What Lies Beneath…
St Newlyn East & Mitchell

Archaeological Investigations
Summer 2001

Historic Environment Service
Cornwall County Council

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Cover illustration:

Landscape montage: views from Cornwall representing successive phases of land use (clockwise from top left), Neolithic, Middle Bronze Age, medieval, and Romano-British.

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Abbreviations

HER	Cornwall and the Isles of Scilly Historic Environment Record
HES	Historic Environment Service, Cornwall County Council
NGR	National Grid Reference
NMP	National Mapping Project
RCM	Royal Cornwall Museum

Summary

Throughout the summer of 2001 archaeological investigations were carried out along the South West Water Pipeline between Mitchell and St Newlyn East. Sites from all periods were encountered in the course of these investigations, allowing the development of an interpretation of the landscape history with considerable time depth.

In the Metha area a number of pits of probable Neolithic/Early Bronze Age date were uncovered including one that was dated to the Middle Neolithic period (circa 3000 BC). A second pit contained fragments of an Early Bronze Age Food Vessel which was radiocarbon dated to circa 2300 BC, and a third was found to be Middle Bronze Age (circa 1500 BC). A small scattering of unstratified flints dating to this period were also recovered.

Another pit of probable prehistoric origin was excavated in Church Close, adjacent to a field containing a pair of large ring ditches identified from aerial photographs.

A roundhouse of Middle Bronze Age date was uncovered at Trevilson and this led to the rescue excavation of a circular structure that dated between approximately 1400 and 1100 BC. The roundhouse was situated within a man-made hollow measuring approximately 7 metres in diameter. Importantly a collection of baked clay objects including what has been interpreted as briquetage was recovered from inside the roundhouse which probably provides some of the earliest evidence for salt production in the region. Further evidence for the highly structured processes associated with the abandonment of Bronze Age buildings in Cornwall was uncovered.

A geophysical survey along the route of the pipeline had identified eight areas that were likely to contain features of archaeological interest. The subsequent topsoil stripping of one of these areas at Pollamounter resulted in the rescue excavation of a Romano-British enclosure dated to the first to fourth centuries AD. The enclosure contained a number of enigmatic pits and ditches and two structures relating to at least three phases of activity within the Romano-British period.

Nineteen field boundaries and thirty nine ditches associated with removed boundaries were also recorded. The majority of these features were of medieval origin.

The archaeological investigations along the length of the pipeline have proved to be significant because they have provided important information about the long term changes to a significantly sized area of the lowland Cornish landscape. This report contains the results from each of the excavated areas together with the boundary recording. It includes specialists' reports on the artefactual and environmental material that was collected during the project. The report concludes with a synthesis that compares and contrasts the information to produce an interpretive picture of the way people have conceptualised, used and moved around the landscape over several millennia.

1 Introduction

1.1 Project background

The Historic Environment Service (HES) was commissioned by South West Water (SWW) to carry out archaeological recording along a new sewage transfer pumping main running between Mitchell and St Newlyn East (Fig 2). This followed on from a desktop assessment (Taylor 2001) and geophysical survey (GSB 2001). The pipeline corridor was approximately 4.2km long, 10m to 12m wide, and ran from the works to the northwest of Mitchell to the works to the north of St Newlyn East. The archaeological fieldwork was carried out and completed during the summer of 2001.

Throughout the course of the fieldwork a number of later prehistoric and Romano-British sites were uncovered that were investigated as part of a planned programme of fieldwork which had been agreed as a result of the archaeological assessment and geophysical survey. However, an unexpected discovery was made during the fieldwork in the form of a Bronze Age roundhouse site which could not be dealt with within the agreed parameters of the original project design. A separate project for the excavation of the roundhouse was rapidly agreed between HES and SWW for the excavation and analyses of the roundhouse.

This publication includes both an outline of the results of the fieldwork from the entire length of the pipeline, rather than a report on individual sites, together with an interpretive synthesis that aims to set the results from the project within a wider background.

The reasons for presenting the results in this manner were twofold; firstly the production of a single report reduced the costs of producing an archive report and a published statement, allowing more effective use of resources for assessment and analysis; secondly the authors of this report wished to avoid the problem of 'cherry picking', which often occurs when key sites are singled out for publication. This approach would hopefully remove the de-contextualisation of sites which sometimes arises when sites are divorced from their wider landscape setting. Instead we were more interested in having an integrated discussion which also drew upon the archaeological evidence from other investigated sites in the wider area so that the results from the project could be presented in the form of a 'landscape biography' (Pollard 2000; Pollard and Reynolds 2002).

The project had led to the investigation of sites dating to the Neolithic, Bronze Age, and Romano-British periods, as well as the recording of numerous upstanding and removed boundaries of medieval origin. The importance of the results therefore resided not just in the individual components, but in the way they combined to form a landscape narrative. In short, it was felt that one of the most interesting aspects to come from the project was the opportunity to consider the landscape change in a more holistic way by thinking about how peoples' relationships with their landscape had contrasted and altered over the millennia.

1.2 Aims and objectives

The fieldwork along the pipeline was guided by a project design that set the standards for the archaeological recording and identified a number of project aims and key objectives. These objectives were informed by the results of the archaeological assessment (Taylor 2001), as well as regional research objectives that have been identified for Cornwall.

1.2.1 Key objectives

The main objectives of the fieldwork were as follows:

- To locate and identify prehistoric and Romano-British archaeological features along the route of the pipeline. The areas surrounding the pipeline had been found to contain extensive evidence of prehistoric and Romano-British settlement.
- To examine the processes of medieval and post-medieval enclosure and landscape reorganisation by recording boundaries (and traces of removed boundaries) along the route of the pipeline.

1.3 Methodology

The methodology for the fieldwork was set out in the project design. Eight areas that had been identified by the assessment (Taylor 2001) as being of archaeological interest were subjected to controlled topsoil stripping with the possibility of further small-scale excavation. These were carried out at the following locations:

SW83605705 – Circular anomalies identified by the geophysical survey (F8).

SW84055698 – Possible prehistoric roundhouse and related enclosures (F11).

SW84275689 – Possible prehistoric enclosure and related boundaries (F12).

SW84435670 – Possible enclosure identified by the geophysical survey (F13).

SW84555647 – Linear ditches identified by geophysical survey (F14).

SW85065558 – Linear features identified by geophysical survey (F19).

SW85205545 – Linear features to north of a known prehistoric enclosure (F20).

SW85505509 – Possible prehistoric roundhouses identified by geophysical survey (F23).

N.B. F = Field number; the numbering system used follows that of the assessment (Taylor 2001). F1-16 are displayed in Fig 16 and F16-25 are shown in Fig 3.

Fig 1: Soil stripping

Topsoil strips in the targeted areas were carried out under archaeological supervision by HES using a swing shovel fitted with a toothless bucket. The topsoil was stripped cleanly to a level at which archaeological features or layers could be expected to be revealed. All

topsoil was stockpiled adjacent to the pipeline corridor so that displaced artefacts could be retrieved during spoil heap scanning (Fig 1).

The archaeological recording involved the location and recording of archaeological sites and individual features, the collection of all artefacts (unless obviously the result of landscaping or modern disturbance, litter etc), and the recovery of environmental samples from secure contexts within the pipeline corridor. Where detailed recording was required the recording methodology shifted to full excavation (at the Trevilson roundhouse and the Pollamounter enclosure site). Excavated areas and features were cleaned by hand and planned to scale, and sections were drawn at 1:10 or 1:20 scales.

Artefacts recovered from secure contexts were bagged and labelled with the context number, whilst artefacts collected from the corridor spoil heaps were bagged and labelled with the appropriate field number. A metal detector was used on the spoil heaps but no significant artefacts were recovered using this method. Environmental soil samples were recovered from sealed contexts mostly from ditch and pit fills.

Where present day field boundaries were breached they were recorded in cross section with measured drawings, descriptions of contexts, and notes on any obvious phasing or shift, the presence of ditches, and the broad type of vegetation cover.

1.4 Geology and Landscape

1.4.1 Geology

The underlying geology of the area consists of grey calcareous slates with thin limestones, part of the Meadfoot Beds (Sheet 346, Newquay, Geological Survey of Great Britain 1974), laid down under marine conditions in the Lower Devonian (Bristow 1999). This tends to be weathered to some degree near the surface producing loose, jointed shillet with occasional pockets of shillet-derived clay. The topography is relatively flat, the landform rising to a level of between 80m and 100m OD between South Nancemeer and Trenance and around 70m OD above Metha. The Lappa Valley bisects these two areas and falls to around 30m OD in the pipeline corridor whilst at the far southeastern end of the corridor the pipeline crossed the head of a smaller valley. The valleys bisecting the survey area are alluvium-filled. The soils are brown earth stagnogley soils consisting of loams derived from the underlying slates (Sheet 5, South West England, Soil Survey of England and Wales, 1983).

1.4.2 Landscape

During 1994 HES carried out a map-based historic landscape assessment across the whole of Cornwall, using existing field patterns and early map and place-name evidence to characterise the landscape (Cornwall County Council 1996). This characterisation reflects the historic processes that have shaped the Cornish landscape, and involved dividing the county into a series of zones, each of which reflects a particular set of historic processes.

Most of St Newlyn East parish falls within 'Anciently Enclosed Land' (Taylor 2001), although the higher ground to the south, Newlyn Downs, has a different character, being a former area of heathland or downland enclosed in the nineteenth and twentieth centuries. This has been classified as 'Recently Enclosed Land'. The broader context can be seen in Fig 34, which shows the evidence and density of later prehistoric, Romano-British and medieval settlement through this area of central Cornwall. Newlyn Downs stands out as a blank area south of St Newlyn East.

The majority of the area that the pipeline passed through has been classified as 'Anciently Enclosed Land'. This is land that has been settled since at least the medieval period and which often contains buried archaeological remains of prehistoric, Romano-British and

medieval date. Although it contains fewer upstanding monuments than are found in the downland and moorland zones of Cornwall, it frequently includes areas of land which have been repeatedly visited, occupied and re-inscribed by subsequent acts of enclosure. It has only been since the development of aerial and geophysical survey techniques that the intensity of past use and occupation has been fully appreciated.

The range and density of archaeological features within the pipeline corridor and its surrounding environs were in many ways typical of the great diversity of human activity that can be found within 'Anciently Enclosed Land'. They possess abundant evidence of later prehistoric and Romano-British settlement in the form of crop-mark enclosures and field systems (Fig 2). These landscapes are being plotted as part of English Heritage's National Mapping Programme, which in Cornwall is being undertaken for English Heritage by the Historic Environment Service. The area also contains a dense pattern of farming settlements and field systems of medieval origin (Fig 34). Place-names such as Trendean, Trenance, Trevilson, and Tregerles contain the Cornish place-name element *tre* (farm, hamlet, estate) and are likely to have been coined between the sixth to eleventh centuries (Padel 1985, 223-231). The sinuousness of many of the medieval boundaries (for example boundaries 107 and 108) reveal their origins as plough banks whilst aerial photography has revealed crop-marks associated with removed strip field systems, for example as in F24. Indeed the available evidence suggests that that the area around Mitchell and St Newlyn East, in common with much of Cornwall (Rose and Preston Jones 1995), has been intensively farmed since at least the later prehistoric period (from circa 1500 BC) down to the present day.

However, it is important to state that the activities which took place within this zone were not of an endlessly repetitive or deterministic nature. A wide variety of occupations, activities, settlement features, and 'ceremonial' monuments have been uncovered in this zone. Even within a particular area of 'Anciently Enclosed Land' there is often evidence of changes in the nature of occupation over time and even field systems are periodically reorganised and laid out on a different alignment (Jones forthcoming a). It is also worth stressing here that landscape zones do not equate with any inherent sense of value or importance that past, particularly prehistoric, communities may have attached to landscape. Recent studies of landscape have argued that perceptions of landscape are culturally formed, dynamic and changing in nature (Bender 1998; Cosgrove and Daniels 1989; Hirsch and O'Hanlon 1997).

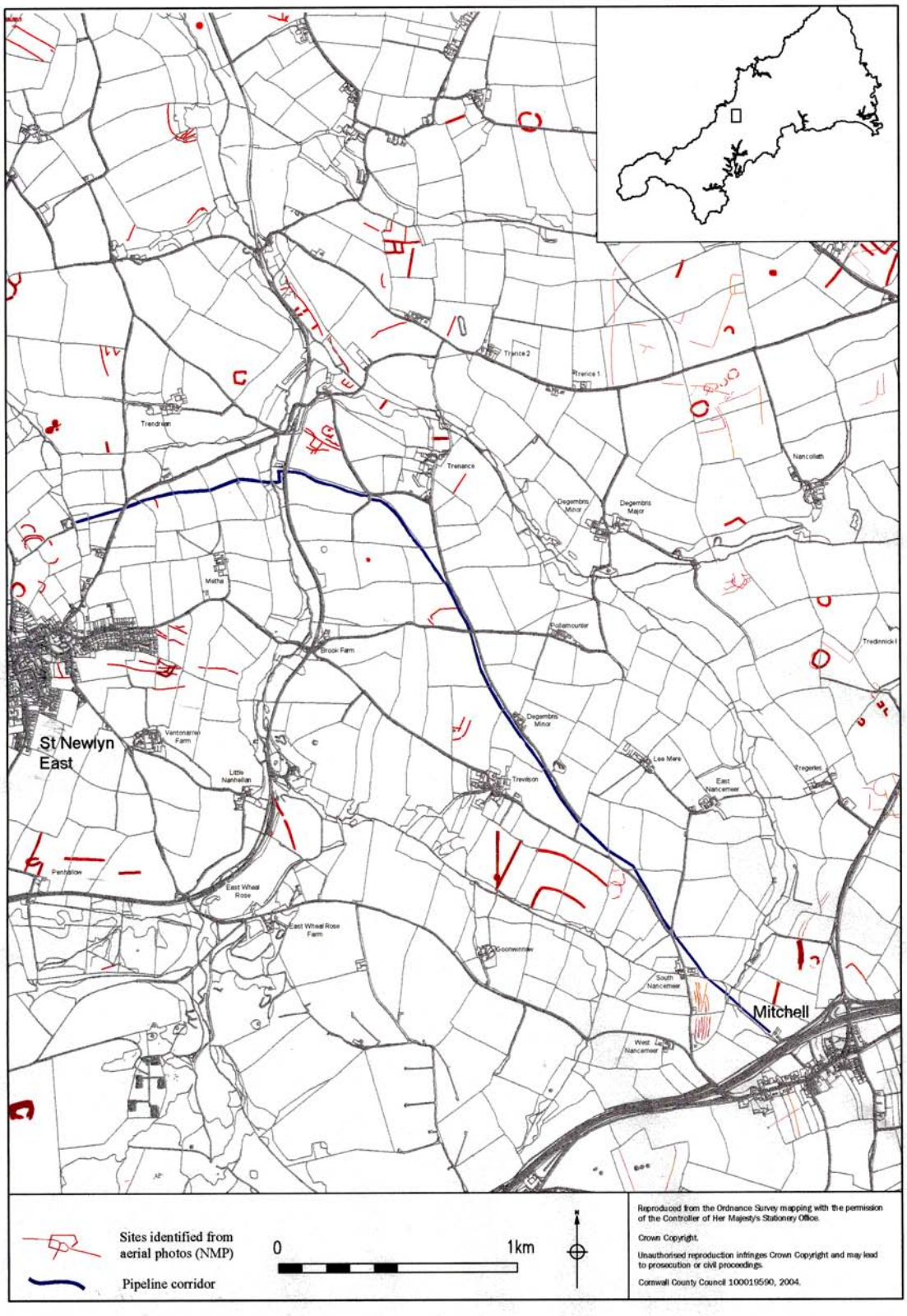

Fig 2: Location Map

2 Geophysical survey

2.1.1 Introduction

A good deal of the information on the archaeological potential of the pipeline route came from the geophysical survey commissioned by HES (GSB 2001). The results produced by this survey were consistent with the evidence from the aerial photographic survey, which had suggested that there was evidence for activity along the length of the pipeline, reflecting a use of the area from prehistory onwards. Almost all of the fields were found to contain archaeological features.

The survey was carried out in twenty five contiguous areas (A1-A25) along the route of the 20m wide pipeline corridor. Several larger areas (eg A9) were further subdivided (areas 9A and 9B). A survey grid was set out by GSB and tied in to existing field boundaries. The method used involved the use of a gradiometer to measure magnetic anomalies up to 1.0m beneath the ground surface.

Several factors limited the interpretation of the data obtained by the survey. These included: the high overall background level of magnetic response producing 'noisy' data sets; the narrow width of the survey area providing a limited context within which to view anomalies; the interference with the data by the response from stone walls at the edges of fields; the unfavourable ground conditions in the valley bottoms between Areas 8 and 9A and areas A24 and A25 (HES field numbers F9, F11, F24, and F25).

The following sections summarise the results from the survey. The GSB area numbers A1-A25 have been replaced by the HES field numbers (F1-25) that were allocated during the subsequent fieldwork. A fuller discussion of the results from the survey including descriptions of individual features can be found in the archaeological assessment and the geophysical survey reports (Taylor 2001; GSB 2001).

2.1.2 Possible prehistoric and Romano-British boundaries and settlement features

In several areas the survey revealed groups of ditch-type anomalies that did not appear to relate to the historic field patterns.

Linear and curvilinear anomalies, presumably field boundaries and enclosures, were identified along the length of the pipeline corridor. In particular areas F11, F12, and F14, and perhaps F13, F19, and F20, all contained features which appeared to belong to underlying settlements and field systems of prehistoric or Romano-British origin. The curvilinear anomalies that were identified in F11 and F23 were thought to be the sites of prehistoric houses. Two large sub-circular anomalies in F8 were identified as being pit-type features that were also likely to have been of prehistoric origin.

These eight areas, which had been identified as being of significance by the geophysical survey, were the ones that were selected for controlled topsoil stripping (see Section 1.3).

2.1.3 Medieval and later field boundaries

Most of the features that were identified by the geophysical survey were linear anomalies that were associated with ditches. The majority of these ditched features followed the same alignments as the upstanding hedged boundaries and therefore looked as if they could fit into the current field pattern. Some appeared to have been divisions within what had been strip field systems of medieval origin (eg F7, Metha, and F17 and F18, Trevilson). Other features were less easy to slot into the underlying medieval field pattern and might represent later medieval or post-medieval field divisions. In particular the small rectangular fields in F1 and F2 appeared to be enclosures associated with a post-medieval smallholding.

2.1.4 Discussion

As a result of the geophysical survey eight areas were subjected to a controlled topsoil strip. Significant features dating to the prehistoric or Romano-British periods were uncovered in three of the areas, F8, F14, and F20, whilst in a further four areas, the ditched anomalies in F12, F13, F19, and F23 were found to be medieval or later in date. The features identified by the geophysical survey were not located during the stripping of F11, but this was unsurprising as the route of the pipeline had been altered.

Ditched features of prehistoric, medieval, and later date were found throughout the length of the corridor and in general they corresponded with results from the geophysical survey. The Bronze Age roundhouse at Trevilson (see Section 4) was not readily identified by the survey as it was overlain by field boundaries and was not easily distinguishable. Subsequent scrutiny of the survey results revealed that it can just about be discerned.

The results of the geophysical survey in area F14 (Pollamounter) were especially important. Although the full complexity of the archaeological features was not displayed on the survey, the results led to the subsequent excavation. The ditch shown by the survey was revealed during the controlled stripping as a substantial enclosure ditch of the Romano-British period whilst other ditched anomalies proved to belong to internal features (see Section 5).

3 Church Close: prehistoric and later activity

3.1 Background

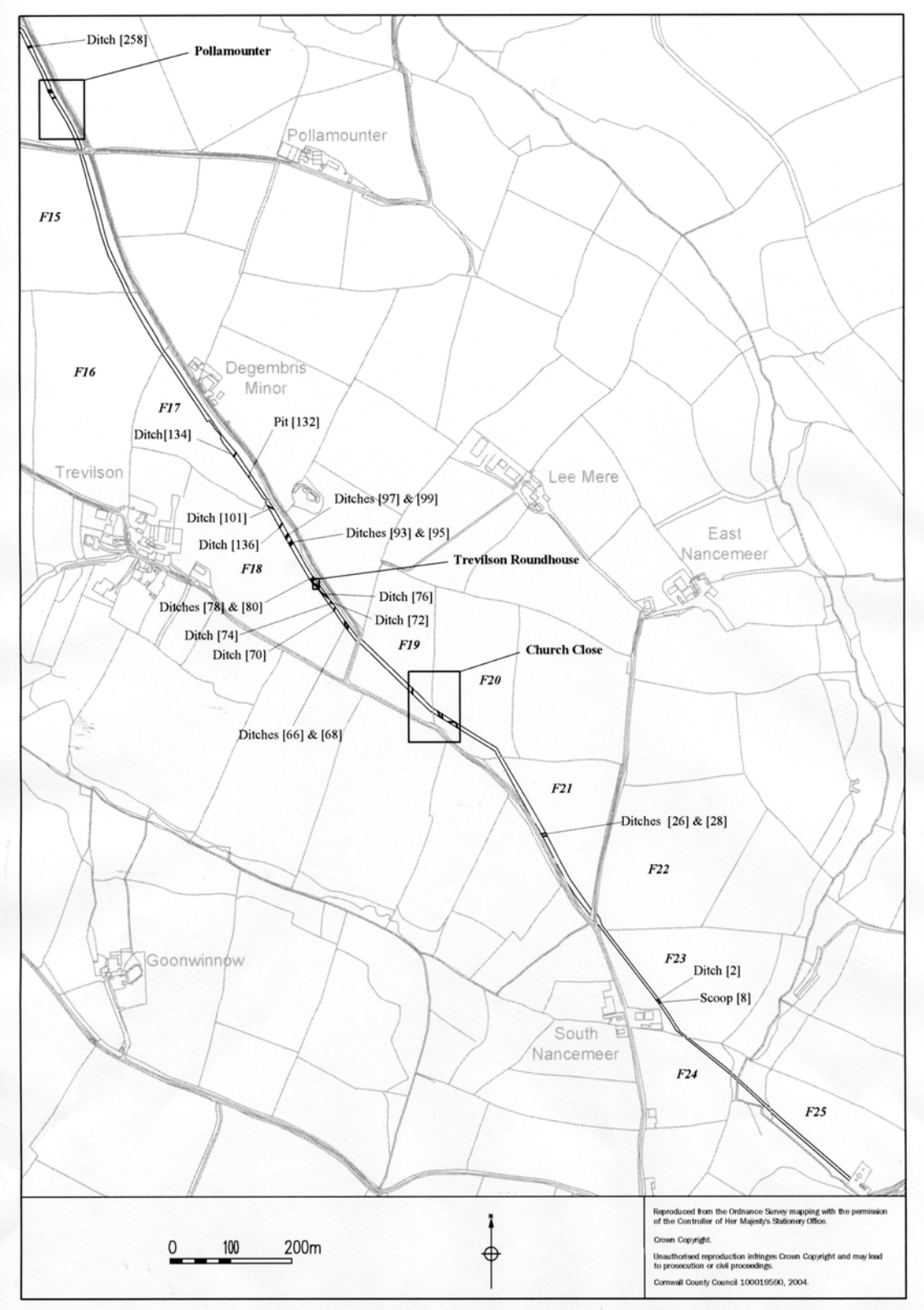

Fig 3: Site Location Map -East

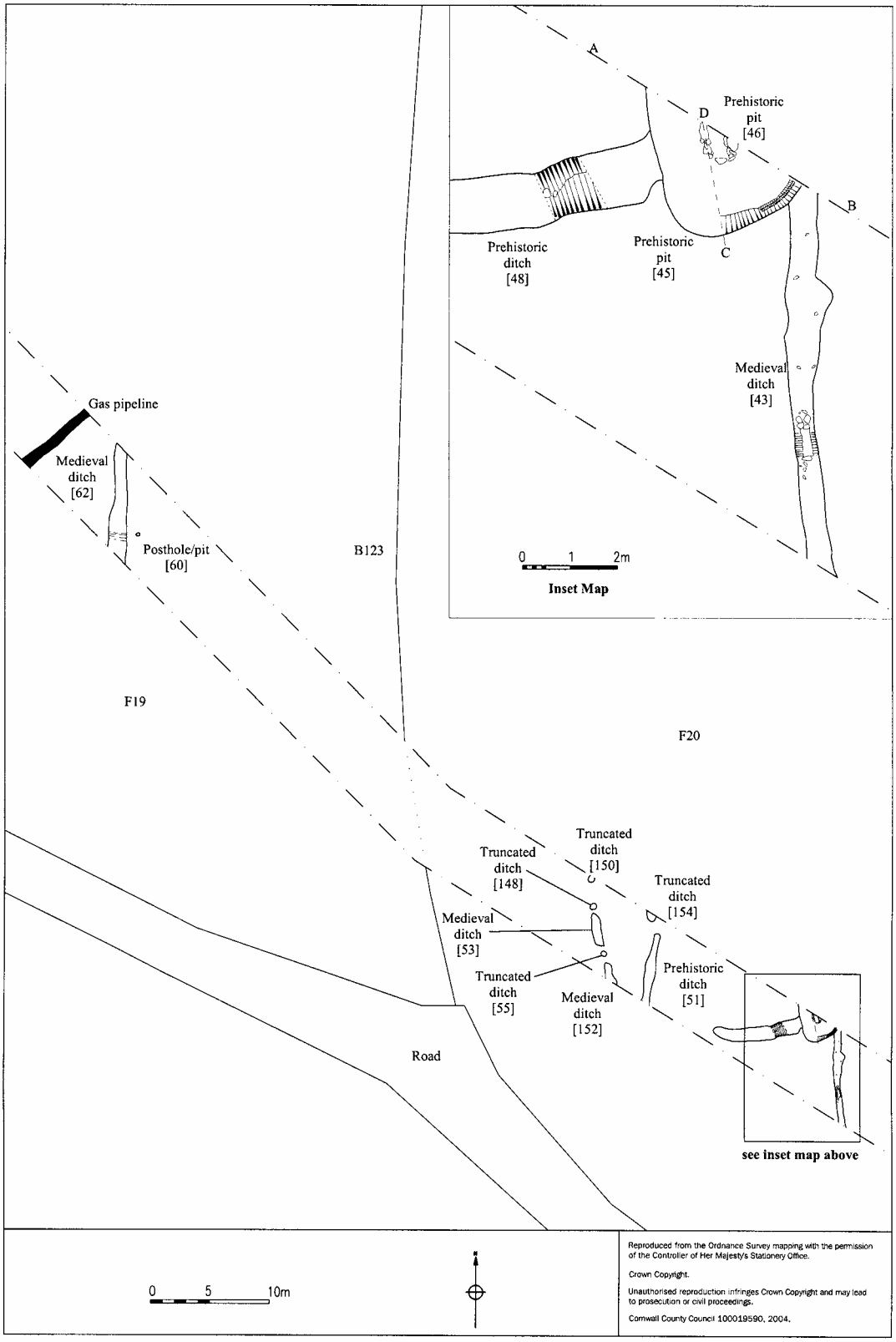

Fig 4: Church Close

Church Close (SW85215544) was located at the eastern end of the pipeline (Fig 3). Field F20 in the assessment is listed in the Tithe Schedule of 1840 as 'Church Close' (Taylor 2001). Evidence from aerial photographs revealed no visible crop-marks within the field but the field to the south, across the lane, contained two subcircular crop-marks, one of which had been identified from the ground in the nineteenth century (Anon 1894). The size of these features, approximately 60m to 65m in diameter, indicates that they are likely to be the remains of prehistoric or early medieval enclosures (Fig 2).The subsequent geophysical survey in this area (GSB 2001) identified linear and curvilinear features that were interpreted as components of a prehistoric enclosure or field system (Taylor 2001). This led to the area being targeted for controlled topsoil stripping.

3.2 Stratigraphical summary

The southeastern end of the field was archaeologically sterile, as predicted by the geophysical survey. However, topsoil stripping at the northwestern end of the field revealed a number of features, mostly linear ditches, but including one large sub-circular pit (Fig 4). Three of these ditches, [43], [48], and [53]/[150]/[152] and pit [45], could correspond with the features that had been identified by the geophysical survey whilst one of them ([51]/[154]) may correspond to a ploughing trend that had been recorded by the survey (GSB 2001).

There were few stratigraphical relationships between the features, the majority being isolated linear ditches cut into the natural shillet-derived clay. However, a relationship between the shallow ditch [43] and a layer sealing pit [45], (138), was identified. The former quite clearly cut the latter and therefore the ditch post-dated the pit. A second relationship between [45] and the upper fill of ditch [48] was only tentatively (due to the almost identical nature of the fills) established, the former appearing to cut the latter.

Primary features

Four ditches and a pit were exposed in this area. Of these ditch [48] appeared to be the earliest feature since its upper fill was cut by pit [45]. However, this part of [48] appeared to be rising and narrowing and it may be that [45] was cut into the end of a visible ditch terminus and that the features are broadly contemporary.

Aside from ditch [48], the earliest feature to be investigated at Church Close was pit [45] (Figs 4 and 7). It also contained the most complex sequence of deposits. The pit, sub-circular in plan and measuring 3.9m in diameter, was located against the northeastern baulk section of the pipeline corridor. Approximately half of it was exposed in the corridor.

The stratigraphy within the pit appeared quite complex. The lowest fills to be excavated (excavation was halted at a depth of 1.8m due to health and safety considerations) appeared to be backfill material, consisting of a very stony deposit in a shillet-derived clay matrix. The higher of the two (200), was orange suggesting a degree of oxidisation not shown in the grey lower fill (201). This may reflect differential oxidisation of the same material or it could be that (200) represents the collapse of material from the side of the pit onto a waterlogged, and therefore less oxidised, fill.

Above these layers a pattern of gradual silting appears to be represented by three fills, the uppermost of which (176), contained a charcoal-rich lens (141), representing a burning episode. Below this were layers (173) and (175). Another deposit, (174), only appeared in the southwest-facing section and is likely to be the result of animal burrowing or tree root action. Situated above these deposits was fill (139) a substantially thicker deposit than the underlying layers. This may signify a comparatively long period of disuse in which the pit filled in. Cut into this layer was a rectangular arrangement of slate and burnt granite [46],

containing a dark clayey fill (47). The feature was aligned north to south and measured 1.0m in length, 0.6m wide, and 0.5m deep and was situated at the centre of the pit. Although resembling, at least superficially, a cist burial, the lack of remains in the form of burnt bone fragments that might have been expected to survive (if the feature was prehistoric), coupled with the presence of the burnt granite, suggests that the feature was a hearth.

Fig 5: *Excavation of pit [45], looking northwest*

Above this feature a sandy deposit (138), lying within a slight hollow represents the uppermost fill of the pit, probably the result of gradual infilling. Two sherds of abraded Early Neolithic pottery were recovered from the pit complex but they were almost certainly residual (see Section 9.1). Similarities in terms of scale and complexity of deposits can be seen with the pit [310] excavated in the Metha Farm area of the pipeline (see Section 6).

Later enclosure patterns

Of the four ditched features that were recorded in this area, three were aligned north to south (cross-contour), [43], [51] and [53]. These features appear to be constituent parts of a field system.

The most recent fill of pit [45], (138), had been cut by [43], a shallow, roughly cut ditch extending across the pipeline corridor following a north-south alignment. Ditch [53] was the longest component of a series of cut features crossing the pipeline corridor. Of these [55] and [148] were shallow sub-circular cuts at each end of [53] whilst [150] and [152] were linear continuations of [53] to north and south respectively. The 'V' shaped profile of feature [55] suggested that this represented a truncation of a continuous feature, although [148] had a deeper, more rounded profile characteristic of a posthole. These ditched linear features followed the same orientation as the upstanding field boundaries to east and west that are of medieval origin.

Within this stretch of the corridor another ditched linear feature [51] (with feature [154] probably representing another section of a truncated ditch) lay approximately 15m to the

west of [43] and 4m east of [53]. This group was slightly off alignment with ditches [43] and [53], suggesting that they represent a different, perhaps earlier, phase than the medieval field ditches.

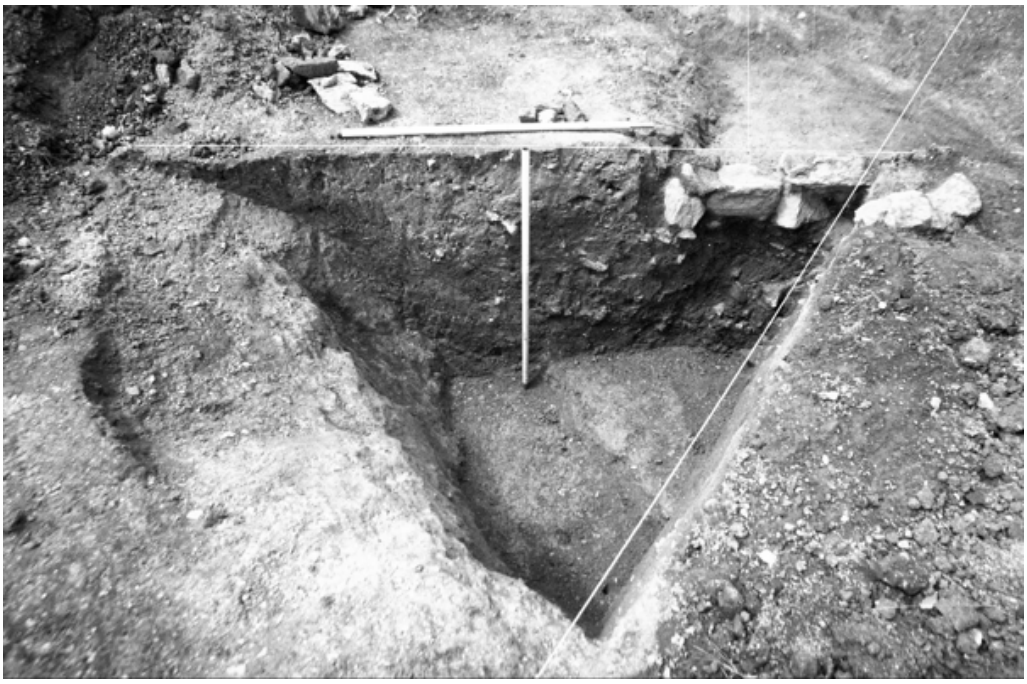

Fig 6: Pit [45] after excavation, looking southwest

In F19 to the northwest of Church Close another ditch crossed the pipeline corridor along a north to south alignment. This ditch, [62], was much more substantial than those in Church Close, being 1.55m wide and 0.6m deep, and contained three discrete fills. Although it shared an alignment with excavated ditches [43] and [53] in Church Close, and the extant field boundaries, its relationship with these features remains unclear. It may be that topography rather than contemporaneity is responsible for the similar alignments of these enclosure features. A small circular feature to the east of [62], [60], contained a dark charcoal-rich fill (61) but it was unclear whether this was a small pit (see Section 4.3) or a truncated posthole perhaps associated with the ditch.

Environmental evidence

Environmental evidence recovered from the site included macrofossils of grass caryopses from pit [45] (Section 10.1.2) and oak charcoal from pits [45] and [60] (Section 10.2.2).

3.3 Discussion

The controlled topsoil strip at Church Close confirmed the findings of the geophysical survey, which had indicated the presence of linear ditch type anomalies and a large pit.

The evidence from the stripped area indicates that there were two broad phases of probable prehistoric activity followed by medieval reorganisation of the land. The first phase is characterised by at least one ditch [48] that may have been cut by pit [45]; ditch [51] may also be early. Pit [45] comprises the second phase. The first and second phases have been given a broad prehistoric date because pit [45] was cut by ditch [43] which was probably medieval in date. Based on the evidence from other areas of the pipeline (see Pollamounter, Trevilson, and Metha) it would seem likely that the phase one ditch could be either Middle Bronze Age or Iron Age/Romano-British in date. The third phase is

characterised by three sinuous boundary ditches [43], [53] and [62] that were probably associated with medieval strip fields.

However, there were very few stratified finds recovered from any of the features in this area and few stratigraphical relationships. This means that the phasing in this area is at best tentative.

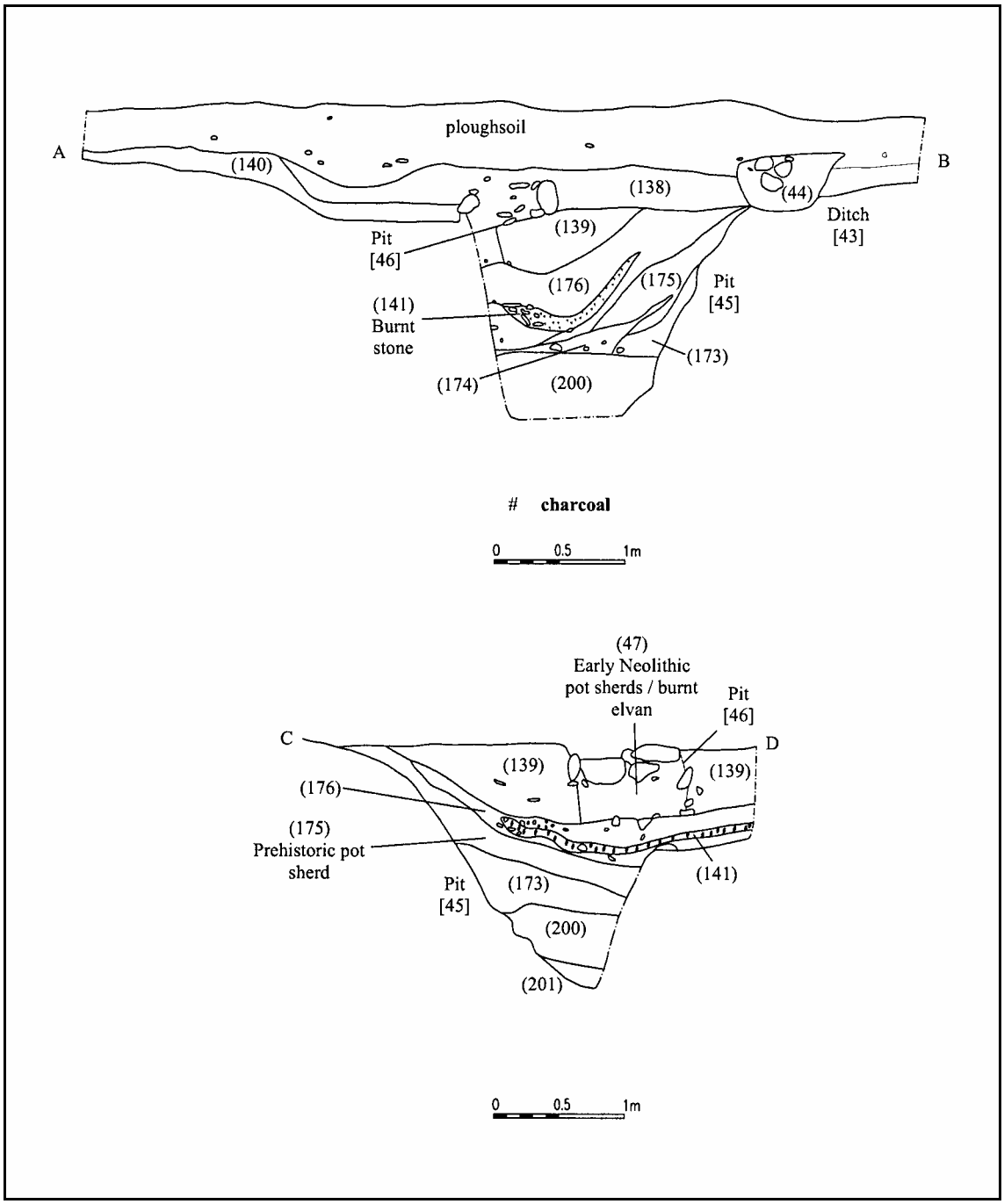

Fig 7: Pit [45] sections

4 Trevilson: Bronze Age roundhouse

4.1 Background

The geophysical survey identified a number of linear and curvilinear features within F18 that were interpreted as components of a medieval strip field system (GSB 2001). In addition a number of pit and short ditch anomalies were detected and determined to be of archaeological potential. This led to the area being targeted as a controlled topsoil strip.

In the course of the archaeological fieldwork a circular feature, half-exposed in the pipeline corridor, was observed towards the highest point of F18 (SW84955571) (Fig 3). This corresponded to an anomaly observed by the geophysical survey although the anomaly was approximately a quarter of the size of the exposed feature (GSB 2001). A sondage was dug through the feature to establish its potential. A series of artefact-bearing deposits and a stone revetment set against a circular cut into the shillet were encountered. A layer of flat-laid stones appeared to be a floor surface, and an area of compacted shillet fragments leading out of the structure to the southeast was interpreted as an entrance. Artefacts recovered from this exploration included an assemblage of Bronze Age potsherds and fragments of baked clay. The evidence pointed towards a Bronze Age roundhouse and a decision was made to fully excavate the exposed section of the feature.

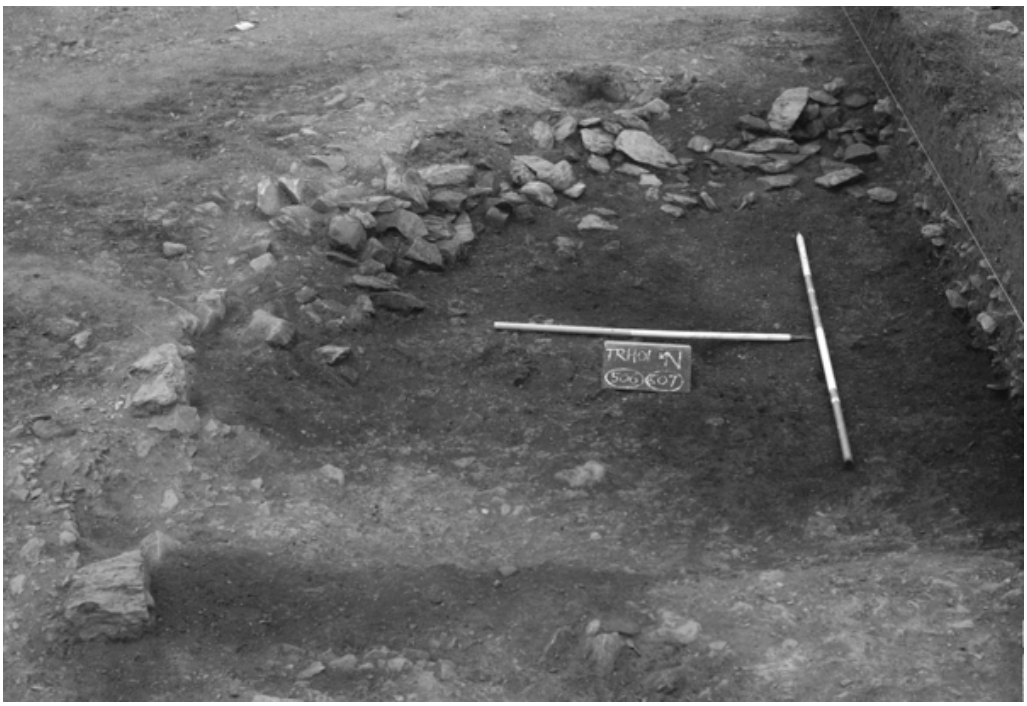

Fig 8: *Trevilson Roundhouse at the beginning of excavation, looking southeast*

4.2 Stratigraphical summary

Three phases of activity associated with the roundhouse can be identified from the stratigraphy (Figs 13, 14 and 15).

Phase 1: construction

The construction of the roundhouse began with the digging of a hollow in a fairly level situation close to the summit of a low hill. Most of the structural elements of the feature were contained within a mostly curvilinear cut [558] that had been excavated into the shillet. The diameter of the cut at the baulk section was 7.1m. The cut was steep sided and stepped with the largest area to the south and east being 0.30m deep whilst to the north a

higher level area was 0.10m deep. The base of the cut was fairly level. A stone wall [561] lined the inside of the cut and had survived to a greater extent in the deepest areas to the south and east. It was composed of large shillet slabs laid flat in a single course up to 0.3m wide. The original height of the wall was impossible to gauge since only a single course remained, probably the result of deliberate demolition during the abandonment phase.

A 1.3m gap in wall [561] to the southeast, coinciding with a straighter length of the curvilinear cut [558], was interpreted as an entrance. Substantiating this interpretation was a deposit of compacted small shillet stones (516). This deposit covered an area of approximately 1 square metre, lying immediately to the east of the opening on the exterior of the structure.

At the base of the structure a number of postholes and stakeholes cutting the worn natural shillet floor were discovered. Three larger postholes [512], [515], and [546], were part of the main post-ring. These were all sub-circular cuts with near-vertical sides and flat bases. All were close to 0.5m deep and 0.4m to 0.5m in diameter. One [515], contained two fills (513) and (514) and possibly displayed evidence of a stony post-pipe surrounded by post-packing. Posthole [512] was filled by (511) and (510); the latter fill had been packed with large quartz blocks. The third posthole [546], had a single fill, the centre of which was packed with downward-orientated stone and fragments from baked clay objects (see Section 9.1). The fills of all of the postholes display evidence that can be interpreted as deliberate backfilling. This abundance of stone in the centre of all three postholes and the baked clay objects in [546], was interpreted as evidence for the deliberate removal of posts followed by careful backfilling. None of these postholes showed any signs of re-cutting and it can be assumed that they were associated with the erection of the structure.

Fig 9 Entrance to the roundhouse, looking northwest

Fig 10 Excavation of the roundhouse in progress, looking south

A fourth posthole [530], on the northern edge of the house, is unlikely to have been part of the post-ring and appeared to have more in common with the truncated spread or depression [571]/(519) and a shallow posthole [555]. Features [530] and [571]/(519) were between 0.30m and 0.35m in diameter, whilst [555] was 0.22m across: all were much shallower than the main post-ring group. These probably formed part of an internal feature in the northwestern part of the roundhouse. A shallow linear feature [536] was cut into the base of the roundhouse on the northern side of the hollow, which may have acted as a drain. A radiocarbon determination was obtained from the fill of the gully (535), Wk12680 3077±56BP (1450-1120 cal BC). A number of stakeholes and shallow scoops were also cut into the bottom of this part of the hollow. Scoop [532] was located against the baulk section and was very amorphous and shallow (0.03m). The scoop cut the linear gully [536]. This represented the only relationship between any of the cut features in this area. However, since they were all sealed by a burnt spread (524), they are probably broadly contemporary.

Two stakeholes were located in the northwestern area of the structure, whilst a third [563], lay just outside it. Two, [563] and [565], were of similar size (0.08m diameter, 0.10m deep tapering to a point). The other [567], lying between them, was slightly larger at 0.16m diameter and 0.14m deep, also tapered. The three features lay along a north to south alignment.

A linear alignment of stakeholes [542], [544], [548], [550], [553], and [557], all steep-sided and tapering to a point, followed a southeast to northwest alignment just inside the southeastern entrance. The feature represented by these cuts is likely to have been a screen, perhaps separating the living and sleeping areas, though it is possible that the posts may have been demarcating a special space within the interior. A single stakehole [521] was located towards the centre of the roundhouse.

Fig 11 The roundhouse postholes revealed, looking southeast

Phase 2: occupation

There was little evidence for occupation within the structure. The majority of the cut features in the roundhouse did not appear in any higher deposits. Only the three large postholes [512], [515] and [546], part of the structure's post-ring, were visible through primary abandonment deposits up to and including deposit (507). However, this deposit overlay pieces of burnt wood ((526), (527), (528) and (533)), some of which were directly adjacent to stakeholes ([553], [557] and [560]), and these deposits seem to be associated with a complex process of abandonment. Similarly the charcoal rich deposit (525) appeared to be contemporary with the burnt wood deposits and all of these contexts lay directly above the natural shillet. This evidence seems to suggest that any occupation layers were removed prior to or as part of the abandonment process. This process may have involved the excavation of any occupation layers that had built up, or the floor level may have been swept clean regularly preventing the build up of such layers. A radiocarbon determination was obtained from posthole [512], Wk12678 3008±56BP (1410-1050 cal BC).

Phase 3: abandonment

The abandonment process appears to have commenced with the deposition of charcoal rich layers (507), (517), (518), (525), and, (534), the removal of the stakeholes from their sockets ((526), (527), (528), and (533)), and presumably by the dismantling of most of wall [561].

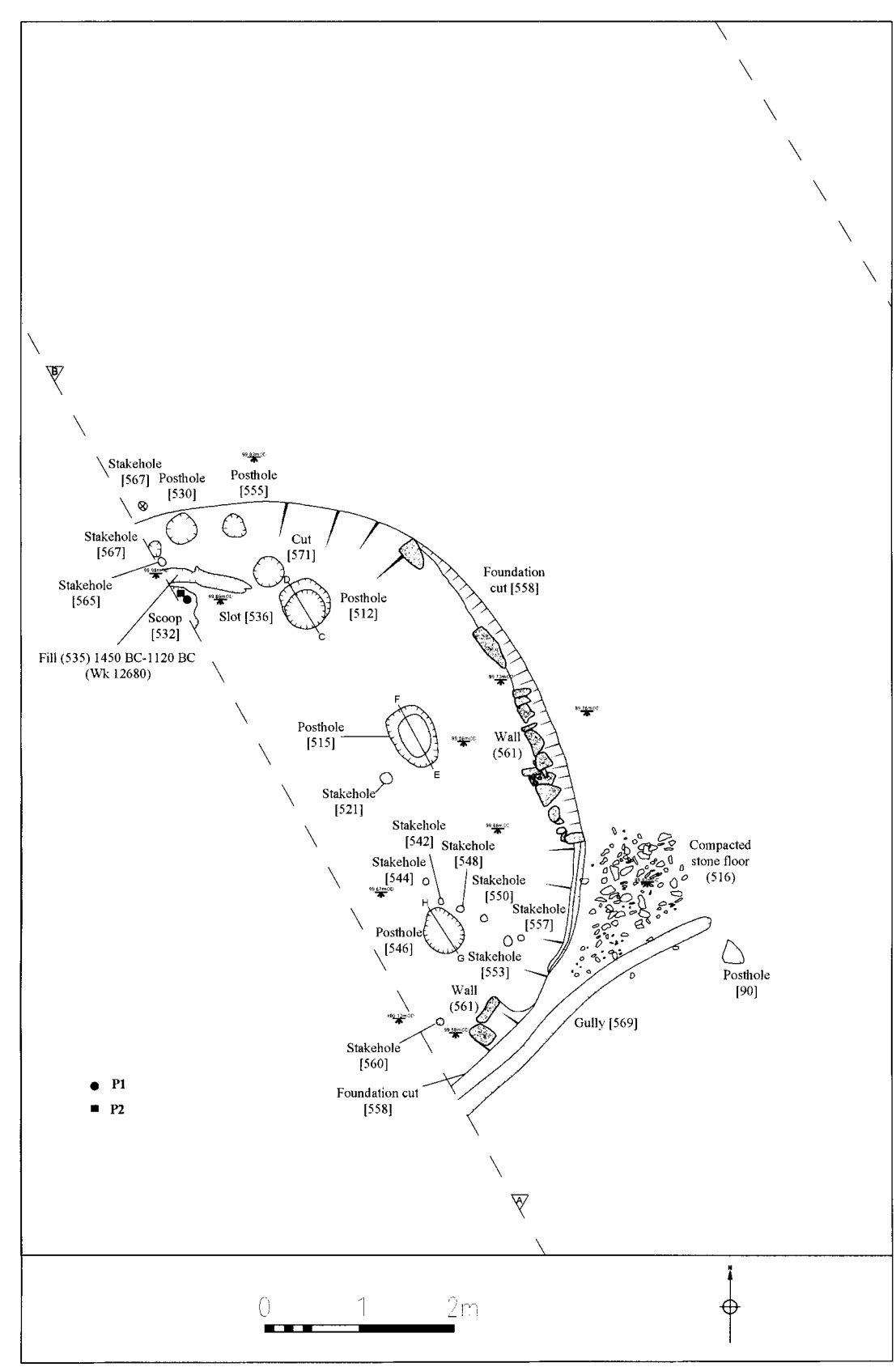

Fig 12: Trevilson roundhouse after excavation

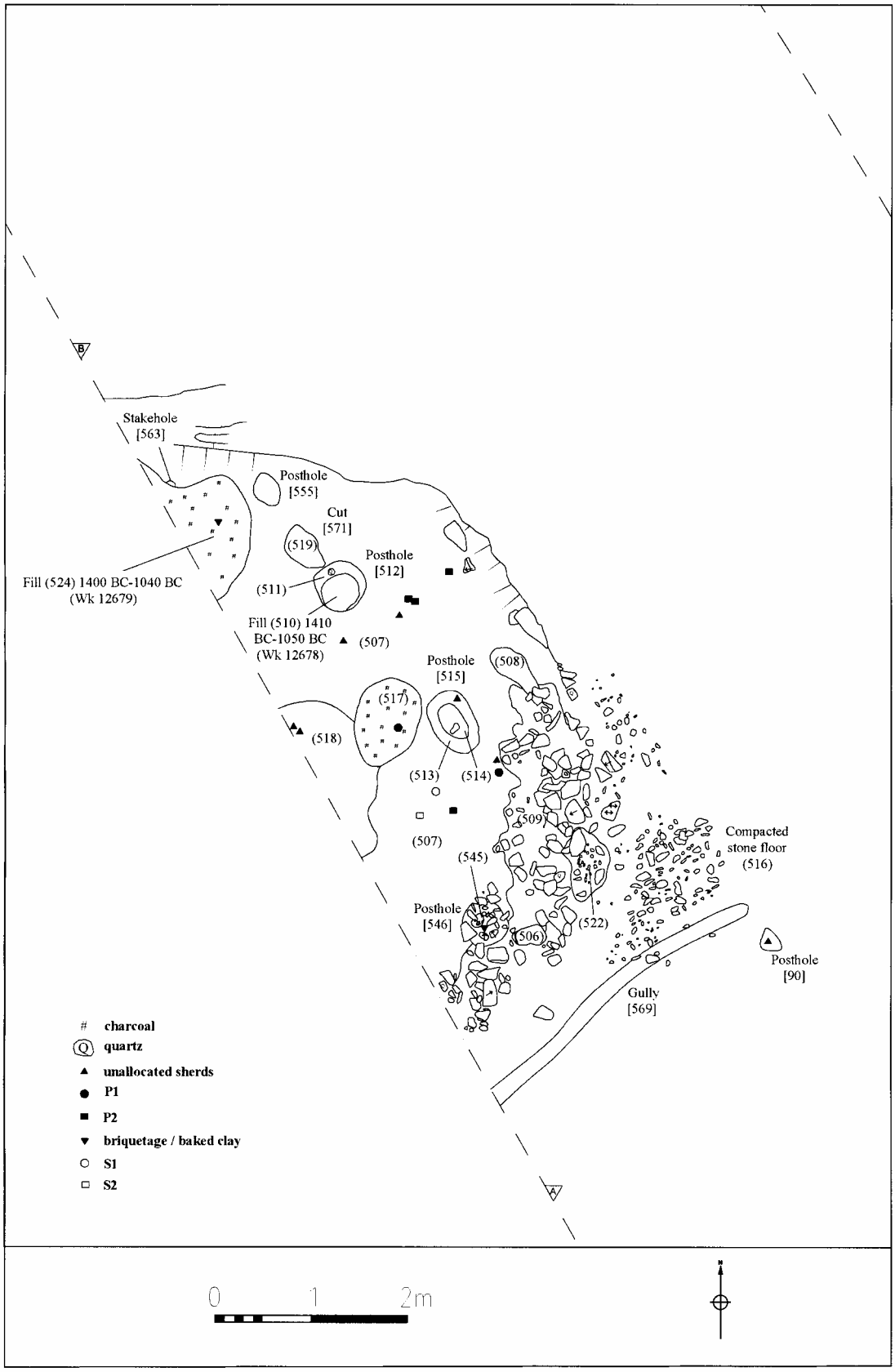

Fig 13: Trevilson roundhouse following the removal of layers (500)-(505)

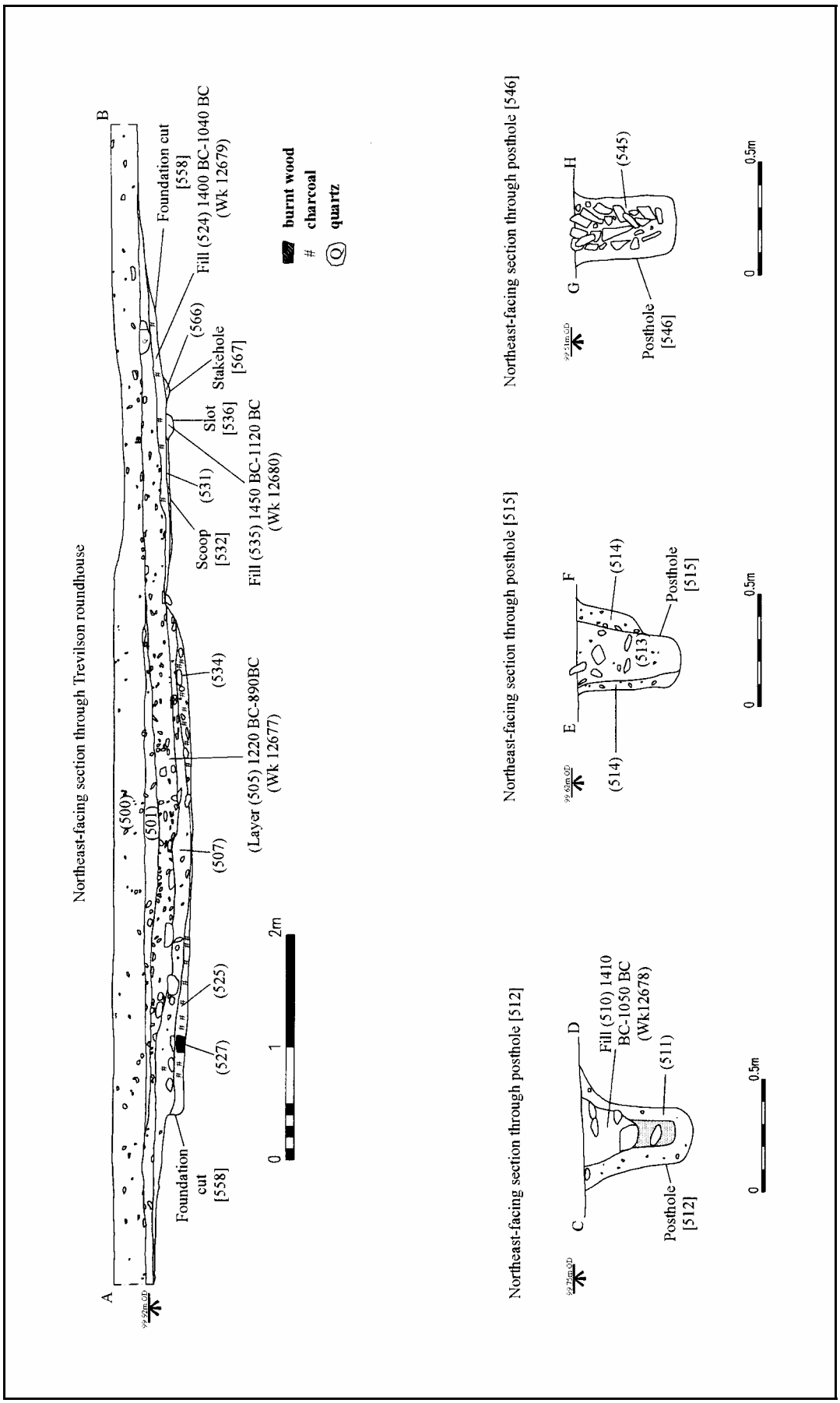

Fig 14: Trevilson roundhouse sections

Layers (507), (517), (518) and (534) were located on the bottom of the roundhouse and appear to be contemporary. These deposits seem to represent the first evidence of abandonment activity. Layer (507) was a dark silty deposit containing charcoal which was spread across much of the interior of the building. It contained the largest number of sherds of Bronze Age pottery and was covered by stony layer (506) and redeposited natural (508). The layers (517) and (518) were stratigraphically related with the darker charcoal-rich spread (517), 0.02m deep, partially overlying the lighter but still charcoal-bearing (518) that was up to 0.04m deep. Layer (534) was only viewed in section but was a similar thickness. These layers were confined to the central area of the roundhouse interior and were covered by layer (506). The perimeter of these deposits to the south and east was marked by a group of flat-laid of stones (506). During this initial phase at least three of the stakes were removed from their sockets, [553], [557], and [560], and burnt, with the charred remains being deposited beside the stakeholes. A charcoal rich layer, (525), was found in association with the remains of charred stakes (526), (527), (528), and (533), and is likely to represent the remains of crushed burnt stakes. Indeed much of the charcoal that was recovered from the primary infill layers could have been derived from burnt stakes/posts. Two small patches of possibly scorched natural clay subsoil (539) and (540]) were recorded close to the perimeter of the hollow, but they were not large enough to have been associated with the burning of the posts and stakeholes.

The charcoal rich layer (524) which contained fragments of baked clay/briquetage and burnt sand was also deposited at this stage. This deposit sealed the stakeholes and gully which comprised the group of features in the northwest quadrant of the roundhouse. A radiocarbon determination was obtained from the layer (524), Wk12679 3004±56BP (1400-1040 cal BC).

Following the deposition of the initial abandonment layers the larger posts of the structure were removed from postholes [512], [515], and [546]. These postholes were then filled with stony deposits that have been interpreted as deliberate backfilling.

During the initial abandonment process much of the walling appears to have been removed and it is possible that the large stones in (504) and (506) were derived from walling [561]. Stony deposits (506) and (523) were spread into the interior. Layer (523) seems to have been deposited near the entrance, followed by layer [506] which sealed all three of the major postholes ([512], [515] and [546]).

The uppermost abandonment layers are represented by the silty deposit (505) which was 0.07m deep and situated in the central area of the structure. A radiocarbon determination was obtained from (505), Wk12677 2864±56 BP (1220-890 cal BC). Another layer of flat-laid stones (504) was situated around the perimeter of the feature and, a silty deposit (503) which covered (504). These represent the final backfilling of the hollow within which the structure was situated. The upper layers (501) and (502) are likely to represent mixing of later ploughsoil, (500), with lower deposits.

Features beyond the roundhouse

There was only one certain Bronze Age feature that indicated any associated or contemporary activity in the area outside the roundhouse. A posthole [90] was located 1.80m to the southeast of the roundhouse and contained a sherd of Bronze Age pottery. A narrow gully [569], was situated to the immediate south of the entrance. However, this feature was devoid of artefacts and could not be shown to be contemporary. A total of thirteen linear ditched features ([66], [68], [70], [72], [74], [76], [78], [80], [93], [95], [97], [99], [101] and [136]) associated with removed field boundaries were uncovered in F18. However, all of these features appear to post-date the roundhouse as they can be seen to

fit into the surrounding field pattern which belongs to the medieval or post-medieval periods.

Environmental evidence

Environmental evidence recovered from the site included plant macrofossils (Section 10.1.3) in the form of barley, wheat, and oat grains, celtic bean and vetches, hazel nut and Rosaceae spine. Weed species included bindweed, cleavers, mustard/rape/cole, ribwort plantain, and pale persicaria. Charcoal recovered (Section 10.2.3) included oak, birch, hazel, blackthorn, Pomoideae, gorse, and broom. The roundhouse provided the earliest evidence for cultivation in the area.

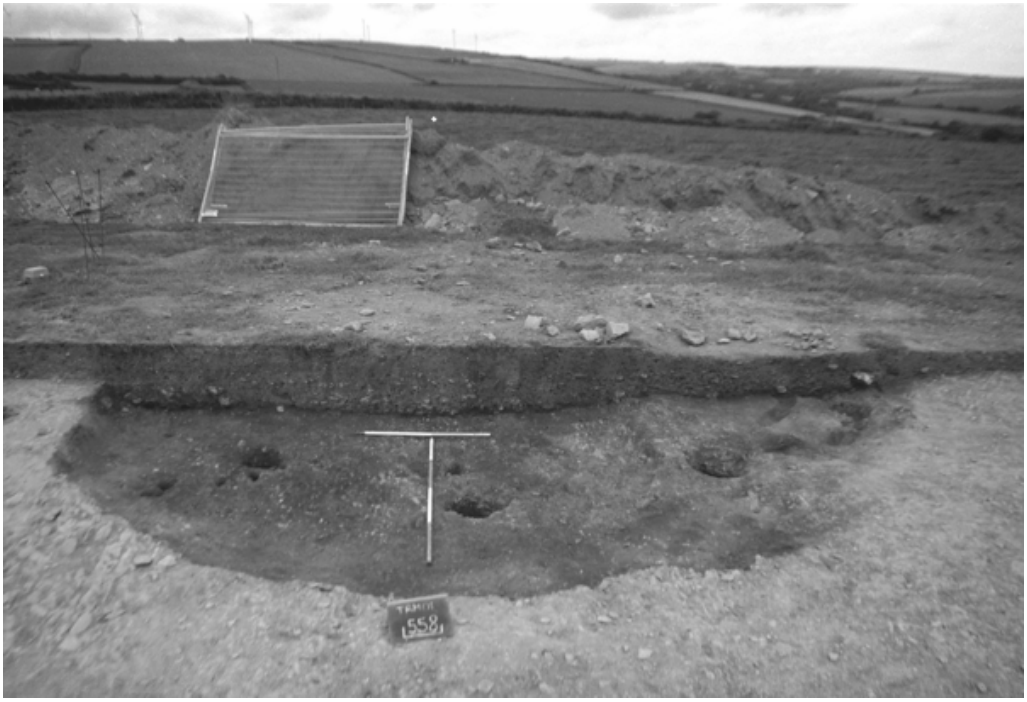

Fig 15:The excavated roundhouse looking southwest

4.3 Discussion

There was no indication of any features or artefacts that predated the roundhouse in the immediate vicinity. The nearest possible pre-roundhouse features consisted of two small, shallow circular charcoal filled pits. Cut [60] was located in the adjacent F19 to the east of the roundhouse (see Section 3.2). The dating of the feature is uncertain but could be prehistoric as the feature may have been a small hearth or 'deposition pit' which included a large amount of charcoal in its fill. Similar deposition pit features in other parts of Cornwall have been dated to the Neolithic period (eg Lawson-Jones 2002). Pit [132] was perhaps a more likely candidate for an early date. Situated in F17 to the west of the roundhouse this small pit was filled with charcoal and quartz pebbles. Although the feature lacks direct dating evidence, the presence of quartz pebbles indicates that it could date to the Neolithic or Early Bronze Age periods. White quartz pebbles and charcoal are often found together in associated contexts within ceremonial monuments (eg Griffith 1985; Christie 1988 and Miles 1971; 1975). The quartz pebbles could indicate that the pit was backfilled with a degree of formality when its use had finished.

Phase 1 witnessed the construction of a roundhouse in the saddle of a broad hilltop. There was little evidence that the area had been occupied prior to the construction of the site, although the two small deposition pits containing frequent charcoal in the adjacent fields may indicate, for example, that the area had been passed through by people as part of a seasonal circuit. There was also a dearth of evidence for contemporary activity; none of the adjacent ditches associated with removed field boundaries appeared to be associated with the roundhouse though it is possible that other roundhouses were located beyond the confines of the pipeline corridor, as proved to be the case at Callestick (Jones 1998/9).

The roundhouse was circular in shape with an entrance in the southeastern side. It was set within a cut lined by stony wall material. A ring of internal postholes supported the roof.

There is some evidence for organisation of the space within the roundhouse. An area to the left of the doorway was screened from view by an alignment of posts. A similar arrangement of posts on the left of the doorway was found in a Bronze Age roundhouse at Callestick which lies just 9.5km to the southwest of the Trevilson site (Jones 1998/9), and this may reflect a shared architectural tradition. A second grouping of stakeholes and a gully were located in the northwest part of the roundhouse. These features may also have been associated with an activity area within the house and it may be significant that this area of the building was sealed beneath a special deposit of charcoal and baked clay/briquetage. A radiocarbon determination was obtained from the fill of the gully [536] Wk12680 3077±56BP (1450-1120 cal BC).

The excavated evidence suggests that the roundhouse was probably single phase, but the site was devoid of contemporary occupation material or definitive evidence of use. However, in contrast to the lack of occupation material, the abandonment phase was complex and provided the majority of the artefacts.

The transformation of the site followed a sequence which bears a number of striking comparisons with other Middle Bronze Age sites in Cornwall (eg Trethellan Farm, Nowakowski 1991, and Penhale Moor, Jones *et al* 1994) and with the recently excavated Later Bronze Age house at Callestick (Jones 1998/9). In common with the above sites the Trevilson roundhouse was infilled with a variety of deposits, including earth, broken pottery, stone, quartz blocks, burnt wood, and charcoal. Posts were uprooted and stony deposits were placed into some of the postholes. A radiocarbon determination was obtained from deposit (510) within posthole [512], Wk12678 3008±56BP (1410-1050 cal BC).

However, each site seems to have its own 'biography' that borrowed elements from the general abandonment pattern. In particular the abandonment of the Trevilson roundhouse was associated with an unusual placed deposit containing fragments of baked clay (see Section 9.1). As this deposit contained charcoal and 'slag' (see Section 9.5) which had probably been formed through the burning of calcareous sand, some of the baked clay objects have been interpreted as briquetage, associated with salt making. This activity may have taken place elsewhere on the coast and the deposit may have been brought to site in this form, rather than providing direct evidence for salt making within the roundhouse. A radiocarbon determination was obtained from the layer (524), Wk12679 3004±56BP (1400-1040 cal BC).

It also appears that some of the stakes appear to have been burnt before being placed beside the stakeholes. Charcoal analysis of the burnt wood (see Section 10.3) revealed that the tapering end of one of the posts still survived. As none of the stakeholes or postholes showed any sign of burning, this suggests that at least some of the stakes/posts were removed from their sockets prior to being burnt offsite and replaced next to their sockets. A similar pattern appears to have emerged with the walling. Much of the walling appears to

have been dismantled and laid as spreads of flat stones within the infilled hollow.

The analysis of the carbonised plant remains from the roundhouse soil samples are of interest (see Section 10.1.4). It has revealed that the main upper infill layers (505) and (506) contained very few cultivated remains within them, whereas the charcoal rich deposits (518), (524), (531) and (534) that had been placed on the bottom of the roundhouse contained small but higher concentrations of cereals and other cultivated plants (Section 10). The study of the ceramics has also found that most of the pottery was found within another layer (507), which was also deposited in the bottom of the house. This may suggest that the various infill materials may have been taken from different middens that were used for the storage of different types of materials.

5 Pollamounter: Romano-British enclosure

5.1 Background

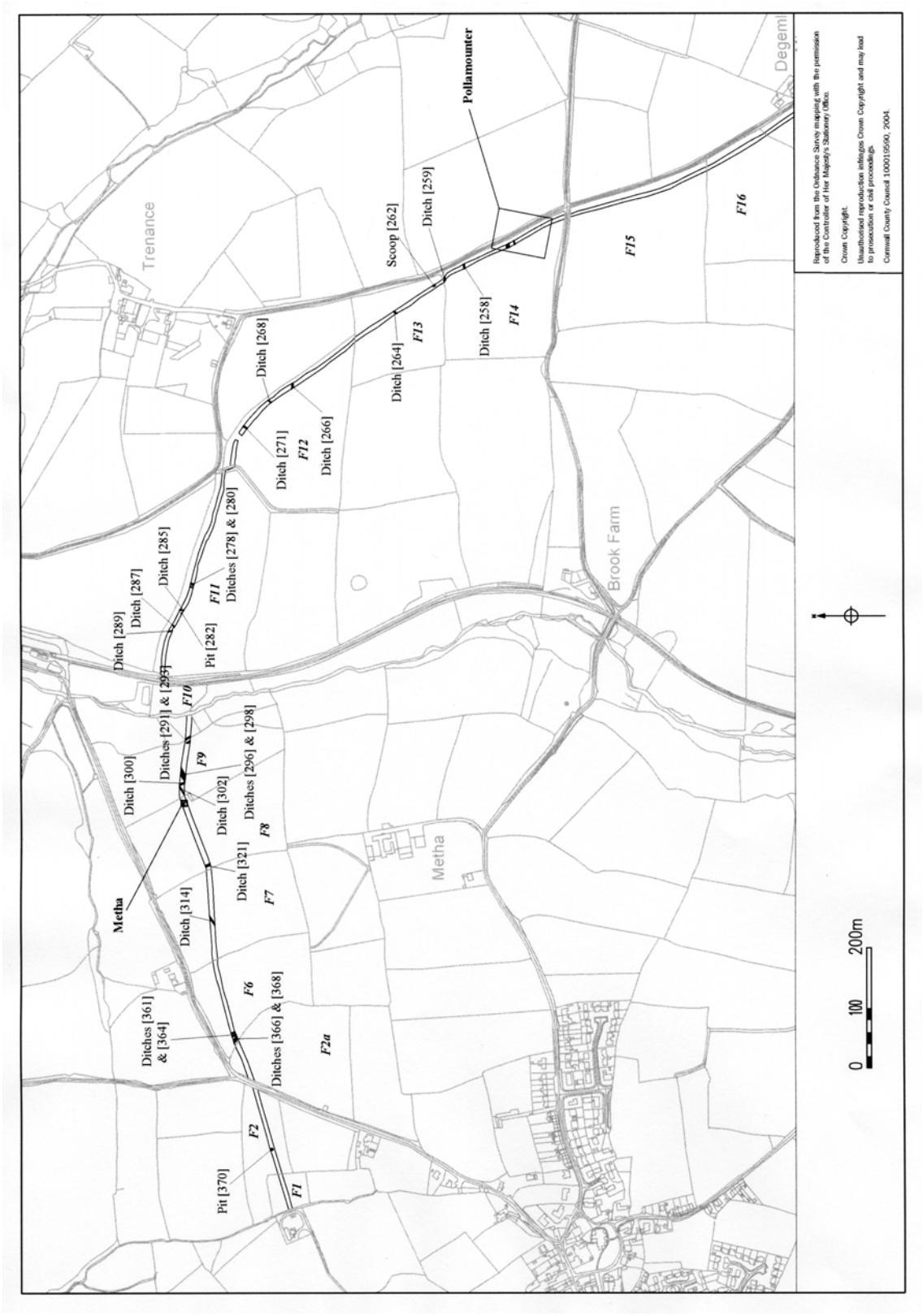

Fig 16: Site Location Map - West

Approximately 330m to the west of the farming settlement at Pollamounter a series of linear and enclosure type anomalies were recorded by the geophysical survey (GSB 2001). The desk based study (Taylor 2001) also identified a large ditched feature visible on aerial photographs (Fig 2). The feature appeared to be cutting off the end of a ridge from the lower ground which lay to the northwest. It was likely that the large ditch may have formed part of a Romano-British enclosure. This area (F14) was targeted for controlled topsoil stripping (SW84545645).

5.2 Stratigraphical summary

The controlled topsoil stripping led to the identification of two clusters of archaeological features southeast of the large enclosure ditch [142]: a group of curvilinear slots, ditches, and pits in the centre of the stripped area, and a dispersed spread of pits and ditches near to the large enclosure ditch.

Central group of features to the southeast of [142]

The nucleated group of intersecting curvilinear and linear slot and ditch cuts was identified approximately 40m to the southeast of the enclosure ditch [142]. The group consisted of two intersecting oval ring slots, [202] and [204]/[226], which have been interpreted as being associated with two 'boat'-shaped structures (Structures 1 and 2), and two linear ditches [184] and [229] which appeared to be part of a field system (Figs 18 and 19). Unfortunately the relationships between most of these features was unclear due to later posthole/pit cuts [220] and [233], that were located at the intersection of [184] and [229], and Structures 1 and 2. The curvilinear slot [226] is probably represented to the east by slot [204] which would give Structure 2 a width of approximately 5.7m. Slot [204] was of similar depth (0.15m) to the other components of Structures 1 and 2, which ranged from 0.10m to 0.28m, with deeper sections up to 0.58m deep. All of these slots were between 0.5m and 0.6m wide and had concave profiles with slightly flattened bases. The width of Structure 1 can be tentatively estimated at 4.4m from the revealed extent of the ring slot. The length of neither structure was established but Structure 2 was at least 12m long and Structure 9 was probably at least 9m long.

Most of the fills of these features produced Romano-British pottery and they may be near contemporary in date. A further problem associated with identifying the relationships between the features in this area was that their fills were almost identical in nature. All were light to mid-orange brown silty clays and without clearly defined cuts within these fills it proved almost impossible to differentiate between them. Some of the postholes which cut into these fills, for example posthole [222], were only identified by a layer of stone that was found around the base and sides of the cut, either deliberate post-packing or the result of a post being hammered into the soft fill (230) and forcing stones to the periphery of the hole thus formed.

However, three tentative phases of activity were established by the analysis of the stratigraphy. Firstly it was found that the rectilinear field ditches were the earliest features. The stratigraphical relationship between Structure 1 (slot [202]) and field ditch [229] revealed that the linear ditch was cut by Structure 1. Therefore the available evidence suggests that the two linear ditches [184] and [229] predate Structures 1 and 2. A relationship between [204], the eastern side of Structure 2 and ditch [206] was unclear, also due to identical fill colours and textures, but ditch [206] shares an alignment with [184] and could be contemporary with this and ditch [229]. The rectilinear ditches appear to be part of a ditched field system. It is possible that they belong to a pre-enclosure phase of activity or that part of the space within the main area was divided up into paddocks or small fields and was only later used for dwellings.

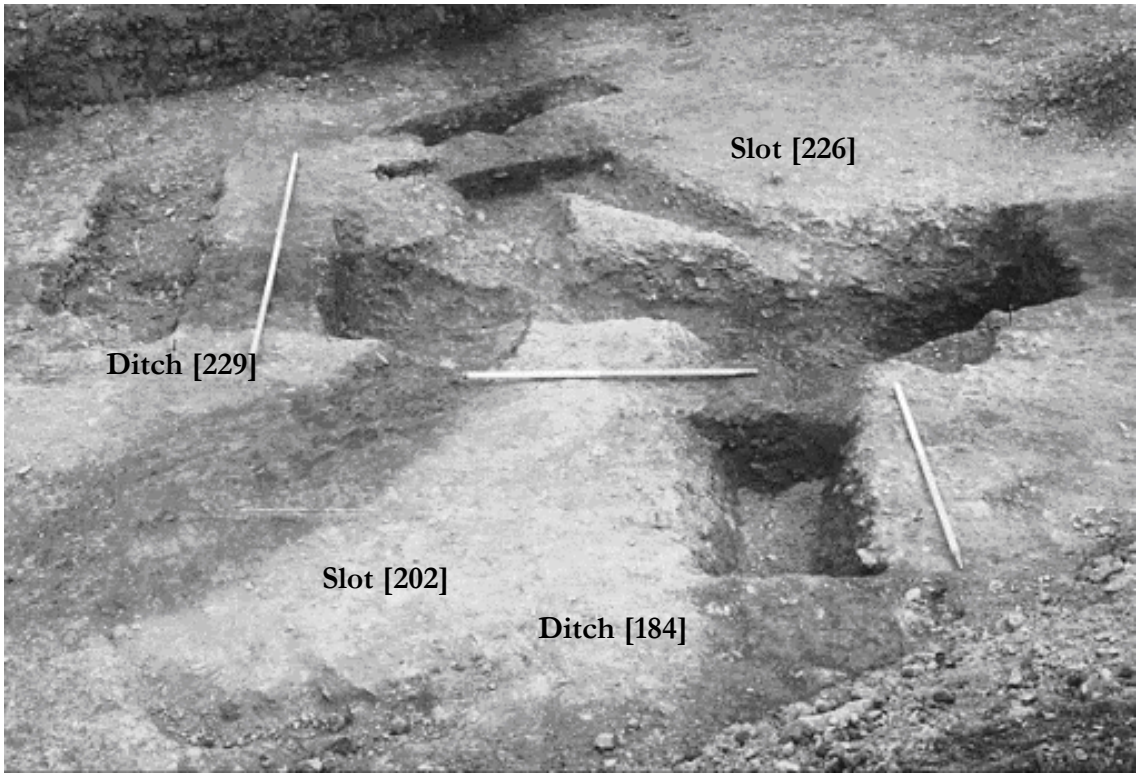

Fig 17: Intersecting enclosure and field ditches at Pollamounter, looking east

A second relationship was found between Structures 1 and 2. The two structures were laid out end to end, but were slightly overlapping; it was tentatively recorded that Structure 1 cut Structure 2. This would indicate that there was a succession of buildings, or as is perhaps more likely since the degree of overlap was quite small, that the two structures are contemporary.

The third relationship related to a group of four postholes within the slot fills of Structures 1 and 2, two, [222] and [224], within the fills of Structure 1, and [220] within the fill of Structure 2. The fourth [233], cut the edge of Structure 2. The lack of darker fills within the postholes might reflect the removal of these posts, rather than decay or burning *in situ*, which might have produced a darker fill. This might suggest that the posts were associated with a temporary structure, though the form of this building is uncertain.

Ditch [208], 0.30m deep, crossing the pipeline corridor to the northwest of this complex of features, clearly cut Structure 1 and thus post-dated it. It is likely that this feature was a removed field boundary of medieval origin.

Enclosure [142] and adjacent features

A small group of dispersed ditches and pits lying between enclosure ditch [142] and the features described above were also revealed by the controlled topsoil strip (Figs 18 and 19). A small circular pit [242] contained three fills, the upper two of which contained Romano-British pottery, whilst the primary fill (251) and fill (250) (see Section 9), contained fragments of burnt sheep bone. The fill of ditch terminus [238], 0.42m deep, also contained Romano-British pottery and it seems likely that the two are contemporary. Adjacent to [238] an additional ditch terminus or pit [240] was excavated against the southwestern baulk section. Unfortunately the primary fills of the feature failed to produce any finds, the only artefact, an abraded medieval potsherd, coming from what appeared to be a small pit-type feature [246]/(247), cut into the top of the upper fill. The relationship therefore between cut [240], ditch [238], and pit [242] remains unclear.

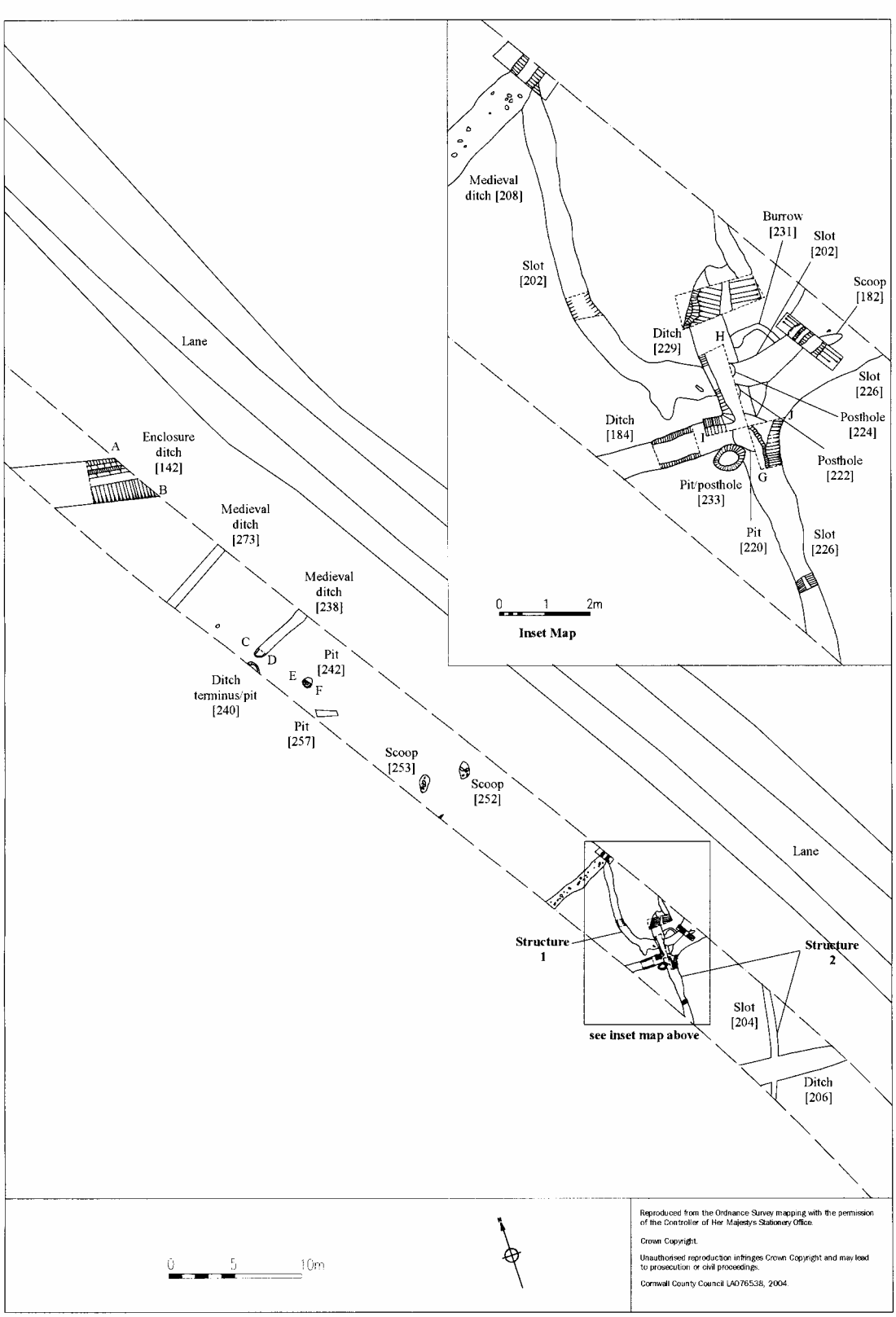

Fig 18: Pollamounter

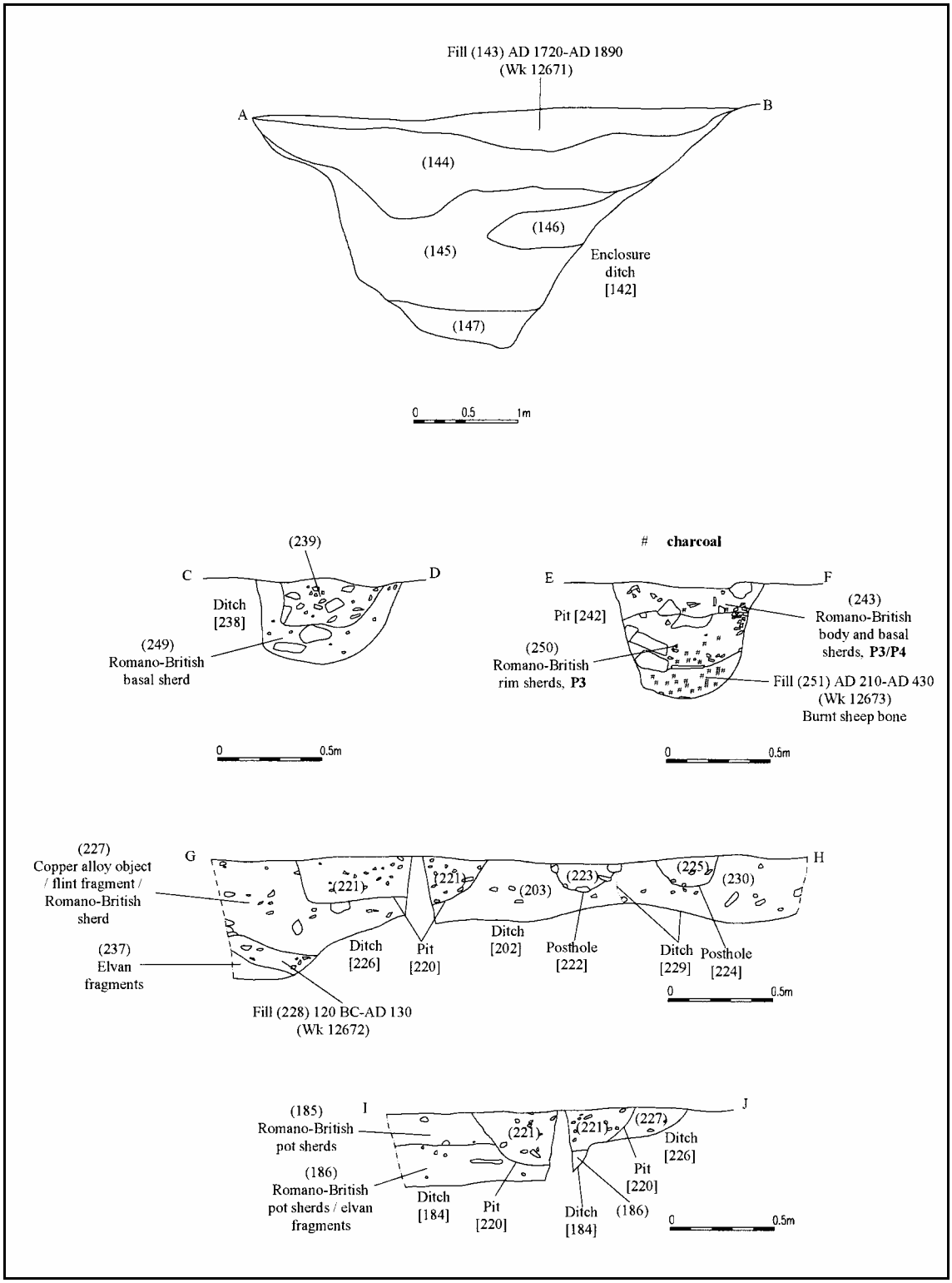

Fig 19: Pollamounter sections

To the north of this group of features another ditch [273], crossed the trench. This feature, 0.50m deep, shared the same alignment (ENE-WNW) as ditches [208] and [238]. To the south of the main cluster of features were two shallow scoops [252] and [253], that are likely to represent a truncated feature or features of unknown function. If they do represent a single ditched feature then they would share an alignment with ditch [206] and with the large enclosure ditch [142].

To the north of these features was the large enclosure ditch [142] that had been identified by the assessment (Taylor 2001). It ran from east to west across F14, turning to the southwest and then southeast at its western end. The shape of the ditch in plan was rectilinear but rectilinear. Excavation revealed the ditch to be a massive feature some 2.26m deep and 4.7m wide, and containing four to five fills. The depth, colour (greyish brown), and nature (rock-filled) of the secondary fill (145) suggests an unoxidised material. This may represent material buried within a bank formed from spoil excavated from the ditch, or an immediate backfilling of spoil. Although no evidence for this was found, any bank is likely to have been located on the southern side of the ditch. There is the slight suggestion of a recut ditch in fill (145) on the northern side of the ditch.

It seems likely that enclosure ditch [142] was intended to enclose either the area of activity to the south and east, or represents a much larger-scale fortification of the higher ground to the south, though the plan derived from the aerial photograph (see Fig 2) make this seem unlikely.

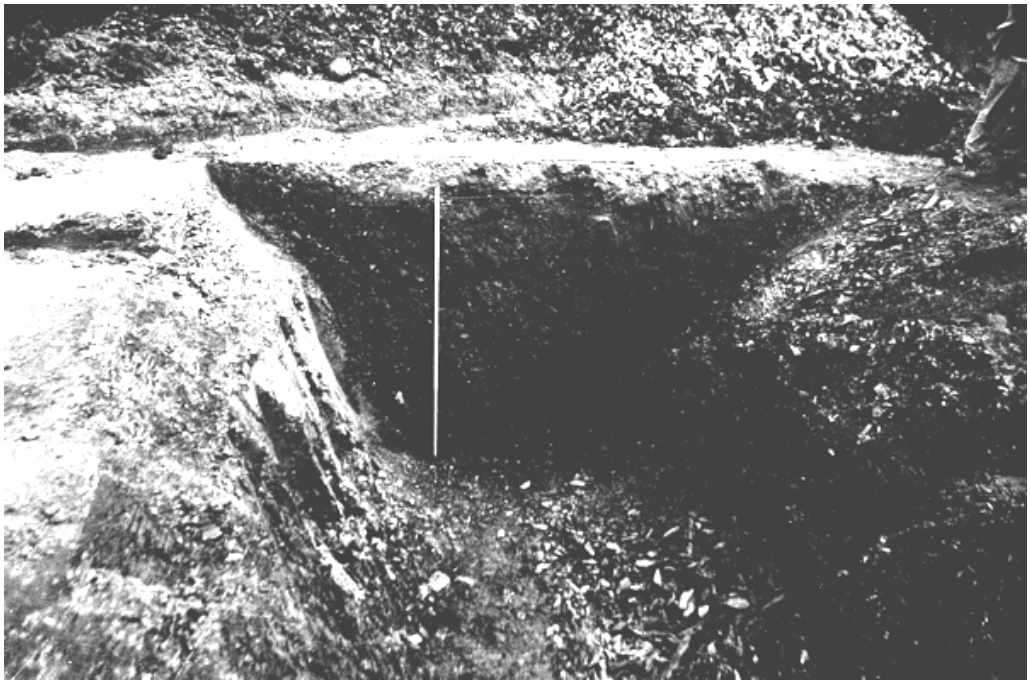

Fig 20: Enclosure ditch [142], looking east

Environmental evidence

Environmental evidence included plant macrofossils in the form of wheat, barley, oats, and some weed species (Section 10.1.4), and charcoal in the form of hawthorn, blackthorn, oak, gorse/broom, willow, and poplar (Section 10.2.4). The evidence indicated that by the Romano-British period there may have been a more extensively farmed landscape.

5.3 Discussion

The controlled topsoil strip at Pollamounter confirmed the findings of the assessment and geophysical survey, which had indicated the presence of a substantial enclosure feature and

a series of linear anomalies to the southeast of it. However, the complexity of the archaeology was far greater than was indicated by the geophysical survey. In addition to the enclosure ditch a scatter of dispersed features, a nucleated group of inter-cutting ditches and slots, pits and postholes were revealed.

Most of the nucleated group of features date to the Romano-British period and seem to relate to four broad phases of activity. An initial phase of ditched rectilinear features which may have belonged to a field system ([184] and [229], and possibly [252]/[253]), was followed by two oval ring 'ditches' [202] and [226] which could have been gullies or foundation slots associated with two 'boat' shaped structures (Structures 1 and 2 respectively) that were constructed end to end (See Section 12.1.4 for a fuller discussion on the evidence for these features). This second phase has been radiocarbon dated to the late Iron Age/early Romano-British period, Wk12672 1988±54BP (120 cal BC-cal AD 130). Finally a series of postholes were excavated in this area, [220], [222], [224] and [233], which may belong to a timber structure, although its shape cannot be determined.

The dispersed features to the northwest of the nucleated group are more difficult to phase as they were not inter-cutting. The pits ([242], [252], [253] and [257]) could be associated with the third phase of activity, which was found to post-date the two curvilinear features, or could have been rubbish pits associated with the two 'boat' shaped structures. The evidence of burnt bone and pottery within pit [242] is indicative of settlement activity in the immediate vicinity. However, the radiocarbon date from pit [242], Wk12673 1732±52BP (cal AD 210-430), post-dates the date from the 'boat' shaped structure by at least a century and may be associated with a later phase of settlement activity, outside the excavated area. The location of rubbish pits in close proximity to enclosure and/or major boundary ditches is a feature of Iron Age and Romano-British settlements and may therefore be significant (see Jones forthcoming a).

The linear ditches [208], [238] and [273] are more difficult to date. Although a Romano-British potsherd was recovered from the primary fill of [238], ditch [208] clearly cut Structure 1, and their alignment perpendicular to the extant boundary to the east suggests that they may represent a medieval strip field system.

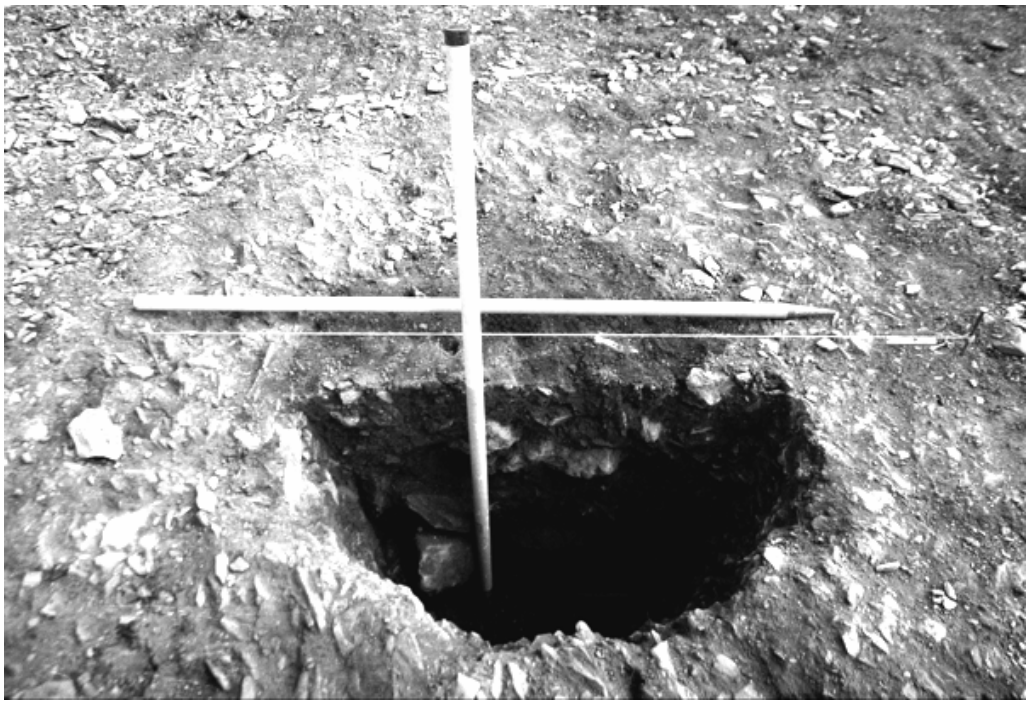

Fig 21: Pit [242] Looking northeast.

Another important finding of the controlled topsoil stripping was that the enclosure ditch [142] effectively contained all the evidence for Romano-British activity. No features were found outside (to the northwest) of the enclosed area. This would suggest that the enclosure ditch predated or was contemporary with the three identified phases of activity.

6 Metha: prehistoric activity

6.1 Background

This section covers a long, archaeologically disparate, section of the pipeline corridor stretching from F1 to F11 (SW83015689 to SW83925707) (Figs 16 and 27). The geophysical survey identified two areas of potential interest in F8 and F11. The former contained two large sub-circular anomalies whilst the latter produced a series of linear anomalies centred in the area around a square enclosure (GSB 2001). The pipeline corridor in F11 was re-routed subsequent to the completion of the geophysical survey and the anomalies at the locations subject to the survey were not investigated. Four pits, one dating to the Neolithic and three to the Bronze Age were uncovered in this area.

6.2 Stratigraphical summary

Neolithic pit

Evidence for the Neolithic occupation of the area came in the form of a small pit [370], (Figs 16 and 22, top) located at the western extreme of the pipeline. Unfortunately the pit was only spotted in section after the narrow pipe trench had been excavated so its exact shape in plan has not been recorded and some artefactual and environmental evidence may have been lost. However, four flint flakes were recovered and at least two have been identified as of Neolithic origin (see Section 9.2). Another similar flake of flint was recovered from the spoil heap in this field. The primary pit fills (372a), and (372b) both contained substantial quantities of charcoal. Charcoal from the primary fill (372b) was submitted for radiocarbon dating. The resulting determination was middle to later Neolithic, Wk12676 4505+68BP (3400-2900 cal BC).

Early Bronze Age pit

The geophysical survey (GSB 2001) recorded a number of anomalies in the field to the east of the Lappa Valley railway (F11). At the eastern end of this field a circular feature and a concentration of linear features of various alignments was identified. These were of considerable interest due to the proximity of a series of enclosures and ditches of probable prehistoric date and ditches identified from aerial photographs in the field to the north (Taylor 2001). However, the route of the pipeline was changed through this field and the expected anomalies were not investigated. Instead the pipe corridor passed immediately to the south of the field boundary running along the northern edge of this field. Few features were recorded along this stretch of the pipeline (discussed in Section 7). The shallow pit [282] (Figs 16 and 22, bottom) was located just to the west of linear ditch [285] and contained a large sherd from an Early Bronze Age Food Vessel and a flint flake, possibly a projectile. Charcoal from the primary fill (283) was submitted for radiocarbon dating. The resulting determination was an Early Bronze Age date, Wk12674 3984±56 BP (2700-2300 cal BC).

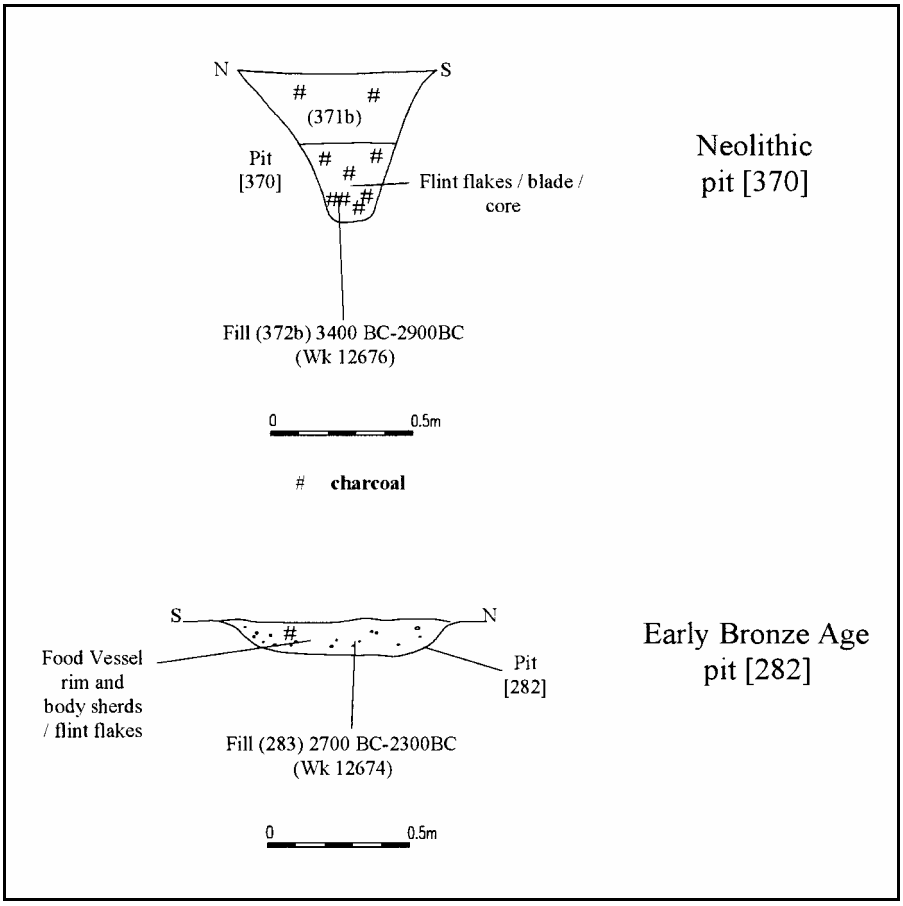

Fig 22: Metha: Sections through pits [282] and [370]

Fig 23: Early Bronze Age pit [282]

Middle Bronze Age pits

To the west of the valley two large sub-circular anomalies were identified by the geophysical survey (GSB 2001). These were located during the course of the archaeological fieldwork, one [310], extending halfway into the pipeline corridor, the other [318], less than 0.1m from the southern baulk. The former was excavated and found to be a large sub-circular pit up to 2.9m in diameter and 1.3m deep (Fig 25). The latter could not be excavated to any great depth due to its location at the edge of the pipeline corridor. However, the similarity of its geophysical signature with [310] would tend to suggest that its dimensions would be comparable. Pit [310] contained a complex sequence of deposits, which, combined with its dimensions, suggests a parallel with pit [45] in Church Close (see Section 3). An initial deposit of backfill (537)/(538) appears to have been followed by a period of gradual silting interspersed with turf formation (360), and at least one episode of burning (356). The pit then appears to have been abandoned for some time allowing the build up of thick deposits before a final phase of use represented by the cutting of a small pit [359], within the uppermost deposit (312). Unfortunately no artefacts were recovered from the feature, so charcoal from the primary fill (358) was submitted for radiocarbon dating. The resulting determination was Middle Bronze Age in date, Wk12675 3258±53BP (1690-1410 cal BC).

Environmental evidence

Environmental evidence was recovered from three of the features. Plant macrofossils and charcoal (Sections 10.1.5 and 10.2.5) included hazel and hazel nut fragments, hawthorn, oak, blackthorn, perhaps birch and an apple pip from the Neolithic pit [370]. Hazel, holly, Pomoideae, alder, oak, and gorse/broom were found in the Early Bronze Age pit [282] and grass caropsyes, sloe stones, hazel nut shells, blackthorn, hawthorn and bramble pips, and oak buds from the Middle Bronze Age pit [310].

The limited environmental evidence from this area indicated that mature woodland had existed in the Later Neolithic and Early Bronze Age but there was no evidence of cultivation. Pit [310] provided some evidence for the presence of hedged boundaries.

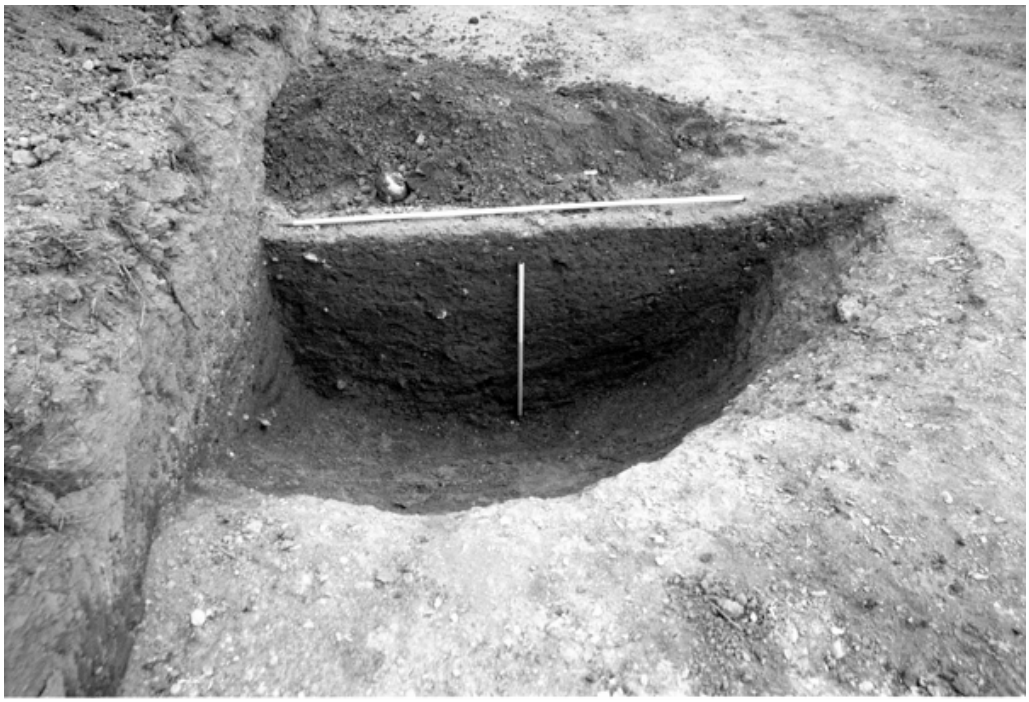

Fig 24: Middle Bronze Age pit [310]

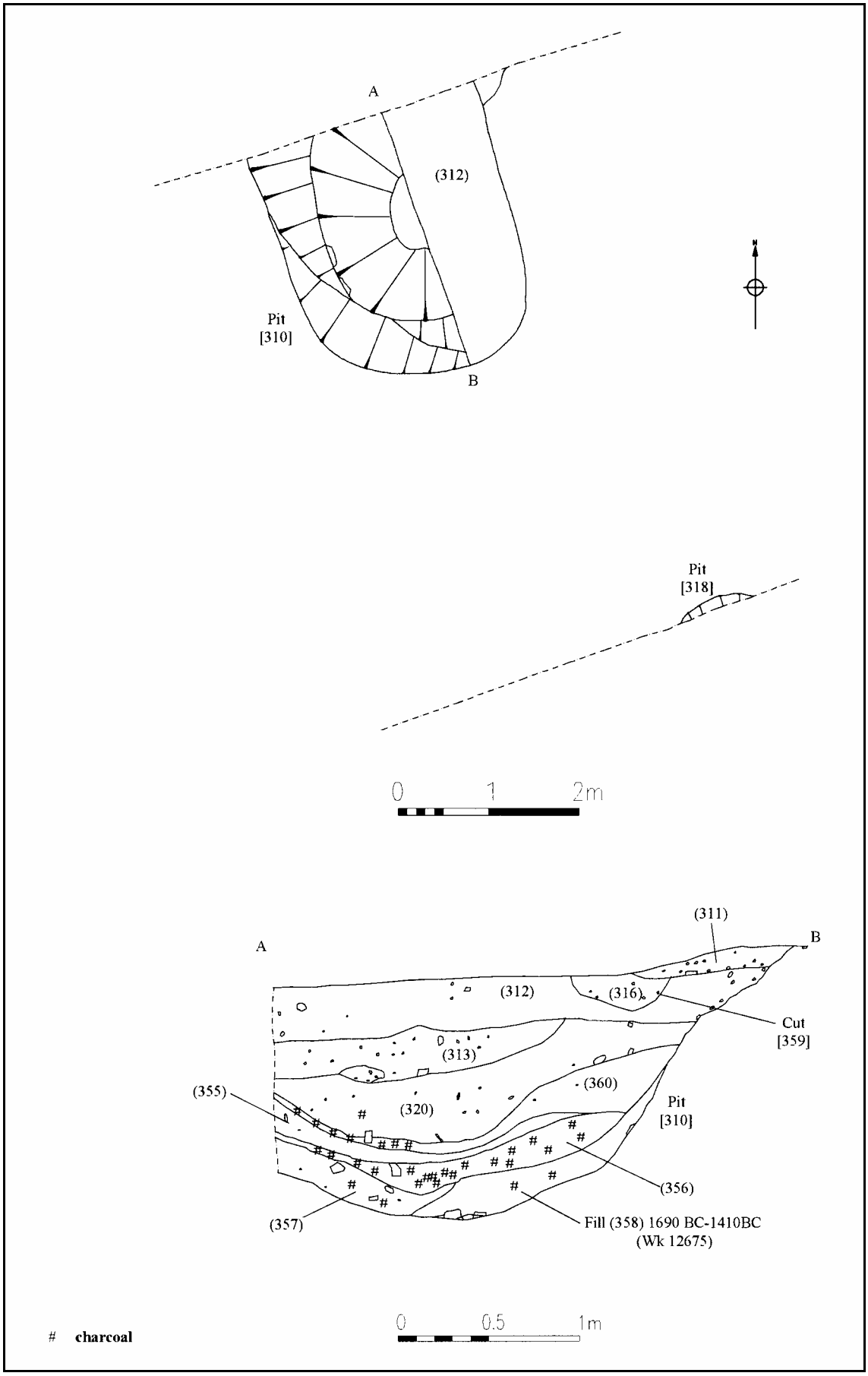

Fig 25: Middle Bronze Age pit [310] at Metha

6.3 Discussion

The evidence from the Metha area is indicative of three broad phases of prehistoric activity. The first is characterised by scattered pits ([282] and [370]) which have produced artefacts and radiocarbon determinations which date to the Neolithic and Early Bronze Age periods. Both pits contained oak charcoal (as do most of the prehistoric features, see Section 10) which indicates that much of the area may have been wooded. It is possible, given the lack of fixed occupation sites and the evidence for woodland, that settlement activity may have been of a temporary or seasonal nature, associated with the movement of livestock.

The second phase of activity in the area is represented by the Middle Bronze Age radiocarbon determination from the large pit [310]. The environmental information from this pit suggests (Section 10) that hedgerows may have been in existence by this time, indicating that the landscape may have been divided up by the Middle Bronze Age.

The third phase of activity in this area mostly lay outside the pipeline corridor in the form of crop-mark enclosures that are likely to be of Iron Age/Romano-British date (Taylor 2001). This suggests that the landscape was less wooded and was subdivided by boundaries.

7 Ditched field systems

A total of thirty nine single or double linear ditched features were recorded during the archaeological fieldwork (Figs. 3 and 16). Many of these are assumed to be representative of removed boundaries of medieval origin although some are remnants of smaller older field systems of later prehistoric or Romano-British date. Of the thirty nine, ten are double ditched features, probably representing traditional Cornish hedges, which would have consisted of a central wall or bank with a ditch to either side. The remaining twenty nine were single ditches which could have been associated with medieval strip field boundaries or prehistoric field divisions. However, the possibility that some of these are the ploughed-out remnants of medieval ridge and furrow should not be overlooked. The majority, though not all, of these features conformed in their alignment with the current field patterns.

The ditches exhibited certain characteristics in terms of dimensions and profile that could be used to group them. In conjunction with the degree of conformity in their alignments to the extant field system this has allowed a certain level of interpretation with regard to their dating. There are of course a number of uncertainties associated with this method of quantification of such features, not least of which is the unknown degree of truncation that they may have suffered. The most useful data included within Table 1 is the degree of conformity of the alignment of the excavated feature with the extant field boundaries. Comparison between other characteristics of the ditches reveals little of apparent value. However, some generalisations can be made. For instance double-ditched features are most likely to be post-medieval Cornish hedges, although some may have medieval origins.

Table 1: Analysis of field ditches

Area	Field	Feature	Depth	Width	Group[1]	Aligned[2]	Period[3]
Church Close	F23	[2]	0.40	1.50	A1	Y	M
Church Close	F21	[26]	0.20	1.00	B1	Y	PM
		[28]	0.08	0.80	C3		
Church Close	F20	[43]	0.50	0.90	A4	Y	M
Church Close	F20	[48]	0.43	1.10	A2	N	P
Church Close	F20	[51]	0.14	0.60	C3	N	P
Church Close	F20	[53]	0.07	0.80	C3	Y	M
Church Close	F19	[62]	0.60	1.55	A2	Y	M
Trevilson	F18	[66]	0.20	0.50	B2	Y	M/PM
		[68]	0.14	0.50	C1		
Trevilson	F18	[70]	0.08	0.5	C4	Y	M
Trevilson	F18	[72]	0.32	0.55	A4	N	M
Trevilson	F18	[76]	0.36	0.60	A2	N	M
Trevilson	F18	[78]	0.40	1.50	A1	Y	M/PM
		[80]	0.18	1.10	B7		
Trevilson	F18	[93]	0.36	1.40	A1	Y	M/PM
		[95]	0.10	0.80	C7		

Area	Field	Feature	Depth	Width	Group[1]	Aligned[2]	Period[3]
Trevilson	F18	[97]	0.10	1.00	C7	Y	M/PM
		[99]	0.15	0.90	B6		
Trevilson	F18	[101]	0.25	0.90	B1	N	M
Trevilson	F18	[136]	NR	1.00	-	Y	M
Trevilson	F17	[134]	0.36	0.58	A4	Y	M
Pollamounter	F14	[206]	0.40	0.95	A1	N	P
Pollamounter	F14	[208]	0.30	0.90	B7	Y	M
Pollamounter	F14	[238]	0.42	0.70	A2	Y	M
Pollamounter	F14	[273]	0.50	0.70	A1	Y	M
Pollamounter	F14	[258]	0.05	0.50	C4	Y	M
Pollamounter	F14	[259]	0.20	0.80	B3	Y	M/PM
Pollamounter	F13	[264]	0.14	0.80	C5	N	P
Pollamounter	F12	[266]	NR	NR	-	Y	M
Pollamounter	F12	[268]	0.72	1.04	A2	N	P
Pollamounter	F12	[271]	0.52	1.10	A2	N	P
Metha	F11	[278]	0.22	1.80	B7	Y	M/PM
		[280]	0.18	0.75	B7		
Metha	F11	[285]	0.22	0.57	B4	N	P
Metha	F11	[287]	0.08	0.48	C5	Y	M
Metha	F11	[289]	0.10	0.37	C5	N	P
Metha	F9	[291]	0.13	0.75	C5	Y	PM
		[293]	0.16	1.00	B1		
Metha	F9	[296]	0.25	2.36	B5	Y	PM
		[298]	0.20	2.00	B5		
Metha	F9	[300]	0.17	0.85	B1	Y	M
Metha	F9	[302]	0.13	0.85	C2	Y	M
Metha	F8	[321]	NR	NR	-	Y	M/PM
Metha	F7	[314]	0.14	1.80	C1	N	P
Metha	F6	[361]	0.54	0.70	A5	Y	M/PM
		[364]	0.40	0.60	A2		
Metha	F6	[366]	0.25	0.60	B2	Y	PM
		[368]	0.24	0.55	B2		

[1]A = deep (>0.30m), B = medium (0.15m to 0.30m), C = shallow (<0.15m)

1 = steep gradient - u-shaped - shallow gradient

2 = steep gradient - u-shaped - steep gradient

3 = shallow gradient - u-shaped - shallow gradient

4 = steep gradient - flat - steep gradient

5 = steep gradient - flat - shallow gradient

6 = v-shaped

7 = irregular

NR = no record

[2]Aligned with extant field system

[3]P = late prehistoric/Romano-British, M = medieval, PM = post-medieval

7.1 Late prehistoric/Romano-British

A number of the ditched features excavated are thought to pre-date the underlying field system of medieval origin. A total of nine ditches can be seen to vary from the extant field layout that is predominately orientated around the cardinal points of the compass. In F14, F13, F12, and F7 these ditches are aligned northeast to southwest, whilst in F11 and F20 the alignments are roughly east to west. These variations are undoubtedly the result of local topographic conditions. On the profiles of the nine ditches a general statement could only be made to the effect that none of the ditches were V-shaped or irregular; the remainder of the ditch groupings were spread throughout the ditches. Other ditches aligned with the present field pattern may also be of early origin, though this is impossible to demonstrate from the present evidence.

The thin scatter of six ditches in the four fields north of the enclosure at Pollamounter (F11-F14) hints at an underlying enclosed landscape across this area.

Two of the ditches of prehistoric origin, [48] and [51] in Church Close, lay perpendicular to each other and may represent a small enclosure rather than elements of a field system.

7.2 Medieval/post-medieval

The remaining ditches are believed to be of medieval or later origins. The predominant alignment of the field systems is based around the cardinal points of the compass, with the exceptions of those in F9, F11, and F18 where the local topography has dictated a northeast to southwest alignment. Many of these ditches are single features and the majority have u-shaped profiles. Of these two, [259] and [321], are ditches alongside former trackways that are shown on the Tithe Map (Taylor 2001, Sites 3 and 9). An additional ditch appears to be a field boundary also shown on the Tithe Map (Taylor 2001, part of Site 13).

Ten former field boundaries consisted of double ditches indicative of Cornish hedges. These are post-medieval in origin but many may be based on boundaries of medieval date. The components of these boundaries often had shallow irregular profiles. Where one of the components of a double ditch was deeper it might be assumed that this is the original medieval ditch. Three of these double ditches, [296]/[298], [278]/[280], and [78]/[80], are shown on the Tithe Map (Taylor 2001, Sites 5, 8, and part of 13). The fill of [78] produced the only artefact of medieval date from any of these features: an everted rim sherd of Lostwithiel Ware.

The evidence from the archaeological recording supplements that from the geophysical survey (GSB 2001) in providing evidence of medieval strip field boundaries. By combining these results and historic maps (1840 Tithe Map and 1880 Ordnance Survey Map), seven areas display evidence of this form of land division: F1, F2, F6, F11, F14, F17, and F18-F20. This is clearest at Trevilson (F18, F19 and F20), particularly in F18 where the fieldwork has added a further five roughly parallel boundaries in addition to the strip-like pattern recorded on the historic maps. Spaces between the ditches are variable and

irregular and perhaps the evidence is incomplete; the width of the strips varies from 11m to 16m at the northwestern end of the field. The ditches probably represent the process of enclosure of formerly unenclosed strips in subdivided arable, at any time from the fourteenth century onwards, with strips or groups of strips that had been defined only by low banks or grassy baulks being enclosed with banks and ditches (see Fox and Padel 2000; Johnson and Rose 1994, 103-114; Preston-Jones and Rose 1986, 151-153). Alternatively some ditches might mark original strip divisions.

Two ditches of medieval origin, [300] and [302] at Metha, lay at right angles to each other and may represent a small enclosure rather than elements of a field system.

Some ditches, notably those in F17 and F18 suggest that other extant features, in this case the lane between Trenance and South Nancemeer (see Section 8), might post-date the underlying field system. In this instance the lane appears to cut across the medieval field system with little regard for the alignment of boundaries both extant and removed. This is true in particular of ditches [72], [76], and [101] which are aligned southeast-northwest. The other ditches within F17, F18, and F19, [62], [66]/[68], [70], [78]/[80], [93]/[95], [97]/[99], [134], and [136] are aligned north-south and would have formed a pattern of strip fields in the area immediately to the northeast of Trevilson.

There were few removed boundaries in the fields at the western end of the pipeline. A ditched feature [321], running parallel to B108 marks the route of a track-way shown on the St Newlyn East Tithe Map (Taylor 2001, site 3). A double ditched feature in F6, [366]/[368] also runs parallel to an extant boundary, B101d, and may represent either a track-way or an adjusted boundary.

Two features not covered elsewhere are thought to be the result of natural processes. Features [8] in F23 and [231] in F14 are likely to be the result of tree root action or animal burrowing whilst feature [262] in F13 was much larger and is thought to be a tree bole.

8 Field boundaries

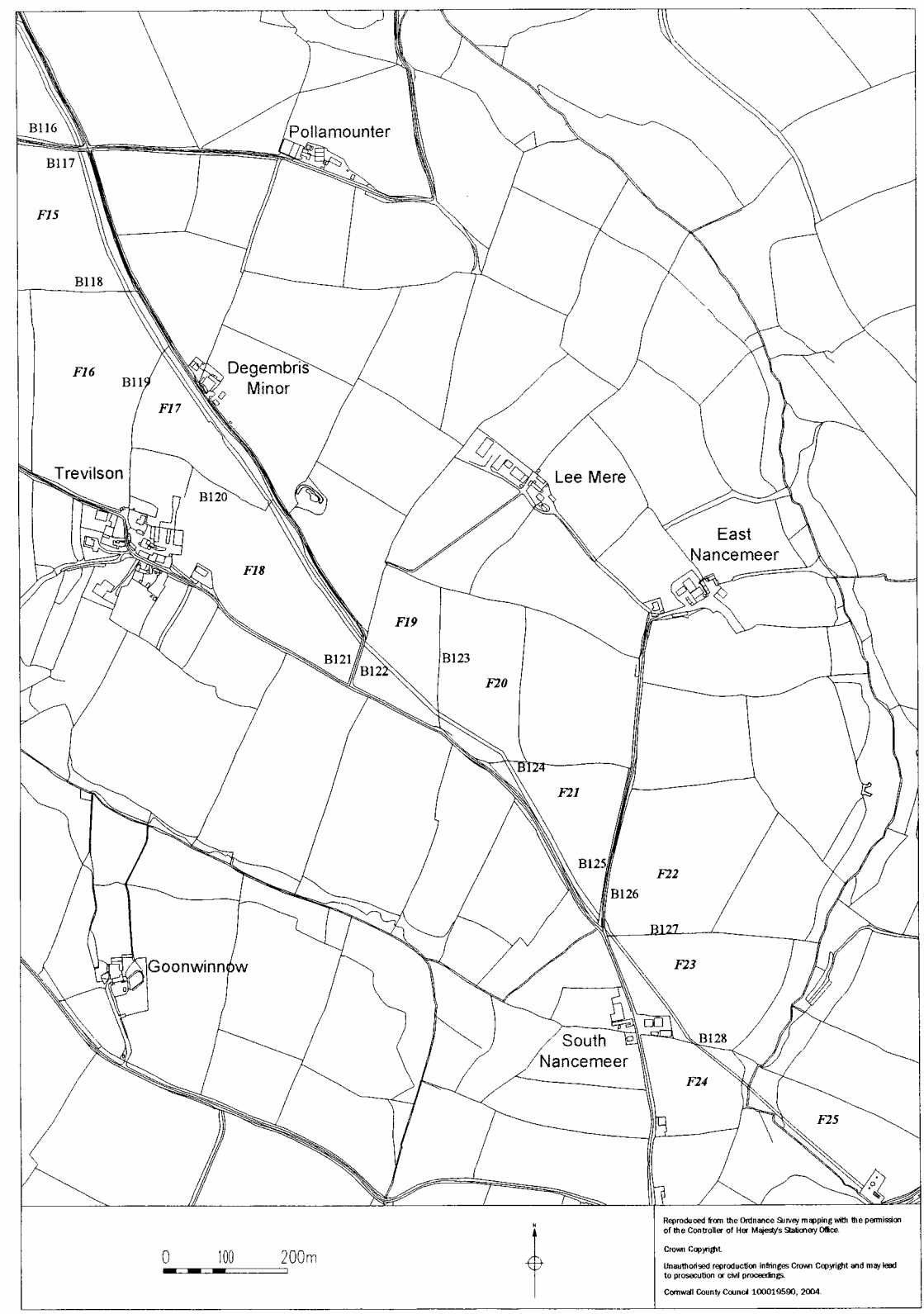

Fig 26: Field and Boundary Location Map - East

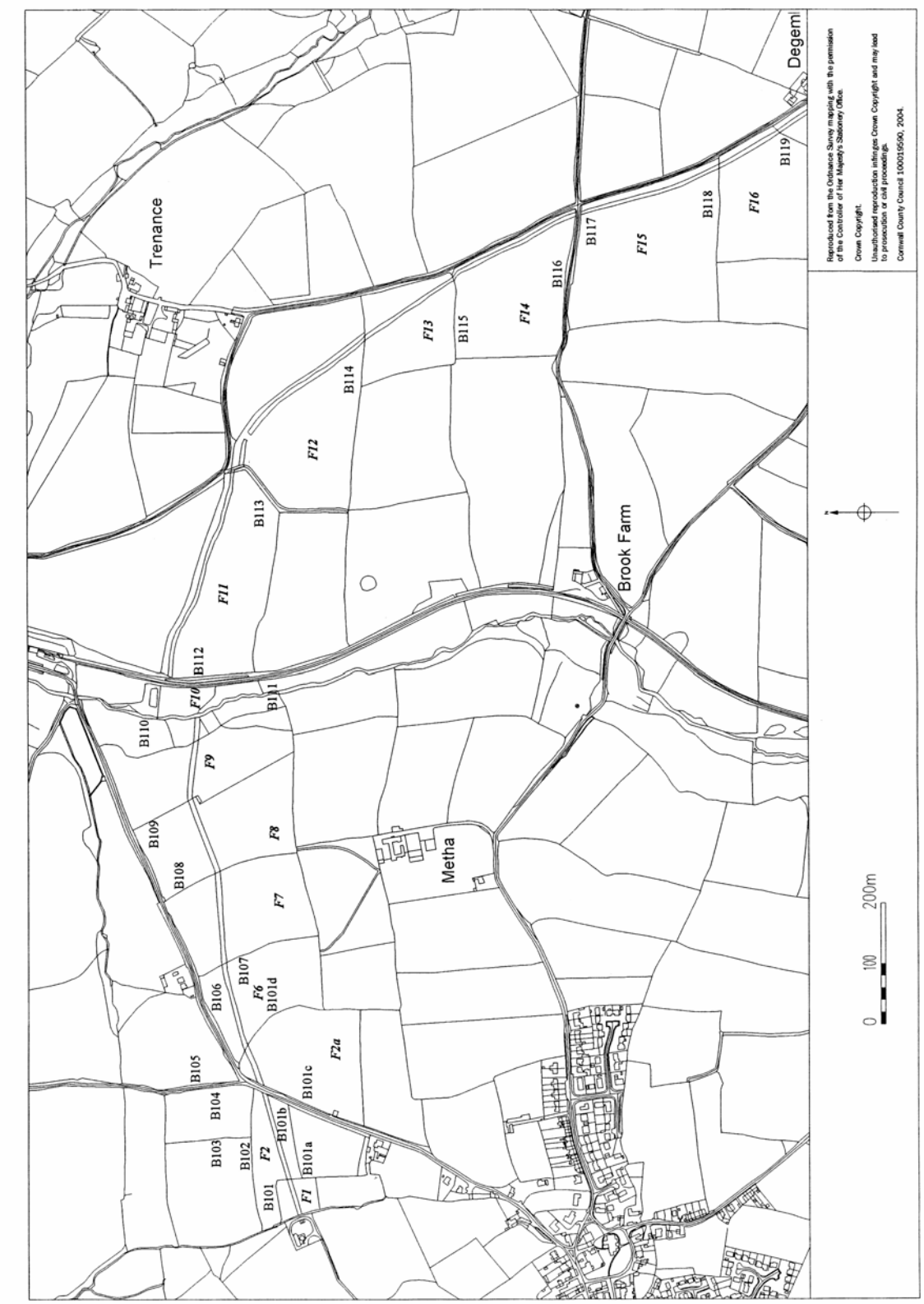

Fig 27: Field and Boundary Location Map - West

Field boundaries are perhaps the commonest of features in the landscape and a major element in defining its historic character. Nineteen boundaries were breached by the pipeline and recorded (Figs 26, 27, 28 and 29). Disturbance to a further six was minimised or avoided by the use of existing gateways or tunnels.

All of these were depicted on the St Newlyn East Tithe Map of 1840. Many of the boundaries are likely to be of medieval origin because of their sinuous form and their association with farming settlements of medieval origin and this is reflected in the characterisation of the area as 'Anciently Enclosed Land' by the Historic Landscape Characterisation programme undertaken by HES (Cornwall County Council 1996). Only two boundaries could be described as straight, B101a and B109, and therefore of post-medieval origin, whilst five could best be described as irregular (B113, B118, B123, B127, B128). The cross sections of the boundaries may be expected to have a sequence and stratigraphy reflecting their use and development.

Eight of the boundaries (B101b, B101c, B116, B117, B125, and B126) flank lanes likely to be of medieval or earlier origin. Another pair, B121 and B122, which line the lane that forms a dog leg between Trevilson and Degembris Minor: this lane quite clearly cuts across two fields and may represent a post-medieval extension of the access to Degembris Minor to form a through road, an event perhaps recorded in the form of the quarry in the field to the south of Degembris.

The majority of the boundaries were earth walls, occasionally faced with stone on one side, with the exception of B117, B118, and B124 which were faced on both sides. The paucity of Cornish hedges consisting of earth banks faced on both sides with local stone is common in areas such as this where surface stone is rare.

The majority of the boundaries had associated ditches on both sides. Many of these were sealed beneath ploughsoils or earlier banks. Many of the boundaries displayed evidence for successive phases of rebuilding or redevelopment.

- Ditches appear to be an early element in several cases (B107, B108, B109 and B118).
- There are some indications of early banks, perhaps associated with ditches. These banks are unusually low, too low to be stock-proof (B107, B108, B109). This may be due to erosion, slumping or may be indicative of alternative land use patterns in the medieval period. This would have taken the form of a predominately arable regime conducted within narrow strip fields. Following the rationalisation of field patterns and a shift to a pastoral regime only a minority of the boundaries were maintained and these were heightened and ditched in order to function as stock-proof boundaries.
- Rebuilding or enhancement phases, often with stone facings being added to form stock-proof Cornish hedges.

The complexity of the boundaries along the pipeline is comparable to other parts of lowland Cornwall (eg Jones 1999), where periodic maintenance is often the preferred method. However, the results contrast with other areas, for example on the Lizard where almost all of the boundaries had been completely rebuilt (Johns 2001).

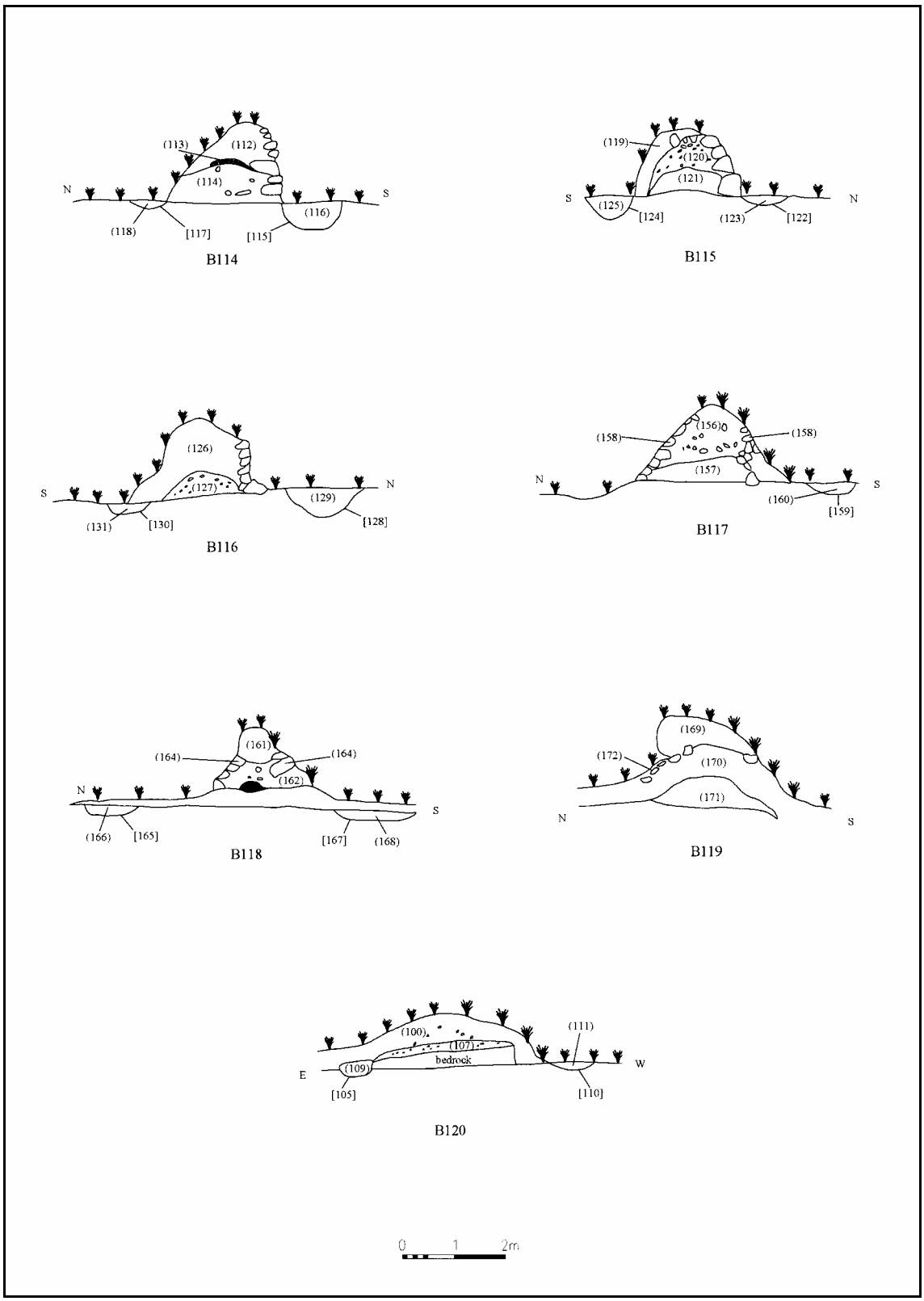

Fig 28: Boundary sections, Trenance to Trevilson

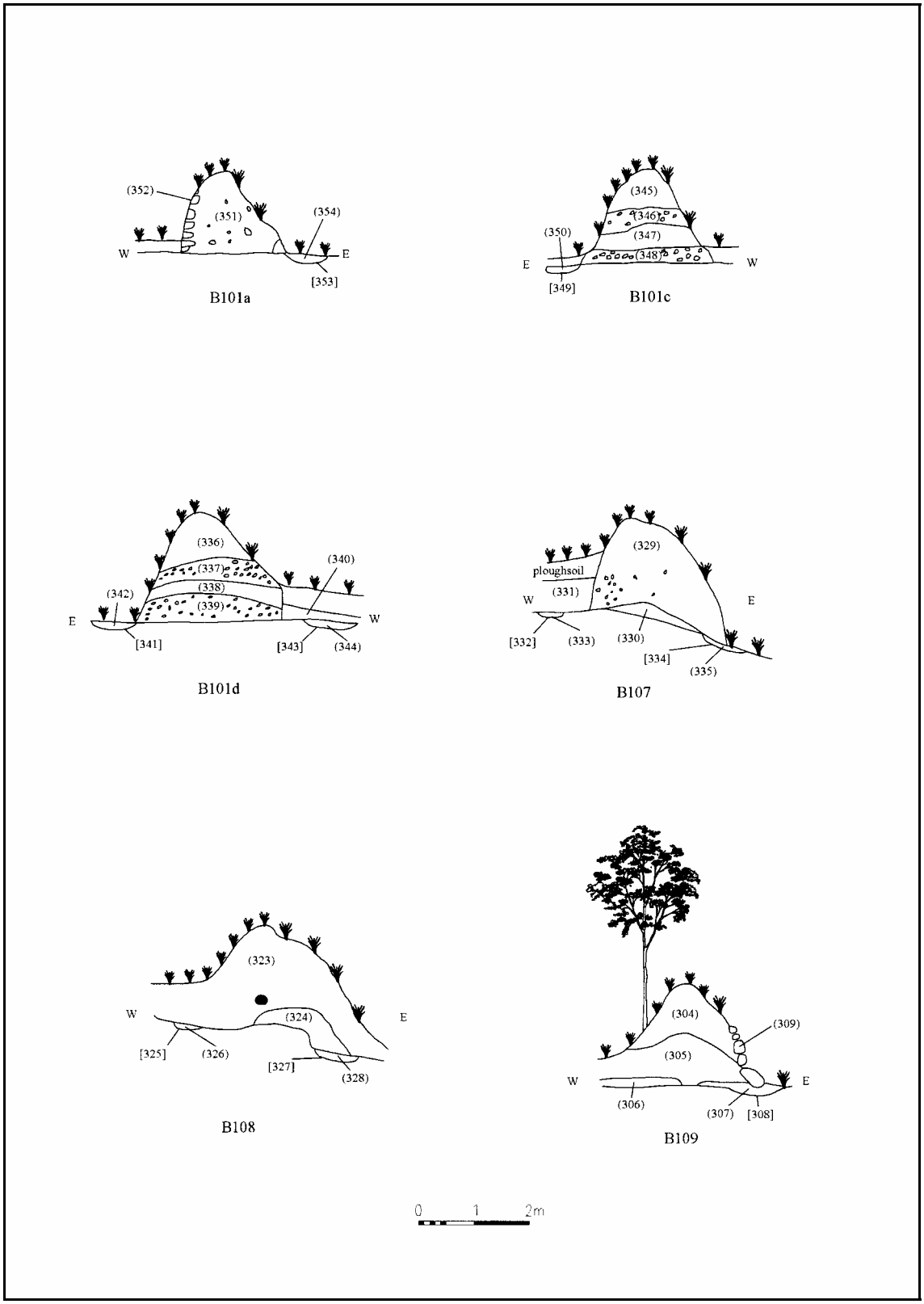

Fig 29: Boundary sections, Metha area

9 Artefactual analysis

9.1 Prehistoric and Roman Period Pottery and Stonework by Henrietta Quinnell with comment on the petrography by Roger Taylor and on baked clay by Jennifer Foster

Petrographic comment is based on examination under a x 20 binocular microscope, supplemented by three thin-sections.

9.1.1 Early Neolithic, Church Close, Field 20

The site produced two tiny abraded sherds of apparently similar fabric, one (3g) from pit fill (47) from pit [46] cut in the top of pit [45], one (1g) from (175) infill in pit [45]. The sherd from (175) is sandy, possibly from an area peripheral to granite, the larger sherd from [46] is gabbroic with the addition of crushed vein quartz. The use of this temper in Cornwall and Devon has so far only been identified during the Early Neolithic, (Quinnell in Nowakowski 2003). Sherds with vein quartz temper distinguish Fabric C at Helman Tor (Smith 1997) where they may have derived from the metamorphic zone around the Helman Tor granite. The Helman Tor inclusions were published as quartzite but examination by the author confirms these as vein quartz. The abraded condition and small size of the Church Close sherds indicate that they derive, after considerable attrition, from Early Neolithic activity elsewhere in the area; they do not provide dating of pit [45] or subsequent features. The presence of Early Neolithic activity in the vicinity is confirmed by the lithics (see Section 9.2) and by the radiocarbon determination from pit [370] fill (372) Wk12676 (3400-2900 cal BC) in F2 some 3km north west of Church Close.

Petrography

Sherd from (47). *Inclusions* : Quartz – white and greyish angular grains, 1-4mm. Feldspar – soft, white, altered angular grains, 1-4mm. Amphibole – one greyish green elongated irregular grain, 1.5mm. Composite grain – feldspar-pyroxene. Magnetite – black glossy, angular grains, 0.25-0.3mm. *Comment*: A gabbroic temper with unusually abundant and large quartz grains.

Sherd from (175). *Inclusions*: Quartz – angular grains. Muscovite – one 1mm grain. Rock fragments – micaceous slate, 0.5mm grains. *Comment*: The matrix contains much fine-grained sand, mainly quartz and is possibly granite derived but not gabbroic. The sherd is too small for a more definite determination.

9.1.2 Trevilson Roundhouse

Table 2: Details of pottery from Trevilson; s = sherd, g = gram

Context	Description	Sherds	Comment
(91)	Fill of posthole **[90]** outside House	1s 3g	Abraded gabbro admixture, abraded
[532]	Scoop in floor	3s 84g	**P1** Trevisker vessel, gabbro admixture, abraded
(518)	Lowest abandonment level	3s 58g	Abraded gabbro admixture
(507)	Abandonment level contemporary with **(518)**	20s 322g	Gabbro admixture. Two sherds **P1** abraded, four sherds **P2** reasonably fresh; remainder reasonably fresh from at least two vessels
(509)	Soil matrix around stones (**506)** above **(507)**	4s 170g	Gabbro admixture. Three sherds **P2** and one other, all reasonably fresh.

Context	Description	Sherds	Comment
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(507)	Abandonment level contemporary with **(518)**	20s 322g	Gabbro admixture. Two sherds **P1** abraded, four sherds **P2** reasonably fresh; remainder reasonably fresh from at least two vessels
(509)	Soil matrix around stones (**506)** above **(507)**	4s 170g	Gabbro admixture. Three sherds **P2** and one other, all reasonably fresh.
(503)	Shillet, abandonment phase above **(504)**	1s 2g	Gabbro admixture. Abraded.
(501)	Top infill of roundhouse	1s 34g	Gabbro admixture **P2** plain sherd. Reasonably fresh.
Totals		33s 673g	

All the sherds were of distinctive gabbro admixture fabric, in most of which large angular pieces of banded hornblende schist could be distinguished without a microscope. The two discrete vessels, **P1** and **P2** were of Trevisker style, but petrographic work indicates that six or more vessels may have been present. Gabbro admixture fabric, in which inclusions of other rocks are added to a gabbroic matrix, is the most common Trevisker fabric in Cornwall, although hornblende schist inclusions appear so far only to have been identified in the assemblage from the settlement at Kynance Gate on the Lizard and in Urn 1 from the Liskey or Crig-a-Mennis barrow in North Cornwall (Parker Pearson 1990, table 1).

The radiocarbon determinations are interesting. Wk12680 from slot (535) in the floor is 1450-1120 cal BC, and Wk12679 from burning (524) on the floor 1400-1040 cal BC; Wk-12678 from the backfilled post-pipe (510) is 1410-1050 cal BC and Wk12677 from the upper house infill (505) 1260-890 cal BC. These suggest that activity within the house and its infill fall within the fifteenth to eleventh centuries cal BC, but with the possibility that the infill could have extended into the tenth century. Strictly speaking all the pottery could have been connected with infill events, with the positions of sherds of **P1** and **P2** linking different fills. Thus the deposition of the pottery fell at the end of the date sequence, possibly eleventh or tenth centuries. The simple incised decoration on **P1** and **P2** would not be inappropriate for the end of the Trevisker series, but this comment can only be tentative. The problems regarding typology and decoration within the Trevisker sequence were summarized by Woodward and Cane (1991, 123) and there has been no subsequent work which has helped with their resolution.

It cannot, however, be assumed that the date of the deposition of the ceramics is that of their manufacture. The infill of a Later Bronze Age structure at Callestick, Perranzabuloe, was dated to the eighth or seventh centuries cal BC but contained Trevisker sherds which had been curated elsewhere (Quinnell in Jones 1998/9). The sequence of events at Callestick was complicated and a reminder that there may not be a straightforward relationship between artefacts and deliberate infill deposits.

The petrographic study suggested that the six or so vessels represented were so similar that they might have been the work of one potter. This of course is a subjective and personal impression. However, it does underline the cohesiveness of the small Trevilson

assemblage, pointing to the likelihood that the material was introduced into the site during a short period. There has been much discussion in the literature, summarized by Parker Pearson (1990, 19), as to whether the added inclusions in gabbro admixture fabric derived from the periphery of the gabbro in the Lizard or indicated the transport of clay to other sources. Parker Pearson clearly supported the former, and the petrographic study for Trevilson suggests that the additions may come from an area on the north of the gabbro. Here there is a suggestion that one area of the gabbro might be providing ceramics to a site some distance away, a suggestion which raises interesting questions about the relationship of different communities producing pots on the Lizard and communities living in other parts of Cornwall.

Petrography

Initial binocular microscope examination of a range of sherds indicated a range of inclusions, for the identification of which thin-sections were necessary. Details of further sherds examined under the microscope have been placed in the archive.

Sherd from (507) Thin-section 1. *Inclusions:* Hornblende schist - eight sharply angular grains, tending to be elongated, up to 4mm; bluish green/light brown pleochroic hornblende in a very fine-grained ?feldspathic matrix; some fine-grained hornblende/feldspar grains are not foliated, some are coarser grained and unfoliated, composite amphibole grains also occur. Basalt/epidiorite - a single 3mm angular grain with feldspar laths showing a good relict ophitic relationship with pyroxene/green amphibole. Serpentinite – a single 0.25mm grain of serpentinised pyroxene.

Pyroxene – neutral weakly pleochroic to colourless elongated grains up to 3mm; extinction angles indicate an augite composition. Amphibole – a scatter of greenish brown weakly pleochroic elongated grains of hornblende mainly up to 0.3mm. Feldspar – plagioclase as angular to sub-rounded grains, very variably sericitised, some quite fresh, 0.2-1.75mm; extinction angles indicate a mid-andesine composition for some smaller grains. Quartz – sparse rounded to angular grains up to 0.2mm and a single 0.75mm angular grain; some grains composite and some heavily strained. *Comment:* schist tempered gabbroic admixture.

Sherd from (507) Thin-section 2. *Inclusions:* Hornblende schist - bluish green/light brown pleochroic hornblende as very small granules and laths in a very fine-grained ?feldspathic matrix; 16 angular grains up to 2.5mm. Basalt/epidiorite - a single angular 2mm grain showing sericitised feldspar laths in a relict ophitic relationship with brownish green amphibole. ?Serpentinite – possibly serpentinised pyroxene, two angular grains. Feldspar – sub-angular grains of plagioclase up to 1.75mm, some heavily sericitised some relatively unaltered; extinction angles indicate a calcic andesine. Pyroxene – neutral coloured, sub-rectangular, elongated grains 0.2-0.5mm; the composition of augite is indicated by extinction angles. Quartz – sub-angular to rounded grains, 0.1-0.3mm. Magnetite – a few opaque irregular grains up to 0.2mm; one larger opaque grain with small inclusions is probably limonite. *Comment*: An unusual gabbroic admixture temper with abundant hornblende schist fragments.

Sherd from (507) Thin-section 3. *Inclusions:* Hornblende schist - bluish green/light brown pleochroic hornblende as very small granules and laths in a fine grained ?feldspathic matrix; angular foliated grains tending to be elongated, up to 4.5mm; some grains have an overprint of recrystallised amphibole in which the schistose fabric is still visible, others have a random texture of hornblende laths. Basalt/epidiorite - sericitised feldspar laths in a relict ophitic relationship with brownish amphibole; four sub-angular grains 0.75 - 2mm.

Feldspar – a scatter of sub-angular plagioclase grains very variably sericitised generally less than 0.5mm; a single extinction angle indicates calcic andesine. Pyroxene – colourless to

neutral sub-rectangular grains with and augite composition. Amphibole – a scatter of small sub-rectangular grains of brownish green hornblende. Quartz – sparse rounded to angular grains up to 0.2mm. Magnetite – a scatter of opaque angular grains generally less than 0.2mm. Tourmaline – a single angular yellow and blue pleochroic 0.2mm grain.

Comment: An unusual gabbroic admixture temper.

P1 from [532]. *Inclusions:* Rock fragments – angular fine-grained greyish white, foliated and dark-flecked schist grains, up to 6mm. Feldspar – soft, white angular grains up to 1mm. Amphibole/pyroxene – light-coloured, greenish grey, elongated, and cleaved grains, usually less than 1mm, but one 5mm grain. Mica – flakes of muscovite in the matrix up to 0.5mm. *Comment*: a sparsely rock tempered ware similar other gabbroic admixture sherds from Trevilson.

P2 from (509). *Inclusions:* Rock fragments – laminated light and dark angular schist grains 5mm; also some white, angular fragments. Feldspar – soft white angular fragments, up to 2mm; mainly small fragments less than 0.5mm in the matrix. Quartz – sparse angular to sub-rounded fragments generally less than 0.5mm. *Comment*: gabbroic admixture temper.

General comment on petrography

Many of the sherds examined have a distinctive temper with dark and light banded hornblende schist fragments, other light coloured less foliated hornblende bearing rock fragments, epidioritic basalt fragments and occasional serpentinite grains. These sherds also contain altered plagioclase feldspar, pyroxene and magnetite. Quartz is a minor constituent in most cases. The temper is a variant of gabbroic admixture. The high content of hornblende schist associated with epidiorite fragments is distinctive and unusual.

There seems little doubt that the complex rock-tempered fabric of this ware must derive from the area of the Lizard gabbro. It has many of the hallmarks of a gabbroic temper and the schist epidiorite and other rock fragments are also available in this source area. Altered basic dykes occur in the gabbro and are common at the eastern end of the outcrop. Although the northern boundary of the gabbro is with the Traboe hornblende schist in this area, the schist fragments in the temper appear to be too fine-grained to derive from this source. However, the basic dykes themselves become schistose in places and are finer grained. It is possible that some of the schist fragments also originate from the basic dykes. A single quartzitic fragment seen in a sherd from (501) could derive from the Treleague Quartzite. This quartzitic mass lies along the northern margin of the gabbro towards its eastern end.

The abundance and angularity of the schist fragments in some of the sherds suggests that schist was an added component of the temper. The relative freshness and angularity of the fragments could indicate that they were obtained from a coastal outcrop as descriptions of inland surface outcrops indicate that these are commonly very decomposed. It also seems evident that this particular group of vessels was produced by the same potter and possibly at the same time.

Description of enumerated vessels

P1 (532) (Fig 30). Three adjoining sherds SF17 from rim and upper part of Trevisker jar or bowl. Two sherds from (507) may belong to this vessel**.** Exterior yellowish red 5YR 5/6, interior very dark grey 5YR 3/1. Rim everted with rounded top and marked internal bevel; single horizontal incised line only surviving decorative motif. Vessel worn before breakage and sherds abraded. Unusual for a Trevisker vessel to have such an extensive plain zone below the incised line (cf No 42 from Trethellan (Woodward & Cane 1991, Fig 47)). Three

vessels from the Trevisker assemblage at Tredarvah (Pearce & Padley 1977, Fig 13) are plain bowls with a similar profile to **P1**.

P2 (507) (Fig 30). Four sherds including SF17, (509) three sherds SF5, SF10, SF11, (501) one sherd SF1. Exterior light reddish brown 5YR 6/4, interior yellowish red 5YR 5/6. Distinctive admixture fabric with abundant large inclusions, some up to 10mm. Girth sherds only, with flat plain cordon below two sharply incised rows of lines set in opposite directions. Incised herringbone patterning is common form of decoration on Trevisker vessels but its combination with an applied cordon as on **P2** is not very frequent (cf No 56 from Trethellan, Woodward & Cane 1991, Fig 49). The occurrence of sherds of **P2** in fresh condition in several of the successive abandonment levels of the roundhouse presumably indicates fairly rapid infill.

9.1.3 Trevilson baked clay fragments by Jennifer Foster

Of 44 fragments of baked clay, two pieces could possibly be pieces of briquetage (salt-making equipment): a possible pedestal base, and part of a firebar from a furnace or oven. However, in view of the limited evidence, and the distance of the site from the sea, it seems more likely that these are fragments of an oven, with an oven bar, rather than salt-making equipment (however, see Section 9.5 for supporting evidence for the identification as briquetage).

Spread in (524). Possible fragment of pedestal base. It appears to be a fragment of a circular base with a small diameter of c 55mm. At the Middle Bronze Age site of Brean Down in Somerset (Foster 1990, 165-70) the pedestals were used to hold up clay troughs containing brine or wet salt crystals in order to dry the salt. Their bases were larger (diameter 75-80mm). The fabric is typically soft, with quartz and vegetable matter filler, though briquetage usually has more filler.

Other pieces from this context: 11 unidentifiable fragments and a large fragment of baked clay with a flat base, possibly part of an oven.

In posthole fill (545). Part of possible fire bar, one end tapering to a curved point, the other broken. It was probably at least 300mm long, with tapered points at each end fitting into grooves on the side of the clay furnace or oven. Length 70mm, thickness 11mm.This could have been used to support briquetage in salt production, but could equally have been a fire bar for an oven.

Other pieces from this context: Bag 1: one large piece with curved concave face. If this were part of a pedestal it would be exceedingly large, so this is probably a fragment of baked daub, such as would occur in an oven: two tabular fragments and eight unidentifiable fragments (one seems to be part of a pinched rim, but looks more like pottery than briquetage). Bag 2: 20 unidentifiable fragments, 17 oxidised and three with reduced surfaces.

Petrographic Comment by Roger Taylor

The fragments were examined under a x 20 binocular microscope. The fabric may be described as soft, low-density, cavernous, light orange-red, silty/fine sandy clay.

Inclusions: Quartz – white vein quartz, angular to sub-angular grains, 0.5-10mm.

Rock fragments – slate, medium to pale grey, irregular cleavage fragments 0.5-1.5mm.

Micaceous siltstone, a single irregular cleavage fragment, 2mm. Quartz in matrix – fine angular sand c.0.2mm, possibly up to 50% of the matrix. Mica in matrix – muscovite flakes less than 0.1mm.

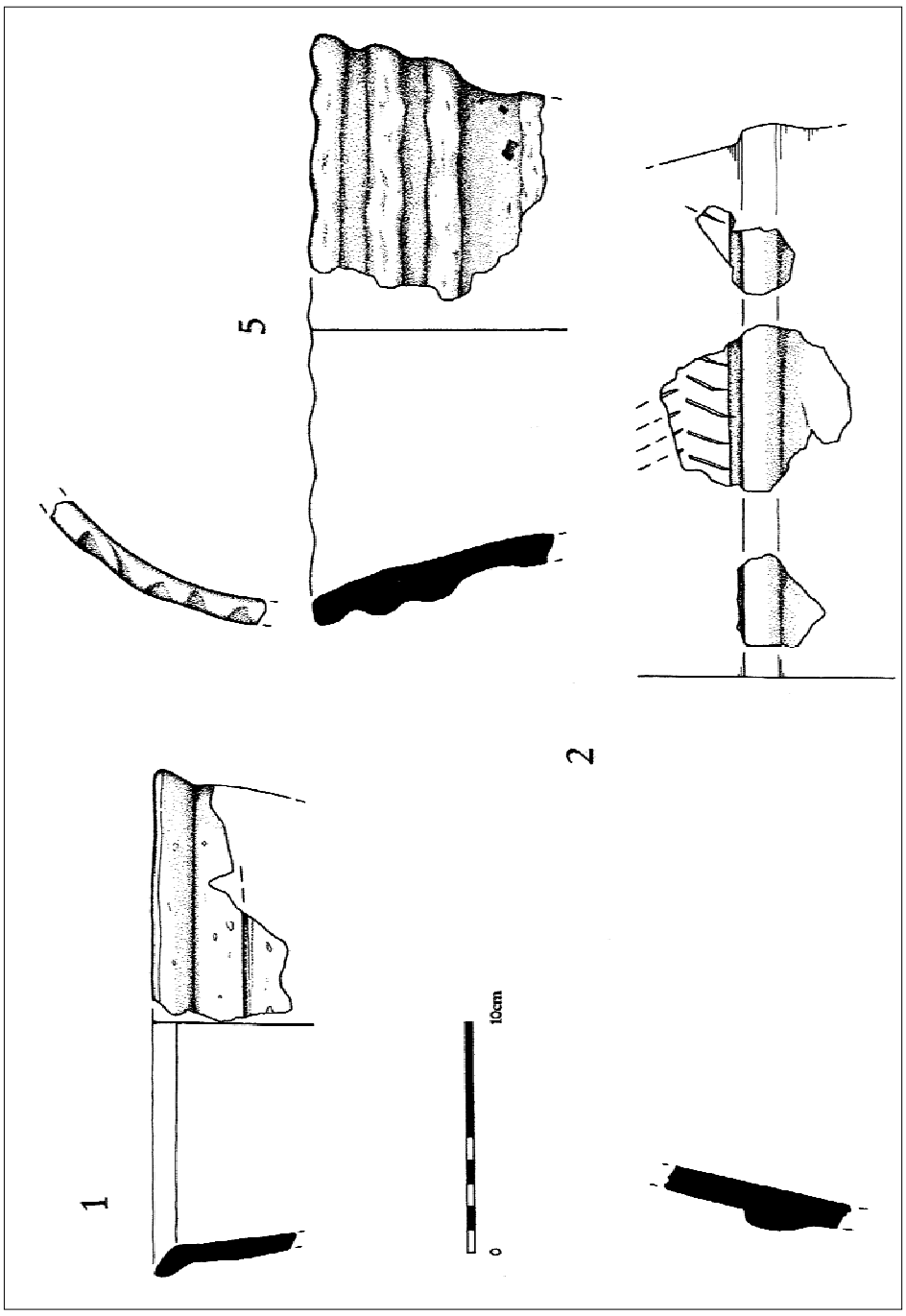

Fig 30: Prehistoric pottery: P1, P2, Middle Bronze Age from Trevilson; P5, Early Bronze Age Food Vessel from Metha.

Scale 1:3

Comment: No particular localisation possible within the outcrop of the Meadfoot Beds. Either a residual surface clay or a clayey alluvial deposit, with a source that could extend from the coast inland to the area of the site.

9.1.4 Pollamounter enclosure

Table 3: Details of pottery from Pollamounter; s = sherd, g = gram

Context	Description	Sherds	Comment
(186)	Basal fill, ditch **[184]**	4s 10g	Undiagnostic gabbroic fabric; too small for identification
(185)	Fill of ditch **[184]**	9s 4g	Undiagnostic gabbroic fabric; too small for identification
(227)	Upper fill, ditch **[226]**, Structure 2	1s 9g	Abraded; gabbroic Roman period fabric as **P3, P4**
(249)	Basal fill, ditch **[238]**	1s 10g	Base angle, gabbroic Roman period fabric
(247)	Upper fill, pit/ditch terminus **[240]**	1s 8g	Gabbroic Roman period fabric
(250)	Basal fill, pit **[242]**	2s 30g	**P3** Rim, gabbroic, 2nd century AD or later
(243)	Upper fill, pit **[242]**	29s 294g	**P4** cordoned neck sherd, part of **P3**; all sherds Roman period fabric
U/S		1s 5g	Gabbroic Roman period fabric
Totals		38s 370g	

All sherds with diagnostic form, and all of any size, were of gabbroic fabric, of the general character now identified as 'standard' for Roman Cornwall (Quinnell 2004, 5.6.1); among the inclusions, as is not uncommon, were rounded quartz fragments up to 3mm. However, the fabric has been well-worked, continuing the tradition of 'well-made' gabbroic fabric which does not appear to extend beyond the second century. The scraps from (185**)** and (186) were too small for any useful comment to be made. The material from the remaining contexts is of similar type, and taking both fabric and form together, is most probably of later second century AD date. The determination Wk-12672 from fill (187) in (226) Structure 2, 160 cal BC-130 cal AD, is a little earlier than the date suggested by the ceramics; if (226) was a structural slot, both date and pottery presumably relate to its deliberate infill for which the pottery would suggest a later second century AD date.

Petrography

P4 from [227]. *Inclusions:* Feldspar– abundant soft white angular grains up to 3mm. Quartz – translucent, greyish and white angular to sub-rounded grains, 1-3mm; one white 8mm rounded quartz pebble. Magnetite – a scatter of black glossy grains up to 0-5mm. Mica – fine grained white mica in the matrix. Matrix – much fine-grained quartz sand and silt. *Comment*: A fairly typical gabbroic fabric, although with no amphibole or pyroxene visible; the matrix is probably loessic.

Description of enumerated vessels

P3 (250) (Fig 31). Everted rim from jar. Probably part of same vessel in (243). Jars with simple everted rims of slack profile appear sometime in the mid second century AD and remain current until the fifth century. Now grouped as Romano-Cornish Type 4 in the extensive discussion of the assemblage from Trethurgy (Quinnell 2004), these jars are the

most common form in Cornwall during the Roman centuries. Given the fabric, **P3** is likely to be of second century date.

P4 (243) (Fig 31). Neck sherd with applied cordon, from vessel with globular body. The form relates to St Mawgan-in-Pydar Type P (Threipland 1956), a Cordoned ware form introduced in the later first century AD and continued as Romano-Cornish Type 11 until sometime in the third century (Quinnell 2004). A good published parallel is No 150 from Carvossa (Carlyon 1987, fig 5).

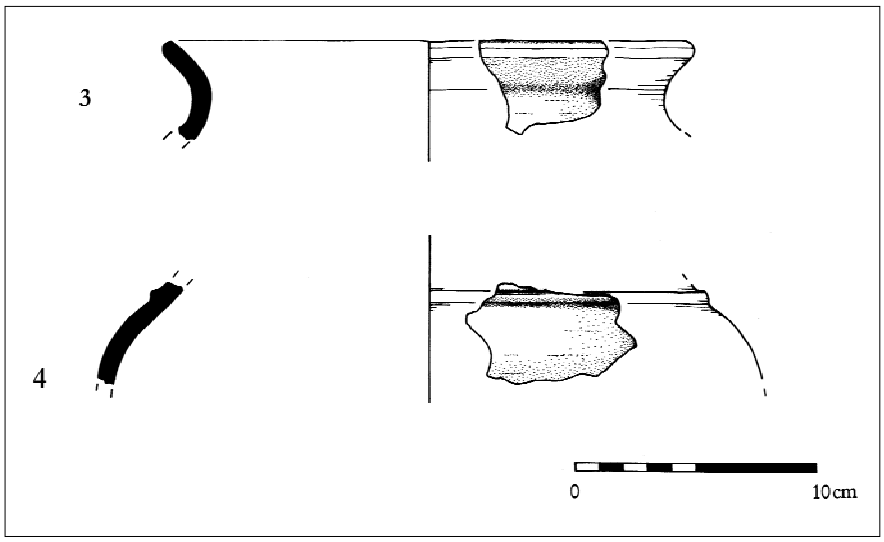

Fig 31: Romano-British pottery from Pollamounter: P3, P4.

Scale 1:3

9.1.5 Metha, Field 11

P5 From (283) in pit [282] (Fig.30). Rim sherd from ridged Food Vessel 240mm internal diameter. Fresh breaks, apart from recent cracks into six co-joining sherds. Total weight 229g.

Soft, poorly worked, fabric with common inclusions, some up to 5mm. All surfaces finished smooth with traces of finger modelling on the exterior. Colour varies from reddish brown 5YR 5/4 to very dark grey 5YR 3/1. Rim top flat with slight finger-tip indentations with two broad irregular cordons below it. The exterior surface beneath the cordons has occasional indentations which might be stabbed decoration but which more likely result from the loss of large inclusions. Part of additional cordon is probably present at the base of the sherd. The vessel has noticeable pre-breakage wear on inner edge of rim and on parts of cordons.

Radiocarbon determination Wk-12674 from the pit calibrated to 2700-2300 cal BC appears a little early despite the tendency of recent research to situate much of the Food Vessel tradition within the later third millennium BC. In Ireland a range of determinations suggest that Irish bowls were current between around 2300 and 1950 cal BC (Waddell 1998, 144, 164) and vases from 2300 until around 1800 cal BC (*Ibid*, 148, 165). In Yorkshire Food Vessels appear to be established by around 2200 cal BC (Powlesland & Manby 2002).

Research generally appears to highlight the range of regional variations within the Food Vessel group but no recent summary has appeared which provides a general overview. The only previous determination from Cornwall was associated with Enlarged Food Vessel sherds from the ditch of a barrow at Watch Hill on the St Austell granite, Wk12936 3474±45 BP (1920-1680 cal BC).

Petrography

P5 Inclusions*:* Feldspar – sparse white angular partly kaolinised fragments. Quartz – sparse, clear glassy and white, angular to sub-rounded grains, up to 3mm. Muscovite – a scatter of flakes, up to 1mm. *Comment*: The temper is sparse, about 10%. The presence of feldspar quartz and relatively large muscovite flakes places these sherds in the granite-derived category, not immediately local but perhaps from the periphery of the St Austell granite 10km to the east. Food vessels generally in Cornwall display a mixed pattern of sourcing, with some being of broadly local manufacture while others are of gabbroic fabrics and may be found some distance from this source (Parker Pearson 1990, 13).

Comment on Ridged Food Vessels in Cornwall

Some twenty vessels in the broad Food Vessel category have now been found in Cornwall but Metha appears to be the first find of a sherd in a pit unconnected with barrows or funerary ritual, apart from the sherd from Poldowrian (Smith & Harris 1982, 49) the context of which is uncertain. Metha appears to belong to a distinctive sub-group among Cornish Food Vessels, simple open forms without necks with cordons below the rim or all over the body but with little other decoration: within this group Metha is unusual in having a comparatively narrow diameter and open, flaring, shape. Its closest parallel is Treworrick II (Patchett 1944, Fig 9, E2) from a pit with a cremation at Mevagissey but even this is a broader, wide-topped vessel. Another generally similar vessel is Colroger I from a barrow at Mullion (Patchett 1944, Fig 9 E3) found accompanied by a second (Patchett E4) cordoned vessel but with some decoration. W C Borlase (1872, 144) illustrates a ridged 'sepulchral urn' from Penquite, Fowey (Patchett E8). Patchett's E6 came from a barrow in the cliff between Newquay and St Columb Porth (Borlase 1872, 199). That from Perran Sands (Patchett E9) appears to have been completely plain, apart from cordons, (Borlase, 1872, 181).

9.1.6 Stone from Trevilson Roundhouse

S1 (504) flat-laid stones in upper abandonment levels. Piece broken from elvan saddle quern, surviving dimensions 220mm by 150mm by 43mm. Shape apparently unmodified before use. The abraded upper surface shows distinct linear scratches and slight hollowing, indicating a rubbing rather than a rotary mode of use; the quartz and feldspar grains are distinctly faceted. The irregular lower surface has a slightly polished appearance, probably the result of abrasion while resting on the ground during use. An abraded edge of the fragment is an original edge of the quern. The general character of both **S1** and **S2** are well matched among the large range of Middle Bronze Age cereal processing equipment from Trethellan (Nowakowski 1991, 141-8) and the use of locally obtained stone for such artefacts appears to have been the norm at that period.

Petrographic comment: Porphyritic elvan with glassy clear, euhedral to rounded quartz grains and aggregates of quartz grains, 3-5mm. Sparse, pink euhedral to irregular orthoclase phenocrysts, 2-5mm. Matrix a quartz-feldspar-muscovite aggregate, fine-grained, less than 0.2mm.

S2 (501) uppermost roundhouse infill. Coarse-grained elvan muller fragment. Roughly trimmed to a circular, or possibly oval shape. Grinding surface considerable worn through use but not sufficiently to smooth over all irregularities caused by coarse texture of rock;

smoothed facets have developed on the quartz grains because of wear. Surviving grinding surface 140 by 85mm, thickness 64mm. The other fractured surfaces have relatively sharp edges and post-date use.

Petrographic comment: Porphyritic elvan with orthoclase feldspar euhedral phenocrysts up to 25mm and irregular and euhedral quartz phenocrysts up to 3mm. Muscovite occurs as plates up to 2mm. The matrix is a quartz-feldspar aggregate in which brown tourmaline is common, up to 0.5mm. The degree of weathering indicates that the source of the elvan was near to the surface.

Samples of stone

Petrographic comment: Two pieces examined. (1) from (522). Porphyritic elvan with orthoclase phenocrysts up to 10mm and small irregular and euhedral quartz phenocrysts, up to 2.5mm, unusual in being intergrown with feldspar. The matrix is a mainly feldspathic aggregate, up to 0.5mm. A distinctive rock but with no evidence of wear or other artificial shaping. The buff and pink staining results from weathering.

(2) unstratified from sondage. Porphyritic elvan with mainly rounded quartz phenocrysts up to 3-10mm, and with sparse, euhedral, orthoclase phenocrysts 2-5mm. The pink and buff colouration is the result of near-surface weathering.

General comment on stone from the roundhouse

The minor granitic intrusions, known in Cornwall as elvans, are very variable in texture and coarseness of crystallinity both between individual intrusions and internally. The margins of dykes can be of finer grain size and have a reduced content or size of phenocrysts compared with the centre. Two dykes are shown intersecting on the Geological Survey map in the vicinity of Trevilson, and although all the elvan specimens from Trevilson differ to some degree it is likely that they all come from these two dykes.

All the stone fragments retrieved, except for the quartz commented upon elsewhere (section 9.2), are elvan. There is no granite or igneous rock other than elvan present.

9.2 Worked Flint and Quartz Stone Report by Anna Lawson Jones

9.2.1 Introduction

This small assemblage totals eleven pieces of quartz, thirteen pieces of worked flint (five of which were recovered during wet sieving of the soil samples) and one piece of chert. All of the flint and chert came from the general pipeline and all of the quartz came from the excavation of Trevilson Roundhouse. Six of the pieces of flint and the piece of chert came from unstratified contexts and can only be assigned a field number location. The remaining seven pieces came from three specific features/contexts (four of them from a small pit [370]).

9.2.2 Flint work

The results of the flint analysis are presented in the form of a table (Table 4) that lists the flints by field and context with associated comments and potential date range. This is then followed by a discussion of the results.

Table 4: Flint assemblage

All of the finds listed in this table have the site code MNE01 (Mitchell to St Newlyn East 2001).

Key: Source = N – Nodular, P – Pebble, U - Unknown

Cortex = P-Primary (50%+), S–Secondary (-49%), T–Tertiary (none visible)

Context/ Location	Raw Material Source	Corticated Surfaces	Form/Tool	Potential Date	Comments
F2/US	N	S	Flake	Neolithic	Snapped - bulbar and distal end missing. Minimal lateral damage–possible cutting use-wear. Dark grey brown.
F2 (372B)	U	T	Flake	Prehistoric	Complete, thin, unmodified flake. Mottled dark grey brown.
F2 (372B) Sieving find.	N	S	Flake	Neolithic	Thin, unmodified, dark grey brown.
F2 (372B) Sieving find.	U	T	Bladelette	?Mesolithic/ Early Neolithic	Fine, thin, unmodified. Mottled mid grey brown.
F2 (372B) Sieving find.	U	T	Core rejuvenation flake	Prehistoric	Mottled grey brown.
F6/US	U	T	Flakelette	Prehistoric	Blistered piece. Dark grey brown.
F11 (283)	U	T	Flake	Prehistoric	Probably snapped distal end (faulting gives impression of abraded retouch). Mottled mid grey. Lateral use-wear. Potentially B.A. based on pottery.
F11 (283) Sieving find.	U	T	Flakelette	Prehistoric	Tiny, complete, mottled grey-brown. Potentially B.A. based on pottery.
F14/US	N	P	Flake/Engraver	Neolithic	Narrow elongate area of gloss to side of bulb, extending to dorsal side. Unmodified lateral point at hinged distal end of flake. Near black.
F14/US	U	T	Flake fragment	Prehistoric	Snapped probable post depositional damage. Mid-dark grey.
F14 (227) Sieving find.	P	S	Flake fragment	Prehistoric	Abraded, snapped probable post depositional damage.

Context/ Location	Raw Material Source	Corticated Surfaces	Form/Tool	Potential Date	Comments
F2/US	N	S	Flake	Neolithic	Snapped - bulbar and distal end missing. Minimal lateral damage–possible cutting use-wear. Dark grey brown.
F2 (372B)	U	T	Flake	Prehistoric	Complete, thin, unmodified flake. Mottled dark grey brown.
F2 (372B) Sieving find.	N	S	Flake	Neolithic	Thin, unmodified, dark grey brown.
F2 (372B) Sieving find.	U	T	Bladelette	?Mesolithic/ Early Neolithic	Fine, thin, unmodified. Mottled mid grey brown.
F2 (372B) Sieving find.	U	T	Core rejuvenation flake	Prehistoric	Mottled grey brown.
F6/US	U	T	Flakelette	Prehistoric	Blistered piece. Dark grey brown.
F11 (283)	U	T	Flake	Prehistoric	Probably snapped distal end (faulting gives impression of abraded retouch). Mottled mid grey. Lateral use-wear. Potentially B.A. based on pottery.
F11 (283) Sieving find.	U	T	Flakelette	Prehistoric	Tiny, complete, mottled grey-brown. Potentially B.A. based on pottery.
F14/US	N	P	Flake/Engraver	Neolithic	Narrow elongate area of gloss to side of bulb, extending to dorsal side. Unmodified lateral point at hinged distal end of flake. Near black.
F14/US	U	T	Flake fragment	Prehistoric	Snapped probable post depositional damage. Mid-dark grey.
F14 (227) Sieving find.	P	S	Flake fragment	Prehistoric	Abraded, snapped probable post depositional damage.
F18/US	U	T	Miscellaneously retouched piece	Mesolithic/ Early Neolithic	Broken–narrowed distal end missing. Dorsal bladelette removal scars. Fine bi-lateral retouch. Mid grey.
F25/US	P	S	Chert core/point	Bronze Age?	Multi-platformed flake core tool. Mottled, slightly faulted pale grey-brown.

Context/ Location	Raw Material Source	Corticated Surfaces	Form/Tool	Potential Date	Comments
F2/US	N	S	Flake	Neolithic	Snapped - bulbar and distal end missing. Minimal lateral damage–possible cutting use-wear. Dark grey brown.
F2 (372B)	U	T	Flake	Prehistoric	Complete, thin, unmodified flake. Mottled dark grey brown.
F2 (372B) Sieving find.	N	S	Flake	Neolithic	Thin, unmodified, dark grey brown.
F2 (372B) Sieving find.	U	T	Bladelette	?Mesolithic/ Early Neolithic	Fine, thin, unmodified. Mottled mid grey brown.
F2 (372B) Sieving find.	U	T	Core rejuvenation flake	Prehistoric	Mottled grey brown.
F6/US	U	T	Flakelette	Prehistoric	Blistered piece. Dark grey brown.
F11 (283)	U	T	Flake	Prehistoric	Probably snapped distal end (faulting gives impression of abraded retouch). Mottled mid grey. Lateral use-wear. Potentially B.A. based on pottery.
F11 (283) Sieving find.	U	T	Flakelette	Prehistoric	Tiny, complete, mottled grey-brown. Potentially B.A. based on pottery.
F14/US	N	P	Flake/Engraver	Neolithic	Narrow elongate area of gloss to side of bulb, extending to dorsal side. Unmodified lateral point at hinged distal end of flake. Near black.
F14/US	U	T	Flake fragment	Prehistoric	Snapped probable post depositional damage. Mid-dark grey.
F14 (227) Sieving find.	P	S	Flake fragment	Prehistoric	Abraded, snapped probable post depositional damage.
F25/US	U	T	Flake/blade	Prehistoric	Broken–distal end missing. Thin and pale cream-white.

9.2.3 Discussion

The following discussion is based upon a very small assemblage and as a result any detailed commentary is necessarily broad.

Flint source, proximity and availability would obviously have played a part in the valuing of flint throughout the prehistoric period, particularly with regard to inland locations.

However, as Tingle states *'… whatever the advantages of a raw material source, proximity alone will not ensure that it will be exploited at the expense of more distant sources'* (Tingle 1998).

Pebble flint and chert in Cornwall comes from the surrounding beaches, a secondary source which represents not only the nearest flint source but also a surprisingly varied and abundant one. The use of pebble flint in Cornwall is not in itself a dateable characteristic since it was utilised throughout the prehistoric period up to and beyond the end of the Bronze Age. Due to the inland location of this pipeline all modified/utilised pebble flint found represents material carried up from the coast.

Nodular material does not occur naturally in Cornwall. Such material would have been imported into Cornwall in the form of unmodified nodules, prepared cores, or occasionally perhaps as finished artefacts. The most frequently cited source for nodular flint is the primary chalk outcrop at Beer Head, on the southeast coast of Devon, more than 100km away (Tingle 1998). However, recent research carried out by Newberry (2002, 1-37) has shown that Beer Head is not the only source in Devon of nodular material. This work has shown that other primary sources exist around the Blackdown Hills area to the east, north and west of Beer Head. The Orleigh Court outcrop, however, is located to the north of Dartmoor and represents a closer source to Cornwall. These sources produce a variety of nodular flint in terms of colour, quality and type of cortex (ranging in appearance from thick white and granular to thin brown and granular). Closer secondary sources, for example the Devon head and gravel deposits of western Devon (Wainwright and Smith 1980). In Cornwall the use of nodular flint is considered indicative of the fourth to second millennia BC (Healy 1985; Berridge and Roberts 1986).

All of the flint (and the chert piece) are the result of prehistoric working or knapping as opposed to accidental introduction via agricultural improvements. No specifically diagnostic tool types are present, although technological attributes and raw material source does allow for some dating of the assemblage. Deliberate blade production was a characteristic of the Mesolithic and Early Neolithic period and as such the blade and blade scarred material within this assemblage tentatively indicates activity during this period. The three nodular pieces are (as referred to above) indicative of a Neolithic date on the basis of raw material source alone. These three pieces are all large flakes (a commonly recognised Neolithic trait, see for example Edmonds (1995). The chert core is likely to be Bronze Age (or perhaps Later Neolithic) in date. The remaining material is not diagnostic and can only be broadly dated to the Neolithic or Bronze Age. Both F11 and F14 produced Bronze Age pottery, indicating a potential Bronze Age date for the otherwise undiagnostic worked flint from these fields.

The lack of any clear concentration of material would suggest that no focussed occupation sites, knapping sites, settlements, or significant scatters were disturbed along the length of the pipeline. The lack of burnt material, frequently seen as a domestic trait, would corroborate this (although the assemblage is so very limited that too much should not be made of this). *In situ* material found within specific contexts in F2, F11, and F14 may suggest a limited focus of contemporary prehistoric activity. Field 14 was the only field to produce unstratified Bronze Age pottery, which suggests that recent ploughing has disturbed previously *in situ* deposits or features (since unlike flint, prehistoric pottery is not resilient to exposure, disturbance or weathering). Research has shown that 'residual' material within plough soil horizons does not in fact significantly shift from the original point of deposition in level areas of cultivation (Gingell 1980). Significant lateral displacement of artefacts is only a problem to sites which are situated on sloping ground (Waddington 1999, 85).

9.2.4 Quartz Stone

This very limited assemblage is listed by context with a rapid description and then briefly discussed.

Table 5: Quartz assemblage

All of the finds listed in this table have the site code TRH01 (Trevilson Roundhouse 2001).

Context/ Location	No. of pieces	Source	Burnt	Comments
(502)	4	Local	Possibly burnt	Upper roundhouse infill context. Two small and two moderately small unmodified lumps of quartz.
(511)	5	Local	Burnt	Posthole infill context indicates contemporaneity with site. Variously sized unmodified lumps of quartz.
US	2	Local	Not burnt	Two large blocks of unmodified quartz.

9.2.5 Discussion

None of the quartz assemblage reveals any signs of specific use or modification for use. The pieces that had undergone thermal alteration and damage reflect, for example, the presence of a hearth contemporaneous to the occupation of the roundhouse and as such their presence can be dated to the Bronze Age. The use of quartz in various forms has been found in Cornwall (and elsewhere, for example Scotland, see Saville and Ballin 2000) during the prehistoric period. The use of quartz crystals as borers etc has been found on a number of sites (Lawson-Jones 1995; Smith 1988; Masson-Phillips 1982) and the utilization of quartz pebbles as paving has been found in both ritual and domestic settings (Miles 1975; Christie 1985; 1988; Nowakowski 1998; Nowakowski forthcoming; Grove 1994).

The quartz blocks and pieces associated with Trevilson roundhouse may represent nothing more than the use of immediately available stone. However, as noted above quartz and quartzite is routinely found on Cornish ceremonial sites dating to the Early Bronze Age and there is evidence that it continued to have 'symbolic associations' throughout the Bronze Age as it was associated with the 'ritualized' abandonment of Middle and Later Bronze Age structures (see Nowakowski 1991; Jones 1998/9). At Trevilson quartz blocks appear in contexts which were associated with the abandonment process, for example as posthole packing in the case of context (511). Their inclusion may represent a symbolic choice. The unstratified pieces probably reflect more the ubiquity of the material, and its unintentional heating during everyday domestic activity, than the deliberate selection of quartz blocks.

9.2.6 Conclusion

The very small number of knapped/worked pieces of flint and chert located along this pipeline indicates a density of material that would be generated from long-term general landscape usage throughout the prehistoric period. Potentially ranging from 10,000BC to 1400BC it suggests a broad, frequently light, varied and patchy use of the landscape by mobile communities followed by the emergence of settled occupation and farming activity, the division and enclosure of the land, and the inception and development of metallurgy. Activity characteristic of this period might include flint knapping, hunting of wild game, preparation and processing of variable plant and animal materials etc. Similar results based on flintwork etc. are frequently found along linear watching briefs in Cornwall, for example

along roads and pipelines (Lawson-Jones 2001a; 2001b; Cole 1999; Jones 1997; Reynolds 1999).

The most obvious comment to be made with regard to this assemblage is that Trevilson roundhouse, a known Bronze Age domestic site, did not produce a single piece of flint, chert, or worked quartz, despite undergoing detailed archaeological excavation. The lack of Middle and Later Bronze Age flint found on many sites in Cornwall is referred to by Christie (1986). It would seem that both the construction and use of the house either post-dates everyday flint knapping and use (which would seem most unlikely in the light of recent research carried out on Iron Age flint and chert use), or that what limited use or preparation of flint there was took place outside, beyond the confines of the immediate house. This would seem a more likely scenario.

9.3 The medieval and post-medieval artefacts by Carl Thorpe

9.3.1 Introduction

A total of eighty artefacts dating from the period spanning medieval to modern were recovered. Pottery comprises the largest group but there was also glass, brick, metal objects, and clay pipes. A full list of the medieval and post-medieval finds is presented in Appendix 14.1.

9.3.2 Conclusions and observations

The range of artefacts recovered during the fieldwork is typical of assemblages that have been found within most Cornish fields that are located close to farming settlements (see Lawson-Jones1995; 2001a; 2001b), the finds being derived from domestic waste material that was utilised for the manuring and improvement of the fields.

However, in contrast with many other projects that have been carried out (Jones 1997; Lawson-Jones 1995), surprisingly little in the way of medieval pottery was recovered. This may suggest that the investigated areas lay at some distance away from the centre of any settlements of this period, or that the fields did not require improvement at this time. All of the material that was recovered was utilitarian domestic ware associated with an agrarian economy.

The number of artefacts rapidly increase through the post-medieval period (sixteenth to eighteenth centuries), reaching a maximum in the nineteenth to twentieth centuries. This could indicate an increased intensity of use of the land (requiring greater improvement to promote productivity), a change in the pattern of waste disposal, or a decline in the fertility of the field through use that required increased treatment to counterbalance this. However, the most important factor is likely to be the greater availability of products in this period.

Table 6: Total sherds of medieval, post-medieval, and modern pottery by field

Field No.	Medieval	Late Medieval	Post-medieval	Modern
F25		2	2	10
F21				1
F20			1	1
F19				2
F18		2		1
F17		1		
F14				1
F13				2
F12	1			1
F11				1
F9				3

Field No.	Medieval	Late Medieval	Post-medieval	Modern
F25		2	2	10
F21				1
F20			1	1
F19				2
F18		2		1
F17		1		
F14				1
F13				2
F12	1			1
F11				1
F8			1	4
F7			1	
F6			5	3
F2A				1
F2			1	10
F1			2	
Totals	**1**	**5**	**13**	**41**

Most fields examined produced artefacts of the nineteenth and early twentieth centuries. The bulk of the material is domestic coarse wares although by the later nineteenth century local Cornish wares are supplanted by the cheaper mass-produced wares of Bristol and Staffordshire. There is evidence that these domestic wares were supplemented by the importation of various foreign wares including Frechen stoneware, Cologne stoneware from Germany, and stoneware from Normandy. The importation of ceramics into the South West region is well summarised by John Allan (1984, 98-145).

9.4 Copper alloy object based on comments supplied by Vanessa Fell

A roughly triangular copper alloy artefact measuring 0.02m long by 0.01m-0.02m wide was recovered from one of the oval ring-ditch structures at Pollamounter. This artefact was tentatively identified as an ornament, but this was uncertain due to its poor condition. The object was X-rayed by Vanessa Fell, English Heritage Regional Conservator at the Institute of Archaeology in Oxford. Unfortunately the resulting image was uninformative and it is uncertain whether the object was an ornament or merely a bi-product of metalworking.

9.5 Slag deposit based on comments supplied by David Dungworth

Two small pieces of slag-like material weighing 1g were recovered from the Trevilson roundhouse within layer (524). It was thought that they could possibly be associated with metalworking. As evidence for Bronze Age metalworking is extremely rare in the southwest, the material was sent to David Dungworth, English Heritage Materials Scientist at the Centre for Archaeology in Portsmouth.

Inspection with a scanning electron microscope and an X-ray spectrometer revealed that the slag was not associated with smelting nor contained any elements that could be associated with bronze casting. The slag was rich in calcium and it had probably been formed at a fairly low temperature.

The results of the analysis allowed for several possibilities. It was possible that the deposit had been derived from the burning of human bone (ie cremation), or from the burning of shell. A third possibility was that the deposit was the ash from a fire that included calcareous sand. Initially this was felt to be an unlikely explanation given the inland location of the site and the acidic nature of the local soils. However, subsequent analysis of

the ceramics revealed that the deposit which produced the 'slag' also contained fragments of possible briquetage associated with salt production (see Section 9.1). It is therefore likely that the 'slag' was produced as a result of salt making on or near to the coast and was deposited into the roundhouse along with the deposit of baked clay/briquetage and charcoal.

10 Environmental analysis

Eighty one bulk soil samples were collected from sites along the route of the pipeline and a further thirty five from the Trevilson roundhouse. Charcoal was recovered from the majority of the samples but often only in small quantities. The analysis is divided between charred plant remains such as grains and seeds (10.1) and fragments of burnt wood (10.2) Charred macrofossils were comparatively rare. A tiny amount of animal bone was also analysed (10.3).

10.1 Analysis of charred plant macrofossil remains by Julie Jones

10.1.1 Methodology

The samples were flotation sieved by Imogen Wood to a 250 micron mesh for the floats and a 500 micron mesh for the residues. The dried floats were sent to the author and were initially assessed by examination under low-powered magnification for their potential for charcoal and plant macrofossil analysis. A record was then made of the cereal, chaff and weed assemblages where they were preserved. The results are shown in Appendix 14.2. The abundance of cereal grain in each sample was low with often only single examples recovered and preservation of the cereal grain, which was in a charred form, was on the whole poor. The presence of cereal chaff was also limited, with individual items often fragmented making identifications difficult. Preservation of the weed assemblages was in contrast good, although abundances were again often low. Several samples included charred cotyledons of Celtic bean (*Vicia faba*); one float from a shallow scoop in the Trevilson roundhouse was estimated to contain 90% whole and fragmented Celtic beans in varying states of preservation.

Classification

Cereal determinations where made are based on Jacomet (1989), and weed nomenclature and habitat information is based on Stace (1991).

The charred plant remains

The main crop plants recovered from all of the sites are wheat (*Triticum*), barley (*Hordeum sativum*), and oats (*Avena*), with the addition of Celtic bean and garden pea (*Pisum sativum*).

Hordeum sativum (barley)

Barley is the most common grain recovered from the Middle Bronze Age onwards, although in no samples were substantial amounts present. The grain was generally poorly preserved with the surface lost as part of the charring process, so it was not possible to determine whether the naked or hulled form was present, although the more angular form of the better preserved examples suggests that hulled barley was present. It was also not possible to determine whether the grains were from a two or six row form and the scarcity of barley rachis internodes prevented determination of the dense or lax-eared variety.

Triticum sp (wheat)

Wheat grains were mostly present as single occurrences and again preservation was poor with grains fragmented and blistered due to charring. Grain morphology on a few examples, showing the characteristic humped dorsal surface, suggests that emmer (*Triticum dicoccum*) was present. Wheat chaff was similarly sparse with glume bases and occasional spikelet forks recorded but again these were very fragmented, preserving only the lower ends of the glume bases, showing little evidence of the venation necessary to separate emmer from spelt (*Triticum spelta*) forms. It may therefore be possible that both varieties are present. However, there were no grains or chaff recorded to suggest that free-threshing

forms were present, particularly in the later post-Roman phases, a period in which bread wheat becomes increasingly common.

Avena sp (oat)

Oat grains were present throughout all phases, in some instances being more common than barley. However, as no oat florets were found it was not possible to tell if the oats were cultivated or wild and they may have been present as part of the arable weed assemblage. Oat awns were also occasionally recorded.

Vicia faba (celtic bean) and (*Pisum sativum*) garden pea

Occasional Celtic beans are recorded in several samples associated with the Trevilson roundhouse and are particularly abundant in some of the features associated with the interior of the roundhouse, forming a high percentage of the sample floats. There is only one record for garden pea from (519) in the roundhouse. Celtic beans and peas would have been an important addition to the daily diet, providing a source of protein and carbohydrate to add to soups and stews. There are also suggestions for their use in sweet dishes such as sweet bean cakes and the use of peas as a sugar substitute when fresh (Wood 2001). Other vetches (*Lathyrus/Vicia*) were also present in some samples and may have been grown in association with celtic beans. Celtic beans and other Fabaceae (members of the Pea family) are also useful for restoring soil nitrogen levels and could have been used in a crop rotation system with the cereals.

Wild plants

There is some evidence, particularly from a Middle Bronze Age pit fill in F8, for the presence of hedgerow plants, suggesting either scrub clearance or pruning of hedges from field boundaries. Evidence for sloe (*Prunus spinosa*) comes from both charcoal and fruit stones, with additional evidence from plant macrofossils for hawthorn (*Crataegus monogyna*), bramble (*Rubus* sect *Glandulosus*), and hazel (*Corylus avellana*). Sloe, bramble, and hazel could also have been collected as food plants to supplement the diet.

Arable weeds

A limited range of weeds occur in both the Bronze Age and Romano-British deposits. They are mostly species that are associated with the cultivation of crops and like the cereal remains have come into contact with fire which has preserved them in a charred form. Weeds occur as impurities in fields where wheat, barley, and possibly oats were grown and are gathered with them at harvesting. A similar suite of arable weeds occurs from many sites of this period studied elsewhere.

Many of the species which occur, black bindweed (*Fallopia convolvulus*), pale persicaria (*Persicaria lapathifolia*), orache (*Atriplex*), cleavers (*Galium aparine*), brome (*Bromus*) and possibly wild oat (*Avena fatua*), are able to tolerate a wide range of soil conditions. There is little to suggest the acidic nature of the soils at Trevilson: at Pollamounter, in F14 there are several records, associated with the Romano-British enclosure, of wild radish (*Raphanus raphanistrum* ssp *raphanistrum*), a weed of non-calcareous soils; other ditch fills include records of heath-grass (*Danthonia decumbens*) and gorse (*Ulex*), typical of the more acidic soils of heathland. Some suggestion of agrarian practices may be suggested by black bindweed, a twining species, which is the most commonly recovered taxa, and cleavers, a scrambling annual, both of which could have twined themselves around cereal stems. Their presence as part of the weed assemblage suggests that the straw was gathered with the crop.

Many plant species would have had a variety of household uses. There was very limited evidence of wetland plants from species such as sedge (*Carex*), rush (*Juncus*) and lesser

spearwort (*Ranunculus flammula*) which may have been gathered as flooring or roofing material, also a common use for straw.

There is also some suggestion of grassland at Trevilson and Pollamounter from species such as ribwort plantain (*Plantago lanceolata*), buttercup (*Ranunculus acris/repens/bulbosus*), vetches (*Lathyrus/Vicia*) and grasses (Poaceae). These may have formed part of the seed bank from periods when fields were allowed to lie fallow or may have invaded arable field margins from adjacent pasture land and been harvested with the cereals.

10.1.2 Church Close: prehistoric and later activity

Field 20

In this field, the majority of the features identified were interpreted as components of a prehistoric field system. Excavation revealed a number of linear ditches and one large sub-circular pit [45], which has been given a broad prehistoric date due to the few stratified artefacts found.

Primary features

The earliest feature to be investigated was a large sub-circular pit [45] which contained a complex sequence of deposits. The lowest fills appeared to be backfill material consisting of a stony deposit in shillet derived clay; the only context (200) sampled from this level was predominantly small charcoal fragments. Overlying this gradual silting occurred. The uppermost of three fills (176) contained a lens (141) that was 100% charcoal. Four further samples from (173) and one from (139) were also largely charcoal. Cut into this layer (139), a rectangular stone-lined pit [46] with dark clay fill contained burnt granite and was suggested to be a hearth. The three samples from here were again charcoal; the only macrofossils present were two grass (Poaceae) caryopses. The small floats from the uppermost fill of the pit (138), a sandy clay deposit, probably the result of gradual infilling, were also largely charcoal with a single grass caryopsis.

Later enclosure patterns

A later ditch [51] contained 2 shallow sub-circular cuts [55] and [148] at each end. Sample floats from these features included occasional small charcoal fragments.

Field 19

A further ditched linear feature [62] was more substantial than those investigated in Church Close, although the two fills (63) and (64) included only small charcoal fragments and a single grass. A small circular feature [60] with a dark charcoal rich fill (61) may have been a small pit or truncated posthole; the float again was 98% charcoal.

10.1.3 Trevilson: Bronze Age roundhouse

Field 18

A Bronze Age roundhouse formed the dominant feature in this area. Radiocarbon determinations have indicated that it was constructed during the Middle Bronze Age. Three distinct phases were recognised:

Phase 1: construction

The roundhouse at Trevilson was constructed close to the summit of a low hill with evidence from the base of the structure for a number of postholes and stakeholes cut into the natural shillet. Three larger postholes formed part of the main post-ring, the fills interpreted as deliberate backfilling following removal of posts which is assumed to be associated with abandonment of the structure (see below). The fills of three of these features were sampled.

Phase 2: occupation

There was little evidence for activity within the structure and only one sample was associated with this phase. The float from fill (536) from slot [536] included occasional charcoal, a single indeterminate grain and several charred weed seeds.

Phase 3: abandonment

The deposition of charcoal rich layers located at the bottom of the roundhouse seems to represent the first evidence of abandonment activity. Layers (517), (518), and (534) are all confined to the central area of the roundhouse interior. (517), a thin spread of dark grey-brown friable clayey silt, 0.02m deep overlay a lighter charcoal bearing layer (518), 0.04m deep. Although both the floats from the samples of these deposits were 98% charcoal, they contained small charred assemblages including mostly barley, with wheat and oat grains, but no cereal chaff. A small arable weed assemblage included black bindweed, cleavers, mustard/rape/cole etc (*Brassica/Sinapis*) and ribwort plantain. In spread (518) there were also whole and fragmented celtic bean, plus several other vetches. Layer (534), a similar charcoal rich spread confined to the roundhouse interior, contained a similar assemblage with celtic beans, occasional barley, wheat, and a few weed seeds.

All of the fills within the postholes were associated with the abandonment of the roundhouse. Posthole [512] contained two fills (510) and (511), with floats over 95% charcoal. A small assemblage of charred remains included a few wheat, barley, and oat grains, several half cotyledons of Celtic bean, a further vetch (*Lathyrus/Vicia*), and the arable weeds, black bindweed and pale persicaria. A hazel nut fragment and Rosaceae (rose family) spine may represent charred food debris; both hazel and blackthorn charcoal were identified in fill (510). Posthole [515] also had two fills (513) and (514), with a single sample from posthole [546], but these contained largely charcoal fragments.

Two further postholes sampled [530] and [555], were shallower than the main post-ring group and may have formed part of an internal feature in the house. A single wheat grain and four barley (*Hordeum*) grains were in the fill (529) of posthole [530], with the arable weed black bindweed in the fill (554) of posthole [555]. A shallow linear feature [536] cut into the base of the roundhouse also contained several black bindweed and half cotyledons of celtic bean. The sample from (531), the fill of a shallow scoop [532], which cut the linear gully was predominantly composed of celtic bean, with the 2mm float estimated to be 90% celtic bean fragments, with over 150 whole examples in varying states of preservation. One wheat and two oat (*Avena*) grains were also present. These cut features are thought to be broadly contemporary: although no clear relationships could be discerned, all are sealed by a burnt spread (524) associated with the abandonment of the roundhouse.

Pieces of burnt wood (526), (527), (528) and (533), some directly adjacent to stakeholes, were sampled and are thought to be associated with the process of abandonment. Although the samples were primarily charred wood the sample from (527) also included a cereal culm node and two examples of black bindweed. In association with the remains of these charred stakes a charcoal rich layer (525) is likely to be the remains of the crushed burnt stakes, the floats being >95% charcoal, with a single wheat grain and several celtic bean fragments.

A number of other stakehole fills were sampled; these generally produced floats with >95% charcoal fragments, although some, such as the upper and primary fill of [553] and [557] included a few weed seeds.

A charcoal rich layer (524) that contained fragments of baked clay/briquetage and burnt sand was also deposited at this stage. Although again 95% charcoal, the sample float included a small charred cereal assemblage with occasional wheat, barley, oats, arable

weeds and a single Celtic bean. This deposit sealed the features in the northwest quadrant of the roundhouse. The uppermost abandonment layers are represented by a silty deposit (505) 0.07m deep in the central area of the structure; two possible wheat grains and fragmented Celtic beans were the only macrofossils present. Layers (501) and (502), overlying (505), may have mixed with the later plough soil, and contain predominantly charcoal.

10.1.4 Pollamounter: Romano-British enclosure

Field 14

Evidence of a substantial enclosure feature and a nucleated group of inter cutting ditches, pits, and postholes, mostly dating to the Romano-British, period were found at Pollamounter.

Central group of features to the southeast of [142]

Bulk samples were taken from curvilinear ditches [202] and [204], which formed part of two intersecting oval shaped ring ditches and from one of two linear ditches [184], which formed part of a field system. As well as small charcoal fragments, there were occasional wheat, barley and oat grain, a single wheat glume base, and several grass caryopses. Later pit cut [220] and posthole/pit cut [233] within the fill of one of these structures, also contained wheat, barley and oat grain with wheat glume bases, poorly preserved barley rachis internode, and oat floret with a few weed seeds.

Two fills (227) and (228) of the curvilinear ditch [226] produced small floats of 9ml and 6ml respectively, mostly charcoal fragments with occasional wheat and oat grain, wheat chaff, oat awns, and grass caryopses.

The fills of most of these features produced Romano-British pottery and are likely to be contemporary. A further complex of linear and curvilinear features included two samples from the fill (178) of curvilinear ditch [179], the float including barley grain, grain and awns of oat, and a small weed assemblage. The dark charcoal fill of feature [182] within (178) included a larger cereal assemblage, mostly oat, with barley and wheat, and other poorly preserved grain, wheat glume bases, oat awns, and a small arable weed assemblage. There were also two charred gorse (*Ulex*) spines. Two further linear ditches [214] and [235] produced similar, although smaller assemblages.

Enclosure [142] and adjacent features

Further features were sampled associated with enclosure [142]. Ditch terminus [238] with Romano-British pottery and ditch terminus or pit [240] included occasional wheat, barley and oat grain, a fragmented wheat spikelet fork and a single knotgrass (*Polygonum aviculare*).

The secondary fill [145] of the large enclosure ditch [142] to the northwest of these features, included sparse charcoal with, in the upper fill (143), a single barley grain and several weed seeds, including heath-grass.

The fills of two shallow sub-rectangular depressions [252] and [253] associated with the third phase of activity are possibly rubbish pits and contain occasional wheat, barley and oat grain, chaff and weed seeds. There were three fills from a small circular pit [242] to the southeast of the ditch terminus [238]; the primary fill (251) producing a 4 litre float with 100% charcoal, and fill (250) 98% charcoal with occasional charred cereals as well as fragments of burnt sheep bone. The float (20ml) from the upper fill (243) was mostly smaller charcoal fragments with occasional wheat, barley and oat grain, chaff and weeds. Burnt bone and pottery from pit [242] associated with these may suggest settlement activity nearby.

10.1.5 Metha: prehistoric activity

Field 2

The earliest phase of activity is represented by a radiocarbon date of 3400-2900 cal BC. Two samples from the primary fill of a small pit [370] were 98% charcoal, although (372b) included seven hazel (*Corylus avellana*) nut fragments, hazel charcoal also being recovered with a single apple (*Malus*) pip perhaps associated with the Pomoidae charcoal, a group which includes apple.

Field 11

The next phase of activity from the Metha area is characterised by scattered pits. The primary fill of pit [282] in F11 gave an Early Bronze Age date, 2700-2300 cal BC, from charcoal recovered from the sample float. No other charred remains were present.

Field 8

Middle Bronze Age activity is represented by a large sub-circular pit [310] in F8 and the complex sequence of deposits was extensively sampled. The 6ml float from the primary fill (358) contained only charcoal with four grass caryopses, but a radiocarbon sample from the charcoal gave a Middle Bronze Age date of 1690-1410 cal BC. A further fill (356) is associated with an episode of burning, the float consisting of 98% charcoal with many substantial fragments. Charcoal identification showed that much of the charcoal was blackthorn roundwood and several whole sloe stones were also present with other hedgerow species, particularly hazel, but also hawthorn and bramble, although there was no evidence from the charcoal for any of these other species (see section 10.3). There was also a single piece of twiggy oak (*Quercus*) charcoal, and several oak buds were recorded.

Most of the other fills sampled (311), (313), (357) contained only charcoal but in (312) a single wheat grain and one sedge (*Carex*) nutlet was recorded, and in (355) three unidentified buds and a single cleavers. The final phase of use was represented by the cutting of a small pit [359]; only a single barley grain was recorded here.

10.1.6 The medieval and later landscapes

The medieval and later landscape is represented by ditches assumed to relate to removed boundaries of medieval or later origin.

Four ditch fills [72], [101], [66] and [78] were examined in F18 but the small sample floats were primarily charcoal with only rare occurrences of barley grain and ribwort plantain seeds. In F12 two fills (276) and (277) of linear ditch [271], associated with reorganisation of field patterns, produced a sparse assemblage with single examples of grass and dock (*Rumex*). In F9 evidence of removed field boundaries representing hedge ditches came from linear features [291] and [293] but only roots and modern seeds were recorded, while the fill of ditch [302], likely to be the remnant of a medieval strip field system included single examples of wheat, barley and oat grain, with occasional weeds.

10.1.7 Discussion

The bulk samples were taken from a range of features along the pipeline. Overall plant remains were either sparse or absent making interpretations difficult although the excavation of the roundhouse at Trevilson produced evidence of domestic activity from the interior of this feature during the Bronze Age.

Much of the evidence, both in the roundhouse and other features examined, comes from secondary sources. Charred plant remains and charcoal in features such as ditch fills, especially where associated with field boundaries, or pits and postholes, even within house structures, will only record a trace of the activities with which they would have been

associated. Within roundhouses for example, they may merely represent chance occurrences from activities such as food preparation, with debris being swept from floor surfaces onto household fires, there becoming mixed with other fuel. Stray charred items may then have found their way into features such as pits and postholes, the latter particularly appearing to act as pit-fall traps, accumulating material relating to the phase of occupation of the building. The spreads of charred material which were particularly concentrated in the central area of the roundhouse are composed primarily of charcoal, the range of species suggesting fuel debris, although some larger oak pieces were identified as burnt structural elements. Although these are from contexts associated with the phase of abandonment of the roundhouse, the charred cereal remains may relate to occupation activity in the area of the house. Low concentrations of charred plant remains from features associated with the Romano-British landscape at Pollamounter and the later medieval landscape may also have originated from household fires. The debris were subsequently being scattered on ploughed fields, with chance finds then accumulating in field boundary ditch fills.

Neolithic

The primary fill of a small pit [370] in F2 at the northern end of the pipeline was predominantly charcoal although a few hazel nut shells and a single apple pip were recorded. The charcoal identified some of the same taxa (*Malus* is included in the group Pomoidae) so they may all be the remains of firewood.

Bronze Age

Much of the evidence from this period comes from the roundhouse at Trevilson in F18, with additional pit fills [132] in the adjacent F17 and [310] in F8.

The evidence from Trevilson appears to relate to phases of construction and abandonment of the Bronze Age roundhouse and there seems to be little direct evidence for activity associated with the actual occupation of the structure. Posts used in association with the erection of the structure [512] appear to have been subsequently removed, the postholes then deliberately backfilled and not surprisingly these fills preserved only sparse remains, although they do provide the earliest evidence at this site for cultivated crops of wheat and barley, possibly oat, Celtic bean, and garden pea. A single hazelnut fragment and Rosaceae spine, possibly relating to blackthorn charcoal also identified from these fills may provide additional evidence of food resources, or as suggested for the charcoal identified, be fuel debris. Two further postholes [530] and [555], thought to be part of an internal feature in the house, also provided evidence of cereal remains. A four litre sample from shallow scoop [532] produced a 60ml float estimated to contain c90% fragmented Celtic beans. These beans may also have been included within the house as part of the abandonment process as they would not have been deliberately burnt as part of food preparation. They could have been accidentally charred unless they were from a spoiled batch, although no sign of pest infestation was noted.

The remaining evidence relates to the abandonment phase of the structure from charcoal spreads, many from the central area of the house or from post and stakehole fills. Some of the charcoal present, which forms the bulk of most of the sample floats is interpreted as the result of burnt structural remains, particularly the large oak fragments, or remains of fuel debris. Occasional occurrences of items of cereal grain in these features are likely to relate to the processing of small amounts of wheat and barley for consumption that produced odd scatters, which having dropped onto the floor were then swept onto a fire where they became charred and then mixed with other fuel debris.

The fill of a shallow pit [132] in F17, adjacent to the roundhouse, is also thought to be prehistoric and contained a similar small charred assemblage with evidence of wheat, barley, oats, and Celtic bean mixed with fuel debris.

Although limited the evidence from the charred plant remains from the Bronze Age, particularly the roundhouse, shows the utilisation of crop plants, with wheat and barley, possibly oats, and field crops of Celtic bean and garden pea. However, these are mostly restricted to individual occurrences of cereal grains with a maximum of 17 barley grains from one of the charcoal spreads (518) around the centre of the roundhouse. Although thirty nine samples were examined from the roundhouse no evidence was found for cereal chaff apart from single cereal culm nodes from two contexts. This suggests that the cereal entered the house as cleaned grain after processing. However, arable weeds do occur; these too would normally be removed as part of the crop cleaning process. Occasional occurrences of a few species such as black bindweed and pale persicaria occur in the posthole fills with a greater range of species in the charcoal spreads, but nowhere are numbers great. These fine sievings from crop processing may have become incorporated into a fire from sweeping of the processing area and their presence may suggest that this activity was done close to the roundhouse; it is perhaps surprising though that cereal chaff was absent. It also seems likely that cultivation of these crops would have been local to the settlement. Celtic beans and possibly garden peas (although only definitely identified from one sample, [571]/(519) would seem to have formed an important part of the diet since occasional cotyledons of *Vicia faba* were found in many of the features and indeed form a major component of several samples (scoop [532], spreads (518) and (534).

Other evidence from charred macrofossils relates to woody species notably hazel, hawthorn, bramble and Rosaceae species (rose family) all taxa identified in the charcoal deposits from the roundhouse as representing fuel debris, although hazel, bramble and possibly sloe (Rosaceae spines) may also have been collected to add some variation to the diet. In F8 the charred remains of hazel, hawthorn, bramble and Rosaceae species from the fill of a large pit [310] suggest this material originates from hedgerow or scrub, possibly from the maintenance of field boundaries or scrub clearance. Charcoal from the same fills was mostly blackthorn with some oak. There was no other evidence of food remains, suggesting that this material did not have a domestic origin.

Romano-British

Features associated with the Romano-British landscape were examined in F14 at Pollamounter. Bulk samples here were mostly from ditch fills associated with the field systems so the charred plant remains are present in secondary contexts. Concentrations are generally low with only a few records of wheat, barley, and oat grains. Again cereal chaff is limited making further identification difficult, the oats for example may have been cultivated or formed part of the arable weed community. Grass caryopses were the most common weed, with other species present, ribwort plantain, dock, vetch and buttercup, typical of grassy habitats, perhaps invading from field margins or adjacent pasture.

The fills of two shallow sub-rectangular deposits [252] and [253] have been interpreted as rubbish pits or truncated field ditches. These also have small assemblages of cereals and a fill of pit [242] includes cereals as well as burnt sheep bone (Section 10.2) pointing to settlement activity nearby. Crop processing may have occurred at nearby settlements, with charred debris scattered on fields as part of a system of rubbish disposal.

The presence of heathland is suggested from the identification of gorse spines and heath-grass from features in this field. Both gorse and broom (*Cytisus*) are recorded from charcoal here and reflect the acidic nature of the local soils overlying the shillet.

Medieval and later

Evidence from ditched features associated with the medieval and later landscape is very limited. Charred material is again present from secondary contexts, but it does show the continued presence of barley, wheat and possibly oat cultivation.

Comparisons with other sites

The evidence from the charred plant remains from the pipeline, although sparse has shown the cultivation of crops of barley and wheat, most likely emmer. This is particularly evident from the Bronze Age roundhouse at Trevilson, which seems typical of other Bronze Age sites studied. At Trethellan Farm (Straker 1991), a lowland Bronze Age settlement near Newquay, cereal cultivation was predominantly naked barley, with emmer, a small number of oats, although again these may have been cultivated or wild, with occasional Celtic bean. There was also evidence for flax (*Linum usitatissimum*) and hedge parsley (*Sisymbrium officinale*). One pit contained over 100 seeds of hedge mustard and it is suggested that this may have been deliberately cultivated as a source of oil, flax also being grown for its oil seeds as well as its fibres. At Trethellan the settlement was adjacent to a contemporary field system so it is likely that the crop was grown there.

Bronze Age features associated with the Maudlin to Liskeard pipeline (Jones 1999a) revealed pits and postholes surrounding a ritual complex. Postholes again seem to have acted as pit-fall traps, one feature in particular containing a rich assemblage including over 400 oats, measurements suggesting that they were in the range for wild oats. Barley was also common with some wheat and a similar weed assemblage to Trevilson and Pollamounter.

A further pipeline in north Cornwall from Bears Down to Ruthvoes (Jones 1999b) involved sampling of a second to third century Romano-British site at Little Quoit Farm, from features associated with metalworking. Low concentrations of charred remains included wheat, barley and oats, with a small weed assemblage including brome and scarlet pimpernel (*Anagallis arvensis*), and it was suggested that cultivation may have occurred close to the site.

10.2 Charcoal Analysis by Rowena Gale

10.2.1 Methodology

Twenty six samples of charcoal representing eight fields were selected for full analysis as follows:

Church Close, F20: 1 sample

Church Close, F19: 1 sample

Trevilson, F17: 1 sample

Pollamounter, F14: 4 samples

Metha, F2: 2 samples

Metha, F8: 1 sample

Metha, F11: 1 sample

The main objectives of the analysis were to:

1. Identify the range of species present and consider possible origins for the charcoal deposits (eg fuel debris, burnt artefacts etc).
2. Assess the environmental implications (eg the character of local woodland).

3. Assess the use/exploitation of woodland resources and obtain evidence of woodland management.
4. Identify suitable charcoal for radiocarbon dating.

Bulk soil samples were processed by flotation and sieving. The resulting flots and residues were scanned under low magnification by Julie Jones, and the charcoal separated from plant macrofossils. Charcoal fragments measuring >2mm in radial cross-section were considered for species identification. Large samples were sub-sampled prior to identification as follows: sample <58> from context (251)-10% sub-sample; <76> (356)-50%; <715> (523)-50%; <716> (526)-50%; <718> (528)-50%.

The condition of the charcoal varied from firm and well-preserved to poor and friable. Intact radial segments of roundwood were relatively infrequent. Standard methods were used to prepare the samples for examination (Gale and Cutler 2000). The anatomical structures were examined using incident light on a Nikon Labophot-2 microscope at magnifications up to x400. The taxa identified were matched to prepared reference slides of modern wood. When possible, the maturity of the wood was assessed (ie whether it was heartwood/sapwood). Charcoal suitable for radiocarbon dating was weighed, labelled and bagged.

The taxa identified are presented in Appendix 14.3 and discussed below. Charcoal selected for radiocarbon dating is also indicated in Appendix 14.3.

Classification

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

Aquifoliaceae. *Ilex aquifolium* L., holly

Betulaceae. *Alnus glutinosa* (L.) Gaertner, European alder; *Betula* spp., birch

Corylaceae. *Corylus avellana* L., hazel

Fagaceae. *Quercus* sp., oak

Leguminosae. *Cytisus scoparius* (L.) Link, broom, or *Ulex* sp., gorse

Rosaceae. Subfamilies:

> Pomoideae, which includes *Crataegus* sp., hawthorn; *Malus* sp., apple; *Pyrus* sp., pear; *Sorbus* spp., rowan, service tree and whitebeam. These taxa are anatomically similar; one or more taxa may be represented in the charcoal.
>
> Prunoideae, which includes *Prunus avium* (L.) L., cherry*; P. padus* L., bird cherry, and *P. spinosa* L., blackthorn. In this instance the broad heterocellular rays suggest *P. spinosa* as the more likely.

Salicaceae. *Salix* sp., willow, and *Populus* sp., poplar. In most respects these taxa are anatomically similar.

10.2.2 Church Close: prehistoric and later activity

Field 20

Field 20 included a substantial subcircular pit [45]. The archaeology of the pit revealed a complex stratigraphy of backfilling, which included a charcoal-rich lens (141). The charcoal, <20>, consisted of flakes of oak (*Quercus* sp.) heartwood from largewood, similar in character to that from pit [60] in F19

Field 19

In F19 a circular pit or depression [60] was located to the east of a ditched linear feature [62]. The dating of the feature is uncertain but it could be prehistoric in date. Charcoal, <4>, was abundant in the fill of the pit, particularly towards the top of the deposit. The charcoal consisted of small flakes of oak (*Quercus* sp.) heartwood, probably from a wide post/pole or roundwood. Although many fragments were too small for identification they appeared to be superficially similar to oak.

10.2.3 Trevilson: Bronze Age roundhouse

Field 18

Phase 1: construction

The base of the structure included a number of post and stakeholes, some of which formed the main post-ring (eg [512] and [546]) and scoops/depressions; however, their fills seem to have been associated with the infilling of the roundhouse (see below, Phase 3).

Phase 2: occupation

The interior of the roundhouse was largely devoid of evidence of occupation, possibly as a result of good housekeeping or, alternatively, due to the removal of occupation layers during or before the abandonment phase. Several large pieces of burnt wood, (526), (527), (528) and (533), were recovered, some of which lay directly adjacent to stakeholes. (526) appeared to be tapered at one end. It was thought, however, that these deposits were more likely to relate to Phase 3 abandonment activities. All the wood samples fragmented on lifting. Samples <716>, <717> and <718> from (526), (527) and (528) were identified as oak (*Quercus* sp.) heartwood and sapwood from fairly wide roundwood. Given their provenance, it seems probable that these represent the remains of burnt structural posts associated with the destruction of the house.

Phase 3: abandonment

Layers (517) and (518) probably relate to the first evidence of abandonment. A conspicuously charcoal-rich layer (517) was located around the centre of the roundhouse and overlay layer (518), in which charcoal was less frequent. Charcoal from both layers consisted predominantly of birch (*Betula* sp.) but also included oak (*Quercus* sp.) and hazel (*Corylus avellana*) (Appendix 14.3). Sample <13> from layer (517) included similar species with the addition of the hawthorn/*Sorbus* group (Pomoideae).

Scoop [532] was sealed by a burnt spread (524) which included charcoal and baked clay/briquetage within the northwest edge of the roundhouse. Associated charcoal <713> was abundant and consisted mainly of oak (heartwood and narrow twiggy material) but also included birch (*Betula* sp.), hazel (*Corylus avellana*) and the hawthorn/*Sorbus* group (Pomoideae). A further deposit (523) occurred inside the entrance. The large quantity of charcoal <715> recovered was 50% sub-sampled for examination and found to be roughly similar in character to <713>, although birch was not recorded. A silty layer with stones and charcoal (534) included mostly birch (*Betula* sp.) but also oak (*Quercus* sp.) and hazel (*Corylus avellana*).

Charcoal was also abundant in context (509), the matrix around stony layer (506). Sample<11> consisted entirely of oak (*Quercus* sp.), probably from a fairly wide pole or roundwood. Sample <712> was more degraded and included, mostly, oak (*Quercus* sp.) but also birch (*Betula* sp.), hazel (*Corylus avellana*) and the hawthorn/*Sorbus* group (Pomoideae).

Samples were also examined from the fills of postholes [512], sample <704>, and [546], sample <732>. Both postholes were associated with the main post-ring, from which the posts appeared to have been removed during the abandonment phase and subsequently back-filled with stones. Associated charcoal was likely to have been deposited in this phase (or accumulated naturally). Charcoal was relatively sparse in posthole [512] but included oak (*Quercus* sp.) from fairly wide roundwood, gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.), hazel (*Corylus avellana*), and blackthorn (*Prunus spinosa*). A large deposit of charcoal was recovered from posthole [546], although a high proportion was too fragmented to identify; the taxa recorded included hazel (*Corylus avellana*), oak (*Quercus* sp.), birch (*Betula* sp.) and the hawthorn/*Sorbus* group (Pomoideae).

A silty deposit (505) in the central region of the roundhouse represented one of the uppermost layers of abandonment. Associated charcoal, <701>, was mostly very fragmented and friable; species identified included oak (*Quercus* sp.), hazel (*Corylus avellana*) and the hawthorn/*Sorbus* group (Pomoideae).

Field 17

This field was situated to the west of the Bronze Age roundhouse in F18. Charcoal <16> from the fill of a shallow pit [132] consisted of narrow roundwood from hazel (*Corylus avellana*), birch (*Betula* sp.) and oak (*Quercus* sp.).

10.2.4 Pollamounter: Romano-British enclosure

Field 14

Charcoal was examined from a small group of features potentially dating to the same period as the Romano-British complex of linear ditches sited close by. These included a small circular pit [242] with three fills, of which the upper two contained Romano-British pottery, whilst the primary fill contained burnt animal bone. Charcoal (samples <58> and <57>) was examined from the primary (251) and secondary (250) fills. The charcoal-rich primary fill consisted of a mixture of largewood fragments, narrow roundwood and twiggy material. A 10% sub sample mostly included the hawthorn/*Sorbus* group (Pomoideae) and oak (*Quercus* sp.); other species present included blackthorn (*Prunus spinosa*) and gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.) (Appendix 14.3). The charcoal from the secondary fill (250) was more degraded but included a similar range of species. A radiocarbon determination dating to the Romano-British period was obtained from the primary fill (251).

The date of a nearby pit or ditch terminus [240] was less certain. Charcoal <54> from the fill of this feature was vitrified and degraded. Largewood fragments of oak (*Quercus* sp.) and gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.) stems were identified.

Charcoal <60> was also identified from a shallow depression [252] and, although the charcoal was comparatively sparse, it included large well preserved fragments of oak (*Quercus* sp.), hazel (*Corylus avellana*), gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.) and willow (*Salix* sp.) or poplar (*Populus* sp.).

10.2.5 Metha: prehistoric activity

Field 2

A small pit [370] was recorded at the northern end of the pipeline in F2. The pit measured roughly 1.3m (north-south diameter) and was initially dated by flint artefacts to the

Neolithic period. This was confirmed by a radiocarbon determination (see Section 11). The charcoal was most abundant in the northwest section of the pipe trench (372b). Samples <79> and <80> included hazel (*Corylus avellana*), the hawthorn/*Sorbus* group (Pomoideae), oak (*Quercus* sp.), blackthorn (*Prunus spinosa*), and possibly birch (*Betula* sp.) (Appendix 14.3).

Field 8

A large sub-circular pit [310], dating from the Middle Bronze Age (see Section 11), was excavated on the western side of the valley in F8. The complex stratigraphy of the pit was comparable to that of the prehistoric pit [45] in F20 (Church Close). The pit had undergone a series of backfilling episodes with at least one burning event (356). A 50% sub sample of the large volume of charcoal recovered was examined. The charcoal consisted almost exclusively of narrow roundwood from blackthorn (*Prunus spinosa*), including thorns; a single piece of twiggy oak (*Quercus* sp.) was also identified (Appendix 14.3). Charred plant macrofossils included hazel nutshells, sloes, hawthorn and bramble pips, and oak buds (see Section 10.1). The narrow dimensions of the blackthorn stems suggested an origin from hedge pruning or, perhaps, the clearance of young scrub. It is possible that the charcoal was the product of a bonfire for the disposal of such debris, although, alternatively, the woody stems may have been used as firewood and, subsequently, dumped in the pit. It is interesting that several other woody species (bramble, hawthorn and hazel) were represented by fruits or buds but were not identified from the charcoal. It may be significant that these species also frequent hedgerows.

Field 11

A small, shallow pit [282] in F11 was located on the eastern side of the Lappa Valley. The pit contained part of an Early Bronze Age Food Vessel and a quantity of rather fragmented charcoal which produced an Early Bronze Age radiocarbon determination (Section 11). The latter consisted of hazel (*Corylus avellana*) (including narrow roundwood), holly (*Ilex aquifolium*), the hawthorn/*Sorbus* group (Pomoideae), alder (*Alnus glutinosa*), oak (*Quercus* sp.), and gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.) (Appendix 14.3).

10.2.6 Discussion

Fifteen of the charcoal samples included in the current report relate to the roundhouse at Trevilson. A further ten samples from other features along the pipeline were selected for full analysis from F2, F8, F11, F14, F17, F19 and F20 (Appendix 14.3).

The charcoal was usually well preserved and sometimes extremely abundant. In contrast, plant macrofossils tended to be sparse or absent, although grain and pulses were recorded from some features in the roundhouse (Section 10.1.3). The origin of the charcoal is mostly unknown although it is probable that a large proportion, especially that from spreads and postholes within the roundhouse, derived from fuel debris; there was also, however, fairly strong evidence from some samples to imply structural remains.

Pottery finds have enabled the dating of some features but secure radiocarbon dates (using charcoal) were still required for others. Features included in the charcoal analysis ranged from the Neolithic to the Romano-British or possibly medieval periods. The following discussion is arranged chronologically.

Neolithic

A small pit [370] was located in F2 at the northern end of the pipeline. A placement of stones was included in the base of the pit since this was overlain by charcoal. The charcoal (?firewood) consisted of mixed deciduous species including hazel (*Corylus avellana*), the

hawthorn/*Sorbus* group (Pomoideae), oak (*Quercus* sp.), blackthorn (*Prunus spinosa*), and probably birch (*Betula* sp.).

Bronze Age

The Bronze Age was represented by the Trevilson Roundhouse in F18, and, possibly, by pit fills in F8, F11 and F17.

The stratigraphy of the roundhouse indicated 3 main phases: construction (1), occupation (2), and abandonment (3). Phasing for some of the charcoal deposits is, at present, rather tenuous. Although it might be anticipated that most of the charcoal would correlate to the occupation phase (2), occupational artefacts and debris were sparse on the stone floor. In some instances it was not clear to which phase the charcoal deposits should be correctly attributed, for example, from the fills of postholes [512] and [546], which formed part of the main post-ring (ie construction phase). It was not until the abandonment of the site that the posts were removed and the postholes backfilled with stone. Although the charcoal may have been mixed with packing material placed around the posts during the construction of the roundhouse, it is, perhaps, more likely that fuel debris entered the postholes after the removal of the posts (ie abandonment phase). The presence of multiple species in the charcoal negates an origin from the posts themselves. The taxa identified from [512] included hazel (*Corylus avellana*), blackthorn (*Prunus spinosa*), oak (*Quercus* sp.) and gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.) and, from [546], birch (*Betula* sp.), hazel (*Corylus avellana*), the hawthorn/*Sorbus* group (Pomoideae), and oak (*Quercus* sp.).

Charcoal from the abandonment phase included a deposit from within the northwest edge of the roundhouse (524), which also contained baked clay/briquetage. By implication the charcoal may represent burnt building materials, although its similarity to a spread (534) and a deposit inside the entrance (523) suggests that it is more likely to be fuel debris. The taxa identified from these contexts included birch (*Betula* sp.), hazel (*Corylus avellana*), the hawthorn/*Sorbus* group (Pomoideae) and oak (*Quercus* sp.) (Appendix 14.3).

Probable fuel debris was also recovered from spreads of charcoal within the roundhouse from layers associated with the abandonment of the site: context (518), from the central area, and context (517) underlying (518). Birch (*Betula* sp.) featured particularly strongly in (517). Other taxa identified included oak (*Quercus* sp.), hazel (*Corylus avellana*) and the hawthorn/*Sorbus* group (Pomoideae) (Appendix 14.3). Similar origins may be applicable to charcoal from context (520), from stakehole [521], and context (509), from the matrix of stones from the walls of the roundhouse, from which similar species were identified (Appendix 14.3). If these samples typify the character of the fuel used in the roundhouse, it could be argued that the large volume of oak charcoal (from a wide post/pole) from (509), from the tumble of the wall of the roundhouse, is more likely to have been the product of a burnt structural component, for example a post. This suggestion is supported by the remains of three large pieces from oak posts (526), (527) and (528), one of which, (526), appeared to be tapered at one end. These were found adjacent to postholes and almost certainly represent burnt structural remains.

In the adjacent F17, the fill of a small pit [132] included fuel debris from birch (*Betula* sp.), hazel (*Corylus avellana*) and oak (*Quercus* sp.). Probable fuel debris from the fill of pit [282] in F11 also included hazel (*Corylus avellana*) and oak (*Quercus* sp.), with the addition of alder (*Alnus glutinosa*), holly (*Ilex aquifolium*), the hawthorn/*Sorbus* group (Pomoideae) and gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.).

Pit [310] in F8, demonstrated similar stratigraphy to pit [45] in F20, and the numerous back-filling episodes included at least one burning event. However, the abundant charcoal recovered from the pit differed to that from pit [45] in that it consisted almost exclusively

of narrow blackthorn (*Prunus spinosa*) stems, and oak (*Quercus* sp.) was only minimally represented (Appendix 14.3). Charred plant macrofossils from the pit also included fruits and buds from woody species including hazel, hawthorn, blackthorn, bramble and oak, and it is curious that, with the exception of oak, wood from these species was not, apparently, present in the charcoal. The absence of other food plants (eg grain or pulses) tends to preclude a domestic origin for the charcoal. The frequency of young stems suggests an origin either from a hedgerow (pruning) or the clearance of immature scrub. Although conjectural, these woody stems may then either have been disposed of locally on a bonfire or recycled as firewood, and the fuel debris subsequently dumped in the pit. The taxa identified from the plant macrofossils are also consistent with hedgerow species.

Romano-British period

Charcoal was examined from a series of pits, provisionally dated to the later prehistoric period. Some of these, for example the undated pit [45] in F20, appeared to be associated with enclosures or field systems. This particular pit was extremely large (almost 4m in diameter) and included a complex stratigraphy of backfilling. A dense lens of charcoal within the pit consisted entirely of oak (*Quercus* sp.) from wide roundwood, for example a post or pole, or cordwood. Although the charcoal may have derived from fuel debris (perhaps oak was selected for a specific purpose in favour of other species), the remains of a burnt post or artefact can not be ruled out.

Pit [242] in F14 (Pollamounter) was dated by pottery to the Romano-British period. The primary (251) and secondary (250) fills were especially rich in charcoal, which was identified as the hawthorn/*Sorbus* group (Pomoideae), blackthorn (*Prunus spinosa*), oak (*Quercus* sp.), and gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.). The charcoal almost certainly derived from fuel debris from a domestic hearth, dumped with other household rubbish including pottery sherds and food stuff (grains and pulses, Section 10.1). Similar origins apply to a dump of charcoal in the shallow pit [252] from which hazel (*Corylus avellana*), oak (*Quercus* sp.), willow (*Salix* sp.) or poplar (*Populus* sp.) and gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.) were recorded.

The date of a pit or ditch terminus [240], sited close by, was less secure. Associated charcoal was comparatively sparse and identified as oak (*Quercus* sp.) and gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.).

Prehistoric to medieval periods

A small pit [60] in F19 is, at present, dated to either the prehistoric, Romano-British or medieval period. The charcoal-rich fill of the pit (61) consisted of small flakes of oak (*Quercus* sp.) heartwood, from wide roundwood, possibly from a pole or post. The similarity of the charcoal to that in pit [45] in the adjacent F20 may infer a similar origin or date.

Fuel resources

As indicated above, many of the samples examined almost certainly derived from fuel debris, probably from domestic hearths. There was no evidence to suggest waste from industrial activities. The procurement of firewood would have been influenced by the character of the woodland in each locality and, since these were distributed along the course of the pipeline, covering a distance of three to four miles, the topography and environment for each would have varied.

In general, domestic fuel appears to have consisted of oak, usually heartwood and/or sapwood but, sometimes, narrow roundwood, supplemented with birch, hazel, the hawthorn group, blackthorn and, occasionally, gorse (or broom), holly, alder and

willow/poplar. Birch was particularly common in the roundhouse (F18), whereas gorse (or broom) was most frequent in features in F14 (Pollamounter). The selection or range of fuel used across the pipeline was more or less consistent from the Neolithic to the Romano-British period.

Sometimes fuel deposits appeared to diverge from this pattern of use and although the reason for this was not always obvious, it is possible that they related to a non-domestic function. For example, the pure oak heartwood deposits in the charcoal-rich layers of pits [60] (F19) and [45] (F20); and the deposit of burnt blackthorn stems in pit [310] (F8) (see above).

Structural components

There was fairly convincing evidence from the Bronze Age roundhouse (F18) for the use of oak posts in its construction. Large fragments of burnt oak, (526), (527) and (528), were located adjacent to postholes ((526) probably tapered at one end) and examination of the wood structure confirmed that these consisted of heartwood from fairly wide poles or posts. Structural origins may also be relevant for the large quantity of oak heartwood from context (509), from the tumble from the wall of the roundhouse.

Environmental evidence

Although oak forms the climax woodland in Cornwall, the salt-laden winds and often harsh, exposed landscapes have reduced the trees, in all but the most sheltered of today's woodlands, to stunted specimens (Marren 1992). Evidence from the charcoal analysis suggests the consistent dominance of oak (*Quercus* sp.) along the course of the pipeline that persisted from the Neolithic through to the Romano-British period. Oak woodland was probably interspersed with hazel (*Corylus avellana*), birch (*Betula* sp.), holly (*Ilex aquifolium*), hawthorn (*Crateagus* sp.) and possibly other members of the Pomoideae, for example rowan (*Sorbus aucuparia*). Blackthorn (*Prunus spinosa*) and gorse (*Ulex* sp.) would have been more likely to have colonised open woodland or cleared areas, with willow (*Salix* sp.) and alder (*Alnus glutinosa*) in the valley bottoms and on damper soils. Overall, the woodland cover appears to have been similar along the course of the pipeline during the late prehistoric period, although the frequency of birch in deposits in F17 and F18, and of gorse (and/or broom) in F11 and F14 may reflect local distribution patterns for these species. Thorn and other species may have been used as hedging, especially in the later periods.

Recent work on charcoal deposits from another local pipeline, Bear's Down to Ruthvoes, identified a similar range of taxa, with the exclusion of holly but the addition of ash (*Fraxinus excelsior*) and elder (*Sambucus* sp.). The sites included Bronze Age, Romano-British and medieval features, but focused mainly on a large Romano-British iron-working complex at Little Quoit Farm, St Columb Major, where industrial fuels consisted principally of oak and gorse/broom (Gale 2003).

Two coastal sites at Newquay were also roughly contemporary with those on the Mitchell to St Newlyn East Pipeline. At Trevelgue Head, charcoal was recovered from later Bronze Age/Early Iron Age to Romano-British contexts. Here again, oak predominated throughout the samples; other species identified included alder, birch, hazel, ash, ivy (*Hedera helix*), holly, the hawthorn group, blackthorn, willow/poplar, gorse/broom and pine (*Pinus* sp.) (Gale, unpub). A Romano-British settlement at Atlantic Road produced small quantities of charcoal from pits, middens, spreads, and a hearth (Gale in Reynolds, forthcoming). Oak, gorse/broom and blackthorn, occurred more frequently than other species, which included hazel, alder, the hawthorn group, elder, bramble/briar (*Rubus* sp./*Rosa* sp.), elm (*Ulmus* sp.) and spruce/larch (*Picea* sp./*Larix* sp.). Neither spruce nor larch are native to Britain and would almost certainly have been collected as driftwood.

The evidence suggests that woodland composition was similar in character throughout the region, which was mostly in fairly close proximity to the north coast of Cornwall. The frequency of shrubby species such as gorse, hawthorn and blackthorn suggests that many areas, particularly those in the vicinity of the coast, were probably sparsely wooded, perhaps as a direct result of exposure to harsh coastal conditions. Nonetheless, oak woodland still seems to have dominated the landscape and was sufficient to provision local settlements with building materials and fuel. There was insufficient evidence available from the charcoal examined to assess the use of wood from coppiced woodlands.

Conclusion

The charcoal examined was recovered from a range of features including pits, postholes, ditches and spreads. Fifteen of the samples were obtained from the Trevilson Roundhouse (F18) and represented both fuel residues and structural elements; the latter consisted of oak (Quercus sp.) posts. Charcoal from the remaining sites was probably mostly the product of domestic hearths, although some deposits, for example the fills of pits [310] in F8, [62] in F19 and [45] in F20, were more questionable.

The taxa identified from the charcoal included predominantly oak, but also birch (*Betula* sp.), hazel (*Corylus avellana*), the hawthorn/*Sorbus* group (Pomoideae), blackthorn (*Prunus spinosa*), gorse (*Ulex* sp.) and/or broom (*Cytisus* sp.), alder (*Alnus glutinosa*), holly (*Ilex aquifolium*), and willow (*Salix* sp.) or poplar (*Populus* sp.).

Environmental evidence from the current report and from contemporary sites at Newquay (Atlantic Road and Trevelgue Head) and on the Bear's Down to Ruthvoes Pipeline, suggests that local woodland consisted predominantly of oak, although the frequency of gorse and other shrubby species infers that a good proportion of the landscape remained only sparsely wooded. There was insufficient evidence available to assess the use of coppiced wood.

10.3 Calcined animal bone by Lorrain Higbee

10.3.1 Introduction

Approximately 1 gram of bone was recovered from contexts (250) and (251) within pit [242] of Romano-British date, and includes material retrieved by hand and from the wet sieving of bulk soil samples.

10.3.2 Results

All of the bone fragments are calcined, that is white in colour and with a slightly powdery texture resulting from having been heated at a high temperature (above approximately 600°C). This process results in the recrystalisation of minerals producing a very stable structure which survives well even in acid soil conditions. Thus the absence of bone which has not under gone this process probably reflects unfavourable preservation conditions.

The assemblage was assessed initially to determine whether the remains represent human or animal cremations. Analysis has determined that fragments from both contexts can be positively identified as radius shaft fragments belonging to sheep/goat.

11 Radiocarbon dating

11.1 Introduction

The principal aim of the dating strategy was to obtain a series of precise dates from a number of key contexts from the Trevilson Roundhouse, the Pollamounter enclosure, and three pits which were believed to date from the Neolithic/Early Bronze Age periods. With the exception of the roundhouse which was associated with a stratified ceramic assemblage, none of the other features was associated with closely datable finds, or else had complex phasing which was not particularly helped by the artefactual assemblage (eg several phases of Romano-British activity at Pollamounter). The complicated nature of the investigated sites meant that the phasing and chronology was dependant upon obtaining a good series of radiocarbon determinations, taken from the key features and layers: obtaining these informed the basis of the dating strategy.

11.2 The Dating Strategy

Ten samples for radiocarbon determinations were taken from sealed contexts along the pipeline. Four were submitted from samples which had been taken throughout the deposits within the Trevilson roundhouse. These included material from the construction and abandonment phases of the house as well as a deposit associated with layer (524). Three were taken from contexts associated with three phases of activity which had been identified at Pollamounter, including the enclosure ditch, Structure 2 and a pit associated with calcined bone and pottery. Three were single dates from pits which had produced prehistoric pottery or were associated with flints. One of these pits [282] was associated with an Early Bronze Age Food Vessel. Ceramics of this type have not been found in non-burial contexts in Cornwall before which meant that it was important to date it.

However, despite relatively large amounts of available charcoal for sampling, much of it was mature oak which is unsuitable for radiocarbon dating. Because of the small amounts of material which were available only one of the samples was submitted for standard radiometric dating (context 143). The remaining nine samples comprised charcoal or carbonised seeds/chaff were submitted for accelerator mass spectrometry dating (AMS). This method of dating can be carried out on very small amounts of material and gives a high precision date.

All of the samples were sent to the University of Waikato in New Zealand.

Table 7: Results from the radiocarbon dating

Site	Context	Lab.No	Age BP Years	Calendrical Years 95%	Calendrical Years 65%
Pollamounter	(143)	Wk12671	217±51BP	AD1520-AD1960	AD1640-AD1950
Pollamounter	(228)	Wk12672	1988±54BP	120BC-AD130	50BC-AD80
Pollamounter	(251)	Wk12673	1732±52BP	AD210-AD430	AD240-AD390
Metha	(283)	Wk12674	3984±56BP	2700BC-2300BC	2580BC-2450BC
Metha	(358)	Wk12675	3258±53BP	1690BC-1410BC	1610BC-1490BC
Metha	(372)	Wk12676	4505±68BP	3400BC-2900BC	3350BC-3090BC
Trevilson	(505)	Wk12677	2864±56BP	1220BC-890BC	1130BC-970BC
Trevilson	(510)	Wk12678	3008±56BP	1410BC-1050BC	1320BC-1120BC

Site	Context	Lab.No	Age BP Years	Calendrical Years 95%	Calendrical Years 65%
Trevilson	(524)	Wk12679	3004±56BP	1400BC-1040BC	1320BC-1120BC
Trevilson	(535)	Wk12680	3077±56BP	1450BC-1120BC	1410BC-1290BC

11.3 Discussion

The results from the radiocarbon dating went some way to resolving the chronological sequences. The wide range of determinations from the individual sites has at one level enabled an outline to be built up of the landscape at particular moments, whilst on another level it has permitted more detailed models to be put forward for the development of the sites at Pollamounter and Trevilson.

The results from the dating are discussed in chronological order, commencing with the isolated prehistoric pits at Metha, continuing with the roundhouse at Metha and finishing with the Romano-British site at Pollamounter.

Metha

Three determinations were obtained from the Metha section of the pipeline. All were from pit features, two of which contained artefacts, pit [282] Wk12674 and [370] Wk12676, and a large pit [310] which was devoid of artefacts, Wk12675. The Metha pits provided the earliest determinations from along the corridor.

The earliest date was from pit [370], which was associated with a small flint assemblage. The lowest fill (372b) produced a Middle Neolithic date Wk12676 4505±68BP (3400-2900 cal BC). Features which have been positively dated to the Neolithic in Cornwall are still relatively few and far between and until the last few years have largely been restricted to hill top enclosures, which are probably not representative of typical settlement activity (eg Mercer 1981a). The date from Metha is significant because it joins a growing number of determinations from similar deposition pits in other parts of Cornwall, including Tremough, and Portscatho (eg Lawson-Jones 2002). The significance of this date in relation to recent determinations from Cornish Neolithic sites will be discussed below (Section 12.1).

The second determination Wk12674 3984±56BP (2700-2300 cal BC) from pit [282], which contained a Ridged Food Vessel is highly significant for two reasons. Firstly the Food Vessel is the first in Cornwall that is not associated with a barrow. Secondly the determination is earlier than most of the accepted dates for Food Vessels in southern Britain, which tend to appear around and after 2000 cal BC (Needham 1996). For example the only other dated example Watch Hill, is associated with a radiocarbon determination Wk12936 3474+45 BP (1920-1680 cal BC) (Jones and Quinnell forthcoming). The determination from the pit at Metha is closer to the dates which have been obtained from Irish Food Vessels where the form probably developed around 2300 BC (Waddell 1998). A similarly early determination BM1532 3810±90BP (2470-2040 cal BC) was recently obtained from a Food Vessel in a pit at Spong Hill in Norfolk (Healy 1988) and Food Vessels in Yorkshire also appear to predate 2000 BC (see Section 9.1). This indicates that the Metha Food Vessel is likely to date from the younger end of its date range at circa 2300 cal BC. Therefore, rather than seeing the Metha determination as aberrant it is possible that along with the earlier dates mentioned above it indicates contacts across the Irish Sea may have led to the early spread of Food Vessel ceramics across Britain at an earlier date than has previously been suggested.

The third determination from pit [310] Wk12675 3258±53BP (1690-1410 cal BC), is at

face value less significant than the preceding dates, as it was not associated with an artefactual assemblage or with any identifiable Middle Bronze Age settlement features. However, the pit did contain important environmental material which seems to indicate the presence of hedgerows in the near vicinity (see Section 10). This has obvious significance for thinking about landscape change and management and this will be developed further in Section 12.

Trevilson

The sequence of four radiocarbon determinations from the roundhouse are important because they overlap with and post-date the well-dated roundhouses at Trethellan and fall before the Callestick roundhouse (Nowakowski 1991; Jones 1998/9) and because they provide a good explanation of the chronology of events at Trevilson. The earliest date from the site Wk12680 3077±56BP (1450-1120 cal BC), was obtained from (535), the fill of cut [536], a shallow slot in the base of the roundhouse. This feature was probably associated with the construction phase of the roundhouse and as such provides the one date which is likely to relate to the occupation of the building.

The rest of the dates are derived from infilling episodes associated with the elaborate abandonment of the roundhouse. To elucidate what the radiocarbon determinations represent will involve a discussion of the nature of the deposits from which they were taken.

The two earliest dates are virtually identical: Wk12679 3004±56BP (1400-1040 cal BC) which was obtained from (510), the fill of posthole [512] and Wk12678 3008±56BP (1410-1050 cal BC), which was obtained from (524), a spread of material associated with a deposit of baked clay/briquetage.

The oldest end of the date range is much earlier than the determination from the overlying infill deposit (505) which raises the question as to where these layers were derived from. We know that the deposits were not burnt *in situ* within the roundhouse; as neither the floor nor the sides of the postholes showed signs of burning. Therefore the deposits must have been cold when they were placed inside the building. The charcoal in posthole [512] may have been derived from one of the building's timbers, which would mean that the determination related to the construction of the roundhouse, rather than to its abandonment. Furthermore the evidence suggests that the deposit containing the baked clay/briquetage had possibly been accumulated and stored elsewhere, perhaps for some time, before finally being placed inside the roundhouse.

However, if the layers actually date to the middle part of their date range, circa 1200 BC, then there is an overlap with the determination from the main deposit within the infilling phase. The final radiocarbon determination Wk12677 2864±56BP (1220-890 cal BC) came from context (505) which was one of the infill deposits. The date just overlaps with the dates from the underlying posthole and the baked clay/briquetage deposit, which means that it is possible that the roundhouse was infilled towards the end of the Middle Bronze Age at about 1200 BC.

In summary, the radiocarbon dates present an outline picture of the stratigraphical sequence at Trevilson. From the results we can build up a model for the chronological sequence. This could mean that the construction of the roundhouse may date from the fifteenth to mid twelfth centuries BC. The combined evidence from the posthole, the baked clay/briquetage deposit and from the main infill deposit indicates that the site of the roundhouse was infilled sometime between the thirteenth to ninth centuries BC. However, giving consideration to the overlaps between the dates and the likely duration of the abandonment, it can be suggested that the roundhouse was built during the fourteenth or

thirteenth centuries BC and was abandoned by the eleventh century BC.

Pollamounter

Three determinations were obtained from the Pollamounter enclosure site. One was from the upper fill (143) of enclosure ditch [142], Wk12671, and two were from features inside the enclosure, Structure 2 (the fill (228) of ditch [226]), Wk12672, and the primary fill (251) of pit [242], Wk12673.

The determination from the enclosure ditch was disappointing; Wk12671 217±51BP (cal AD 1520-1960). However, the sample submitted for dating was obtained from the uppermost fill (143) of the ditch as no suitable material was available from deeper down the section. The determination from this context will therefore have to be disregarded.

However, the results from the remaining two dates were significant and agree with the stratigraphical outline presented in Section 5. The fill (228) from Structure 2 produced a determination Wk12672 1988±54BP (120 cal BC- AD 130). The pottery from Structure 2 was Romano-British in date which indicates that the feature is likely to date from the latter part of the radiocarbon date range, namely the first century AD. The fill (251) of pit [242] gave a determination of Wk12673 1732±52BP (cal AD 210-430). This is again compatible with both the ceramic assemblage and the suggested stratigraphical phasing for the site. The results from the radiocarbon dating went some way to resolving the chronological sequence at Pollamounter, indicating that Structures 1 and 2 dated to the first century AD and that activity continued on the site into the third or fourth centuries.

12 Interpretation

12.1 Introduction

This section is intended to provide an interpretive discursive model of the results from the project that will draw in evidence from other fieldwork projects in the immediate area and further away. The results will be discussed in chronological order; however, rather than simply relating an unquestioning temporal monologue, particular attention is paid to a number of key themes which can be used to think about and present a narrative biography of landscape and place. The intention is not to provide a statement of fact, but rather an outline model which is based on our current understanding of the results from the project, as well as those from adjacent areas.

The first theme is environment, which whether wooded, open grassland or farmland is important to any discussion of landscape change. Whilst it is argued here that vegetation cover and natural topography did not determine human activity in a functionalist way it would have affected the way people moved around and perceived the landscape, and is likely to have become part of local cosmology. Several recent studies (Bradley 2000; Carmichael *et al* 1997; Tilley 1994) have demonstrated the importance that 'natural features' such as trees, rocks, and water are likely to have had in the cosmologies of prehistoric people. Studies in a number of areas of Cornwall have indicated the importance of natural features as important focal points within 'ceremonial' and 'settled' landscapes (Tilley 1995; 1996; Jones forthcoming b). The environmental setting of each of the investigated sites, ranging from the Neolithic to the Romano-British period will therefore be discussed to consider how the environmental conditions may have enabled or constrained access to and from them.

The second major theme is concerned with settlement mobility and enclosure. It has been customary to see post Mesolithic hunting communities as unchanging societies living in fixed farming settlements surrounded by fields broken in to arable cultivation (Mercer 1981b). Of late these assumptions have been challenged (eg Thomas 1999) and it has been argued that settlement was far less fixed in the landscape and instead may have been mobile, associated with a mix of pastoralism, short term cultivation and hunting. Indeed it has been suggested that farms and fields were not widely established in the landscape until the Middle Bronze Age (Barrett 1994 chapter 6; Brück 1999; 2000). Against this we must take onboard the evidence from some parts of northern Britain and Ireland (Cooney 1999) which indicate that in several areas at least farming and houses were established at an early date. At present, therefore it appears that during the Neolithic and Early Bronze Age periods there was a mosaic of regionally contrasting occupation practices which included both sedentary and mobile communities (eg Fairbairn 2000). Until recently the only possible Early Bronze Age house in Cornwall was the rather flimsy structure at Gwithian (Megaw 1976; Darvill 1996), though this too has recently been reassigned to the Middle Bronze Age (Henrietta Quinnell pers comm). The excavated sites will be assessed for evidence of settlement mobility.

The third theme is the treatment of artefacts. Recent studies (Jones 2001; Woodward 2002) concerned with interpreting the way that people treated artefacts have formed one of the most important means of thinking about the past. Current evidence indicates that for much of the prehistoric period there is widespread evidence for the 'curation' of 'heirlooms' (Woodward 2002) and for the deliberate structured deposition of ceramics and metalwork into a variety of different contexts, including pit fills and ditches (eg Pollard 1992). Evidence for structured deposition and 'curation' of artefacts has been found at a number of sites in Cornwall including Early Bronze Age 'ceremonial' sites (Jones forthcoming b), Bronze Age settlements (eg Nowakowski 1991; Jones 1998/9), and later

prehistoric/Romano-British occupation sites (Jones forthcoming a). The nature of the treatment of the artefacts from the excavated sites will be assessed to see what they can tell us about depositional practices over time in a restricted geographical area.

The fourth and final major theme is concerned with abandonment and closure. The way sites are left and the reasons behind their abandonment has proved to be of major importance to the study of later prehistoric settlements in Cornwall. Deliberate abandonment is an increasingly recognisable feature of excavated lowland Cornish Bronze Age settlements. Although the exact pattern varies between sites, the dismantling and infilling of structures seems to have occurred throughout the Bronze Age, on all types of non-moorland settlement, regardless of whether they were small farmsteads as at Trevisker (ApSimon and Greenfield 1972), larger settlements, as at Trethellan Farm (Nowakowski 1991), or non-residential buildings such as Callestick (Jones 1998/9). The pattern of abandonment at the Middle Bronze Age house at Trevilson will therefore be reviewed for fresh insights into this process. The Romano-British site at Pollamounter will also be examined to see if there is any evidence of deliberate abandonment practices.

12.2 Neolithic and Early Bronze Age periods (circa 3500-1500 BC)

Environment and landscape

Due to the comparatively small number of archaeological features and artefacts which were found to date to this period, and the absence of buried palaeoenvironmental deposits any statement on the environment during this period is necessarily of an interpretative nature. Nevertheless the evidence preserved in archaeological features in the form of charcoal and charred macrofossils, when added to the artefactual and archaeological evidence from adjacent areas, does allow an outline model to be put forward.

The evidence from the excavated features (Early Bronze Age pit [282] and Neolithic pit [370]) and from contemporary features in the surrounding area suggests that during this period there was no indication of widespread cereal cultivation before the Middle Bronze Age (see Section 10). The features which date, or are likely to date to this period, have produced charcoal derived from trees including hazel, hawthorn, and particularly oak, though some clearings or perhaps areas of scrubbier woodland are also indicated by the presence of gorse and broom. In addition the charred macrofossils from Neolithic pit [370] contained hazelnuts, rather than cereals. In common with many other excavated sites in southern Britain (Austin 2000; Robinson 2000; Campbell and Straker 2003) neither of the samples from features that have been securely dated to this period revealed any kind of evidence for cultivation, though pit [132] which may be of Neolithic or Bronze Age date contained a small number of plant macrofossils from cultivated plants. Overall the available evidence indicates that during the Neolithic and Early Bronze Age periods widespread cereal cultivation was not taking place in the immediate area. A similar dearth of evidence for early cultivation is provided by recent pipeline projects in adjacent areas which have not produced any archaeological features associated with Neolithic or Early Bronze Age agriculture (Jones 1997a; Lawson-Jones 2001b). Further away, radiocarbon determinations associated with a buried peat sequences at Stannon Down on Bodmin Moor and at Porthleven on the coast to the southwest of the pipeline, also indicated that substantial areas of woodland survived into the Middle Bronze Age and Iron Age/Romano-British periods (Jones and Nowakowski 2000; Lawson-Jones 1999).

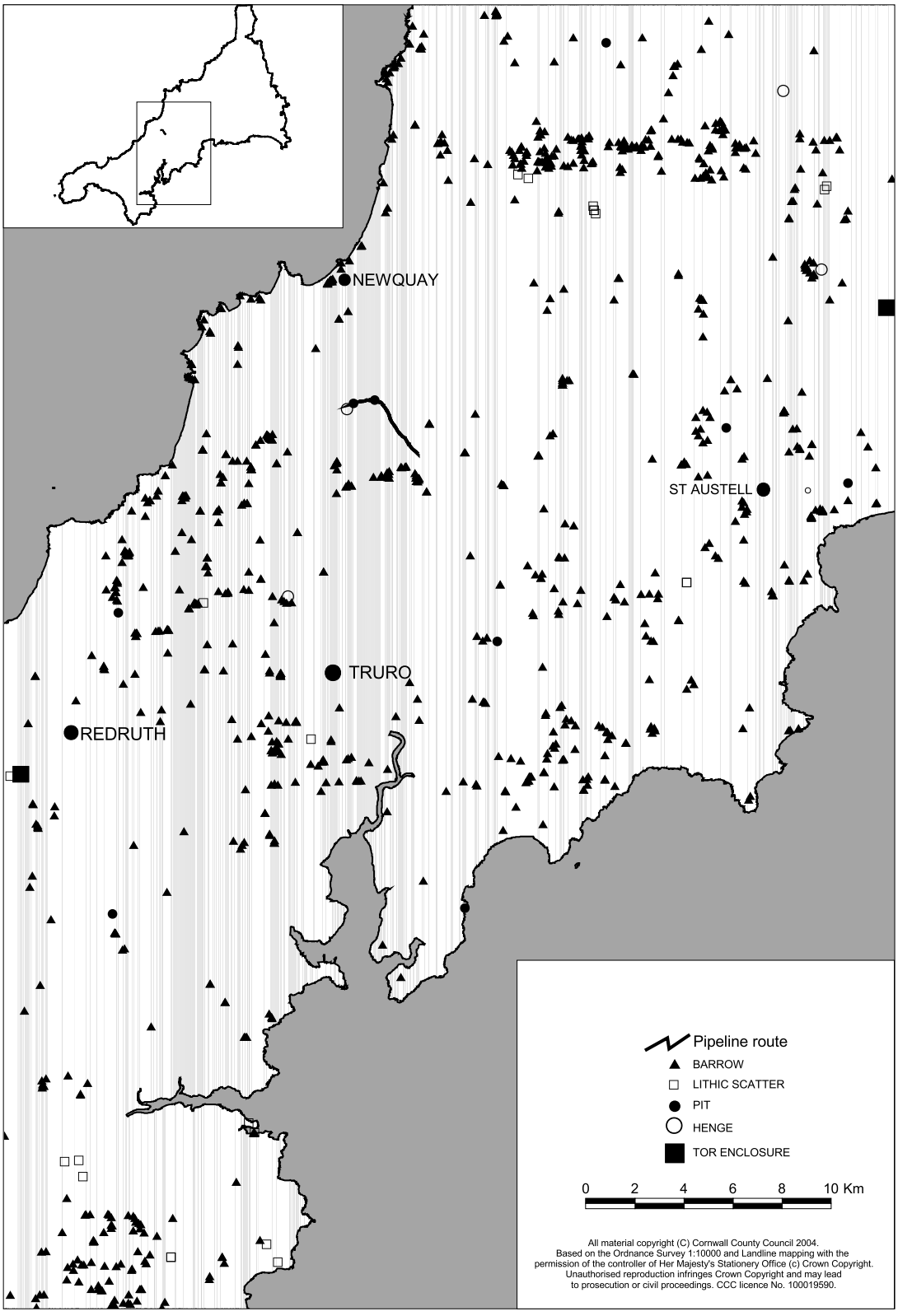

Fig 32: Neolithic and Early Bronze Age sites in central Cornwall (generated from information in HER)

The pollen analysis of buried soils recovered from beneath many of the excavated barrows in mid Cornwall also presents a similar picture. The pollen from the barrow at Crig-a-Mennis to the west of the project area indicated that the barrow had stood in scrubby woodland clearing which may have previously been cultivated (Dimbleby in Christie 1960). A similar picture is presented by four of the five excavated barrows on the St Austell Downs to the southeast which appear to show that they had been sited within clearings rather than within grassland (Bayley in Miles 1975, 60-66). Indeed evidence of dense woodland was found around Cocksbarrow, and a mix of woodland scrub at three of the barrows, Watch Hill, Caerloggas I and III. Evidence for more open areas has been found at Trenance, and more recently at Littlejohns Barrow (Johns 1994).

But this does not imply that the area was an uninhabited wilderness during the Neolithic and Early Bronze Age, indeed the evidence from the flint scatters (Gould 1994; Lawson-Jones 1995), the newly identified henge monument at St Newlyn East (Steve Hartgroves pers comm.), and the large number of upstanding round barrows dating to the Early Bronze Age, particularly on the Newlyn Downs to the southeast of the pipeline (Jones forthcoming b), suggest that it was anything but uninhabited (Fig 32).

Based on this argument it is possible to suggest that during the Neolithic period we can picture a landscape that was covered by woodland which was punctuated by clearings of varying size that were perhaps interlinked by a network of paths and that by the Early Bronze Age there was much more of a mosaic, including larger open areas and woods. Rather than looking for a settled landscape largely dominated by fields of Neolithic corn, it may be better to think of a landscape that was utilised in a variety of ways. It has recently been argued that many communities in southern Britain inhabited environments which were covered by substantial tracts of woodland and in addition to the cultivation of cereals, engaged in a number of varied subsistence practices involving the movement of domesticated animals and the exploitation of woodland for wild game and for nuts, fruits and berries, etc (Fairbairn 2000; Robinson 2000). As well as proving a source of food and fuel several recent writers have argued that (Austin 2000; Cummings and Whittle 2003) the trees themselves are likely to have been important to Neolithic and Early Bronze Age communities as containers of symbolic meaning which would have been significant to local mythologies and as markers of boundaries between groups.

Settlement and enclosure

The evidence for settlement activity within the pipeline itself is limited to two pits with radiocarbon determinations, a handful of unstratified flints, a sherd of residual Neolithic pottery and two undated pits, which in their form are likely to be of Neolithic or Early Bronze Age date. This means that any discussion of the evidence of settlement in the area has to draw upon other excavated features in the county and the 'negative' evidence.

Two pits in the Metha area were dated to the Neolithic and Early Bronze Age periods. The earliest date was from deposition pit [370] which contained flints and charcoal and which produced a Middle Neolithic date Wk12676 4505±68BP (3400-2900 cal BC). The second dated pit [282], had been backfilled with clay and charcoal and sherds from a Ridged Food Vessel. The charcoal gave a Later Neolithic/Early Bronze Age determination of Wk12674 3984±56BP (2700-2300 cal BC). Just a few isolated flints were found along the pipeline and two sherds of Neolithic pottery were also recovered from an undated feature at Church Close (see Section 9). Two deposition or charcoal-filled pits were recorded at Trevilson. Pit [60] was a small undated pit containing charcoal which may belong to this period. Pit [132] had been backfilled with charcoal and quartz pebbles which is typical of features dating to the Neolithic or Early Bronze Age periods, which means that it is likely

to be of prehistoric origin. No evidence was found for permanent settlement activity dating to the Neolithic or Early Bronze Age within the confines of the pipeline corridor, which means that a review of the available evidence from the county is required before conclusions regarding the nature of the occupations are discussed.

Despite possessing a relatively large number of extant sites that have been ascribed to the Neolithic and Early Bronze Age periods (chambered tombs, tor enclosures, stone circles etc, see Christie 1986; Mercer 1986), with the exception of round barrow sites, there are actually very few published radiocarbon determinations from Cornwall. Nearly all of the published Neolithic determinations that are available from Cornwall have been obtained from just two tor enclosure sites (Carn Brea and Helman Tor, Mercer 1981a; 1997). The biases in data collection and site preservation have resulted in a potentially very imbalanced picture of the Cornish Neolithic and Early Bronze Age periods.

Within Cornwall evidence for Neolithic and Early Bronze Age settlement activity is limited to relatively large numbers of flint scatters, charcoal rich deposition pits and during the Neolithic period, the construction of a much smaller number of tor enclosures in the uplands. Despite the fact that there are only eleven identified tor enclosures (Oswald *et al* 2001) in the county, they are better known in the literature than the more commonly occurring flint scatter and pit sites, indeed they have come to represent the typical Neolithic settlement in the southwest (Mercer 2003). Excavations at two tor enclosure sites at Carn Brea and Helman Tor have found that they date to the fourth millennium BC and consist of circuits of monolithic stone walling constructed around prominent rocky outcrops (Mercer 1981a; 1997). The interiors are associated with large quantities of worked stone and pottery and the excavator has argued that there was evidence for cultivation at Carn Brea. However, the absence of environmental evidence from either Carn Brea or Helman Tor and the very small numbers of querns or rubbing stones (Mercer 1981a, 156-159; Mercer 1997, 53) means that this interpretation is questionable. Though the nature of the occupation is perhaps more open to question, the interpretation offered by the excavator is that they were permanently settled 'entrepot centres' linked together by a major east-west route way (Mercer 1981a; 2001), which appears to have been a forerunner of the present A30.

However, recent archaeological interventions around Cornwall are providing a growing body of information about the nature of Neolithic occupation activity across the county. Currently the only lowland site that may have been associated with activities that were based around a more settled landscape was excavated at nearby Penhale Round (St Enoder) which produced evidence of a rectilinear and possibly a circular structure (Nowakowski 1998).

Most of the recorded evidence is of a much more ephemeral nature. Recent pipeline projects to the west of the Mitchell pipeline between Engelly and Sevenmilestone and at Stencoose and to the east of it between Bears Down and Ruthvoes (Jones 1997a; Jones forthcoming a; Lawson-Jones 2001b) have led to the identification of areas which contain low densities of flint, or perhaps more typically, small discrete scatters of flint dating to the Neolithic or Early Bronze Age. Typically these sites consist of less than fifty flints, which are usually found on less exposed valley sides (eg Jones 1999), or around prominent landscape features such as rocky knolls (Smith 1987). These low density flint sites do not seem to be associated with permanent settlements and given their often chronologically mixed character may have been produced by repeated short visits to a particular locale.

In addition to the flint scatters a number of charcoal rich deposition pits have been found across the county which are similar to those found in the Mitchell pipeline (eg Jones 1997b). Neolithic artefacts have also been recovered from pit contexts, for example a stone

axe head was found in a hearth adjacent to a charcoal pit at Viverdon Down in the southeast of the county (Jones *et al* 1995) and Earlier Neolithic pottery has very recently been recovered from a group of pits near to Roche rock.

A number of sites have provided Neolithic radiocarbon dates. At Poldowrian on the Lizard, Neolithic determinations were obtained from a group of pits which also contained sherds of Early Neolithic Hembury Ware and flints (Smith and Harris 1982, 49). More recently at Tremough near Penryn, two fourth millennium radiocarbon determinations are associated with a site which contained a large flint scatter and charcoal rich deposition pits. The determination from charcoal pit AA-44601 4850 ±55 BP (3662-3542 cal BC) was obtained from a part of the site where there was a scattering of charcoal filled deposition pits, a low density of flint, and a greenstone axe. The determination from the ditch AA-44604 4995± 50 BP (3907-3707 cal BC) was obtained from a part of the site where there was a high density of Neolithic flint, much of it associated with a nodular flint knapping floor (Lawson-Jones 2002). At Trenowah on the St Austell Distributor Road a Neolithic date of 3330-2910 cal BC was obtained from a pit within a group of pits which had been filled with charcoal and another pit contained a sherd of Neolithic pottery (Charlie Johns pers comm). Not far away on the Eden Approach Road, a flint scatter of Neolithic/Bronze Age date was uncovered without any associated features (Jones 1999). Finally at Portscatho recent excavations revealed a number of pits which were filled with charcoal and which contained sherds of Early Neolithic Hembury Ware pottery. Four fourth millennium radiocarbon determinations were obtained from these pits Wk-13256 4818 ± 48 BP (3710-3510 cal BC), Wk-13257 4805 ± 51 BP (3700-3500 cal BC), Wk-13258 4952 ± 45 BP (3810-3640 cal BC) and Wk-13259 4713 ± 45 BP (3640-3370 cal BC) (Steve Reed pers comm.).

Although the geographical and temporal distribution of the features and artefact scatters discussed above is wide, and it is unlikely that they are all produced for the same purposes, it is suggested here that these kinds of features which are not associated with permanent dwellings may have been produced by a more seasonal or transitory occupation of the land that is perhaps the result of repeated visits to a favourite locale. It is likely that they were the product of the 'ritualization' of particular aspects of domestic activity (see Bradley 2003). The assemblages included within the deposition pits display evidence for the manipulation of a range of material culture that was associated with settlement activity (pottery, lithics and charcoal). Their frequency indicates that they were not purely 'religious' sites, but it is suggested here that they may have been produced as part of routine practice associated with what was part of the 'appropriate' way of occupying the area.

There are fewer occupation-related features which are securely dated to the Later Neolithic or Early Bronze Age periods, though where pits dating to this period are found, there appears to be larger number of associated artefacts. Across the county three pits have been found to contain sherds from Grooved Ware vessels: Trevorra Cott near Probus, Trevone near Padstow and possibly Poldowrian on the Lizard. Two of these sites have associated radiocarbon determinations. The Trevorra Cott determinations range between 2880 and 2208 cal BC, AA-29731 4055 ± 70 BP (2880-2460 cal BC) and AA-29732 3930 ± 65 BP (2590-2208 cal BC) (J. Nowakowski, pers comm). The second site with a radiocarbon determination comes from the possible undecorated Grooved Ware vessel from Poldowrian (HAR 3108: 2595± 70 cal BC, after Harris 1979). However, none of the Grooved Ware pits were found in areas where there was any settlement evidence and it probable that they were formal deposits in special locales (Jones forthcoming b).

A small number of Beakers have also been recovered from pit contexts. A total of 21

vessels have been recorded from pits or layers which are likely to have been associated with domestic activity (Simpson 1971; Jones forthcoming b). However, two vessels were from pits that may have been associated with ritualized occupation-related activities (Jones forthcoming b). To date, pit-type features associated with other Bronze Age ceramics have been less commonly found, though sherds of pottery may have been associated with two pits with Early Bronze Age determinations at Poldowrian (Smith and Harris 1982, 49) and a charcoal pit and Trevisker Ware were recently found in association during the Trenowah excavations (Charlie Johns pers comm).

The recovery of Neolithic radiocarbon determinations from the growing number of lowland unenclosed sites at Metha, Tremough, Trenowah, and Portscatho, with overlapping existing determinations from Carn Brea and Helman Tor are therefore of particular importance. An initial consideration of the dates and the associated material would suggest that the nature of the activities or occupation was substantially different from what has been encountered at the tor enclosures (Mercer 1981a). The small pits are associated with small numbers of artefacts, whereas activity at the tor enclosure sites has been characterised by the use and deposition of large amounts of flint, greenstone axes and ceramics, and the deployment of monolithic architecture. Indeed these sites have been compared with the causewayed enclosures of southern England (Oswald *et al* 2001) and have been assumed to have been of importance in long distance elite systems of trade (Mercer 1986; 2001).

However, rather than characterising the occupation of the upland tor enclosures with a settled elite and the lowland charcoal rich deposition pits and flint scatters with less important or marginal communities, there is another way of interpreting the evidence. We would argue that the differing scale of the deposition of artefacts and other deposits masks the similarities between them and that both types of site form part of a pattern that was produced by the same communities. It is suggested here that the tor enclosures were sited around prominent focal points in the landscape which were imbued with cosmological importance. Occupation in the enclosure sites was not permanent, but instead revolved around the gatherings of dispersed communities, who congregated at them at certain times of the year for the purposes of exchange and ritualized practices. These gatherings involved the structured deposition of charcoal, stonework and pottery, which at Carn Brea was often deposited in an unabraded condition in and around the enclosure walls and into pits. In contrast we would argue that the small pit-type features and flint scatters which are found at locales like Metha were produced by the same communities who gathered on the hill tops and that they represent activities which occurred at the regular 'stopping' places of smaller dispersed groups of people moving across the wider landscape.

The link between the two kinds of site can be seen by the way that, where artefacts were placed into pits their deposition was governed by the same kind of prescriptive formality as the tor enclosure sites. The difference in the intensity of scale of the deposition can be explained in terms of the context of the routines (see Whittle 2003) in which the activities took place. At places such as Carn Brea the deposition of artefacts was associated with large gatherings and the 'ritualized' deposition of artefacts would have been public and therefore of a conscious and overt nature. In contrast the deposition at pit sites, such as those at Metha, would not have been associated with large numbers of people and was therefore of a more private nature, perhaps carried out more as part of a subconscious set of actions or the 'right way' of doing things, when certain locales or situations were encountered. Thought of in this way the use of the landscape becomes more dynamic and less centred upon a handful of sites.

This pattern is currently less clearly visible during the Later Neolithic period, when there

are currently fewer identified sites which could have acted as major foci for larger communal gatherings. This could be taken to mean that there were major changes to Later Neolithic societies. However, the number of identified crop-mark henge sites is increasing and some of the stone circles may also date to this period. It is therefore possible that these sites may have replaced the tor enclosures as communal centres. During the Early Bronze Age there is again a marked distinction between ephemeral seasonal settlement sites represented by flint scatters and features such as pit [282] at Metha, which are found in lower lying areas, and large complexes of barrows which were often places of communal gathering and ceremony on the higher ground.

Treatment of artefacts

Evidence for the deliberate 'structured deposition' of pottery and other artefact types has been widely found across much of southern Britain and throughout much of the prehistoric period (eg Pollard 1992; Thomas 1999).

Aside from a handful of unstratified flints, only two features at Metha pit [370] and pit [282] produced stratified artefacts which are suggestive of deliberate incorporation or 'structured deposition'. Within pit [370] the evidence took the form of the deposition of a few flints. However, the activity within pit [282] was more significant as it saw the burial of a large unabraded sherd from the only Food Vessel to be recovered from a non-barrow site in Cornwall. The treatment of the artefacts at these sites has parallels with many of the sites mentioned in the previous section. As noted above, sherds of deliberately placed pottery have been found across the county within pits dating to the Early Neolithic (Portscatho), the Later Neolithic (Trevorra Cott and Trevone), and the Bronze Age (Tremough).

However, as we have seen, in addition to there being evidence for the deposition of ceramics, a number of pits in the county were also filled with charcoal which had not been burnt *in situ*, often in association with quartz stones (Portscatho and Trenowah). Pit [132], which contained a fill of charcoal and placed quartz stone has been interpreted as belonging to this class of feature and pit [370] as well as containing flints also held abundant amounts of charcoal and quartz.

Once again the significance of the artefacts/deposits within the isolated pit features lies in the links and patterns which they have and share with other types of site, which is demonstrated by the way that the deposits within them are treated. In particular there is a strong link between the deposition of artefacts in these isolated pits and the way artefacts (including charcoal and quartz) were treated on ceremonial sites dating to the Early Bronze Age; especially with barrow sites. Small pits containing quartz and charcoal (particularly oak) have been recorded on numerous sites including barrows on Colliford Down (Griffith 1984), the St Austell barrows (Miles 1975), and Davidstow Moor (Christie 1988). The deposition of sherds of pottery rather than whole vessels is another strong parallel between the two groups of sites (see Jones forthcoming b). In particular the placing of unabraded sherds or partially complete Food Vessels is a feature of several Cornish barrow sites, with examples being found relatively near to Metha at Carvinnack (Dudley 1964) and further away at Watch Hill in the St Austell area (Miles 1975) and on the North Coast at Treligga 7 (Christie 1985). The evidence from sites like pit [282] at Metha indicates that some of the ways of treating artefacts in communal ceremonial sites extended to the way they were deposited in other contexts.

Finally we would suggest that the treatment of artefacts during these periods provides a link with the succeeding Middle Bronze Age period, as the deliberate deposition of artefacts, including quartz (see Section 9) was also a feature at the roundhouse at Trevilson and has been recorded at numerous sites across the county. The nature of deposition in

Middle Bronze Age contexts will be discussed below.

Summary

In summary, we have suggested that between circa 3500 BC and 1500 BC settlement mobility and tenure of the land differed from the later periods discussed below (see Ingold 1986, 130-164; Whittle 2003) and that rather than consisting of bounded open spaces, there were substantial areas of woodland that was crossed by pathways, punctuated by clearings of varying sizes which were used for a variety of purposes, including grazing, occupation, small-scale agriculture, by monuments such as barrows, and ritualized activity in the form of the deposition of artefacts within pits. Furthermore we have argued that instead of dismissing features like the Metha pits as unimportant isolated features, they form part of a wider pattern of small-scale occupation and large-scale aggregation sites which was produced by dispersed mobile communities.

12.3 Middle Bronze Age (circa 1500-1100 BC)

Environment and landscape

Once again only a small number of archaeological features (a large pit at Metha and a roundhouse at Trevilson) and artefacts were found to date to this period and there were no buried palaeoenvironmental deposits within the confines of the pipeline. However, environmental evidence in the form of charred plant remains and charcoal preserved at two securely dated sites and the artefactual and archaeological evidence recovered from recently excavated sites in areas adjacent to the pipeline allows an outline model to be put forward. Both of the excavated features which date to the Middle Bronze Age present a picture that contrasts with the evidence from the Neolithic and Early Bronze Age periods. Pit [310] was a large cut feature located at Metha towards the northern end of the pipeline. It produced a Middle Bronze Age radiocarbon determination of Wk12675 3258±53BP (1690-1410 cal BC). The feature is difficult to assign a function to. A large pit containing a series of deposits including worked stone and pottery has recently been excavated on the North Cornish Coast west of Portreath. However, that feature has been dated to the Early Bronze Age and possibly held a standing stone (Ann Reynolds pers comm). It is possible that pit [310] may have been associated with the demarcation of a boundary in the landscape, or that it was excavated either to obtain clay or stones, or that it acted to catch rainwater. Deep pits dating to the Bronze Age and Early Iron Age have been found at a number of sites in southern Britain and have been interpreted as waterholes or wells (Brossler *et al* 2004; Pryor 1978; 1984). The lack of obvious nearby settlement activity and domestic rubbish in the pit at Metha could suggest that it was located away from the settled area and was intended for the watering of animals. Although the pit was devoid of artefacts it did hold a range of significant evidence about the environment of the surrounding area and landscape management practices (see Section 10). The recovered material suggested that in addition to the woodland species which dominated the earlier environmental assemblages, there was some evidence for cultigens and for hedgerow species, such as sloes and brambles. Environmental evidence for Bronze Age hedged boundaries has recently been found in the Reading area (Brossler *et al* 2004, 121) and the presence of hedgerows have also been suggested for another settlement at Aldermaston in Berkshire (Bradley *et al* 1980). The evidence from Metha is particularly important because it provides the first evidence for the subdivision of the lowland Cornish landscape with hedged boundaries.

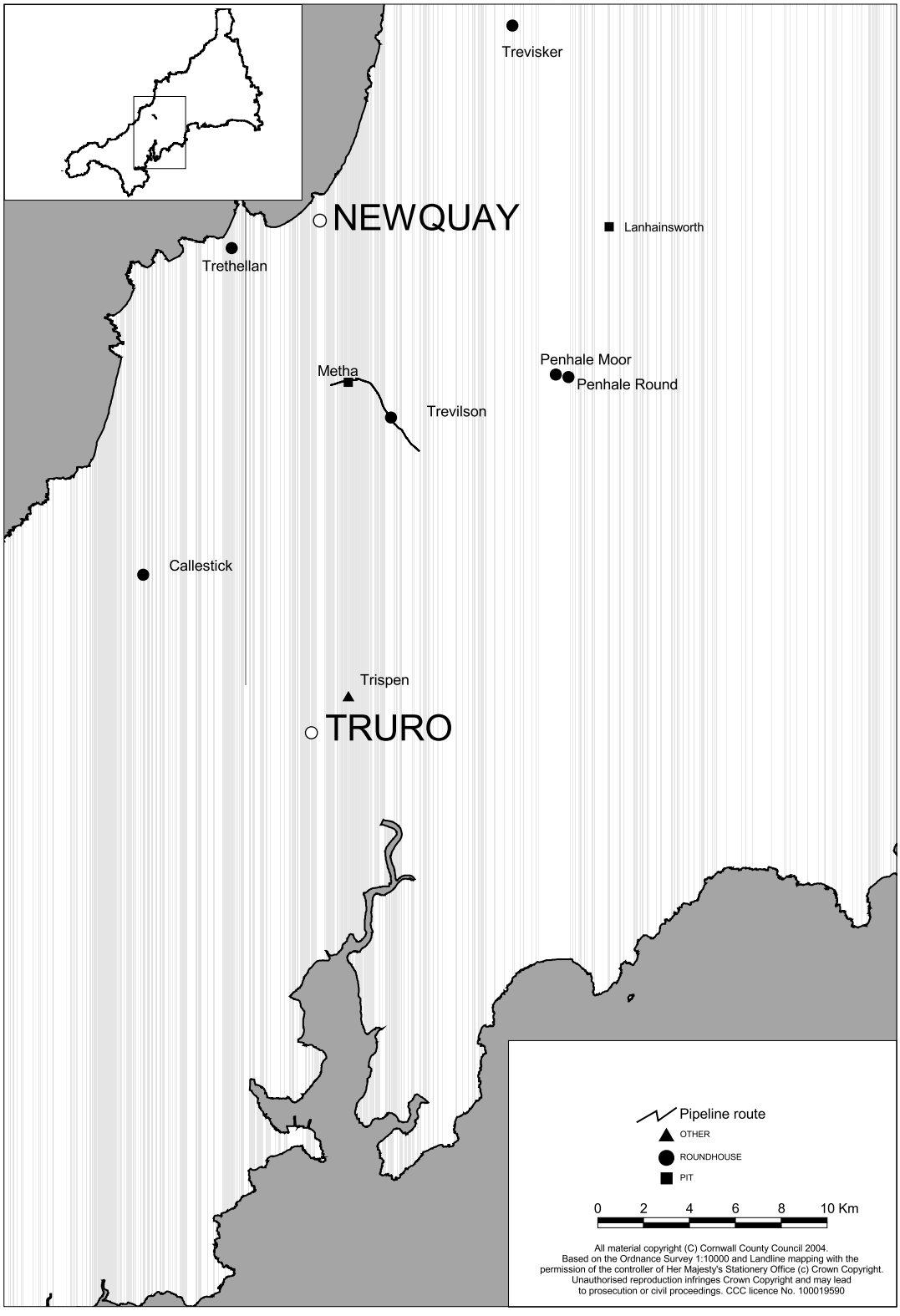

Fig 33: Excavated Middle Bronze Age sites in central Cornwall

The second site was located in the central section of the pipeline at Trevilson. The site is associated with four Middle Bronze Age radiocarbon determinations Wk12677 2864±56 BP (1220-890 cal BC), Wk12678 3008±56BP (1410-1050 cal BC), Wk12679 3004±56 BP (1400-1040 cal BC) and Wk12680 3077±56BP (1450-1120 cal BC). Evidence for the cultivation of cereals including wheat, barley and oats as well as the growing of legumes (celtic beans and vetch) and arable weeds associated with the cultivation of crops was found within the fill of the roundhouse. Whilst the context of the evidence (primary abandonment layers) may mean that they were deposited as part of a ritualized abandonment process rather than being representative of everyday occupation activity, they nevertheless indicate that arable agriculture was taking place in the surrounding area.

Further evidence for the widespread impact of Middle to Later Bronze Age settlement activity is provided by the increasing number of roundhouse sites which have been recovered from the lowlands of Cornwall in recent years (Fig 33). These include Trethellan Farm at Newquay (Nowakowski 1991) and probably Harlyn Bay (Whimster 1977 and see suggested redating of building to the Bronze Age in Jones 1998/9, 49-50) to the north of the pipeline, to the east at Penhale Moor (Jones *et al* 1994) and Penhale Round (Nowakowski 1994) and to the west at Callestick (Jones 1998/9). Further evidence of a more open landscape has recently been produced by an irregular linear feature located to the south of Trispen near Truro that has produced a Middle Bronze Age radiocarbon determination, dating to 1690-1440 cal BC (Passmore 2002), and by a pit containing fast grown birch and alder at Lanhainsworth which has produced a radiocarbon determination AA-36502 3470-3380 BP (1521-1431 cal BC) (Lawson-Jones 2001b). The large number of permanent settlements which are being found across the lowlands from circa 1500 BC onwards must indicate that there were substantial alterations to the appearance of the landscape. The recovery of cultigens and artefacts such as quern stones from a number of these settlements indicates the existence of arable fields in the vicinity of the settlements. However, the evidence from the analysis of the charcoal from both the Trevilson roundhouse and other sites in the area (see Section 10) indicates the availability of woodland fuel resources. It is possible that by the time of the Middle Bronze Age the area appeared as a mosaic of settlements and fields divided by sizeable tracts of managed woodland.

Settlement and enclosure

The excavation of the Trevilson roundhouse dating to between 1400-1100 cal BC is of importance because it provides a link through its architecture and its abandonment with the slightly earlier houses that have been excavated at Trethellan Farm (circa 1500-1200 BC) and the Later Bronze Age house at Callestick (circa 1100-700 BC), though the latter site was not a typical 'domestic residence' (see Jones 1998/9). Although the roundhouse was not fully excavated and it was to some extent seen in isolation from its surrounding landscape, the preservation of deposits within the interior was good and is comparable with other excavated Bronze Age roundhouses in the county.

The architecture employed at Trevilson has clear parallels with Middle and Later Bronze Age roundhouses which have been excavated throughout the lowlands of Cornwall. It was of simple construction involving a hollow which was lined with dry stone walling and covered by a roof which was supported by an inner ring of posts. This type of construction has been recorded in Cornwall at numerous sites including Trevisker, Trethellan Farm, Penhale Round, Penhale Moor and most recently at Callestick (ApSimon and Greenfield 1972; Nowakowski 1991; 1998; Jones *et al*, 1994; Jones 1998/9). Roundhouses set within hollows are less commonly found across the Tamar and currently the most easterly example is at Brean Down in Somerset (Bell 1990).

In common with the other excavated Middle to Late Bronze Age houses in the county, the Trevilson roundhouse possessed a southern facing doorway (Mercer 1970; Nowakowski 1991; Jones 1998/9, etc). This orientation is widely found across southern Britain, with the majority of Bronze Age structures having entrances which face towards the south to southeast; examples include Blackpatch in Sussex (Drewitt 1982), and Shaugh Moor in Devon (Wainwright and Smith 1980). Traditionally it has been argued that this pattern could be explained according to functionalist explanations which suggest that the daylight was utilised for activities such as weaving, or that prevailing winds influenced the location of the entrance (Drewett 1982; Hammond 1979). However, more recent studies have argued that wind patterns are extremely variable (Oswald 1997) and that as doorways in subsequent periods did not always face south, the direction of the entrance during the Bronze Age was likely to be cultural, based on a desire to structure space according to cosmological principals which were incorporated into the building's architecture (Parker Pearson 1996; Parker Pearson and Richards 1994). This position is supported by Richard Bradley (1998) who has noted that the southern part of roundhouses are also often associated with the structured deposition of objects, thus indicating the importance of this area of the roundhouse.

The excavated portion of the roundhouse contained relatively few internal features; the gully in the northern part of the house is not obviously paralleled elsewhere and is of uncertain function. However, the alignment of stakeholes found on the left hand side of the doorway is similar to an arrangement at Callestick and may represent a desire to screen off part of the interior from outside view and/or channel movement in and out of the building. The metalled surface outside the house is found at a number of sites, including House 2001 at Trethellan Farm (Nowakowski 1991). This surfacing could be interpreted as an attempt to reduce wear and tear in the entranceway, or as a way of clearly demarcating and formalising the approach into the house. Given the likely symbolic importance of the threshold to Bronze Age communities and the widespread evidence for embellishment of doorways, for example with large jamb-stones, paving or porches into other Bronze Age roundhouses (Jones 1998/9), it is argued here that the latter reason is probably the most likely.

The Trevilson roundhouse, in common with the recently excavated structure at Callestick, had only one identifiable phase of construction and use. The results of the radiocarbon determinations indicate that it was a long lived building, which was maintained for two or more centuries from circa 1400 to 1100 cal BC, though it is possible that it was occupied for a much shorter span than the dates indicate. A shorter occupation is perhaps indicated by the lack of replacement postholes and the analysis of the small ceramic assemblage suggests that all of the vessels may have been the work of an individual potter (see Section 9.1). However, the pottery assemblage was not associated with use-related features, which means that the correlation between the size and variety of the assemblage, and the structure's length of occupation is problematic. It is possible that the quantity of deposited artefacts may relate to the intensity and length of occupation, though radiocarbon determinations from other excavations in the southwest have indicated the general longevity of a wide range of roundhouse structures; for example the roundhouses at Callestick, Shaugh Moor in Devon, and Trethellan appear to have been occupied for several centuries (Jones 1998/9; Wainwright and Smith 1980; Nowakowski 1991).

A variety of settlement types are found in the area. Examples of nucleated settlement (Nowakowski 1991), dispersed settlements (Jones 1998/9), isolated roundhouses (Smith and Harris 1982) and pairs of buildings (Jones *et al* 1994) dating to the Middle/Later Bronze Age have been found across the county. However, although no other roundhouses or associated structures were detected to the north or south of the Trevilson roundhouse,

the confines of the pipeline corridor meant that it was not possible to ascertain its context in regard to the local settlement pattern. All that can be said with any degree of certainty is that in common with most of the Middle Bronze Age settlements in the southwest there was no evidence that the roundhouse was within an enclosure (but see Fitzpatrick *et al* 1999).

As has been touched upon above, virtually all of the identified houses and settlements in Cornwall currently make their appearance in the Middle Bronze Age after 1500 BC and continue in use up until circa 1000 BC. This pattern is congruous with the available evidence from both the highland (Wainwright and Smith 1980) and lowland (Barrett *et al* 1991) regions of southern Britain, where there is widespread evidence for the proliferation of settlements and the division of the landscape into arable and pastoral field systems that were marked by a variety of stone boundaries and linear ditches (Bradley *et al* 1994; Fleming 1988). None of the ditched boundaries which were uncovered along the route of the pipeline can be assigned to the Middle Bronze Age and this is true across lowland Cornwall. However, this does not imply that the landscape was not subdivided by boundaries and as discussed above it is possible that fields may have been bounded by hedges that have left little trace in the archaeological record.

The increasing spread of domestic settlement activity across southern Britain has been linked with a change in the tenure of the land (Barrett 1994) associated with its appropriation by particular individuals and communities (following Ingold 1986). Recently it has been argued that the change in the way that the landscape was used was a result of the fragmentation and collapse of the social systems and settlement mobility which had existed during the Neolithic and Early Bronze Age periods (see Brück 2000). Several writers have identified Middle and Later Bronze Age settlement as having functions which went beyond their roles as centres of agrarian production, arguing that they were the focus for not only domestic activity but also as places for communal gatherings associated with ritualized activity, burial, and feasting (eg Barrett *et al* 1991; Bradley 1998; Brück 1995; Needham and Spence 1996). Within Cornwall there is evidence that settlements and houses were associated with 'ritual' and burial related activity (see Jones 1998/9; Nowakowski 2001). Indeed due to the nature of the surviving evidence much of the following discussion will focus on those 'ritualized' aspects of the settlement activity.

Treatment of artefacts and deposits

The deposition of many of the artefacts within the Trevilson roundhouse follows a pattern which is comparable to other Bronze Age structures in the county and gives additional evidence for structured deposition of artefacts and other deposits within the interior of the house. At Trevilson there are indications that different categories of artefact/deposit ended up in different parts of the house, including postholes, the natural floor of the building, and perhaps the final infilling deposits.

Evidence for structured deposition in the form of the placing of baked clay objects, quartz blocks, and stones was found within all three of the excavated postholes. Indeed each posthole appears to have been backfilled with a particular type of deposit which was distinct from the others. Five blocks of burnt quartz were placed within the fill of posthole [512]. The second posthole [546] contained a large number of stones and several fragments from broken objects of baked clay, including part of a possible fire bar possibly associated with an oven or with salt production. The third posthole [515] contained charcoal and large stones at least one of which had been burnt. The placing of artefacts within the postholes is documented in association with the abandonment of prehistoric roundhouses in the county, including Trethellan Farm, Penhale Moor and Callestick (Nowakowski 1991; Jones *et al* 1995; Jones 1998/9). Deposits which have been recovered from deliberately filled

postholes include ceramics and stone artefacts, whilst at Callestick the central posthole was found to contain a deposit which included a large number of small quartz blocks. As has been discussed above, quartz blocks and pebbles and sherds from ceramic vessels are frequently found within Neolithic and Early Bronze Age isolated pit contexts as well as within pits on ceremonial sites, particularly in barrows (eg Christie 1988; Griffith 1985; Miles 1975). As the objects/deposits within the three disused postholes had entered them after the posts had been removed they have been interpreted as placed deposits.

A number of artefacts and deposits located on the floor of the roundhouse can also be argued to represent activities related to the controlled infilling of the roundhouse or structured deposition. They include the deposition of layers which contained charred plant remains, the deposition of sherds of pottery, the deposition of burnt stakes, charcoal, and the deposition of baked clay/briquetage.

Although small-scale, the largest quantities of cereals and legumes were recovered from deposits which were located on the bottom of the roundhouse. Five deposits (517), (518), (524), (531) and (534) were found to contain higher concentrations of agricultural plant remains than adjacent or later infilling deposits. Three of the deposits (517), (518) and (534) were charcoal rich spreads and the fourth (524) was a charcoal rich layer which also included a deposit of what has been interpreted as briquetage, which will be discussed below. The fifth deposit (531) was associated with a shallow scoop [532] cut into the floor of the roundhouse which contained sherds of an abraded Trevisker Ware vessel **P1**. With the exception of the abraded pottery in scoop [532], which could be argued to be occupation-related, none of these deposits was formed during the occupation of the roundhouse; all were associated with the primary stage of abandonment. Evidence for this is indicated by the fact that there was no sign of *in situ* burning associated with any of the deposits, or a fire (in the excavated area), which could have produced them. Indeed we would suggest that it is possible that the various infill deposits may have been derived from different midden type deposits that were used for the storage of different types of materials.

Large amounts of charcoal were found in most of the primary deposits on the floor of the roundhouse in all of the layers mentioned above and in the form of charred stakes (526), (527), (528) and (533). These stakes are indicative of structured deposition as they had not been burnt *in situ* but had been placed on the floor of the roundhouse next to stakeholes. As has been discussed above, charcoal was frequently formally deposited on ceremonial sites and is often found in pit contexts dating to the earlier Neolithic and Early Bronze Age.

Sherds from several of the ceramic vessels can also be argued to have been deliberately deposited within the roundhouse. Thirty two sherds of pottery were found within the roundhouse. Twenty of these sherds were found within the primary infill layer (507), three were located in another primary infill deposit (518) and three are associated with layer [532], which filled a scoop in the floor. In short, twenty six of the recovered sherds were from the primary infill deposits at the bottom of the roundhouse, whereas only one sherd was obtained from the uppermost fill (501) and none was recovered from layer (505) which formed the bulk of the infill deposit. Further patterning can be seen when the condition of the vessels is taken into account. Layer (507) not only contained a large quantity of pottery, but also produced the largest amount of unabraded sherds (**P2** and other sherds). With the exception of deposit (509) which contained wall material and four unabraded sherds (and the single unabraded sherd from (501), the remainder of the infill layers contained abraded sherds of pottery, for example **P1** in scoop [532] (which could be an occupation-related deposit). The inclusion of pottery within a limited number of deposits and the further

division between features with fresh or abraded pottery, suggests that the sherds of pottery were deposited onto the site in a controlled manner and may have arrived on site after being stored or 'curated' in different places. The structured deposition of pottery is known from ritual contexts such as round barrows and from Bronze Age settlements in Cornwall. The deposition of pottery within a restricted context is similar to some of the behaviour associated with Cornish round barrow sites. Curated sherds of pottery were found at the Trelowthas barrow site (Nowakowski forthcoming) and fragmented vessels are commonly found at Cornish barrow sites (Jones forthcoming b). The recent excavation of a roundhouse at Callestick provided evidence for the 'curation' of selected vessels over several centuries (Jones 1998/9). The deposition of broken pottery at specific places in the roundhouse may indicate a certain degree of continuity with earlier traditions.

The final piece of evidence for structured deposition in the primary infill layers is provided by a deposit that included baked clay objects and briquetage which was confined to layer (524). Briquetage is associated with salt making, which by its nature would normally take place near to saline water (ie the coast). A small quantity of probable sand was found in association with this deposit which implies that the briquetage had been used at the coast, several miles away to the north. This again suggests that the briquetage had intentionally been introduced into the roundhouse from elsewhere.

The upper infill deposits, layers (501), (504), and (505) constitute the bulk of the infill material. They are of interest to the pattern of structured deposition for two reasons. Firstly, unlike the primary infill deposits, they are largely devoid of artefacts or charred plant remains. This is particularly true of layer (505), which forms a thick sterile blanket over the site. The second area of interest lies in the fact that layers (501) and (504) contained the only large stonework from the site, in the form of a fragment of a muller and part of a saddle quern. Too much cannot be made of this as layer (504) was comprised of stonework from the wall. Nevertheless the incorporation of these artefacts into the upper fills is of interest as both objects could have been linked to agricultural tasks or food preparation (see Section 9). However, the inclusion of the muller **S2** and especially quern **S1** within the upper infill of the roundhouse may also have had a deeper symbolic meaning. Saddle querns have been found in association with the abandonment process at other Bronze Age sites in Cornwall. A quern was found inverted within the upper infilling layer at the Callestick roundhouse (Jones 1998/9) and three saddle querns were recovered from abandonment layers within two of the houses at Trethellan Farm (Nowakowski 1991). Querns were used for the transformation of crops into food and they may have come to stand as symbols of fertility, the domestic settlement, and with the process of transformation.

In summary, it is possible to argue that structured deposition within the roundhouse had both a vertical and horizontal aspect to it. Distinct, discrete deposits of charcoal, burnt stakes, charred cultigens, quartz, pottery, baked clay and briquetage were placed in particular locations, including the fills of postholes and as localised spreads on the floor. Covering them was a sterile layer and above this were layers which contained stone objects associated with the transformation of agricultural produce. A final point to make is that all of the artefacts/deposits which were chosen for incorporation into the roundhouse were in some sense associated with processes which involved transformation, or had been transformed themselves. The briquetage had involved the transformation of water into salt, and the quern and the cultigens with the transformation of plants into food. The appearance of the quartz had been altered by being burnt. The ceramics had of course been made by changing clay into pottery, before being altered further by being fragmented into sherds. The wood in the structure had been burnt and changed into charcoal. In short, all the selected deposits had been fragmented and/or burnt and changed. We would argue

that it was no accident that transformed objects and deposits were associated with abandonment and the transformation of a roundhouse into another kind of place.

Abandonment

The deliberate infilling and abandonment of roundhouses is a widespread, characteristic feature of lowland Bronze Age settlements in Cornwall. Although the exact pattern differs between sites and over time, the process typically involved: the removal of posts and the deposition of artefacts within empty post sockets; the structured deposition of pottery, stone and very occasionally metal objects, and where preservation has allowed identification, the deposition of human bone (see Nowakowski 2001, 144-146). Another feature of the abandonment process is evidence for the destruction of buildings by fire as at Trevisker and Penhale Round (ApSimon 1972; Nowakowski 2001, 145). This controlled destruction, followed by the infilling of the interior of the roundhouse occurred throughout the Bronze Age from Trethellan Farm around 1500 BC up until Callestick around 1000 BC and is found on a variety of settlement types, including isolated buildings such as Callestick and Penhale Round, small groups of buildings such as Penhale Moor and at larger settlements such as Trethellan Farm.

However, each site had its own 'biography' of abandonment. At Trevilson the process involved some of the repertoire of practices which have been found elsewhere, but it was also associated with its own unique processes. As we have seen posts were removed from their sockets and postholes were deliberately filled, just as they were at Trevisker, Trethellan Farm, and Callestick. Pottery was deposited onto the bottom of the floor in a charcoal rich layer as at Callestick. But there are also significant differences and departures from those sites. At Trevilson the structural elements of the house were burnt, but unlike Trevisker, this process had not occurred onsite, but had been carried out elsewhere. As at other roundhouse sites, the primary infill deposits contained Trevisker Ware pottery, but at Trevilson there was also a deposit of briquetage, which is unparalleled elsewhere. In short, there was a traditional repertoire of practices associated with the abandonment of the house, which were selected at the time when the house was vacated. The choices which were undertaken 'personalised' the process and in some instances were made 'memorable' by dramatic actions such as the use of fire (Thomas 2000). We can now re-examine why it was that Middle Bronze Age communities might have wished to undertake the process.

Despite being a widespread phenomenon, it is only lately that attempts have been made to explain the reasons why this type of activity occurred (Jones 1998/9; Nowakowski 2000). Recently it has been suggested that the ubiquity of abandonment practices which have been found within lowland Cornish roundhouses indicates that the process was linked to the 'life cycle' of the settlement and drew upon earlier Bronze Age traditions which were associated with ritual activity and the interment of the dead at round barrow sites (Jones 1998/9).

Although changes to the nature of Early Bronze Age communities had resulted in the decline of communal ceremonial monuments, the spread of the permanent houses and open farmed landscapes enclosed by boundaries, they would not have led to the secular or 'rational' western world perspective, which is argued for by some archaeologists (eg Fowler and Blackwell 2000, 54). Certain 'life crises' which affected the community, such as the death of an individual or a harvest failure, would probably have required mediation to help reconcile the community to the change. Whilst the setting for this activity may have changed (ie moved into the settlement), it is suggested here that the rites of mediation that were employed at Cornish settlements were drawn from existing traditions which had been previously associated with and played out at round barrow sites. Evidence for this kind of continuity has been found in other parts of Britain. For example Bradley (1998, 152-158)

has argued that across southern Britain there are distinct correspondences between the organisation of space and artefacts within Bronze Age round barrows and roundhouses. In the southwest Butler (1997, 137-138) and Tilley (Bender *et al* 1997) have suggested that some of the roundhouses on Dartmoor and on Leskernick on Bodmin Moor may have been converted into cairns at the end of their occupation.

Indeed there are good reasons to suggest that Early Bronze Age traditions which had been associated with activity on barrow sites were being drawn upon during the abandonment of roundhouses. Comparisons can be made between the way Cornish round barrows were used and the manner in which lowland roundhouses were abandoned. As we have already seen the use of barrows and the abandonment of roundhouses were characterised by a number of shared practices. These include the burial and fragmentation of objects and deposits which include sherds of pottery, charcoal, quartz and very occasionally metalwork. The deployment of fire as an agent of transformation is also widely found on both site types.

There is also an explicit link in the similarity in the way that human bone was treated. Contrary to what is often thought, human bone is a relatively rare occurrence at Cornish round barrow sites and where human bone is deposited it is often in very small quantities (Jones forthcoming b). No human remains were recovered from Trevilson, though this is unsurprising given that the acid soils would have destroyed any traces of them. However, human bone is frequently found in Bronze Age settlements in southern Britain (Brück 1995; Bradley 1998) and where conditions have allowed inhumation burials and cremation deposits have been found within or near to Cornish Middle Bronze Age roundhouses (Thomas 1958; Nowakowski 1991). In other words both barrow and roundhouse could under certain conditions be used for the token or articulated burial of individuals.

Finally there are the parallels which can be made between the 'life cycles' of both kinds of sites. The majority of excavated Cornish barrows have proved to be multi-phased structures, which were often used for a considerable span of time, sometimes over several centuries (Miles 1975; Smith 1996; Jones forthcoming b; Nowakowski forthcoming). At the end of their 'life cycle', after generations of use as places for the deposition of artefacts/deposits they were often finally sealed by 'sterile' mounds of earth and stone. This filling would have resulted in the ending of access into the site. A similar process can be seen at lowland roundhouse sites. Roundhouses went through a similar 'life cycle', after generations of use, being the focus for family activity and as a place for the deposition of artefacts/deposits they were often finally sealed by 'sterile' layers of earth and stone. Again this filling would have resulted in the ending of access into the site. The infilling of the Trevilson Roundhouse could have resulted in the site being transformed into a low mound, which for all intents and purposes could have resembled a small mounded round barrow site. At other roundhouse sites this visual link may have been made even more explicit. At two excavated roundhouse sites, Trethellan Farm 2222 and Callestick the edges of the houses were lined with quartz blocks (Nowakowski 1991; Jones 1998/9). At the latter site, these blocks were added after the site had been infilled. Quartz is associated with many prehistoric ceremonial sites (Darvill 2002) and is frequently included within the kerbs that encircle many of the regions barrows (eg Treligga Sites 1 and 2, Christie 1985). Due to the large numbers of Early Bronze Age barrows which are found across Cornish landscape and given the frequent routine contact that Middle Bronze Age communities would have had with them, we would argue that the resemblance between the final forms of the two site types is unlikely to be coincidental. It is suggested here that Middle Bronze Age communities were intentionally referencing the appearance of an older monument in order to mark the abandoned site of the roundhouse so that it would be understood in a particular way.

Given the lack of formal burial or artefacts which can be termed 'grave goods' within many Cornish barrow sites (Miles 1975; Jones forthcoming b), perhaps the most significant difference between the two kinds of site was actually that roundhouses may have been more strongly identified with the particular identity of the individuals that had inhabited them. At Trevilson the evidence for this is indicated by the briquetage which was associated with coastal salt production and which was deposited into the house. Given the distance from the sea, this deposit must have been deliberately placed into the house and may have been intended to highlight a link between the occupiers and the coast or mark an activity associated with them. Other roundhouses have been associated with 'curated' sherds of pottery that had been retained for years (Jones 1998/9; Nowakowski 2000) and which may have been family 'heirlooms'. The roundhouse at Penhale Moor contained a copper alloy spearhead (Jones *et al* 1994) that had been broken for some time, but which was deposited into the infill layers of the house (Nowakowski 2000). All of these items could have been associated with particular individuals and probably would have held their own 'biography' of use. Their incorporation within the abandonment deposits would have 'personalised' this activity and created a link between individuals and a particular place in the landscape.

Put simply, we are suggesting that although by the Middle Bronze Age settlements and particularly roundhouses had replaced the round barrow as centres for the social reproduction of the community, the means of managing or mediating various 'life crises' were directly drawn from earlier traditions and rituals that had taken place at round barrow sites and which had involved the deposition of artefacts and the transformation of places, objects, and people from one state into another.

Summary

In summary, it is suggested here that in common with other areas of southern Britain (eg Barrett 1994; Brück 2000) the evidence from Trevilson and Metha provides further evidence that there was a major shift in the way people chose to move about and occupy the landscape. This change was characterised by an increased expansion of open farmed land, by the appearance of permanent unenclosed settlements and by the decline in the importance of ceremonial complexes. However, as well as providing evidence for the recognition of a widespread change, which is found across southern Britain, the excavation of the Trevilson roundhouse also provided further evidence for regional patterns of activity including the tradition of Middle Bronze Age roundhouse architecture and settlement abandonment. It has also been argued here that those traditions were linked into earlier patterns of deposition, fragmentation and 'curation' of artefacts which are found in the region's ceremonial monuments and pit complexes which date to the Neolithic and Early Bronze Age periods. Furthermore we have argued that the reason for the persistence of these traditions and their occurrence in settlement contexts lay in the fact the roundhouse had replaced the ceremonial monuments as the community's places of social reproduction.

12.4 Late Iron Age – Romano-British (First Century BC – Fifth Century AD)

Environment and landscape

Evidence of the Late Iron Age/Romano-British environment and landscape on this project is limited to the enclosed settlement site at Pollamounter. However, the information contained within the slots of the two probable 'boat'-shaped structures, the field ditches that pre-dated them, and from the area of activity immediately south of the enclosure ditch [142] presents a coherent picture.

Two radiocarbon determinations were obtained from the site, Wk12672 1988±54 BP (120 cal BC–cal AD 130) from ditch fill (228) and Wk12673 1732±52 BP (cal AD 210-430) from ditch fill (251). Charcoal from the site is dominated by oak, hawthorn (or other members of the Pomoideae family), blackthorn, hazel, and gorse/broom. These species could be associated with woodland although the blackthorn and hawthorn are also hedgerow species which may indicate that the area was divided by hedges, although the presence of gorse may indicate areas of rough grazing. It must be stressed that the charcoal from which these species were identified came predominately from contexts containing hearth debris and as such may reflect those species found to burn well. However, the charcoal from a nearby metalworking site at St Columb was also found to consist of oak and gorse, the form of the oak suggesting the presence of managed oak coppice in the vicinity (Lawson-Jones 2003). An additional identification of willow or poplar charcoal at Pollamounter might suggest the presence of boggy ground or open water nearby and, fanciful as it might seem, this may be reflected in the name 'Pollamounter', a place-name of early medieval origin containing the Cornish element *pol*, 'pool'.

Context (177) within pit [182] was found to contain fragments of gorse, a native of both heathland and hedgerow but also contained evidence for wild radish, a native of non-calcareous soils. This suggests the presence of heathland nearby, perhaps on the higher ground to the south.

There are traces of wheat, barley and oats from the majority of the contexts over the entire site. These are mostly found in association with grasses and grassland weeds such as ribwort plantain and vetch. However, in at least two of the contexts associated with the later phase of activity at the site, (177) and (234), the cereal finds were much more concentrated and were found associated with arable weeds such as dock, wild radish, and greater plantain. This may be an indication of a switch to a less pastoral and more arable regime in the environs of the settlement but is perhaps more likely to be a reflection of the contexts within which the concentrations were found, ie pits/postholes. Both contained substantial amounts of charcoal, which may have aided in the preservation of the macrofossils but perhaps more importantly may reflect the use to which these pits were put. It is therefore likely that a predominately pastoral regime was in place at Pollamounter during the Roman period, supplemented by small-scale arable cultivation. It is tempting to see the increase in arable weeds from contexts from the later phase of activity on the site as evidence of an increase in arable production, perhaps due to external factors such as climatic amelioration or the introduction of new technology. Certainly heavier ploughs with improved functionality were introduced into Britain in the later Roman period (Dark 2000, 84) and this may have led to the cultivation of heavier soils (such as those produced from the local clays) that may previously have been seen as more marginal land.

The presence of burnt sheep bones in a pair of related contexts (in pit [242]) can hardly be used to establish a pastoral regime for the entirety of the occupation of the site. However, recent work in Cornwall has suggested that sheep played a predominant role in the pastoral economy of southwestern Britain in the Romano-British period. At the site of a Romano-British enclosure at Tremough, Penryn, all of the identified bone assemblage consisted of sheep/goat (Gossip 2003). At Atlantic Road in Newquay, although the assemblage contained cattle and other domesticated species, sheep/goat formed the dominant part of the bone recovered (Reynolds, forthcoming). Here the assemblage was seen to change from a predominately young population indicating butchered animals in the earliest Romano-British phase, to an older population indicating a greater use of wool, milk, and manure in the later phases. However, the lack of increase in the size of the animals at this site over the Romano-British period tends to reinforce the impression that the far

southwest of Britain lay outside of the sphere of Romanisation that led to increases in breed sizes in eastern Britain.

There is evidence from recent palynological studies of a phase of deforestation on Bodmin Moor during the Romano-British period, followed by the development of herb-rich meadows (Gearey *et al* 2000). These meadows may indicate an increase in winter grazing on the uplands, possibly marking an upsurge in transhumance activity. Although archaeological evidence for this is sparse, early medieval transhumance suggested by place-name evidence (Herring 1996; Herring forthcoming) may have earlier roots. Evidence from Wales also supports the view that medieval and post-medieval patterns of seasonal grazing may have originated in the later prehistoric and Romano-British periods (RCAHMW 1997).

Settlement and enclosure

The earliest features encountered during the excavations at Pollamounter were the field ditches. These are probably part of a field system abandoned at the time the area was enclosed by the large ditch described below. Dating evidence from these ditches was sparse and consisted of two small undiagnostic potsherds but dates obtained from the subsequent occupation of the site strongly suggests that the field system is no later than Late Iron Age in date. Occasional field ditches found along the pipeline, particularly those in the fields north of Pollamounter, may well be components of more extensive prehistoric and Romano-British field systems. However, the project has not been able to demonstrate the layout and character of such field systems or the extent to which the landscape was enclosed at this date.

The most defining component of the Dumnonian landscape is the 'round'. These small, banked enclosures survive as extant features, as partially surviving enclosure banks, and in place-name evidence on documents such as tithe maps (Fig 34). In recent years this corpus of remains has been substantially added to by the identification of crop-mark sites by the National Mapping Programme (NMP) and by geophysical survey (eg GSB 2002), both of which reveal the presence of large perimeter ditches. Although many of these rounds certainly contained settlements by no means all were domestic sites. Evidence for industrial use, for example metalworking, within rounds has been found at Little Quoit near St Columb (Lawson-Jones 2003) and at Killigrew near Trispen (Cole and Nowakowski forthcoming). However, although a small piece of copper alloy was recovered from the site, there is no other evidence for this function at Pollamounter.

One of the most striking aspects of the large enclosure ditch [142] is its shape in plan as identified by the NMP survey. It is clearly of sub-rectilinear form in the section that has been identified and it encloses a small spur of land to the north of a large hill. There is a suggestion from the NMP interpretation that the southern section of the enclosure wall may be fossilised in the extant boundary (B116) and lane although there was nothing in the construction of B116 to support this hypothesis. However, if this were the case then the continuation of the enclosure ditch would lie beneath the lane, an area unrecorded by the archaeological investigation. If this is the true shape of the enclosure, the area enclosed would be in the region of 0.85ha. This would place it amongst the larger of the rounds, larger for example than Trethurgy or Grambla (Johnson and Rose 1982, Fig 3). The perpetuation of Romano-British enclosure boundaries as modern-day boundaries and lanes is not uncommon and has been recorded at Bosence (Borlase 1769), Crasken (Thomas 1851), and Trethurgy (Quinnell 2004), amongst others.

Although artefactual and environmental evidence from the ditch was not forthcoming, the rectilinear shape of the identified section of the enclosure ditch tends to date the feature to the Romano-British period. These enclosures are a variation of the traditional Cornish

round and have tended to be established from the first century AD through to the third, although some, for example Carvossa near Probus, may have late Iron Age origins (Quinnell 1986), whilst oval forms continued well into the Roman period, as at Trethurgy, established in the second century AD (Quinnell 2004). The form of those established in the first century AD may have been influenced by the military occupation of Cornwall (AD 55-60 and AD 75-80 cf Nanstallon Roman fort near Bodmin), or through other contact with the Roman world. At least fifteen to twenty of the two hundred and twenty univallate enclosures listed by Johnson and Rose (1982) are of rectilinear shape in plan and of comparable size in terms of area. Only a fraction of these have been excavated, amongst which Trevinnick near St Endellion has been dated by a pottery assemblage to the first to second centuries AD (Fox and Ravenhill 1969), and Bosence near Relubbus produced Roman period artefacts (Borlase 1769, 316-17). A comparison between the enclosure ditches of excavated Iron Age and Romano-British enclosures reveals that Pollamounter, at 4.70m wide and 2.26m deep, falls into the larger half of the sample available to Johnson and Rose (1982).

Round-building continued after the initial period of Roman occupation, with a flurry in the second century AD (eg Carwarthen and Trethurgy). Of these perhaps the site at Grambla near Wendron (Saunders 1972) offers a parallel with the Pollamounter site. Here a square earthwork with an outer ditch 3.0m deep enclosed an area of 0.35ha, within which were a number of 'boat'-shaped houses. The site was occupied from the second century AD to the middle sixth, although Henrietta Quinnell (2004) has pointed out that the post-Roman pottery post-dates the collapse of the houses and there is therefore no evidence that the buildings continued in use into this period.

The reasons behind the construction of new bounded settlements in the second century AD, after a hiatus of approximately a century, need not imply a slide into more anarchic conditions. The Roman custom of encouraging local tribal leaders to carry out a governing role implies that traditional methods of controlling the populace would continue and this might involve the continuance of the practice of round-building (Quinnell 1986), albeit in some cases with touches of Roman style (ie rectilinear enclosures). The reason for the increase in round-building at this time may simply reflect an increase in population, perhaps accentuated by an upsurge in demand for local tin. However, there is very little evidence for the working of tin; most Cornish metalworking sites of this period are handling iron (eg Little Quoit Farm, Lawson-Jones 2003) on a domestic rather than an industrial scale. It seems much more likely that the increase in round-building is indicative of an effort to enforce prestige, status, and social control in a period of enhanced stability within Britannia (Quinnell 2004). Johnston *et al* (1998/9) postulate that the enclosed and ditched nature of the round may simply reflect an increased security measure reflecting the wealth of the inhabitants within.

Quinnell (1986) has argued that the comparative stability of Dumnonia following the Roman withdrawal in AD 410 stems from the lack of reliance on a monetary economy that had resulted in vast differences in personal wealth in lowland Britain. This stability is visible in the archaeological record by the continuation of the occupation of rounds into the sixth and seventh centuries AD, and by the stability of adopted forms of house building from the second to the sixth centuries AD.

The discovery of the 'boat'-shaped houses at Grambla was followed by the excavation of Trethurgy Round in 1973, which produced more evidence for large oval structures dating from the second to sixth centuries AD. Subsequent work has revealed these structures to be prevalent within both rounds and courtyard house settlements of this period and to be part of a local building tradition in this area of Roman Britain (Quinnell 2004). Dimensions

of boat-shaped houses range up to 13m in length with a floor space of 80-100m² (Quinnell 1986). The 'boat-shaped' houses at Grambla were larger at 18m to 20m long and 9m wide (Saunders 1972). This compares with an estimated length of 13.5m and a maximum width of 5.8m for the houses at Pollamounter. This gives an approximate floor space area of 70 square metres, which is not far from the range given by Quinnell. The age determination from one of the house ditch fills, Wk12672 1988±54 BP (120 cal BC – cal AD 130), suggest that these houses are amongst the earliest of their kind in Cornwall, though the pottery recovered from the fill above this layer is probably of second century AD date. Henrietta Quinnell (2004) has recently suggested that oval houses may have their origins in the Iron Age, citing an example of oval structures within a round of late Iron Age date at Threemilestone (Schwieso 1976). However, the absence of any finds pre-dating the second century AD does tend to suggest that this is the time of the establishment of the settlement and that the true age of radiocarbon date Wk 12672 lies towards the later end of the range.

House structures within rounds that have perimeter ditches, but no posthole evidence, have been found at various sites in Cornwall, including the Iron Age features at Threemilestone (Schwieso 1976) and the Romano-British houses within the round at Reawla (Appleton-Fox 1992). The lack of structural detail makes the issue of reconstruction problematic. The reconstruction of excavated oval houses at Trethurgy Round shows a stone-walled building supporting a timber-beamed thatched roof (Quinnell 2004). However, there was no evidence of walling at Pollamounter and the depth of the structure ditches suggests an alternative construction method. Timber poles may have been set into the ditches, which were then backfilled. The resulting walls were then coated with daub and supported a roof in a similar manner to the stone-built variety. One might expect evidence in the form of postholes within the ditch fills but as previously mentioned the local soils produce almost identical fills over different time periods and, presumably, conditions. A total of three postholes were identified within the exposed ditch fills, not enough to confirm this hypothesis. The posts may have been set on lengths of timber beams and, again, this would be unlikely to leave a visible record in these soils. An alternative model would involve the ditch functioning as an external eaves gully, with an internal structure that did not rely on posts set in holes for support, these being set within the enclosed space. Given the depth of the ditches, we would suggest that the latter explanation is less likely and the ditches may have held some kind of timber walling.

The positioning of the structures within the enclosure might be compared to a number of other sites if only the full extent of the enclosure were known. If, as seems likely, the enclosure does follow the line of the extant boundaries to the east and south then a comparison with Trethurgy (Quinnell 2004), Threemilestone (Schwieso 1976), and Penhale (Johnston *et al* 1998/9), where the houses are situated along the internal face of the rampart, might be made.

Treatment of artefacts

Within the enclosure at Pollamounter there was very little evidence of occupation. No evidence of internal features was recovered from either of the oval structures, even though the pipeline corridor passed right across Structure 2. It has been suggested that two ephemeral pits that contained cereal grains may have been rubbish pits but correlation with the geophysical survey may indicate that they are the truncated remnants of a ploughed out ditch associated with the earlier field system.

However, one pit [242], proved to be an intriguing addition to the site. A lower fill of the pit, (250), contained an everted rim from a jar of probable second century AD date. The upper fill of the pit, (243) contained sherds from the same rim found in the layer below, as well as a number of sherds belonging to the neck of a jar decorated with an applied cordon

of a similar type to one current between the first and third centuries AD. The wide date range produced from the primary fill, Wk-12673 1732±52 BP (cal AD 130-430), allows the possibility that the ceramics had been curated, though it is perhaps more likely that they were deposited after a particular event.

The primary fills, (251), and (250), both contained fragments of sheep or goat bone that had been burnt at a temperature of over 600°C, suggesting that the bones had been subjected to intense heat. Recent work has established a link between disarticulated fragments of animal bone and ritualized activity, counter to previously held views that only relatively complete assemblages represented such activity (Richardson 1997). However, given the acidic nature of the soils at Pollamounter and the narrow scope of the excavated area, comparisons between articulated/disarticulated and burnt/unburnt assemblages could not be made here.

The combination of the possibility of deliberate deposition and burning strongly suggests a ritualized context, perhaps relating to a social event such as feasting and with the formalised deposition of the resulting residues. Such events would have been important to the community and suggest a continuity of practices which are known on Iron Age domestic sites (Fitzpatrick 1997; Hill 1995).

The positioning of the pit, close to the enclosure ditch, is significant since it bears comparison with another site of the same period in Cornwall. At Stencoose two pits of similar form and size to the Pollamounter pit contained Romano-British potsherds and were associated with a boundary; in this case both were buried beneath a bank. The motivation behind the digging of pits, and the selection of materials for formal deposition, has been debated elsewhere (eg Jones forthcoming a). It is possible that the Pollamounter pit deposit was sited close to the boundary of the site in order to symbolically mark the edges of the site with materials which had been produced by domestic/feasting activity.

Abandonment

The process of abandonment for the settlement as a whole could not be discerned in the archaeological record. However, the large enclosure ditch did provide a clue as to how part of the process of abandonment might have been undertaken. The secondary fill of the ditch, deposit (145), was relatively thick, and remarkable both in the amount of stone within it, and for the unoxidised nature of the deposit. Two explanations have been put forward to account for this evidence.

It is possible that the ditch was backfilled with the material excavated from within the ditch almost immediately, before the material had begun to oxidise. This seems unlikely to have been a voluntary event on the part of the people responsible for its construction since so much effort had gone into its construction, unless action was deemed necessary to render the site indefensible to future inhabitants. If this scenario is a reflection of the events then it was probably forced upon the inhabitants by a rival community, perhaps unwilling to see potential rivals strengthen their position.

A more likely explanation, given the longevity of most excavated rounds, the conjectured peace and stability of Romano-British Dumnonia and the length of occupation of the site as deduced from the available evidence, is that the ditch was backfilled in one episode linked either to the abandonment of the settlement or at some unspecified time after that. It is tempting to see a picture where the community upon deciding to leave their home, decided to ensure that no one else should be able to inhabit it. So before leaving the site, the banks were pushed back into the ditch.

Summary

It is currently thought that the climate became drier in the first millennium AD and warmer too towards the end of the Roman period (Dark 2000). This may be responsible for both an increase in arable production and the cultivation of previously marginal land, although increased production could also have been stimulated by the demands of the Roman taxation system. The stability of being part of a Roman province may also have had its benefits. It is possible that the higher ground to the south was heathland or rough grazing at the establishment of the settlement at Pollamounter, with cereal production possibly being more important in its later phases. However, the overall picture seems one of stability throughout the period of occupation, which may have been 200-300 years. Evidence for activity at the site is confined within the enclosure, suggesting a centralised community engaging in both 'ritual' and 'secular' activities. The backfilling of the enclosure ditch is likely to have resulted from the removal of a boundary bank but cannot be linked chronologically with the abandonment of the site.

12.5 Medieval (Fifth Century – Sixteenth Century AD)

Environment and landscape

The majority of global palaeoenvironmental indicators appear to show a cooler climatic regime from the fifth to eighth centuries AD, followed by a period of warmer, drier weather that lasted until the fourteenth century AD (Bell and Walker 1992).

Palaeoclimatic studies of this period in South West Britain are limited, both in terms of scale and temporal coverage. Some pollen analysis of sites on Exmoor and the Somerset Levels appear to show an increase in cereal production on the Levels corresponding with a decline in production on the uplands in the three centuries following the departure of the Roman legions. This may indicate a climatic deterioration during this period, with land above 150m being most adversely affected (Dark 2000, 143). This may be evidence of a long term climatic shift but tree ring evidence does suggest a sudden reduction in global temperature for the ten year period AD 536-546 (Dark 2000, 24). If climatic change was to blame, the acidification of upland soils may have been initiated or worsened, tending to amplify the effects of a cooler and wetter climate at higher altitudes. Whether this triggered social and economic upheaval is open to question but this climatic downturn does appear to coincide with the end of the occupation of the majority of the Cornish rounds. The origin of place-names may reflect changing climatic conditions where the establishment of settlements can be dated. For instance the colonisation of upland areas in two parts of East Cornwall, at North Petherwin and on Bodmin Moor, is linked to English place-names, and is therefore likely to post-date the eighth century AD (Rose and Preston-Jones 1995). This coincides with the climatic amelioration recorded by the palaeoenvironmental data.

However, more recent palynological studies from Bodmin Moor have shown that the middle of the first millennium AD saw a decrease in the diversity of plant life upon the Moor, including a reduction in scrub cover. This suggests a more intensive use of the Moor for grazing (Gearey *et al* 2000), perhaps with transhumance (the summer grazing of the downlands with people accompanying cattle, sheep, and goats), which has left little evidence in the archaeological record beyond groups of small huts and pens, and large pounds for restraining trespassing animals (Herring 1996). During the same period, on the lower slopes of Exmoor, pollen analysis has revealed an increase in cereal production, a shift from the predominately pastoral agricultural regime that had prevailed since the Iron Age. This regime shift coincided with the change in the English Midlands to nucleated settlements and open field systems suggesting that social or climatic changes were resulting in different adaptive solutions in different areas. These changes prevailed until the next

significant change in farming practices at the beginning of the post-medieval period (Fyfe *et al* 2004).

Medieval contexts along the route of the pipeline were limited to field boundary ditches and the fills were neither sampled for palaeoenvironmental data nor scientifically dated. However, evidence from a recently studied nearby site at St Columb supports a continuity of land use from the Romano-British into the start of the early medieval period. Plant remains recovered from an oval feature similar to those recorded at Pollamounter, and dated to cal AD 424-540 (AA-36501), include mixed cereal grains and evidence of hazel, gorse, and brome (Lawson-Jones 2001b). This limited evidence is comparable to that recovered from Romano-British deposits at Pollamounter and may suggest limited cereal production in an area of hedged fields, possibly with heathland nearby, or open fields with small pockets of woodland interspersed.

In more general terms it is assumed that large areas of upland Cornwall remained treeless and were used for grazing with smaller areas of cultivation throughout the medieval period, an assumption given weight by the large areas of pasture recorded in the Domesday Book (Rose and Preston-Jones 1995; Thorn and Thorn 1979). Lower lying areas may well have been enclosed as large cropping units subdivided into strip fields and used for cultivation and winter grazing of animals. Extensive woodland was probably limited to the south and east of the county and to steep-sided valleys elsewhere. This interpretation has been confirmed by historic landscape characterisation (Cornwall County Council 1996).

Settlement and enclosure

For the majority in lowland Britain the end of Roman government in AD 410 led to a series of economic and social upheavals. These effects appear to have been delayed, if encountered at all, by two centuries or more in Cornwall. This can be seen in the continued occupation of rounds built during the Romano-British period and in a continuity of pottery styles (Quinnell 1986).

At sites such as Grambla and Trethurgy, rounds constructed during the second century AD were in use until the sixth century AD. Evidence from Trethurgy suggests that Roman pottery forms continued to be used throughout the fifth century AD with no discernible changes until the sixth century AD. Quinnell (1986) suggests that this continuity in pottery forms after the departure of the Romans reflects a lesser dependence on a monetary economy than in other areas of Britain.

However, the large number of abandoned rounds identified from extant enclosures, earthworks, and crop-marks, as well as those identified through fieldwork in recent years, testifies to either a massive depopulation, climate change, social, political, and/or economic change, or a combination of the three.

There is no evidence of depopulation within Cornwall at this time. It seems that many of the extant medieval settlements, identified by their Cornish place-names, were established as early as the sixth and seventh centuries AD, at precisely the same time as the abandonment of the rounds (Fig 34). The evidence from place-names, in particular *tre-* and *bod-* prefixed settlements, has been used to reconstruct the distribution of early medieval settlements in Cornwall (Rose and Preston-Jones 1995). Many of these are recorded along valley sides at regular (600m–1000m) intervals with higher areas devoid of such names, - most obviously so for areas such as Bodmin Moor and St Breock Downs. To a lesser extent this may also apply to less marginal areas and is certainly the case in the vicinity of Pollamounter, where the higher ground occupied by the Romano-British enclosure is flanked by the settlements of Trenance to the north and Trevilson to the south.

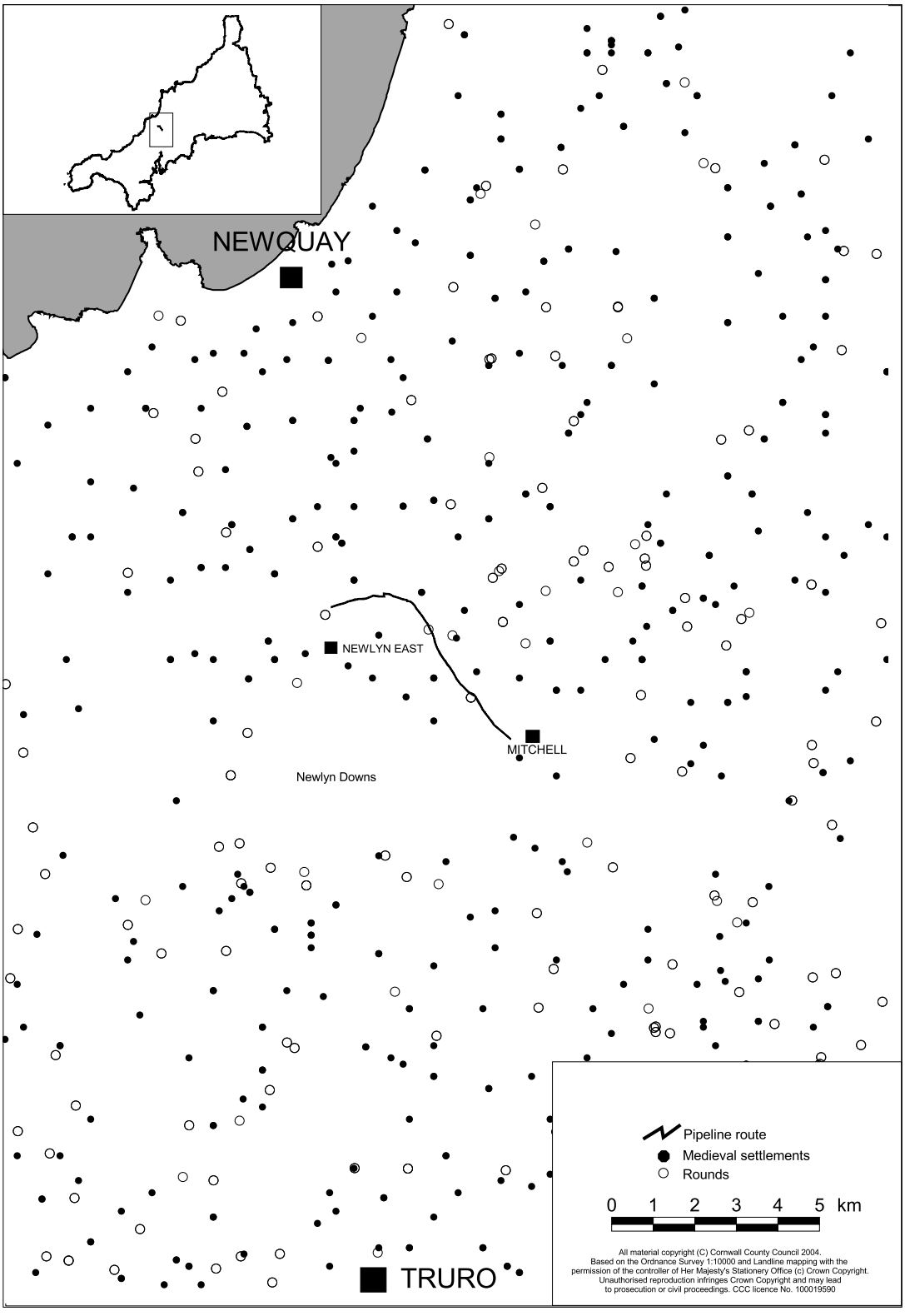

Fig 34: Romano-British and medieval settlement sites in central Cornwall (generated from information in HER)

In many areas of Cornwall the field systems associated with rounds are at variance with the extant boundaries of medieval origin. This can be seen at Trenithan Bennett near Probus, although here the Romano-British field system lies at altitudes of 85m OD or higher and a climatic deterioration may have led to an abandonment of the fields altogether for a period (Rose and Preston-Jones 1995), as seems to have occurred with the courtyard house settlements of West Penwith (Herring 1999). On the other hand, apart from the high ground to the north of Trevilson, the land traversed by the pipeline lies below 85m OD. However, there is little evidence for the continuity of later prehistoric/Romano-British boundaries into the medieval period. Some thirty nine linear features were recorded along the pipeline, most of which were presumed to be the remnants of medieval strip fields. These features varied in their orientation from known local later prehistoric/Romano-British field alignments (eg the crop-mark enclosures to the west of Trenance, the field systems to the northeast of Degembris Major and to the northeast of Tredinnick). This seems to argue for a discontinuity of land organisation, as well as settlement location.

This discontinuity might be explained by a change in agricultural practices. However, there is no evidence that the type of mixed farming visible in the archaeological record in Cornwall from the Middle Bronze Age to the end of the medieval period, a combination of pastoralism based on transhumance, and cereal production, underwent any major transformation. The existence of transhumance is reflected in pre-Norman Cornish place-names such as *havos*, 'summer dwelling' and *hendre*, 'old home' or 'winter farm' (Padel 1985, 127, 129; Herring 1996). The use of these terms, comparable with similar usage in Wales, might suggest that their establishment pre-dated the seventh century AD, the period in which the South West was divided from Wales by the expansion of Wessex to the west (Herring 1999), although there is no reason why communication by sea should not have continued between the two areas.

The reorganisation of Romano-British enclosures into strip fields in the early medieval period is therefore likely to have derived from socio-political reasons rather than any underlying changes in everyday practice. This is likely to be linked to the abandonment of the rounds and the establishment of the unenclosed farmsteads and hamlets. The most obvious trigger for this shift is the introduction of Christianity to Cornwall, and perhaps its use by a ruling elite based at new centres such as Tintagel (Quinnell 2004) as a tool of governance, or in the establishment of new forms of land division. Certainly it is true to say that some churches are thought to have been established within pre-existing rounds (Quinnell 2004), these enclosures becoming known as *lanns*, whilst there are few, if any, examples of settlement continuing within a round. This may have been a method of emphasising the status of the church. At the same time the construction of unenclosed settlements and fields may have reflected a move to a more communal ethos resulting from a shared religion that had no room for personal interpretation.

Unfortunately no dating evidence was recovered from the field boundary ditches during the fieldwork, other than a sherd of late medieval pottery from a single ditch. However, the establishment of the strip field system is likely to date from the middle of the first millennium AD. The 'modern' field pattern is thought to result from the enclosure of open strip field systems probably from the fourteenth century onwards, with further changes to the pattern and the boundaries themselves through to the present day. At Trevilson in particular the strip-like pattern shown on historic maps is reinforced by the archaeological evidence for further strip divisions.

Summary

The early medieval period witnessed the abandonment of enclosed settlements and the establishment of unenclosed hamlets. Coincidental with this shift was a reorganisation of

the field pattern from the co-axial Romano-British fields into larger cropping units of unenclosed strip fields. The impetus for this change, around the middle of the first millennium AD, may have been climatic or political, or a combination of the two. However, the most likely explanation is that the establishment of Christianity led to a reorganisation of the system of land governance leading to fundamental changes in how the landscape was organised despite the continuity of the agricultural regime.

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Appendices

13.1 Medieval and post-medieval pottery types

13.1.1 The medieval period (12th to 14th centuries AD)

The study of Cornish medieval pottery is still at an early stage; most published sites are rural and lack stratified sequences, their dating being in relation to broad regional traditions. Close dating from a few rimsherds alone is not possible as coarse ware forms can have a long duration, for example some rim forms from Exeter continuing unchanged from the late tenth century to the early fourteenth century (Allan 1984).

Lostwithiel and St Germans are well-documented production centres but only one pottery kiln has been excavated in Cornwall. This was at St Germans, producing pottery from the thirteenth to the fifteenth centuries (Minter 1957). Fabric analysis has identified a third type of pottery which is distinct from these, named Bunning's Park/Stuffle Ware after the site it was first recognised, though it is thought that it too may have been manufactured in the Lostwithiel area.

Cornish Medieval Coarse ware, Bunning's Park/Stuffle Ware

This pottery is hand made, often wheel finished, thin walled, micaceous fabric with common inclusions of rounded quartz grains, hard fired with a pink-buff exterior and a grey core. This ware was probably fabricated in the Lostwithiel area; although actual kiln sites are not known (it is possible that they were clamp fired without purpose built kilns).

Dating from the thirteenth and fourteenth centuries, forms include cooking pots, and jugs; bowls and rare cisterns coming into use at the end of the fourteenth, start of the fifteenth centuries, all with sagging bases. Decoration of feint incised lines, applied thumbed strips, and stabbed handles is infrequent (O'Mahoney 1989 a/b and 1994).

A single abraded bodysherd of this material was recovered from F12 in an unstratified context.

13.1.2 The late medieval period (15th to 16th centuries AD)

Currently the understanding of Cornish late medieval pottery is limited, apart from the kiln at St Germans mentioned previously (which continued production until around 1500) no other kilns have been excavated, though documentation has indicated the presence of potters (Douch 1969), and small scale excavations uncovered a large number of pottery wasters at Lostwithiel (Miles 1976 and 1979).

Cornish Late Medieval Coarse wares

Wheel thrown vessels with a micaceous fabric, often with rounded quartz inclusions, sometimes with other crushed rock filler such as slate. A hard fired ceramic. The centre of production is not known, could be various, anywhere granitic derived clays are easily obtainable.

Long lived forms, such as cooking pots are represented along with bowls, jugs, and occasional cisterns, all with sagging bases, sometimes thumbed though markedly less than earlier forms. Decoration is rare, but may include occasional stabbed rod handles or painted white slip bands.

Two sherds of this material were found during this project, none diagnostic, from F17 and F25. Both were unstratified. Field 25 also produced a fragment of roofing tile in the same fabric.

Cornish Late Medieval Coarse ware, Lostwithiel Ware

Wheel thrown, thick walled pottery, similar to Bunning's Park/Stuffle Ware fabric but has significant differences to make it distinct. Generally has large flakes of white mica, more angular white (feldspar) inclusions visible in the fractures, and lacks the small black platy inclusions and soft glistening reddish-brown patches found in Stuffle type ware. Pink to grey-brown exterior with a grey core, hard fired. The similarities in fabric suggest that Lostwithiel Ware replaces Bunning's Park/Stuffle Ware in the 15th century.

Though called Lostwithiel Ware, no kilns have been found. However, small scale excavations within the town (Miles 1976; 1979) uncovered a large number of pottery wasters in this fabric. Firm documentary evidence for potting in Lostwithiel only exists for the 15th century onwards (Douch 1969) continuing into the 19th century. Forms include cooking pots, cisterns, lid seated jugs, with rod handles, two handled jars, and bowls/pancheons with complicated rims and shoulder carinations. Bases have more rounded, gentle sloping angles (O'Mahoney, 1989a/b).

Decoration includes stabbed rod handles, horizontal painted bands of white slip, and lines of white slip forming simple geometric patterns, incised lines, and applied thumb pressed strips are also present, but rarer.

A single rimsherd was recovered during this project. This was from F18 context (79). This was of a large bowl or pancheon with a complex flanged rim. The form can be paralleled from excavations in St Andrews Street, Plymouth (Fairclough 1976 fig 22/192) and from West Colliford Mill (Austin *et al* 1989). Both examples are dated to the early sixteenth century.

A single basal sherd was recovered during the excavation of the Trevilson Roundhouse. This came from context (500) which post-dated the use of the site. The sherd dates from the fifteenth century.

13.1.3 The Post-Medieval Period (Mid 16th to 18th centuries)

Post-Medieval Glazed Red Earthenware (GRE)

Glazed Red Earthenwares (GRE) are present in such quantities and with so much variety that although no kiln sites have been found, it is certain that there was more than one source, in Cornwall, Devon, Somerset, and perhaps Bristol. It seems that GRE was produced from sometime in the first half of the sixteenth century and continuing throughout the seventeenth and eighteenth centuries with little evident change in fabrics.

The lead glaze is clear, taking most colour from the fabric. Green (copper) or red (iron) glazes also occur. Flat wares are always completely glazed on the interior, exterior can vary from completely glazed to wholly unglazed, and is usually patchy. Closed wares vary from careful, overall glazing to exterior glazing with random patches on the interior.

Many of the forms have a long survival with little or no change, and much of this pottery is only dateable in association with other artefacts, ie clay pipes. Forms include flat wares such as plates, dishes, and bowls, with and without handles, and pancheons while hollow wares comprise mainly storage jars, pipkins and jugs. Chafing dishes, mugs, drinking cups, standing costrels and cisterns are also forms found. Decoration is rare.

Some 7 sherds were found, unfortunately none were diagnostic. These came from fields F1, F6 and F25. All were unstratified.

North Devon Post-Medieval Glazed Red Earthenware (GRE), Barnstaple Ware

Wheel thrown, often thick walled pottery. Fine matrix almost no sand, usually fired orange with a grey core. The earliest known examples of this material are late fifteenth century, with the market in Exeter growing steadily until a rapid expansion in the late seventeenth century and early eighteenth century saw this ware comprising nearly 23% of the total in Exeter (Allan 1984), and declining in the late eighteenth and nineteenth centuries due to competition from the Bristol and Staffordshire industries.

The main centres of pottery production were at Barnstaple and perhaps Okehampton, although there were no doubt other kiln sites. Forms are numerous and varied, similar to those listed for Post-Medieval GRE, a common feature of all forms is that they are now flat bottomed. Decoration is reduced green or brown glaze, slip coated, often with Sgraffito patterns.

One undiagnostic bodysherd was identified as being of this fabric, coming from F2. Unfortunately it was unstratified.

Post-Medieval Bristol/Somerset, Yellow Glazed Slipware

Similar wares to Staffordshire Ware but mostly closed forms produced. Fine buff or cream fabric, glazed yellow, with dark brown or black trail slipped decoration. Forms include mugs and cups, those found in Exeter dating from 1730-1750 (Allan 1984 fig 121).

A single rimsherd of this material was identified. It was unstratified from F7. In form it was from a cup and closely paralleled those found in Exeter (Allan 1984 fig 121).

Post-Medieval Salt glazed Stoneware (Frechen Ware)

The centre of production was at Frechen an area west of Cologne, Germany. The fabric is reduced grey stoneware, the exterior covered with a salt glaze, usually brown speckled 'Tiger' Ware'. Typical form is that of a Bellarmine jug often decorated with 'masks' or heraldic medallions. Height of production and importation into Britain is during the seventeenth century, being replaced by other stone wares in the late eighteenth century (Jennings, S. 1981 Allan, J 1984).

One sherd of this pottery was found, unstratified from F6.

Post-Medieval Salt glazed Stoneware (Normandy Stoneware)

Main centre of production was at Ger in Manche, east of Mortain, close to Bayeaux. First found from the fourteenth century at Caen Castle, but did not reach England until the end of the sixteenth century, becoming common in the seventeenth and eighteenth centuries. Sherds occur in contexts dating from 1700 in Exeter, and have been found in similar contexts at both Southampton and Plymouth (Allan 1984).

It is a purple-brown stoneware fabric, but not often fully fused so that inclusions are visible. Usually dark brown glazed, though sometimes unglazed. Forms include curved and straight-sided bowls with flanged rims, tall wide-necked jars with flanged rims, narrow-necked jars, and squat jugs. Usually the pottery was undecorated (Hurst *et al* 1986).

One sherd of this pottery was found, unstratified from F6.

Post-Medieval Salt glazed Stoneware (Nottingham Stoneware)

Stone wares were produced in Nottingham from 1690, the height of production being in the eighteenth century, before declining in the nineteenth century.

Fabric is grey, with a lustrous brown salt glaze. Forms include mugs, dishes, bowls, and jugs. They are unusual in that they were decorated with lathe-turned bands, and also bands of mechanically cut facets resembling cut glass. Vessels are often inscribed and dated (Jennings 1981).

One sherd of this pottery was found, unstratified from F8.

Post-Medieval Salt glazed Stoneware (Plain Cologne Ware)

Fabric is a pale grey-white with pale grey glaze, often glossy with fine black specks in the glaze. Typical form is that of a Bellarmine jug but mugs also occur. Importation into Britain in small quantities is during the sixteenth century, being replaced by other stone wares in the seventeenth century (Jennings 1981, Allan 1984).

One sherd of this pottery was found, unstratified from F20.

13.1.4 The Modern Period (19th to 20th centuries)

This being the most recent period of activity in the area examined is reflected in the number of artefacts recovered, some 63 in total, though most of the unassigned objects are probably of this period too. The bulk of the material is pottery, but with building materials, glass, and metalwork represented. Within the collection of pottery the following wares could be identified.

Modern Salt glazed Stoneware.

Wheel turned ware, hard fired stoneware, Salt glazed light brown, over a light grey to light buff fabric. Forms include tankards, mugs, and inkwells. Eighteenth and nineteenth century production, continuing into the early twentieth century was around Staffordshire and Nottingham.

Three sherds of this material were identified in this collection, from F9 context (299), and from unstratified contexts within fields F2 and F14.

Modern White Glazed Stoneware

White Glazed Stone wares, Salt glazed, were first made in large quantities in the late eighteenth century and by the nineteenth century came to dominate the market. Fabric is white, fine, with an overall, even white salt glaze. Mostly domestic uses, plates, mugs, bowls, and chamber pots predominating, being utilitarian forms changed little so are difficult to date precisely unless a maker's mark is present. Decoration is plain or press moulded rims on plates during the eighteenth century; by the nineteenth century hand painted, or blue and white transfer printed common. The centre of production is around Staffordshire, especially Stoke on Trent.

Some 32 sherds of this material was identified, mostly nineteenth century 'Blue and White' transfer printed wares though lack of makers marks made closer dating impossible. All came from unstratified contexts from fields F1, F2, F2A, F6, F8, F9, F11, F13, F18, F19, F20 and F25.

Modern Yellow Glazed Stoneware

Similar to Modern White Glazed Stoneware, but a nineteenth century development. Fabric is white, fine grained with an even overall, yellow salt glaze. Again utilitarian domestic wares, mostly plates. Usually undecorated. Production centred around Staffordshire.

Three sherds of this ware were recognised. They came from F9 context (297) and non stratified deposits in fields F12, and F21.

Modern White Glazed Earthenwares

Often called 'Cream ware' first made in the late eighteenth century. Manufactured from the same clays as Modern White Glazed Stoneware but fired at a lower temperature, covered by a cream/white coloured lead glaze. Main factories in Staffordshire, but others in Yorkshire, Derbyshire, Liverpool, and Swansea. Painted 'Blue and White' and transfer print decoration distinguishes factories, as forms consistent throughout the industry, unfortunately nothing diagnostic was recovered. Production peaked in early nineteenth century, being replaced by Modern White Glazed Stoneware (Jennings, S.1981).

Two sherds of this material were recovered coming from fields F13 and F19. They were from unstratified contexts.

Modern Black Glazed Stoneware

Similar to Modern White Glazed Stone wares but a nineteenth century development. Fabric is white or cream, fine grained with an overall black salt glaze. Utilitarian domestic wares, mostly teapots and jugs. Usually undecorated. Production centred around Staffordshire (Jennings 1981). Sometimes known as 'Basaltz Ware'.

A single unstratified sherd of this ware was recovered from F25.

13.2 Mitchell to St Newlyn East: Environmental Analysis

Table 8: Environmental analysis

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
Church Close; prehistoric and later activity					
		Field 20			
39	200	Fill of pit [45]	14	2	Predominantly charcoal, some fine roots
19	141	Lens within pit [45]	0.25	5	98% charcoal
20	141	Lens within pit [45]	7	250	100% charcoal
41	141	Lens within pit [45]	7	220	100% charcoal. Some substantial fragments
81	141	Lens within pit [45].	0.25	20	100% charcoal
28	173	Fill of pit [45]	7	4	Charcoal and fine roots
29	173	Fill of pit [45]	7	20	98% charcoal. Few small roots
30	173	Fill of pit [45].	7	20	98% charcoal. Few small roots
31	173	Fill of pit [45]	7	20	98% charcoal. Few small roots
22	139	Fill of pit [45]	7	4	90% charcoal
1	47	Fill of stone-lined pit [46] cut into upper fill of pit [45]	14	3	Charcoal and roots. Mostly small fragments of charcoal 1 Poaceae (grass)
2	47	Fill of stone-lined pit [46] cut into upper fill of pit [45]	14	5	Charcoal and roots. 1 Poaceae (grass)
38	47	Fill of stone-lined pit [46] cut into upper fill of pit [45]	28	30	Charcoal and roots
17	138	Upper fill of pit [45]	7	8	Charcoal and roots
18	138	Upper fill of pit [45]	7	7	Charcoal and roots. 1 Poaceae (grass)
3	56	Fill of shallow circular cut [55]	7	8	Charcoal and roots. Mostly small fragments of charcoal
27	149	Fill of small circular feature [148]	7	5	95% fine roots. Some small fragments of charcoal
		Field 19			

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
5	63	Upper fill of ditch [62]	7	7	Charcoal and roots. Mostly small fragments of charcoal
					1 Poaceae (grass)
6	64	Fill of ditch [62]	7	7	Charcoal and roots
4	61	Fill of charcoal pit [60]	7	120	98% charcoal. Some substantial fragments
Trevilson Bronze Age roundhouse					
		Field 18			
		Phase 1: construction features (backfilled in phase 3)			
704	510	Fill of posthole [512]	21	15	95% charcoal
					Weeds: 1 *Carex* (sedge), 1 *Lathyrus/Vicia* (vetch),
					1 Poaceae (grass), 1 half *Vicia faba* (Celtic bean)
705	511	Fill of posthole [512]	35	80	98% charcoal
					Grain 2 *Triticum* (wheat), 2 *Hordeum* (barley), 1 *Avena* (oat)
					Weeds 1 *Corylus avellana* (hazel) frag,
					3 *Fallopia convolvulus* (black bindweed)
					1 *Persicaria lapathifolia* (pale persicaria),
					1 Poaceae (grass), 1 Rosaceae (rose family) spine
					Legumes 1 half *Vicia faba* (Celtic bean), 1 *Lathyrus/Vicia/Pisum*
					(vetch/pea)
706	513	Post-pipe [515]	3	14	98% charcoal
707	514	Posthole fill [515]	77	75	95% charcoal
732	545	Posthole fill [546]	35	180	98% charcoal
719	529	Posthole fill [530]	7	24	Charcoal and roots
					Grain 1 *Triticum* (wheat), 4 *Hordeum* (barley)
735	554	Posthole fill [555]	4	20	Charcoal and roots
					Weeds 1 *Fallopia convolvulus* (black bindweed)
725	541	Stakehole fill [542]	1	17	95% charcoal

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
726	543	Stakehole fill [544]	2	60	98% charcoal
727	547	Stakehole fill [548]	2	3	95% charcoal
729	549	Stakehole fill [550]	1	2	98% charcoal
711	520	Stakehole fill [521]	7	80	98% charcoal.
					Grain 1 *Avena* (oat) grain
					Legume 1 half *Vicia faba* (Celtic bean)
		Phase 2: occupation			
723	535	Slot fill [536]	7	15	Charcoal and roots
					Weeds 3 *Fallopia convolvulus* (black bindweed)
					Legumes 6 half *Vicia faba* (Celtic bean)
724	537	Slot fill [536]	7	15	Charcoal and roots
					Grain 1 cereal indet
					Weeds 1 *Carex* (sedge), 1 *Fallopia convolvulus* (black bindweed)
					1 *Ranunculus flammula* (lesser spearwort)
		Phase 3: abandonment			
702	503	Upper infill deposit	14	15	Charcoal and roots
708	517	Spread - concentrated around centre of roundhouse	11	270	98% charcoal
					Grain 2 *Hordeum* (barley), 1 Cereal indet
					Weeds 2 *Carex* (sedge)
					Legumes 4 whole + 17 half *Vicia faba* (Celtic bean) + frags.
					Most in poor condition with surface lost, pitted and
					no hilum preserved.
11	509	Matrix for stony deposit around (506)	7	120	90% charcoal. Some substantial fragments
					Also roots and mineral

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
12	517	Dark layer within roundhouse	7	120	98% charcoal
					Grain 3 cf *Triticum* (wheat), 3 *Hordeum* (barley)
					Chaff 1 cereal culm node
					Weeds 1 *Atriplex* (orache)
					2 *Fallopia convolvulus* (black bindweed)
					1 *Galium aparine* (cleavers)
					Legumes 5 frags *Vicia faba* (Celtic bean) – bad condition
					1 *Lathyrus/Vicia* (vetch)
13	517	Dark layer within roundhouse	7	80	98% charcoal.
					Grain 8 *Hordeum* (barley) 1 cf *Triticum* (wheat) – poor condition
					1 cereal culm node
					Fruits 2 *Crataegus monogyna* (hawthorn)
					Legumes 4 frags *Lathyrus/Vicia/Pisum* (vetch/pea)
					2 frags *Lathyrus/Vicia* (vetch)
709	518	Spread – around centre of roundhouse	14	200	98% charcoal
					Grain 6 *Triticum* (wheat), 17 *Hordeum* (barley),
					3 cf *Hordeum* (barley), 3 *Avena* (oat), 5 Cereal indet
					Weeds 1 *Brassica/Sinapis* (mustard/rape/cole etc)
					1 *Bromus* (brome),
					3 *Carex* (sedge), 1 *Corylus avellana* (hazel) frag
					3 *Fallopia convolvulus* (black bindweed), 1 *Galium aparine*
					(cleavers), 2 *Persicaria lapathifolia* (pale persicaria),
					5 *Plantago lanceolata* (ribwort plantain), 6 *Rumex* (dock)
					Legumes 20 whole + 42 half *Vicia faba* (Celtic bean) + 20 frags
					2 *Lathyrus/Vicia/Pisum* (vetch/pea)
					3 *Lathyrus/Vicia* (vetch)

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
720	531	Scoop fill [532]	4	60	Occasional charcoal frags
					Grain 1 *Triticum* (wheat), 2 *Avena* (oat)
					Legumes c90% of 2mm float consists of fragments of *Vicia faba* (Celtic bean).
					10 whole *Vicia faba* well-preserved with hilum
					143 whole *Vicia faba* less well-preserved with no hilum
					103 half *Vicia faba* , most with no surface preserved and slightly fragmented.
722	534	Spread	7	300	98% charcoal
					Grain 1 *Triticum* (wheat), 2 *Hordeum* (barley)
					1 cf *Hordeum* (barley),
					Weeds 1 *Fallopia convolvulus* (black bindweed),
					2 *Persicaria lapathifolia* (pale persicaria)
					Legumes 7 whole *Vicia faba* (Celtic bean) – surface lost and pitted.
					Traces of hilum visible on a few
					16 half *Vicia faba* + 8 frags
					2 *Lathyrus/Vicia* (vetch) – poor condition
710	519	Burnt spread – from shallow deposit/posthole [571]	11	30	Charcoal and roots
					Grain 1 *Avena* (oat) grain
					Legumes 2 half *Lathyrus/Vicia/Pisum* (vetch/pea)
					1 *Pisum sativum* (pea) – well preserved with hilum intact
712	509	Matrix for stony deposit around (506)	46	370	95% charcoal
					Grain 1 *Triticum* (wheat) grain
					Fruits/nuts 1 *Corylus avellana* (hazel) frag,
					3 *Rubus* sect *Glandulosus* (bramble)

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
715	523	Inside entrance	36	1500	98% charcoal – 50% examined
					Grain 1 *Triticum* (wheat) grain, 2 cereal culm nodes
14	505	Layer within roundhouse	7	5	Charcoal and roots
716	526	Burnt wood	2	480	98% charcoal – some substantial frags
717	527	Burnt wood	2	120	98% charcoal
					1 cereal culm node, 2 *Fallopia convolvulus* (black bindweed)
718	528	Burnt wood	7	770	98% charcoal – some substantial frags
721	533	Burnt wood	1	100	100% charcoal
733	525	Burnt deposit	1	3	95% charcoal
714	525	Charcoal rich	14	200	98% charcoal
					Grain 1 *Triticum* (wheat)
					Legume 2 *Vicia faba* (Celtic bean) - fragmented
730	551	Upper stakehole fill [553]	2	40	98% charcoal
					Weeds 3 *Fallopia convolvulus* (black bindweed)
731	552	Primary stakehole fill [553]	2	8	98% charcoal
					Weeds 4 *Fallopia convolvulus* (black bindweed)
					1 *Plantago lanceolata* (ribwort plantain)
					1 *Ranunculus flammula* (lesser spearwort)
734	556	Stakehole fill [557]	2	16	98% charcoal
					Weeds 1 *Fallopia convolvulus* (black bindweed)
					1 *Prunella vulgaris* (selfheal)

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
713	524	Spread of burnt material	14	200	95% charcoal
					Grain 1 *Triticum* (wheat), 2 *Hordeum* (barley)
					3 cf *Hordeum* (barley), 3 *Avena* (oat), 5 Cereal indet
					Weeds 1 *Atriplex* (orache), 1 *Carex* (sedge),
					1 *Fallopia convolvulus* (black bindweed)
					Legumes 1 *Vicia faba* (Celtic bean)
					1 *Lathyrus/Vicia/Pisum* (vetch/pea) + 3 frags
703	505	Layer	42	220	Charcoal and roots
					2 cf. *Triticum* (wheat) grain, 4 half *Vicia faba* (Celtic bean)
700	501	Uppermost deposit of roundhouse. Above 505	80	40	Charcoal and roots
701	502	Uppermost deposit of roundhouse Above 505	40	200	Charcoal and roots
					1 *Triticum* (wheat) grain, 1 *Crataegus monogyna* (hawthorn)
		Field 17			
16	133	Fill of shallow pit [132]	7	60	50% charcoal and 50% roots
					Grain 1 *Hordeum* (barley) 3 *Avena* (oat)
					Chaff 3 *Triticum* (wheat) glume bases
					5 frags *Vicia faba* (Celtic bean) – bad condition
					Weeds 1 *Fallopia convolvulus* (black bindweed)
					1 *Plantago lanceolata* (ribwort plantain). 2 Poaceae (grass)
Pollamounter: Romano-British enclosure					
		Field 14			
42	203	Fill of curvilinear ditch [202]	14	7	Predominantly roots, occasional small charcoal fragments
52	203	Fill of curvilinear ditch [202]	14	5	Predominantly roots, occasional small charcoal fragments
					Grain 1 *Hordeum* (barley), 1 *Avena* (oat)
					Chaff 1 *Triticum* (wheat) glume base
					Weeds 5 Poaceae (grass)

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
44	205	Fill of linear ditch [204]	14	6	Predominantly roots, occasional small charcoal fragments
					Grain 2 *Triticum* (wheat), 1 cf *Hordeum* (barley)
					Weeds 1 Poaceae
35	185	Fill of linear ditch [184]	14	4	Mostly fine roots. Small charcoal fragments only. 5 Poaceae (grass)
48	221	Fill of pit [220]	28	6	Charcoal and roots
					Grain 1 *Triticum* (wheat), 2 *Avena* (oat), 1 cereal indet
					Chaff 3 *Triticum* (wheat) glume base
					Weeds 6 Poaceae (grass)
46	234	Fill of sub-oval pit [233]cut into ditch fills [185] and [227]	28	100	95% charcoal
					Grain 1 *Triticum* (wheat), 2 *Hordeum* (barley), 5 *Avena* (oat)
					Chaff 1 *Hordeum* rachis internode, 1 *Avena* floret base
					Weeds 1 *Lathyrus/Vicia* (vetch), 1 Poaceae (grass),
					1 Rosaceae (rose family) spine, 1 *Rumex* (dock)
49	227	Fill of linear feature [226]	28	9	Charcoal and roots
					Grain 1 *Avena* (oat)
					Weeds 6 Poaceae (grass), 1 *Plantago lanceolata* (ribwort plantain)
50	228	Stony fill of linear feature [226]	28	6	Charcoal and roots
					Grain 1 *Triticum* (wheat), 2 *Avena* (oat)
					Chaff 1 *Triticum* (wheat) spikelet fork, 3 *Triticum sp* glumes
					6 *Avena* awn
					Weeds 10 Poaceae (grass)
33	178	Fill of curvilinear ditch [179]	7	4	Predominantly charcoal
					Grain 1 *Avena* (oat), 1 Cereal indet
					Chaff 4 *Triticum* (wheat) glume bases. 7 *Avena* awns
					Weeds 1 *Lathyrus/Vicia* (vetch), 5 Poaceae (grass)

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
45	178	Fill of curvilinear ditch [179]	14	3	Predominantly roots, occasional small charcoal fragments
					Grain 2 *Hordeum* (barley), 2 *Avena* (oat), 1 cereal indet
					Chaff 1 *Avena* awn
					Weeds 2 Poaceae (grass)
					1 *Ranunculus acris/repens/bulbosus* (buttercup)
32	177	Dark charcoal fill of sub-linear feature [182]	7	35	Predominantly charcoal
					Grain 1 *Triticum* (wheat), 14 *Hordeum* (barley), 3 cf. *Hordeum,*
					37 *Avena* (oat), 6 cf *Avena*
					20 Cereal indet - Poor condition
					Chaff 13 *Triticum* glume bases, 1 *Hordeum* rachis frag
					8 *Avena* awn
					Weeds 1 *Bromus* (brome), 1 Poaceae (grass), 1 *Rumex* (dock),
					3 *Raphanus raphanistrum* ssp *raphanistrum* (wild radish)
					pods + 1 frag, 2 *Ulex* (gorse) spine, 1 bud (indet)
53	215	Fill of linear ditch [214]	28	9	Charcoal, roots and mineral
					Grain 2 *Triticum* (wheat), 2 *Avena* (oat)
					Chaff 2 *Avena* awn
					Weeds 1 *Galium aparine* (cleavers), 4 Poaceae (grass)
					1 *Valerianella dentata* (narrow-fruited cornsalad)
47	236	Fill of linear ditch [235]	28	10	Predominantly roots, occasional small charcoal fragments
					Grain 3 *Hordeum* (barley), 1 cereal indet
					Chaff 4 *Triticum* (wheat) glume base, 1 *Avena* awn
55	249	Primary fill of ditch terminus [238]	28	11	Charcoal, roots and mineral
					Grain 1 *Triticum* (wheat), 1 cf *Triticum*, 1 *Hordeum* (barley),
					1 *Avena* (oat)

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
54	241	Fill of pit/ditch terminus [240]	28	150	95% charcoal. 1 fragment burnt bone
					Grain 6 *Triticum* (wheat), 1 *Hordeum* (barley), 3 *Avena* (oat)
					Chaff 1 *Triticum* (wheat) spikelet fork
					Weeds 1 *Polygonum aviculare* (knotgrass)
25	145	Fill of large ditch [142]	7	2	Charcoal and mineral
23	143	Upper fill of large ditch [142]	7	6	Occasional charcoal fragments
					Grain 1 *Hordeum* (barley)
					Weeds 1 *Plantago major* (greater plantain).
					2 Poaceae (grass). 1 *Danthonia decumbens* (heath-grass).
Sample	**Context**	**Feature**	**Sample size (litres)**	**Float size (ml)**	**Other plant remains**
60	254	Fill of shallow depression [252]	28	40	Charcoal and roots
					Grain 3 *Triticum* (wheat), 5 *Hordeum* (barley), 3 cf. *Hordeum*
					5 *Avena* (oat), 4 cereal indet
					Chaff 4 *Triticum* (wheat) glume base
					Weeds *1 Bromus* (brome)
61	255	Fill of shallow depression [253]	14	6	Predominantly roots, occasional charcoal fragments
					Grain 1 *Triticum* (wheat), 1 *Avena* (oat)
					Chaff 1 *Avena* awn
					Weeds 1 Poaceae (grass), 1 *Corylus avellana* (hazel) frag
					1 *Raphanus raphanistrum* ssp *raphanistrum* (wild radish)
56	243	Upper fill of circular pit [242]	28	20	Charcoal and roots.
					Grain 6 *Triticum* (wheat), 1 *Hordeum* (barley), 4 *Avena* (oat),
					2 cereal indet
					Chaff 4 *Triticum* (wheat) glume base, 1 *Avena* awn
					Weeds 2 *Plantago lanceolata* (ribwort plantain), 3 Poaceae (grass)

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
57	250	Fill of pit [242]	28	300	98% charcoal – highly charred, porous and glassy
					Grain 4 *Triticum* (wheat), 3 *Avena* (oat), 2 cereal indet
					Weeds 1 *Lathyrus/Vicia* (vetch), 1 Poaceae (grass),
58	251	Primary fill of pit [242]	14	4250	100% charcoal
36	188	Upper fill of linear ditch [187]	14	7	Predominantly charcoal, some fine roots. 1 Poaceae (grass)
43	209	Fill of ditch [208]	14	5	Charcoal and roots. 1 *Juncus* (rush)
59	245	Fill of poss posthole [244]	7	5	Charcoal and roots.
Metha: later prehistoric activity					
		Field 2			
79	372a	Primary fill of pit [370]	1.75	12	98% charcoal
80	372b	Primary fill of pit [370].	7	160	98% charcoal
					7 *Corylus avellana* (hazel) frags, 1 *Malus* (apple)
		Field 11			
66	283	Fill of shallow circular pit [282]	77	160	Charcoal and roots. Abundant modern seeds
		Field 8			
78	358	Primary fill of pit [310]	14	6	Charcoal and roots
					Weeds 4 Poaceae (grass)
76	356	Fill of pit [310]	28	550	98% charcoal – many substantial fragments
					Fruit/nuts 50+ *Corylus avellana* (hazel)
					3 *Crataegus monogyna* (hawthorn)
					4 whole *Prunus spinosa* (sloe) + occ fragments
					2 *Rubus* sect *Glandulosus* (bramble)
					5 *Quercus* (oak) buds + 2 indet buds
71	311	Uppermost fill of pit [310]	14	10	Charcoal and roots

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
72	312	Fill of pit [310]	14	5	Charcoal and roots
					Grain 1 *Triticum* (wheat)
					Weeds 1 *Carex* (sedge)
73	313	Fill of pit [310]	14	7	Charcoal and roots.
75	355	Fill of pit [310]	14	15	95% charcoal
					Weeds 1 *Galium aparine* (cleavers)
					3 buds,
77	357	Fill of pit [310]	14	5	Charcoal and roots.
74	316	Fill of pit [359]	14	8	Charcoal and roots.
					Grain 1 *Hordeum* (barley)
Medieval and later landscapes					
		Field 18			
8	67	Fill of ditch [66]	7	3	Predominantly roots. Occasional small charcoal fragments.
					Grain 1 Cereal indet - poor condition
9	73	Fill of ditch [72]	7	6	Charcoal and roots. Mostly small fragments of charcoal.
10	79	Fill of ditch [78]	7	10	Charcoal and roots.
					Weeds 1 *Plantago lanceolata* (ribwort plantain)
15	102	Fill of ditch [101]	7	8	Predominantly roots. Occasional small charcoal fragments.
					Grain 1 *Hordeum* (barley)
		Field 12			
64	276	Fill of ditch [271]	28	19	Predominantly roots, occasional charcoal fragments
					Weeds 1 *Rumex* (dock)
65	277	Primary fill of ditch [271]	28	17	Charcoal and roots.
					Weeds 1 Poaceae (grass)
		Field 9			

Sample	Context	Feature	Sample size (litres)	Float size (ml)	Other plant remains
67	292	Fill of sub-linear ditch [291]	28	170	Predominantly roots, occasional small charcoal fragments
68	294	Primary fill of linear ditch [293]	28	200	Matted modern roots and abundant seeds, especially *Rubus* (bramble) and *Viola* (violet). Occ small charcoal fragments
69	295	Upper fill of linear ditch [293]	28	130	Predominantly roots, occasional charcoal fragments. Some modern seeds, especially *Rubus* (bramble)
70	303	Fill of linear ditch [302]	28	40	Predominantly roots Grain 1 *Triticum* (wheat), 1 *Hordeum* (barley), 1 *Avena* (oat) Weeds 4 *Plantago lanceolata* (ribwort plantain), 7 Poaceae (grass) 1 *Valerianella dentata* (narrow-fruited cornsalad)

13.3 Mitchell to St Newlyn East: Charcoal Analysis

Table 9: Charcoal analysis: taxa identified and charcoal suitable for radiocarbon dating

Key. h = heartwood; r = roundwood (diameter <20mm); s = sapwood (diameter unknown)

The number of fragments identified is indicated

C14: With the exception of oak heartwood all the charcoal included below is suitable for radiocarbon dating (weights are given in gm)

Sample	Context	Feature	*Alnus*	*Betula*	*Corylus*	*Ilex*	Pomoideae	*Prunus*	*Quercus*	Salicaceae	*Ulex/ Cytisus*
Field 2, Neolithic											
79	372a	Primary fill of pit [370], SE section of pipe trench	-	-	10 (1g)	-	8 (1g)	-	-	-	-
80	372b	Primary fill of pit [370], NW section of pipe trench	-	*cf.*1 (<1g)	50 (5g)	-	32 (2g)	1 (<1g)	12h	-	
Field 8, Middle Bronze Age											
76	356	Fill of large pit [310]	-	-	-	-	-	86r (15g)	1r (<1g)	-	-

Sample	Context	Feature	*Alnus*	*Betula*	*Corylus*	*Ilex*	Pomoideae	*Prunus*	*Quercus*	Salicaceae	*Ulex/ Cytisus*
Field 11, Early Bronze Age											
66	283	Fill of shallow pit [282]	1 (<1g)	-	15r (2g)	12 (2g)	3 (<1g)	-	2	-	1 (<1g)
Field 14, Romano-British											
54	241	Fill of pit/ditch terminus [240]	-	-	-	-	-	-	43h,10s	-	16r (2g)
57	250	Secondary fill of pit [242]	-	-	-	-	10 (2g)	4 (<1g)	36h,15r	-	2r (<1g)
58	251	Primary fill of pit [242]	-	-	-	-	69r (17g)	10 (2g)	49h,10s	-	3r (1g)
60	254	Fill of shallow pit [252]	-	-	7 (1g)	-	-	-	15,3s	2 (<1g)	2r (<1g)
Field 17, Bronze Age ?											
16	133	Fill of shallow pit [132]	-	1r (<1g)	9r 1g)	-	-	-	5r (1g)	-	-
Field 18, Trevilson Roundhouse, Middle Bronze Age											
Phase 2, Occupation/Abandonment											
716	526	Large piece of burnt wood, ?tapered end	-	-	-	-	-	-	66h,21s	-	-
717	527	Burnt wood	-	-	-	-	-	-	58h,15s	-	-
718	528	Burnt wood	-	-	-	-	-	-	50h,1s	-	-
Phase 3, Abandonment											
11	509	Matrix around stony deposit [506]	-	-	-	-	-	-	73h, 2s	-	-
13	517	Dark layer within roundhouse	-	3 (<1g)	1 (<1g)	-	1 (<1g)	-	19h, 3s	-	-
701	502	Upper most deposit of roundhouse	-	-	18 (1g)	-	6 (<1g)	-	16h, 2 s/r	-	-
704	510	Postpipe for posthole [512]	-	-	3 (<1g)	-	-	1 (<1g)	14h, 1s	-	5 (<1g)
708	517	Spread around centre of R/H	-	81 (13g)	1 (<1g)	-	-	-	2h, 2s	-	-
709	518	Layer beneath [517]	-	22 (2g)	3 (<1g)	-	-	-	18h,12s/r	-	-
711	520	Stakehole fill [521]	-	47 (6g)	-	-	1 (<1g)	-	5h, 3s	-	-
712	509	Matrix for layer (506) stone deposit	-	21 (2g)	11 (<1g)	-	1 (<1g)	-	79h, 21s/r	-	-
713	524	Deposit of charcoal and burnt clay daub within northwest kerb of roundhouse	-	12 (<1g)	1 (<1g)	-	1 (<1g)	-	76h, 5s/r	-	-

Sample	Context	Feature	*Alnus*	*Betula*	*Corylus*	*Ilex*	Pomoideae	*Prunus*	*Quercus*	Salicaceae	*Ulex/ Cytisus*
715	523	Inside entrance	-	-	17 (2g)	-	1 (<1g)	-	69h,4s	-	-
722	534	Spread	-	65 (13g)	2 (<1g)	-	-	-	3h,2s	-	-
732	545	Fill of posthole [546]	-	2 (<1g)	28 (2g)	-	2 (<1g)	-	16h,12s	-	-
Field 19, Prehistoric ?											
4	61	Fill of posthole [60].	-	-	-	-	-	-	72h	-	-
Field 20, Prehistoric ?											
20	141	Lens within pit [45]	-	-	-	-	-	-	91h	-	-

13.4 Project archive

The project number is **2001063**.

The project's documentary, photographic and drawn archive is housed at the offices of the Historic Environment Service at, Cornwall County Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. Field plans and copies of historic maps stored in an A2-size plastic envelope GRE414 (Roundhouse) and GRE415 (Watching Brief). The pottery drawings are GRH 349.
3. Black and white photographs archived under the following index numbers: GBP 1383-1387, 1393 and 1394.
4. Colour slides archived under the following index numbers: GCS 32034-32058
5. Colour prints archived under the following index numbers: GCP 106 and 107
6. This report held in digital form as: G:\CAU\DOCUMENT\HE PROJECTS\SITES\SITES M\MITCHELL-NEWLYN EAST SWW MITIGATION 2001063\REPORT\MITCHELL REPORT
7. The GIS maps are stored as: L:\CAU\HE_Projects\Sites_M\Mitchell_Newlyn_East 2001063

The site codes for the finds are MNE01 for the pipeline and TRH01 for the roundhouse.

Artefacts and environmental material retrieved during the project are stored at the Royal Cornwall Museum, River Street, Truro.

The laying of a new pipeline by South West Water between the villages of St Newlyn East and Mitchell in Mid-Cornwall allowed for a detailed archaeological investigation. A cross section through six thousand years in the history of a typical rural Cornish parish emerged. The results of those investigations are presented here.

Amongst those encountered were evidence of mobile Neolithic societies, a Middle Bronze Age settlement, a Romano-British community, and medieval farmers. Evidence from the daily lives of these ancestors is reported and from these glimpses a reconstruction of the people and their landscape is offered.

SOUTH WEST WATER