded and ruined ancient earthwork re-formed on the line of the Hornworks established by the evaluation.

English Heritage also commissioned Geophysical Surveys of Bradford, through CAU, to carry out magnetic and resistance surveys encompassing most of the interior of the Elizabethan fort, which is open and lawned. The complexity of the site was reflected in the results. Among the features detected were the possible foundations of earlier buildings, rubble demolition or levelling spreads and evidence of occupation in the form of kilns, ovens and/or metalworking activity. Some linear responses were thought to represent open ditches or drainage channels which could even pre-date the construction of the fort.

Other work undertaken by CAU at Pendennis Castle for English Heritage included liaison with Eric Berry (Historic Buildings Consultant) and English Heritage staff in the recording and repair of 19th century panelwork in the Governor's quarters and a photographic survey of old plasterwork and interior details revealed during work in the guardroom quarters. A watching brief held during trenching operations between the Field Train Shed and battery observation post showed that the original bank surrounding the Henrician keep had been taken down, perhaps in the Elizabethan period, to make way for the new parapet wall. An important discovery was that the Elizabethan parapet wall actually continued under a modern bank which had been raised to disguise World War 2 buildings. The part of the Elizabethan wall cut by the service trench was carefully recorded and rebuilt. A second watching brief during trenching work in the barrack block area revealed a variety of cables and water pipes but the ground had been considerably disturbed by previous work and there were no other features of archaeological importance.

Charles Johns

Seleggan Tin Smelter Evaluation

In 1993 CAU undertook an archaeological assessment of a tin smelter site at Seleggan, near Redruth, as part of an ongoing programme of work for Kerrier District Council's Derelict Land Reclamation works. In that assessment recommendations were made for a more detailed archaeological evaluation before reclamation works commenced.

The smelter at Seleggan was the last to operate in Cornwall (closing in 1931), and since that date the buildings have almost all been demolished but the site has not been re-used and is currently derelict. Kerrier District Council (KDC) intend to reclaim and landscape the site, building a car park at the top end for visitors to the Flat Lode mining area. The assessment showed that there was some potential on various parts of the site for below ground remains to survive where debris and rubble had been spread down slope, thus cloaking the lower parts of demolished structures.

The archaeological evaluation comprised a site survey at a scale of 1:250, the drawing of a section exposed through part of the site, and the opening and recording of five investigatory trenches. The survey helped to identify, record and explain many of the present-day remains, including three chimneys, the end wall of a large reservoir pond, the ruins of a Brunton calciner and its rear yard, and a small but complex area of brick platforms and walls in the overgrown north-west corner of the smelter. In the centre of the study area a deep cut had been made in the recent past, exposing a section through the central area which was photographed and drawn as a detailed record. Exposed in the section were several floors and walls belonging to the 1920s phase of the site.

The investigatory trenches all produced interesting results, and confirmed the presence of complex and well preserved remains throughout the lower (western) part of the site. As suspected, demolition in this area had not been complete, and structures survive in places to a height of 2 metres but buried below later infill. Noteworthy was the discovery of the complete floor of a tin dressing mill, which had been re-processing tin slag after the smelter closed. A massive granite block structure was uncovered and recorded which was probably the base of a crushing plant for slag.

CAU are at present advising Kerrier District Council on the design and implementation of their Land Reclamation Scheme in the light of the evaluation report.

John Smith

Geevor

In the long history of Cornwall, the closure of Geevor Mine in 1991 may appear as little more than a footnote—one more spasm in the death throes of an industry which had been in decline since the late 19th century. It was a particularly important site however—not only to the local community, for which it had been the focal point of daily life for centuries, but also to the archaeologists—since this mine which had probably been at work for five centuries had, in place of the romantic but empty ruins found elsewhere in Cornwall, extensive buildings containing intact machinery.

Over the past three years, Cornwall Archaeological Unit has been involved in an ambitious Cornwall County Council-led project to rescue the site from demolition and to develop it as a museum of mining history. The new visitor centre opened to the public in the summer of 1993, but landscape engineering work has been going on over the past two years, and the associated archaeological watching briefs have provided a fascinating glimpse of aspects of the long history of the mine.

A major programme of works from March to July 1994 concentrated primarily on public safety works—finding and capping many of the buried mine shafts across the site, making safe areas of shallow stoping that lay beneath the area proposed as a car park, undertaking emergency repairs to structures whose age and exposure to weather were threatening their survival, repairing the mine surface water drainage system to reduce the erosion of archaeological features and, rather contentiously as it turned out, finding a method to make the area of the former Levant arsenic labyrinths safe for public access. CAU Field Officer Adam Sharpe worked closely with staff on site throughout to ensure that disturbance to mining features was minimised and that a record was made where any were exposed.

Repairs to two chimneys, the water-powered stamps building on the cliff edge, and the Levant arsenic calciners, have given these important and very visible structures a new lease of life, whilst the rehabilitation of the drainage system should have averted the collapse of the massive revetting wall surrounding Trewellard Zawn. Were this wall to collapse, the main drainage adit would almost certainly become blocked, and the development of underground tours in the mine would probably be made impossible. Work to repair existing areas of damage to the wall is planned for a second phase of works. The public hazard presented by high arsenic levels on the Levant labyrinths has been tackled—though at a cost: burial was the only acceptable engineering solution, and it is to be hoped that in the future the contamination can be neutralised and the surviving foundations re-exposed. Unexpectedly, pieces of worked flint turned up during the survey of this part of the site—evidence, albeit circumstantial, for the long history of occupation in this area.

The mine shaft capping made up the bulk of the work. Eleven shafts were shown on archive maps and plans, but in the event twenty-six were found and capped. Most were probably originally sunk in the 18th or early 19th century when the Geevor sett was worked as a series of small and relatively unsuccessful mines exploiting the lode outcrops. One or two had remained in use until the end of the century as footway accesses or airways, and one, Geevor Shaft, had all the appearance of being prepared for a beam engine, though none was ever recorded as being installed. In this century less than half a dozen shafts were necessary, and in the last years of the mine only one on the main site—Victory Shaft. Excavated evidence made it clear, however, that the working of the mine via these shafts was a relatively late phase in the development of the site, a long period of working via stopes and closely-set pits cut on the lode outcrops having preceded them. Limited access to this shallow mining was possible during the engineering works, and many areas were found to be entirely pick-cut, without any evidence for drilling, a good indicator of antiquity. Elsewhere nearby, trenching revealed the site of an early tin streamworks in an infilled shallow valley on the east of the site.

Just how long mining had been carried on at Geevor became apparent when a series of small, sub-surface chambers were discovered connected to the shallow stopes. Although fragments of shoe leather and pieces of clay pipe from upper floor spreads showed that the chambers had been used during the 19th century, the discovery of part of a 15th century pottery bowl

showed that they, like the shallow stopes to which they connected, were originally late medieval features. Although they had functioned as underground lunch houses and stores, they had probably originally been created during a phase of shallow prospecting, developing from shallow tunnels cut below the rab across the top of the bedrock in search of tin lodes. One of these chambers has now been fully excavated, and once a display to reconstruct its interior has been completed, will be displayed to the public. A second, and more complex series of chambers has been temporarily sealed up, pending funds for full-scale archaeological excavation.

Adam Sharpe

Indian Queens Bypass—The A30 Project

The last issue of *Cornish Archaeology* reported on two excavations, one of a Bronze Age barrow and the other of a Romano-Cornish Round, both part of an extensive programme of archaeological investigations along the route of the new Indian Queens bypass. At the time of writing the construction of the bypass has been underway for well over a year, and the final phase of fieldwork has now been completed; the team have been closely monitoring the road-building operations and by doing so have added further considerable information to the growing body of data we now have for this area. This work has been funded by English Heritage, the Dept of Transport and South Western Electricity Plc.

The A30 project was conceived as a landscape study in the broadest sense and aimed to use the opportunity of the road scheme to examine the archaeology and history of an area which had not received much attention from archaeologists before. The bypass itself avoids modern settlement but by doing so has revealed a much earlier and far richer local history composed of ancient landscapes. Over a period of 19 months of fieldwork six prehistoric, four medieval and three post-medieval sites were examined by survey and excavation. In addition two peat deposits were sampled for palaeo-environmental analysis, over 140 hedge boundaries were recorded in section and a number of smaller isolated features and finds were recorded; for many of these no direct dating evidence survived. Analysis of the vast corpus of data amassed during this project will permit us to chart in some detail the historical evolution of a tract of Cornish landscape and allow close encounters with past forgotten landscapes. (See p 224-5 for a summary of the excavation at Penhale Moor).

Jacqueline Nowakowski

St Helen's, Isles of Scilly

During June 1993 CAU and British Trust for Conservation Volunteers carried out work on the small uninhabited island of St Helen's at an early Christian hermitage thought to have been founded around the 8th-10th centuries AD by Saint Elidius. For several hundred years after St Elidius' death pilgrims came to the site to revere his holy remains and the hermitage thrived until the 15th century but was probably in ruins before the Reformation. This Scheduled Monument consists of the stone-walled remains of a chapel, a church, four living cells and an enclosure wall. Partially excavated during the 1950s, these structures had since become largely obscured by dense bracken, brambles and gorse. In addition an excavation spoil heap filled most of the west end of the church and still-open excavation trenches posed a danger to visitors to the site. Though CAU and English Heritage were already aware of the site's management problems, the initiative for the 1993 project came from the Anglican Church in Scilly, which has for the last 25 years revived the annual pilgrimage to St Helen's. The church was keen to see these nationally important early Christian remains made more accessible and understandable.

As well as scrub clearance, the 1993 work involved removing the spoil heap from the church interior, backfilling excavation trenches, re-exposing internal stonework uncovered during the original excavation of the buildings, making a detailed record of the archaeological remains and the conservation work itself, and erecting a low key information panel. Co-funded by English Heritage and the Church, this work was completed in time for the 1993 pilgrimage which had a record attendance of around 300. Vegetation on the site will be kept down by

the Isles of Scilly Environmental Trust which leases St Helen's from the Duchy of Cornwall. New information about the site was gained as a result of the 1993 recording work, in terms not only of its survival and condition, but also its actual character. We now know for example that the hermitage lies within the remains of an earlier, prehistoric field system, the full extent of which has yet to be identified. A full report of these new discoveries and the conservation work carried out is contained in CAU's publication 'Fieldwork in Scilly July 1993', (£5.00 inc. p+p).

Jeanette Ratcliffe

A prehistoric week at Chysauster

There has been an upsurge of interest in the educational value of reconstructing prehistoric settlements and experimenting with simple technologies amongst Cornwall's teachers. During midsummer week of 1993 the Advisory Teacher for Outdoor Education, Roger Butts, obtained English Heritage's permission to re-roof one of the houses at the Romano-British courtyard house village at Chysauster, north of Penzance, and to arrange a week of practical activities for groups of schoolchildren on this famous site.

Archaeological information and support was supplied by CAU, and a grant from English Heritage's Education Service enabled the necessary raw materials to be purchased, and various experts to be recruited, and once again, the Woods from Cornwall Celtic Village at Saveock near Chacewater brought their blend of enthusiasm and practical expertise to the project. The event was planned as the central experience in a programme of cross-curricular activities which extended throughout the term for the schools involved. For example, reeds for the thatch were cut from a local RSPB reserve, benefitting the reserve and giving the children practical experience of conservation management of wetlands, and a small round house was roofed and thatched by the children. Each person attending also made a bowl and spoon to use on site.

Groups of schoolchildren spent 2½ days each on site; four small groups, totalling almost 60, from local primary schools for the early part of the week, and a single large group from St Ives Secondary School for the latter part. They camped in a nearby field during their stay, but while on site all participants wore prehistoric costumes which they had made in class. Breakfasts and evening meals were prepared for them, but lunch and snacks were prepared and eaten on site in prehistoric style. Pupils cast pewter brooches, pins and pendants using soft cuttlefish bones for moulds incised with traditional celtic designs. Groups of children visited a neighbouring farm to milk the goats and then made butter, cheese and cream. A fish smoker visited the site and produced a delicious supper; the flint knapper demonstrated how to make knives and saws and left a flint tool kit which proved useful for lots of subsequent activities, and a local artist taught the children how to make pigments from locally gathered ingredients and brushes from chewed willow twigs.

The site was open to the public during the week and many visitors were fascinated to watch, and some to join in with, the activities going on around the village. English Heritage's site custodian received many very encouraging comments about the presence of prehistoric costumed children and adults going about their everyday prehistoric lives.

Steve Hartgroves

Reviews

BODMIN MOOR—AN ARCHAEOLOGICAL SURVEY. VOLUME 1: THE HUMAN LANDSCAPE TO c.1800 by Nicholas Johnson and Peter Rose. *Published by:* English Heritage, The Royal Commission on Historical Monuments for England, and Cornwall Archaeological Unit, 1994 (Cornwall & London), *Price:* £45; softback 298 × 210mm, xv + 131pp, 76 figs incl. 14 half-tone aerial photos, 9 tables, plus a wallet containing 3 large scale multi-colour maps and 6 × 2-colour area plans. ISBN 1 85074 3819 ISSN 0953 3796.

A stunning false-colour aerial image on the cover of this long-awaited publication shows Stowe's Pound and the Cheesewring Quarry, and induces expectation of riches contained within it. The determined reader will not be disappointed.

This is the first of two volumes of which the second will cover 'industrial' features. It is the result of six years of desk and field survey (1979-1985), followed by 9 years of publication gestation, altogether the product of a unique collaboration between the three key partners. Pioneer methods of air photo transcription were tested for nearly 200 square kilometres of the moor (most of which were systematically checked in the field), with the addition of detailed ground survey (at 1:1000) of 15 kilometre squares.

The work was prompted by a strong sense of inadequacy of archaeological understanding plus a conservation imperative—since the early 19th century Bodmin Moor had lost more than half its open moorland, and modern pressures of reservoirs, afforestation and agricultural improvement all threatened to reduce the remaining portions even further.

The book is attractively presented in a clear and fresh format, well-illustrated with air photographs, plans and maps, though the absence of any ground shots is a pity, as a few would have helped orientate the non-specialist pedestrian observer. All cartography and drawings are to a high standard. The volume must be a cataloguer's nightmare as it is both HBMC Archaeological Report 24 and RCHME Supplementary Series No. 11!

Since its inception, I have been constantly impressed with the standard of recording on the Cornwall Sites and Monuments Register. This volume is the first major test of how that data can be presented in manageable form for a large area. In general terms, it is a considerable success, combining summary maps and text with detailed description of specific sites. Fifty-two pages are devoted to the Prehistoric Landscape, and 39 to the Historic Landscape (including buildings and settlements up to c. AD 1800). Two splendid maps of the whole survey area, at a scale of 1:25000 (2½ inches to the mile), complement this text and are included in the wallet. On account of their size this seems reasonable enough, but most of the smaller figures in the wallet could surely have been bound into the volume, for security if no other reason? Maps 1 and 2 should have been clearly labelled as such on their printed sides.

Students of fieldwork will find the chapter (pp 8-23) on Survey Methodology especially interesting and useful. The importance of fieldwork complementing air photo transcription is quite rightly stressed—for example, a stone row and stone circle on Leskernick Hill were discovered only on the ground.

The results, even in cold statistical terms, are remarkable. Writing in his book *Bodmin Moor*, published in 1975, E C Axford noted (p59) that the OS map 'records close on 100 tumuli and nearly 30 hut settlements but even this total may be an underestimate'. How right he was!—some 1600 hut circles have now been recorded and the known population of cairns has been more than tripled. Several categories of site such as stone rows (8) and long cairns (4) have been recorded for the first time on Bodmin Moor. Some 2000 clearance cairns, hundreds of kilometres of field boundaries, with hundreds of hectares of ridge and furrow, have all been accurately surveyed. Most importantly, the land has at last been treated as a whole. The

prehistoric summary map (Map 1) still shows some surprisingly blank areas such as Shallow Water Common (not named) at SX 150 765, which deserves explanation.

Prehistoric settlement types and boundaries are described in detail. If anyone doubted the astonishing diversity of architectural forms of prehistoric cairns, they should study Figures 23-27 which show examples in cross-section and in plan. These, and Figures 21 and 22 of stone circles and stone rows, and Figure 34 of hut types, are specially useful. For the historic period, Figure 54, giving plans of ten longhouses is equally good (though there is no note to tell the reader that diagram 11 on the figure is not explained in the text until p88). The term 'mowhay' [rick enclosure], which is not indexed, should also have been explained (p93).

Cultivation, boundary types and field patterns of the medieval and post-medieval periods are covered (pp 103-113) in a rather muddled sequence and analysis. It might have been better to have started with a discussion of the evidence for openfields. The confusion is probably due to multiple authorship—there is a detailed and interesting section on the Brown Willy medieval stripfield system by Peter Herring, yet 'land' [ie strip] is the term used earlier in the text but which is never explained to the reader, nor indexed. Surprisingly, some of the narrowest ridge and furrow is placed within a medieval context (p 103) and some of the broadest strips assigned a post-medieval date (p106).

Only four minor typographical errors were spotted, the most significant being 'recurring' for 'occurring' (p106). More seriously, the explanation of what is shown in black or red on Map 2 has been confused in the text (p xiv, especially para 1 under 'Archaeological Sources'), though it is correctly stated on the Map key itself.

Sometimes the language used is less than clear, as when describing part of the outer stone banks of Roughtor as "suggestive of a dual carriageway entrance", or the mention of 'structural simplifications' in the caption to Figure 35, but the book is generally full of sound descriptive matter, of great interest.

A curious omission from this volume is any mention of turf (peat)-cutting, apart from minimal references to, and illustrations of, 'peat stack platforms' (pp5, 6 and 14, Figs 49 and 74). No description of these platforms is given and, apart from a single reference to turbarry (p103), which is unindexed, no mention is made of this vital activity for both domestic and industrial use. Most surprisingly, under the interesting discussion on 'transhumance huts' (p83) allowance is made for use by herdsmen, tinnerns and, curiously, 'huntsmen', but not by turfcutters or charcoal makers.

Although trackways are shown on Figure 66, and crosses and hollow-ways are mentioned (p103) in connection with routes, fords are notably absent from map or text, yet they are features which leave distinct field evidence, especially in the approaches to them. Certainly on Dartmoor, the mapping of fords will provide important evidence of particular and ancient routes, and it would be surprising if Bodmin Moor was any different.

We can be confident that the companion volume on 'industrial' remains will be equally impressive, but the lack of integration between the so-called 'industrial' landscape and the so-called 'human' landscape of the present volume is regrettable. However, it should be remembered that less than fifteen years ago it was official policy of the Directorate of Ancient Monuments and Historic Buildings (DoE) not even to recognise tinworks as archaeology, so progress has been made!

The activities of tinnerns are occasionally referred to, but it is a pity that the term 'tinning' is used (p76) instead of the historically accurate 'tinworking'. Similarly the clumsy 'a streamworks' (pp80 and 98) has no validity—it must be either 'a streamwork' or two or more 'streamworks'.

Although some brave attempts are made to suggest broad chronological developments on Bodmin Moor, the reader should not expect too much in this respect. However, due attention is given to instances of chronological 'depth' at several sites. At Stannon it is even suggested (p66) that fields might predate a stone circle. The broad placing of small huts within the first millennium BC (p74) is specially interesting, not least because on Dartmoor it is the larger huts that are generally assumed to be later in date. The assignment of some corn-drying kilns to the post-medieval period (p90) is also intriguing.

Many fruitful comparisons are bound to be made with Dartmoor where open moorland is four times as extensive as on Bodmin, and where the archaeology is equally rich. There are many differences between the two areas which have yet to be explained. For example, Bodmin generally lacks the prehistoric enclosed hut groups known as 'pounds' that are commonplace on Dartmoor. Neither does it have extensive contour or watershed reaves. Dartmoor, of course, lacks the Cornish-English placename dichotomy.

Another comparison inevitably to be made is with Jeremy Butler's four-volume *Dartmoor Atlas of Antiquities* (Devon Books 1991-1994), the set of which (minus a fifth summary volume still to appear) costs only £3.60 more than the Bodmin volume. His single-handed achievement, starting at much the same time as the Bodmin Survey, has been to provide the first exclusively archaeological maps of the whole of the moorland region of Dartmoor, based on his own aerial photography, his own fieldwork and his own text. Butler's work is accurately descriptive, and very comprehensive, with many newly published plans of individual features. He has, at the very least, demonstrated an alternative method of presentation.

The high cover price of the Bodmin survey must reflect a large budget, yet nowhere is the cost of the project given, which is a pity, as public money has been used. Indeed, apart from a platitude about the survey providing material 'for guidebooks, leaflets, and trail guides' (p5) there is no mention of the general public, except in the limited context of the 'landowner'.

The last three pages of text (pp 115-118) purport to discuss scheduling, management and presentation. Sadly, they are merely a depressing memorial to an outdated concept of management of archaeology seen through the restrictive legislative haze of English Heritage, though Rob Iles's brief addendum does something to redress the balance.

Landscape protection (and use) must ultimately depend on local communities developing a proprietorial sense of responsibility to what they perceive as their collective territory recognised as having meaning relevant to their lives. The occupants of the thirteen parishes that make up Bodmin Moor must be listened to to devise the way forward.

This impressive and welcome volume should help that process. It raises the human profile of Bodmin Moor admirably, restoring a sense of cultural depth to the land as a whole. Let us hope that every parish council has been provided with a copy. It will be interesting to see how they and others respond.

Tom Greeves
Tavistock

MOTHER AND SUN, THE CORNISH FOGOU by Ian M Cooke, ISBN 0-9512371-6-0, 352 pages, 221 figures. Published by Men-an-tol Studio, Bosullow, Penzance. Hb, £38, Limited edition of 1000

A beautiful artefact, the fruit of Ian Cooke's obsession with these Iron Age subterranean structures, this valuable addition to the library of substantial works on West Cornwall's prehistory is not easy to review as the book's subject extends beyond the immediate purpose, function and importance of fogous to an exploration of the relationship between 'professional' and 'alternative' archaeology.

Cooke, not surprisingly, draws the divide quite sharply as each camp has encouraged its alienation from the other, with some academics dismissing as inconsequential ramblings the work of the so-called 'lunatic fringe', and alternative archaeologists caricaturing professionals as unimaginative people concerned only with 'facts'. The separation has particular significance in West Penwith as there are probably more readers of the local *Earth Mysteries* journal, *Meyn Mamvro*, than of *Cornish Archaeology*. Cooke attempts conciliation in a preface stating that he believes "archaeological fact and 'alternative' observations can be of mutual benefit in producing a more realistic discussion [of fogous] than either one on its own". Unfortunately, this confirmation of the divide only reinforces it, and throughout the book 'professional' archaeologists are portrayed as valuable compilers of information lacking the insights which have provided him with his most valuable ideas. Evelyn Clark, author of the only other book

devoted to fogous, is even omitted from Ian Cooke's short biographies of archaeological 'trail-blazers'.

The divide is, of course, false as anyone who studies people, past or present, through their material culture, is simply an archaeologist. Just as every archaeologist, like every historian, is different—with different experiences, values, ideologies, prejudices, degrees of rationalism and intellectual rigour—so there are also no proper ways of doing archaeology, but an archaeologist whose recording, manipulation, interpretation and presentation of information does not persuade others, fails. *Mother and Sun* provides, from this reviewer's point of view, excellent instances of both successful and unsuccessful arguments and should neither be considered a definitive study of fogous nor rejected as wholly unacceptable to those working from orthodox models of later prehistory in Cornwall.

Ian Cooke has undertaken a great deal of research, including an apparently exhaustive trawl through previous literature and accessible archives. Members of the Archaeological Society—notably the late Vivien Russell—who produced the Parish Checklists and set him on the trail of many of these sources are generously acknowledged. One of the most valuable features of the book is the reproduction of so many antiquarian plans, drawings and photographs either never previously published or now largely inaccessible.

Most are found within the lengthy gazetteer, in which detailed reviews of previous observations and interpretations of each alleged fogou—from type-site to post-medieval store—are followed by Cooke's own descriptions. Much of this is exciting stuff (the recounting of W C Borlase's youthful explorations at Carn Euny is spectacular) and needs to be; these entries are meant to be read carefully, from beginning to end, Ian Cooke's arguments concerning function having their roots here. Each entry has some significance, even if it is only in removing an alleged fogou from the corpus of sites analysed in later chapters.

The gazetteer can, of course, also be used as a basic data source for future workers. Its primary role in providing supporting evidence for one archaeologist's interpretation must, however, be kept firmly in mind; this, rather than systematic or even objective presentation of information, has determined its layout and form. The classification by Cooke of alleged fogous as 'definite', 'possible', or 'unlikely', for example, is useful in that it separates out, largely on the basis of quality of evidence, those eleven sites which are most significant in the later discursive chapters and allows them to be described and discussed in greater detail. Its value is, however, undermined by Cooke's definition of a fogou. In some respects this is very precise, notably in his insistence that proper fogous have their northern ends orientated towards specific points in either the north-west or the north-east. These orientations, critical in Cooke's discussion of function, lead to some alleged fogous being given surprisingly high status in the gazetteer (eg Boskednan and Rosemorran) while others may be under-valued because their orientations do not fit (notably the recently re-discovered Bodean-Veor). In other respects Cooke's definition is surprisingly vague; fogous having a "broad design", with "no two structures exactly alike". Besides making comprehensive interpretations of date and function less secure, this allows Cooke to deal with some problematic 'possible' sites fairly uncritically. For example, the identification as a fogou of the tightly curving structure excavated at Porthmeor, Zennor, by Lt-Col Hirst could have been more rigorously questioned. It may as reasonably be a variation on the 'long room' of courtyard houses as a unique variation on the fogou, being the only one wholly above-ground. In fact, its intimate relationship with an accretive-type courtyard house makes the former seem particularly likely.

The need for accurate large-scale measured plans, elevation drawings and cross-sections of all surviving alleged sites, as well as plans and geophysical surveys of the areas immediately around them, becomes very clear when working through the gazetteer (where adequate records to support Cooke's comments are not always available). Indeed for such important, and vulnerable, monuments, the present record is, with notable exceptions, surprisingly poor.

Moving from the gazetteer through the two concluding sections, Cooke gradually pulls together a number of strands of 'additional evidence'—much of it useful analogy or convenient generalisation, some of it contentious observation—to support his preferred interpretation of

fogous as ritual structures. More specifically, they were carefully constructed cult centres in which, at midsummer each year, the male sun symbolically entered a 'cave' representing the Earth Goddess. This sympathetic magic was intended to appease the spirits of the earth for the supposed environmental degradation resulting from intensified mineral extraction.

In this scheme, the orientation of the northern ends of fogous is of crucial importance, but the presentation of data by Cooke is a little problematic. Although it is stated that all eleven 'definite' fogous align with either sunrise or sunset at midsummer, only five have been tested in the field and each of those—Porthmeor, Carn Euny, Trewardreva, Chysauster and Pendeen—has an uncertain northern end. There is scant description of Cooke's method: nothing on how far he is prepared to tolerate deviation from perfect alignment with midsummer sunrise or sunset on skylines, no mention of the difficulty in determining intended alignment of passages which curve and whose ends are not precisely known; and no discussion about whether the fact that most fogous' northern ends were originally either blocked or underground, with no known access for the sunlight, represents a significant negative argument. A circular argument is developed as Cooke notes that no fogou classified by him as definite or 'confirmed' "is known not to conform to this arrangement", ie the orientation, when it is recalled that he uses orientation as a key defining feature of fogous. In fact the main passage at Carn Euny was shown by the late Patricia Christie's excavations to have been secondary to an earlier one, which ran north-northwest to the Round Chamber and was therefore not on the preferred orientation.

Nevertheless Ian Cooke does seem to have observed a previously un-noticed trend in the orientation of most fogous' main passages. It is debatable whether it means as much as he suggests—that the broad correlation of fogou alignment not only with midsummer solar events but also with dominant mineral lode orientation indicates concern over enduring mining success and completes a magical circle, 'cave-sun-heat-metal-earth-cave'. Besides not discussing the likelihood of such a small sample sharing a similar orientation by chance, there is no consideration of other, perhaps more mundane, sources of any established trend. For example, most contemporary round houses had their entrances between southwest and southeast (to catch the sun and avoid wind and rain) and people will have become accustomed to entering constructed, enclosed spaces, by moving towards the northeast or northwest. The orientations of fogous' main passages, like those of earlier prehistoric entrance graves, may simply have been echoing such accepted, even natural directions of movement.

It is not possible in a short review to comment on all of Cooke's 'additional evidence', and the necessary emphasis here on the more problematic is perhaps unfortunate. The drawing together of folklore associated with fogous is particularly valuable, and it is certainly possible to follow Cooke through the fog created by the discretion of 19th century collectors to see early modern communities associating local fogous with evil spirits and witches' gatherings. Whether this can then be translated into a folk memory of fogous being "an abode of the Goddess", where "unpredictable 'little people' could be contacted and entry to the spirit world achieved" is another matter. There will, of course, have been contemporary local people, not least smugglers, who will have had an interest in keeping children and others away from such convenient hiding-places. Recent investigations—the recording of radiation or 'energy' anomalies at three fogous, and recurring images in dreams by different people in Carn Euny fogou—are certainly intriguing, but need not be related to the original purpose of the fogous themselves.

There are more concrete areas of research, closer to the ground and closer to the communities who built and used fogous, where energy and resources might be concentrated. Dating evidence from early excavations at sites like Treveneague, Porthmeor, Lower Boscaswell and Boleigh could be re-assessed by pottery specialists. More thought could also be given to the landscape context of fogous. It is of limited value to note that most in West Penwith are found either near or within Iron Age settlements which later became courtyard house hamlets if, as Cooke follows Christie in maintaining, most fogous were re-used in the Romano-British period after having one or both ends opened; making their original tiny 'creep' entrances redundant and,

most significantly, making the sites visible to antiquarians and archaeologists. As creep passages can easily be obscured and surface traces of un-modified fogous therefore lost, we cannot be sure that some do not lie within those few Iron Age settlements not re-used in the Romano-British period—and neither can we be sure that they do not also exist in some or all of the hillforts and cliff castles of West Cornwall. The attribution by Cooke of higher status to settlements possessing a fogou is based on the assumption that courtyard houses were themselves high status dwellings, when all the evidence points to them being simply the normal homes of Romano-British farming households in West Penwith. There is little discussion of either the likely original population of fogous or their original distribution pattern, beyond noting their confinement to a likely tribal area centred in West Penwith but briefly expanding to incorporate part of the Lizard peninsula. Even their locations within settlements, whether intimately associated with the domestic or secular world, or peripheral, even separate, is not discussed. Instead Cooke simply notes that fogous are found either in ‘habitation’ sites or within ‘earthworks’ which, with ambiguous and incomplete evidence, he distinguishes from rounds. Most of his efforts are concentrated on using the form of fogous to convince readers that they are ritual structures.

By using analogies ranging from particular interpretations of Neolithic passage graves to descriptions of the use of Christian hermitages and Pueblo Indians’ underground ‘kivas’, and combining them with modern pre-occupations (eg ‘Humankind is a womb-haunted species’) in his development of an intricate model of a particular ritual behaviour, Cooke risks alienating many who would certainly be willing to accept that fogous were indeed not built as stores or refuges but as ritual structures. The simpler, and stronger, analogy—made first by Patricia Christie in relation to the fogou at Carn Euny, and reiterated here—to the medieval village churches, built with such care and effort relative to the dwellings of the parishioners, has convinced more archaeologists than Cooke suggests.

Three of the four archaeologists who have given the function of fogous the closest and most detailed thought, Clark, Christie and Cooke, have emphasised their possible ritual function. The other, Rachel Maclean, however, rejected ritual largely through comparison with known Celtic ritual sites elsewhere in Britain and Europe and through reference to classical texts. She also dismantled the argument for their use as food stores before resurrecting, quite persuasively, the idea that fogous were refuges from raiding parties. Cooke rejects her thesis, but if it appears foolish to risk being smoked out or entombed, how much more so might it be to make no provision for security? He suggests no other possible functions, or combinations of functions. Even if storage of food is now considered unlikely, other materials, notably tin—of great value to local communities, and probably only traded at particular times of the year—may have been placed in secure structures which could also have been used in certain rituals and, *in extremis*, have served as refuges.

The model of Iron Age society in West Cornwall developed by Cooke in his concluding chapter has some surprising emphases—the economic and political influence of the Veneti; damage to farmland occasioned by their own tinning activities (the latter based on a throw-away comment made in the 17th century by Richard Carew about the effects of tin-streaming on low-lying meadows).

There is a sense of disappointment that the interest and excitement of this book might have been greater had the discussion of function been dealt with more briefly and sharply in an introductory section. Ian Cooke’s own preferred interpretation of fogous, and consideration of its implications for our understanding of Iron Age society and the people who comprised it deserve more of his prodigious energy and imagination.

In spite of the sprinklings of cold water in this review, *Mother and Sun* is a book to be warmly welcomed and closely read by all interested in the development of West Cornwall. The study of fogous will never be the same again.

Peter Herring

AND SHALL THESE MUTE STONES SPEAK? POST-ROMAN INSCRIPTIONS IN WESTERN BRITAIN by Charles Thomas, University of Wales Press, 1994, pp353. ISBN 0-7083-1160-1

Some 133 Early Christian inscribed stones (about 55 in the south-western peninsula and about 78 in southwest and south-central Wales) survive in western Britain: together these constitute essentially the only body of *written* evidence which is unquestionably contemporary with the society which it describes. In his new book, Charles Thomas takes the stones as his starting point, and makes their analysis the heart and soul of his work. But this is not a formal (ie boring) discussion of the material in a stone-by-stone format. The book is cunningly organised around the two complementary axes of time and space.

Chronologically we are offered not crude temporal chunks or periods defined by their limiting centuries, but 'horizons' which embrace broad cultural themes like the advent of Christianity, its early establishment, and the generation of native history. These have the advantage of flexibility, because the horizons can (and did) happen in different places and different times. Spatially, after two introductory chapters, the book describes a rough circle, taken clockwise, in which chapters on the Irish inscriptions and settlements in Atlantic Britain are followed by those on Demetia (southwest Wales) and on Brycheiniog (south central Wales), and these, by way of Lundy, with seven chapters on Dumnonia (southwest Britain). The beauty of this double structure is that it reflects and illumines the cultural progression which Thomas sets out, especially where the inscribed stones are concerned. We are shown the original Irish form taken by immigrants to Demetia, the mixed, but (broadly) Christian nature of the post-Roman kingdom of Demetia as exemplified in its inscriptions, the transference of what we might call 'the culture of the stones' with immigrants from southwest Wales to Dumnonia and the native response. Thomas makes a powerful case in support of this broad model, one which carries such conviction that it is unlikely ever to be seriously challenged or undermined.

The book is the second in the series of Dalrymple Archaeological Monographs, published in association with the Glasgow Archaeological Society and the University of Glasgow. The argument is supported by Preliminary Notes discussing the sources of the inscriptions and their reproduction in print, an Appendix giving a hand-list and a concordance of the Dumnonian inscriptions, References and Bibliography, and four indices. There are 114 illustrations, and each chapter has abundant, and very useful, chapter notes. All this, together with the very full and detailed main text, demonstrates Thomas's profound understanding and unrivalled experience of the matters in hand.

Two points might be made, one general and the other specific. In general (a criticism that will not much agitate the readers of this journal), we hear relatively little about Dumnonia east of the Tamar. There is an interesting discussion about the inscribed stones in southwest Devon, but very little about the (admittedly sparse) stones further east. Thomas's avowed concentration on the inscribed stones allows him to omit detailed consideration of the earliest Christian presence in sites like Exeter, but it might have been interesting to have seen a development of the theme of a 'cultural frontier' between western and eastern Britain, a model with equal application to both the Dumnonian and Demetian peninsulas.

Specifically, amongst much absorbing detail, Thomas suggests that Brychan, the eponymous founder of the kingdom of Brycheiniog, was originally buried in the central cist grave in the Beacon Hill site on Lundy, and from thence translated to the church in the monastic complex at Stoke St Nectan near the northwest coast of Devon. This sequence of events depends largely upon the identification of a group of place names which appear in a nexus of texts centring upon the traditions of Brychan and his kingdom. Thomas's discussion opens up some interesting vistas, particularly perhaps the identification of 'The Wood' to which the texts refer, with Lanivet (meaning, roughly, the Christian enclosure in the Sacred Wood), but as he himself says (p 162), older suggested identifications have included places in the Isle of Man, Anglesey

and southeast Scotland. A fuller discussion is presented in Thomas's parallel study *The Brychan Documents: A Critical Analysis* (SDUC, Lampeter).

Altogether, this is an immensely impressive book. Thomas gives us severe scholarship sweetly presented: the book is one of mature learning, but it is also an excellent read. Only Thomas could have written it; and we must all be grateful that he has done so.

Susan Pearce,
Department of Museum Studies,
University of Leicester

Patricia M Christie

Patricia Christie (but always Paddy to her friends) died at her Hertfordshire home on 4 November 1994. She will be remembered widely with great love and affection and with much gratitude among members of this Society for her three years as its President (1973-76) and continuing close association. More lastingly, her memorial is her profound contribution to the study of Cornish prehistory and archaeology generally.

Paddy came to archaeology by inspiration rather than by conventional academic progression. Born in 1925 in India, daughter of an India Army colonel of Anglo-Irish descent, she herself had wartime experience in MI6 and after 1945 in Paris with UNESCO, acting at one stage as research assistant to Jacquetta Hawkes. On her return to London she began a technical conservation course at the Institute of Archaeology, then under the direction of Professor Gordon Childe. Practical excavation experience came with Mortimer Wheeler's campaign at the North Yorkshire Iron Age fortifications of Stanwick. Such was her determination and ability that, most unusually for a non-graduate, she was permitted to take the Institute's diploma in European prehistory. The Institute thereafter remained her academic base to which she was devoted and in its interest she was to contribute a great deal of her energies in later life. She was one of its first Members. It was there when fieldwork was over that she spent many years working on post-excavation research and from 1980-88 she was a part-time member of the Library staff. She used the Institute as her base when teaching archaeology for the University of London Extra-Mural Department. In 1969 Paddy had been elected to the fellowship of the Society of Antiquaries of London and, twenty years later, she was awarded a doctorate by the University of London.

Paddy Christie's involvement in Cornwall was long and deep. Her parents had retired to Crantock by the beginning of the war and from this home Paddy developed her love of Cornwall. It was appropriate therefore that when the opportunity came to direct her first major excavation in 1957, it was the Liskey barrow, Crig-a-mennis, outside Perranporth. This was a landmark excavation and was among the first barrows to produce a C14 date. It was followed by other barrow excavations in Wiltshire. This varied experience especially qualified her to write the review of 'Cornwall in the Bronze Age' in the Silver Jubilee volume of *Cornish Archaeology* (1986).

Her second great contribution to Cornish archaeology came with her long term excavations of the Iron Age settlement of Carn Euny, Sancreed. When a threat to the stability of the fogou there required practical intervention, it was to Paddy Christie that the Ancient Monuments Inspectorate turned to carry out the initial archaeological examination and thence, between 1964-72, to investigate the settlement and reassess its history. This brought her into the research objectives which had stimulated the early members of the West Cornwall Field Club. Her excavation of the site showed that the settlement had undergone four main phases of use over eight centuries, before abandonment in about AD 400. The round chamber of the fogou was among the earliest features and it was her detailed dissection of the Carn Euny fogou which stimulated her reassessment of Cornish souterrains and their relationship with others in the British Isles which was published in the *Bulletin* of the Institute of Archaeology. Her work

has greatly expanded our knowledge of the date, structure and adaptation of fogous, even if their function remains enigmatic, and has shown them to be more akin to the souterrains of Scotland rather than to those of Brittany.

As well as the excavation itself, the associated problems of conserving and displaying the site fascinated her, especially the technical problems of repair and the explanation of the site as a whole to the visitor. She had an imaginative approach to its display which was beyond the means of the then Department of the Environment but she did write the guidebook to the site and such was its success that she followed it with the official guide to Chysauster.

Her third great service to Cornish archaeology was her painstaking evaluation of and bringing to publication in three volumes of *Cornish Archaeology* (1985, 1987, 1988) of the late C K Croft Andrew's records and excavation notes of his wartime excavations and observations of numerous North Cornwall monuments and sites destroyed by defence works. These papers were in danger of being stored un-assessed and in practice unavailable. It was a difficult and laborious task of ordering and interpretation and it led to her award of a doctorate by London University.

It must be appreciated that, while recognising Paddy Christie as one of our own, her archaeological contribution was not confined to Cornwall nor to prehistory. Her excavations of threatened barrows in Wiltshire were of great significance and, bravely for a dedicated prehistorian, she undertook the examination of the western side of the claustral range of Denny Abbey, Cambridgeshire for the Department of the Environment as well as the recording of the post-medieval cottage at Carn Euny.

Paddy Christie brought elegance, verve and imagination to her fieldwork besides great powers of analysis. In her warm personality there was dynamism and occasional flashes of anger at incompetence, but above all she stimulated great enthusiasm among those who worked with her. After the excavation there was a disciplined and organised scholarship behind all her publications. Everything she attempted she did well. In Cornwall, she appreciated and was encouraged by those stalwart figures of Cornish prehistoric archaeology, Florence Patchett and Dorothy Dudley, and she now has her own place in that pantheon. The sense of loss goes beyond her immediate family and friends to those in archaeology generally and especially those in the Prehistoric Society, the Institute of Archaeology of London and in this Society.

Andrew Saunders

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Mary Irwin

Photo: Peter Brierley

Mary Irwin

Mary Irwin died in her sleep on January 2nd 1995. She had been a member of the Cornwall Archaeological Society since its inception in 1962. She was then living in Bodmin; she became the archaeological correspondent for that area, and by 1968 was the secretary of the Society's Area Correspondents. She had a great love of Bodmin Moor, and her knowledge of it was extensive; her observations at Helman Tor led to Roger Mercer's excavation and the discovery of the second Neolithic hillfort in Cornwall.

In 1974 Mary became Honorary Secretary of the Society, a post which she retained until 1987. Her friendly manner, her retentive memory, her thoroughness and pertinacity, and her boundless energy, were assets which she used unsparingly in the Society's service. She initiated and organised a wide variety of projects. The Exeter University's day schools at Bodmin became a regular meeting place for CAS members warmed by Mary's coffee and welcome. The biennial

Symposium (Devon officiating in alternate years) was a triumph of organisation, with four or five distinguished speakers and a hundred or so participants to be kept comfortable and well fed, at Cotehele or Saltash or St Mellion. The Society maintained a presence for many years at the Royal Cornwall Show, and it was Mary who persuaded enough people to man the tent, and who was there in fine weather or flood to talk to farmers and others who had found flints or earthworks on their land. And when a large-scale project was suggested to examine all Cornish megalithic monuments and attempt to establish a relative dating, it was again Mary who called meetings, drew up guide lines, and saw that every interested member had his or her own megalith to measure, record and document.

In 1975, when the Department of the Environment was making funds available to local units for rescue archaeology, the Cornwall Archaeological Society, represented by its secretary, was largely instrumental in setting up a Cornwall Committee for Rescue Archaeology, consisting of representatives from the Society, the County Council and the six district councils. The CCRA was able to employ two full-time officers, who were housed in a room and a half, with little equipment and no computer, on the top floor of 10 Strangways Terrace. In 1984 a third officer was added to the staff, this time funded by the Cornwall County Council, and the Unit was given the use of a room in Old County Hall. By 1988, after much bargaining, the Cornwall Archaeological Unit was taken over by the County Council, and has developed into the large and influential organisation we know today. Mary Irwin had been the secretary of CCRA from its foundation until 1987; her tenacity and diplomacy in the early days, and her devoted interest and encouragement throughout, have helped to create a fitting monument.

Mary's secretarial duties, however onerous, did not prevent her from doing her own archaeological work. She had published in *Cornish Archaeology* 14 an examination of an almost

unknown earthwork near Restormel Castle (with a plan initiated by the present and immediate past presidents of this Society). At that time she was also watching the course of the proposed Bodmin bypass, a task that involved a great deal of time and energy. She researched the documentation, organised fieldwalking, arranged small excavations where necessary, saw that crosses were replaced as near to the original site as possible, and maintained good relations with the contractors. Her article in *CA* 15 is a model of a watching brief report. However, Mary's degree was in geology, and her main archaeological interest was always lithic. She examined and reported on finds from many sites; amongst others were flints from Bodwen (*CA* 16); stones from the Romano-British enclosure at Kilhallon (*CA* 21); querns, bowls and moulds from Castle Gotha (*CA* 21); flints from a barrow at Triffle (*CA* 22); flints from Trevoise Head (*CA* 24); bowls, querns, shale bracelets and spindle whorls from Carvossa (*CA* 26); and she was always ready to give her expertise and advice to fellow fieldwalkers.

When she retired as secretary in 1987, Mary was made an Honorary Member of the Cornwall Archaeological Society, and a year later she was elected as a Vice-President. Even in her retirement in Wells she retained her interest in the Society, and came down for the AGM or the Holbeche Corfield memorial lecture whenever she could. She will be remembered with affection by friends in the then Group 13 of CBA to which she was a delegate, as well as by fellow bards of the Cornish Gorsedd. But most of all she will be missed by officers and members of the Cornwall Archaeological Society to which she gave so much, for her intellectual integrity, her dogged perseverance in a cause she believed in, and for the warmth of her friendship.

D G Harris

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