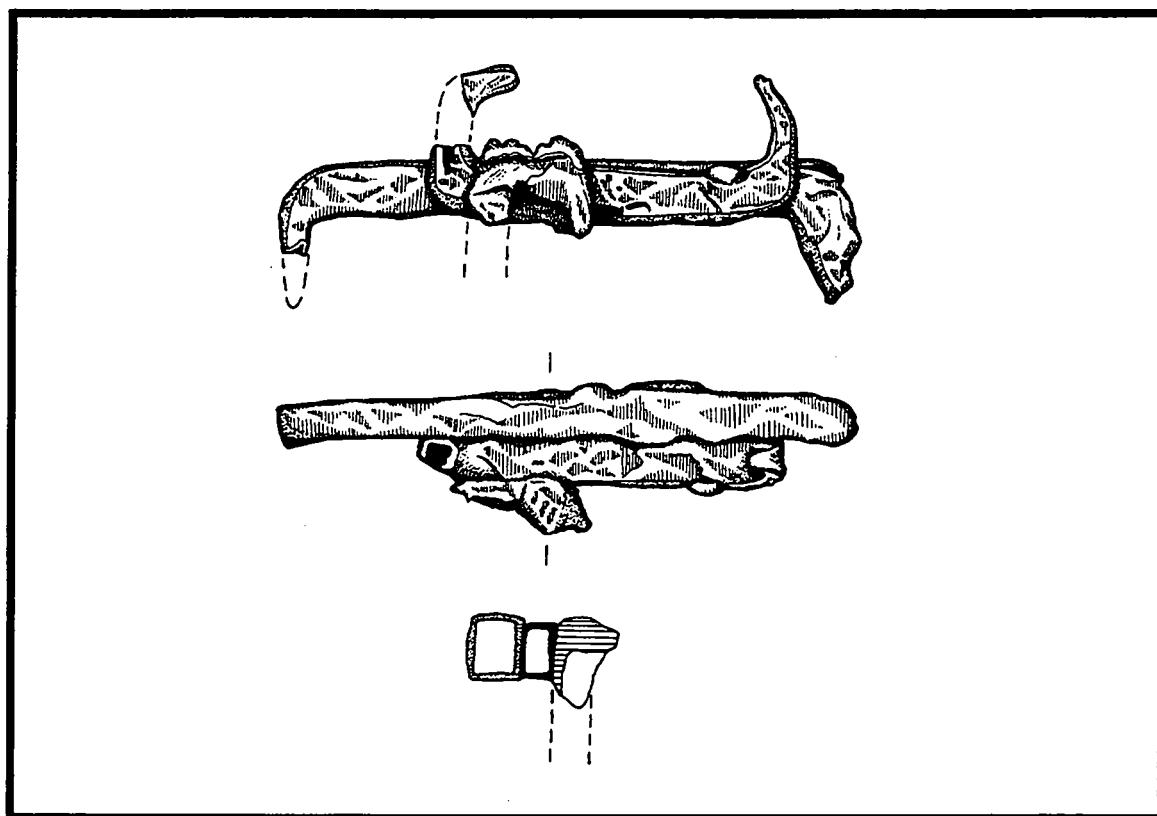
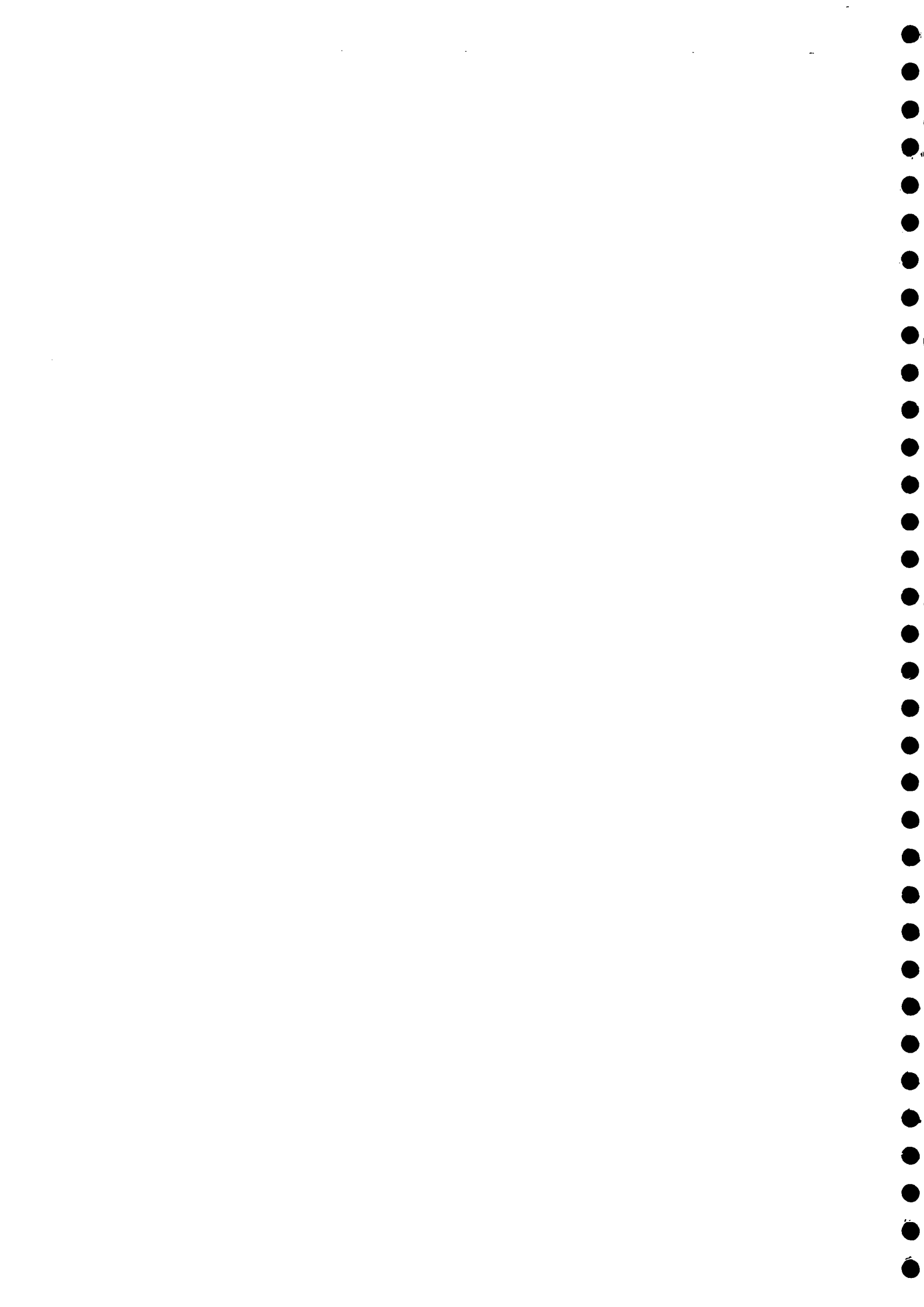


Little Quoit Farm, St Columb Major, Cornwall

Excavation of a Romano-British smithing site



Cornwall Archaeological Unit



A Report for South West Water

**Little Quoit Farm, St Columb Major,
Cornwall**

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smithing site**

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With contributions from

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Wilmot.

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CORNWALL ARCHAEOLOGICAL UNIT

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Cover illustration:

Three of the iron joiners dogs, found concreted together during the excavations. Drawn by Carl Thorpe.

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Summary

A 2nd to 4th century AD enclosed settlement or 'round' (at SW 9256 6195) was excavated on behalf of South West Water, where it was cut by the Bears Down to Ruthvoes water main. Excavation has shown that it is a specialised smithing site rather than a settlement.

Initial use of the area (phase one) was represented by a small but distinct Neolithic flint assemblage (incorporated within the area of the subsequent round as residual finds). These may well relate to the nearby, destroyed chambered tomb. A second phase is represented by a ditched field system of late Iron Age or early Roman date, which pre-dated the round.

At some point, probably during the early 2nd century, this field system was overlain by a series of small structures erected within a palisaded enclosure (approximately 50.0m in diameter). These phase three structures were located centrally within the enclosure and were represented by little more than circular hollows. No evidence for domestic activity was found, but clear evidence for a considerable amount of smithing. Metalworking continued in the 3rd century (phase four), with a furnace, fire pit and slag pit. Evidence for metalworking took the form of slags, pit/heath bases, broken iron objects, hammerscale and fired clay. A small amount of possible tap slag suggests a limited amount of smelting as well as smithing. Oak and gorse were the principal fuels, the oak coming from managed coppiced woodland. Probably contemporary with this activity was the construction of a ditch and rampart circuit, typical of a round, 54m across internally. Occupation of the site, from the 2nd century to late 3rd or perhaps the 4th century AD, is dated by a small assemblage of diagnostic pottery and radiocarbon dates. Two fragments of Roman tile are unusual finds for Cornwall, perhaps brought onto the site for use in some furnace type construction.

The decline of the round seems to have taken place in or by the 4th century AD. This period saw the infilling of larger metalworking related features, the gradual silting of other features, and the continuation of rampart collapse into the external ditch. Evidence for a small fire was found in the uppermost fills of the southern enclosure ditch, long after this period of infilling and desertion.

At a considerably later date (probably several centuries later) the remnant round was ploughed over. The medieval settlement of Quito is first referred to in 1450, and it may well be to this period that the ploughing relates.

1. Introduction

1.1 Project background

The Cornwall Archaeological Unit (CAU) was commissioned by South West Water Services to conduct an archaeological assessment in advance of a partial replacement water pipeline running between Bear's Down and Ruthvoes, in northern central Cornwall (Johns 1998). Its recommendations led to the geophysical survey of field 12 (Little Quoit Farm) and the ensuing excavations. The results of this excavation are discussed in this report. The remainder of the pipeline has been dealt with in a separate report (Lawson Jones 2001).

Attention was initially focussed around Little Quoit Farm due to its known medieval date and the possibility that medieval and later remains extended out beyond the current extant settlement (either through shift or shrinkage). The geophysical survey revealed a dense concentration of anomalies suggestive of an enclosure plus other sub-surface remains. The assessment coded it Site 16 and recommended a controlled topsoil strip followed by excavation and recording.

1.2 Methodology

The excavations took place over a month during the summer of 1998. A small CAU team was ably assisted by volunteers. The pipeline corridor within the enclosure was stripped of topsoil by swing shovel, under CAU supervision. External features located to the north and the south of the round, within the field, were included within the scope of the excavations.

With the exception of a single pair of scotch access gates (between which the topsoil was not stripped), an 8.0m wide corridor aligned north to south was cut down through the topsoil to the underlying archaeology. This allowed for the excavation of a narrow but complete slot across what quickly became apparent as an Iron Age to Romano-British enclosure or round, which contained a series of large internal features.

After the completion of mechanical topsoil stripping, hand clearance was undertaken and the trench was then planned at 1:100 scale. Excavation of features then took place with all resultant sections being drawn at a scale of 1:20 or 1:10. Additional, individual, annotated plans of the northern two 'hollows' and the metal working related features were drawn at 1:50. Following completion of the excavation, a composite plan was made at 1:100. A list of all contexts, photographs, drawings and soil samples was kept throughout, and all finds were collected, labelled and bagged to await processing and further analysis.

On the completion of the excavation all of the deepest features were partially back-filled as a safety precaution. Subsequent trenching along the length of the excavation in preparation for the laying of the water pipe, allowed a further opportunity to look at the site in exposed sections.

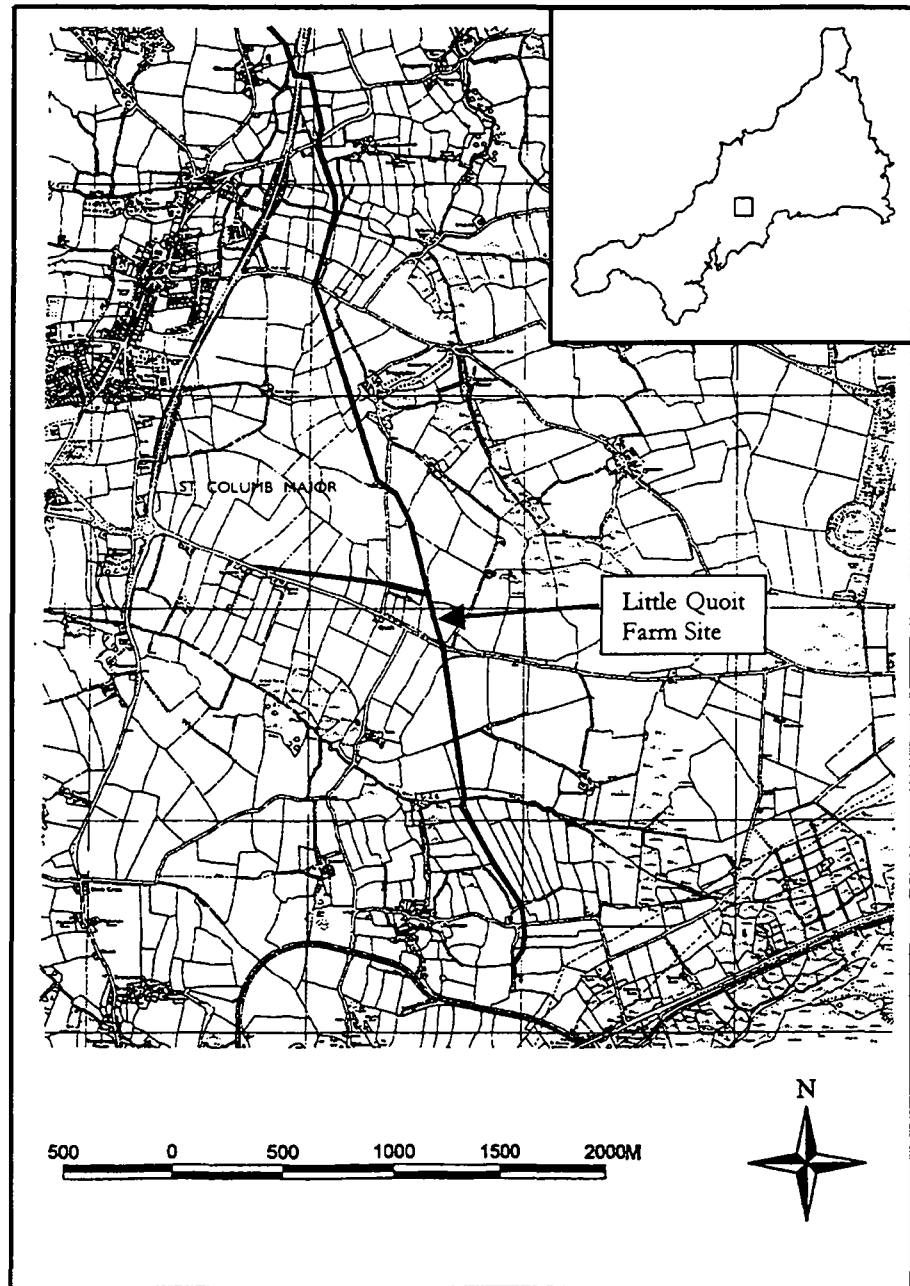


Fig 1 Location map showing the southern section of the main Bears Down to Ruthvoes water pipeline, and the position of Little Quoit Farm.

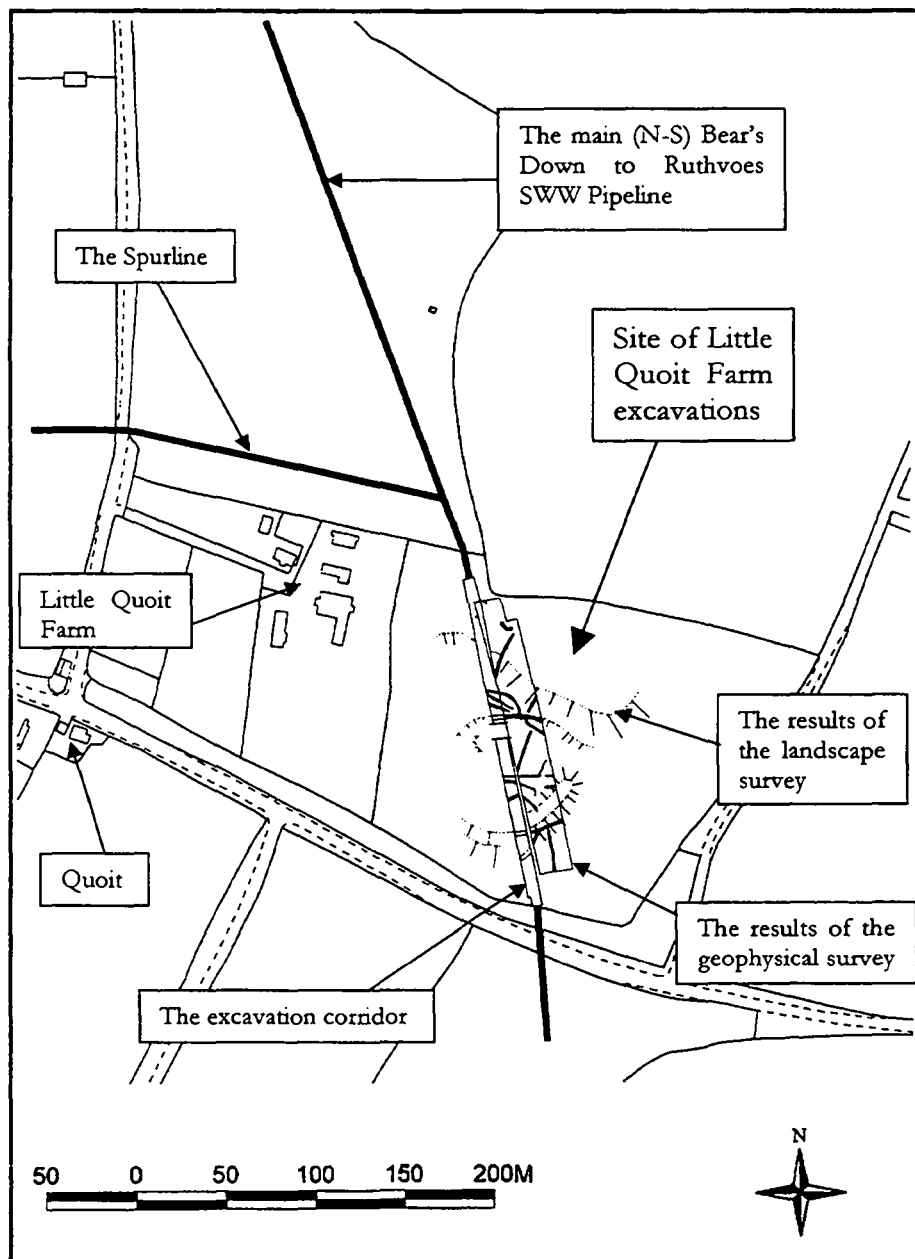


Fig 2 Location map showing Little Quoit Farm and the round.

1.3 Topography and historic setting

Little Quoit Farm is located to the south-east of St. Columb Major, in the parish of St. Columb Major. The site (at national grid reference SW 92566195) lies entirely within one large field, on a long broad ridge at 120m above OD overlooking the south. Castle-an-Dinas hillfort can be seen from the site, 2km to the east, whilst just 300m to the west stood the Devil's Quoit, a Neolithic chambered tomb demolished in about 1870 (Johnson 1979).

The monument has given its name to the locality and to the medieval settlement of Quoit, first recorded in 1450. This settlement may have been immediately next to the chambered tomb, the present location of Quoit (SW923619), as a farm is shown here on Martyn's map of 1748. Other farms taking the name of Quoit are not shown until the time of the c. 1840 Tithe map: Little Quoit farm immediately west of the excavations, and Quoit Farm 600m to the south.

The site is located within the heart of land characterised as an Anciently Enclosed Landscape (Countryside Commission 1996). The majority of fields and boundaries are known to date back to at least the medieval period and possibly earlier. The present boundaries clearly fossilise medieval strip fields on neighbouring farms (eg Ruthvoes, Trekenning and Tresaddern) and probably at Quoit too.

The underlying geology consists of decaying killas (clays and killas rubble/ shillet) and occasional quartz formed during metamorphic activity. The overlying topsoil had a depth of 0.25m at the north of the field and approximately 0.45m in the centre of the round. It consisted of a well mixed dark brown slightly clayey loam, and is largely the result of past ploughing. Large trees are fairly few and far between in the area although small trees and scrubby bushes can be found in most of the surrounding boundaries.

The c. 1840 Tithe map and 1880 Ordnance Survey map show a leat running across the field from south east to north west. This led towards a reservoir for St Columb Major Waterworks, south of St Columb. This feature was not identified during the excavations and may have fallen within an unexcavated access way.

2. The geophysical survey

2.1 Introduction

A geophysical survey took place along the line of the Bear's Down to Ruthvoes pipeline route. As a result a number of new features and sites were located. With the exception of Little Quoit Farm, all of the other sites identified are discussed in a separate report (Lawson Jones 2001).

The geophysical survey was undertaken by Geophysical Surveys of Bradford (GSB), using a fluxgate gradiometer and a resistance meter. The results were presented in a report (Stephens 1998) and summarised in the subsequent archaeological assessment (Johns 1998) as a series of numbered sites. Little Quoit Farm was recorded as Site 16 and located within field 12 (NGR SW 9256 6195).

The site was located to the east of a known medieval settlement, and close to the vicinity of a prehistoric quoit, partially investigated during the laying of the first water pipe (Johnson 1979). As a result, any archaeological features located by geophysical survey were of potential significance.

2.2 Methodology

The geophysical survey of field 12 involved two separate forms of survey, scanning and detailed survey. The initial scan, with gradiometers set on scan mode (Stephens, 1998, 6) had traverses spaced at approximately 10.0m intervals. Fluctuations in the magnetic signal were displayed and monitored on the instrument panel and all significant variations or probable archaeological (as opposed to natural) anomalies were marked on the ground surface with canes for further investigation. Field 12 produced a whole series of strong anomalies highlighted for further work.

Detailed survey then took place. This confirmed the presence of a series of linear and curvilinear features in the vicinity. The results of the survey were recorded and stored electronically and subsequently plotted using a range of data display options, ie, dot-density, X-Y plotting and grey scale format in order to enhance and clarify the readings. The results were then used to create a map of the anomalies found (Stephens 1998).

2.3 Results

Field 12 produced the densest concentration of features found during the entire route's survey. Most features were linear or curvilinear and were assumed to be ditches. Some of the strongest readings came from two curvilinear ditches which appeared to be forming a circular or near circular enclosure of the sort characteristic of sites recognised for the later prehistoric and Romano-British period. In addition a number of the features were clearly intercutting. This implied that the underlying archaeology was of at least two phases. Some of the features also gave significantly stronger readings, suggesting that they were much more substantial in terms of depth.

Note: It should be stressed that (earth resistance) resistivity surveys "*detect changes in the bulk electrical conductivity of the subsurface and thus do not respond to the most characteristic property of most early metalworking features, their strong magnetic signal.*" (McDonnell 1995, Archaeological Datasheet No. 4). As a result the geophysical survey could locate substantial features but was not capable of picking up slighter signals such as those produced by smithing and smelting related features and deposits.

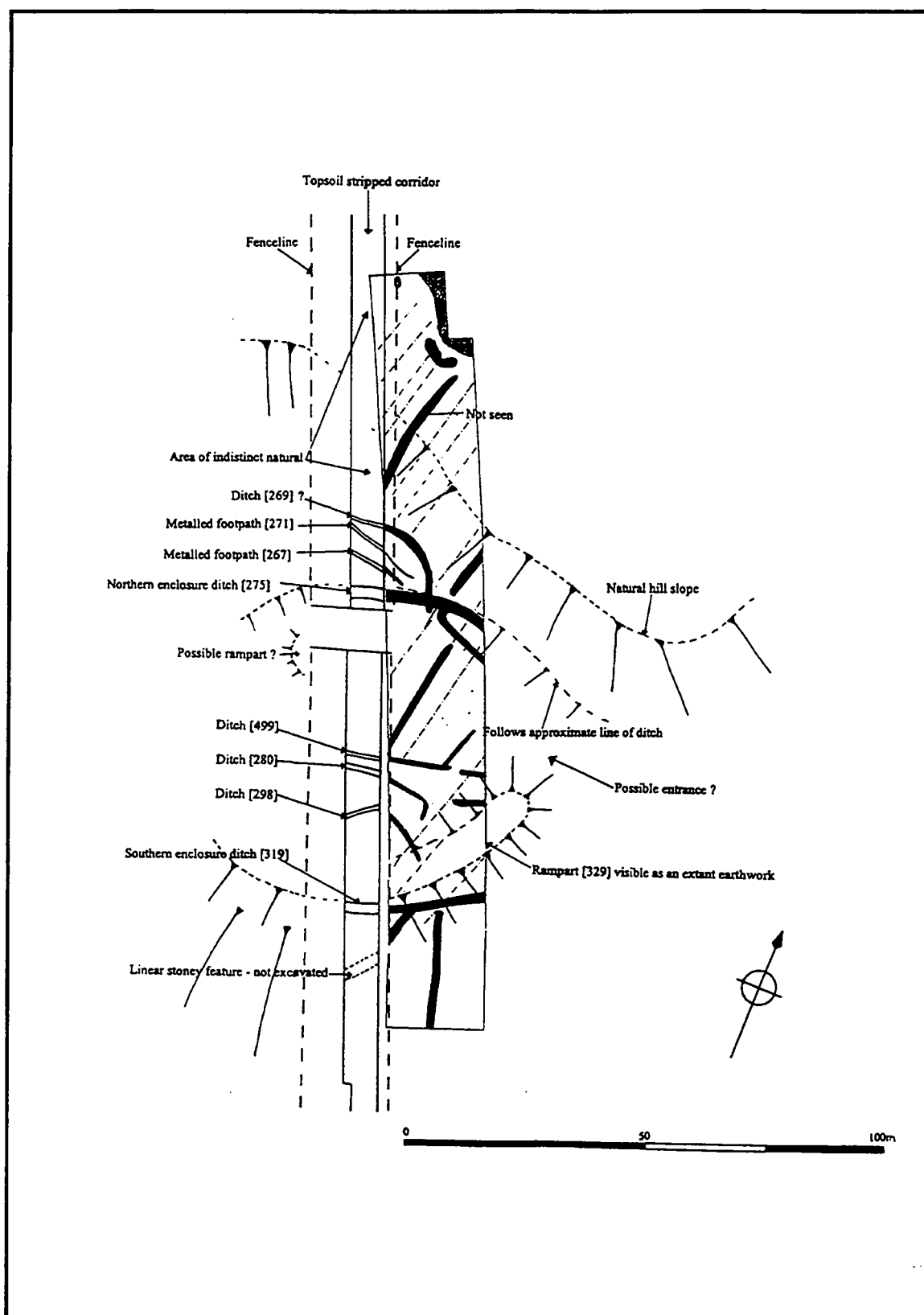


Fig 3 Little Quoit Farm excavations, showing the main excavated features, features located by geophysical survey, and the CAU survey.

3. The Excavation.

3.1 Topsoil removal

CAU monitored the removal of topsoil from across the top of the site and revealed not only a series of features but also unearthed a number of finds spanning Neolithic flint to post-medieval pottery. Topsoil depth was 0.25m in the north of the field. Below this a yellowish-brown naturally formed clay was revealed. Cutting through this could be seen an array of broadly linear features. Further to the south and within the confines of the round, the depth of topsoil occasionally deepened to in excess of 0.45m, reducing in depth again to the south of the enclosure.

Within the 66.5m diameter enclosure, two distinct near circular depressions were seen, while to their south-east, against the side of the excavation corridor, a darkened area of burnt material and slag was recorded. On the internal edge of the southern enclosure ditch the yellow clay of a rampart could clearly be seen projected through the remaining, dark underlying soil. As excavation progressed much of the remaining skim of basal topsoil was removed to clarify features. This process was further aided by the excavation of a long, narrow slip-trench across the site which gave a rapid indication of the depth and nature of the less immediately recognisable features. It also provided a running section through the site, which was subsequently drawn and recorded.

3.2 Phase 1 (pre-round Neolithic activity)

Introduction

This section discusses the small but diagnostic flint assemblage. Little Quoit Farm is close to the known site of a now destroyed quoit (Johnson 1979). The names of the local farms, Little Quoit Farm, Quoit and two Quoit Farms all attest to this.

This is not the first time that considerably earlier flint material has been found within the area of a Romano-British round. It would appear that the undulating central lowlands of Cornwall were utilised throughout much of the early prehistoric period. Similar findings have been recorded at, for example, Penhale Round, Indian Queens (Nowakowski, 1998), and at Killigrew Round, Trispen (Coles, forthcoming), where Beaker pottery was found. Both of these recently excavated sites have revealed other structural and earlier prehistoric activity.

The flint scatter

Six flints were found during the course of the excavations, all probably Neolithic (see section 4.2). Their presence indicates activity dating to around the third millennium BC within the immediate vicinity of the later round. Interestingly Trethurgy (St. Austell) also produced a Neolithic flint assemblage (Quinnell forthcoming). The lack of additional Neolithic dated material, ie. pottery or other diagnostic stone artefacts suggests that the contexts where the flints were found are the result of residual activity.

The date and presence of this small flint assemblage is of significance, attesting as it does to probable contemporary activity close to the vicinity of a known, but now destroyed quoit. Work carried out by Johnson suggests that there was perhaps more than one monument of Neolithic date within the locality (1979, 9). In addition to probable funerary 'ritual' activity it is likely that other activities took place within the general area, perhaps hunting, gathering, farming and settlement.

The watching brief carried out along the pipeline to the north and south of Little Quoit Farm revealed further Neolithic finds including a leaf shaped arrowhead, while miscellaneous (potentially Neolithic) features were found along the Spurline, located to the

north of the site of the quoit, and west of the excavation (see Bear's Down to Ruthvoes Watching Brief report, Lawson Jones 2001).

3.3 Phase 2 - Pre-round field system

Introduction

The demonstrably early (potentially earlier Iron Age) features primarily include the truncated ditches or gullies which underlay later hollows and metal working features. Their similarity implies that they should be seen as broadly contemporary. The ditches are discussed from north to south across the inside of the enclosure. Other ditches beyond the enclosure are also likely to be contemporary (section 3.8, [265], [269]). A small group of pottery from these contexts is not closely datable, but could be later Iron Age to early second century AD.

Ditch [499]

The most severely truncated ditch was ditch [499]. The ditch was 0.4m wide, with a flat base and was only 0.1m deep, beneath the later hollow. It contained a single basal fill [500], which was compacted and pale in colour, and did not produce any finds. The fill represented the natural silting of an open feature. The shallow depth of the feature and the lack of other related contexts make estimates for its duration (as a functioning feature) and its date difficult to judge. It is certainly pre Romano-British and represents part of a lost prehistoric field system probably of Iron Age date.

Ditch [280]

Ditch [280] was more substantial than a number of the ditches and gullies on site. It was 0.8m wide, and c.0.4m deep. In profile the ditch had steep sides and a near flat base. Where not complicated by the presence of hollow [287] it appeared to represent a slightly lynched boundary (see section of pit [292]), suggestive of long term use.

Ditch [280] lay under hollow [287] (and was subsequently recut by pit [292]). The basal fill [294] consisted of compact grey silts with occasional mineral staining. It appeared to have formed gradually and contained one piece of undiagnostic pottery. Fill [295] consisted of a pale coloured silty clay with occasional stones and charcoal flecks. Unfortunately these charcoal flecks were too close to known later charcoal in fill [281] to be used to radiocarbon date the ditch cut.

Note: with the construction of the round, and the commencement of smithing activity, the upper portion of ditch [280] contained a very different fill, [281], which was subsequently cut by pit [292]. This later fill ([281]) means that the ditch was still partially open when the round and its phase three activities commenced.

Ditch [298]

Ditch [298] was 0.5m wide and 0.3m deep. It contained two fills. Basal fill [300] was pale and silty. No artefacts were found. Upper fill [299] had been partially removed by later hollow [304]. Context [299] was a fairly pale, firm clay loam, which produced two pieces of undiagnostic pottery. Both fills had been produced gradually, implying that the ditch had been open for some time.

Like the other ditches discussed in this section, this ditch represents part of an earlier prehistoric field system.

Ditch [306]

Ditch [306] was 0.6m wide and 0.25m deep. It contained two fills, the upper one of which was partially cut away by hollow [353]. Lower fill [308] was compact, pale and silty. It

produced two pieces of undiagnostic pottery. Upper fill [307] was a clay loam, and did not produce any finds. Again these fills appeared to be the result of gradual silting. Ditch [306] pre-dates the Romano-British period and represents part of the earlier prehistoric field system.

Buried soil [504]

Context [504] (cut by hollow [353] and undated feature [301]) was an early layer lying directly above natural. It may represent an original plough soil associated with the pre-round field system discussed above.

The un-numbered, mixed subsoil shown to the immediate north of the rampart in the section drawing would probably equate with this layer.

Discussion

All four of the above ditches had distinct similarities. The northernmost ditch ([499]) was the shallowest and only contained a single fill, although this fill was very similar to the basal fills of the remaining three. Similarly the upper fills in each of the remaining three ditches were all compact, relatively pale, and primarily composed of silts and clay. All had formed gradually as a result of natural silting while the ditches were open, and although some of them produced pottery, none of the pieces were closely datable. All appear to share a (broadly) east to west alignment, mirroring the natural contours. Ditches [499], [280] and [298] are all shown on the geophysical survey as continuing on beyond the edge of the excavation. Both ditch [298] and [280] show fairly abrupt turns to the south, probably indicating the corners of abandoned fields.

Johnson (1979, 10) suggests that the nearby quoit may well have stood amid a contemporary (Neolithic) field system. If this is the case then perhaps the shallower of the ditches could be Neolithic in date. There is no evidence for this however, and they are most likely to be Iron Age or perhaps Bronze Age; ditch [280] in particular may well be of an Iron Age date since it was still partially open during initial use of the round. A few sherds from ditches [280], [298] and [306] are later Iron Age or early Roman.

It is not known where the settlement associated with these fields was located, or indeed what form it took. The excavation did not produce any direct evidence for domestic settlement. However the pottery found in a number of the ditch fills possibly from midden scatters may indicate that a settlement related to the working of the fields was not far away.

It is possible that settlement in the immediate vicinity of Little Quoit Farm round was not directly affected by its construction, since the round appears to have catered for the local populace's metalworking needs, rather than their domestic needs. Alternatively two rounds may have been constructed, one catering for the domestic requirements of the population, and the other concerned with metalworking. Rose and Johnson (1983 101) discuss the characteristic proximity of many rounds to other rounds, "*The cropmarks sometimes show enclosures grouped in pairs or even in threes. The proximity of the three enclosures at Nancolleth raises questions about their function (and their contemporaneity).*"

The immediate localities of rounds have generally not been excavated in detail. One recent exception is Penhale Round (Indian Queens) which produced evidence of earlier activities including Mesolithic, Neolithic, Bronze Age and later features associated with both domestic and agricultural activity. Penhale Round, like Little Quoit Farm round was clearly constructed in a landscape which had seen extensive use and was already subdivided and packaged into fields: "*the majority of the linear ditches identified ... pre-date the construction of the round ... (and) ... would appear to be part of an earlier field system upon which the round was later imposed*" (Nowakowski 1998, 129). Quinnell (in Nowakowski 1998, 200) similarly sees

Trethurgy as slotting into a landscape that was already under agricultural use, ie the round appears to have been incorporated into an established field system.

Little Quoit Farm round should as a result be seen as part of a gradually increasing number of known later prehistoric rounds that 'rode rough-shod' over an earlier, pre-existent landscape design. Quinnell (1986,124-125) refers to a "*dislocation of settlement patterns ... in the 2nd century AD*", and a proliferation of rounds and courtyard houses. It may well be that Little Quoit Farm belongs to just this period of instability and change.

3.4 Phase 3 - Primary enclosure activity

This section looks at the initial enclosure and its related activity: five hollows were probably encircled and enclosed by a palisade fence and its shallow flanking ditch. The palisade fence and ditch have been interpreted as representing the earliest delineation of the enclosure and are designated as phase three features. Whilst there is no direct relationship between the perimeter and the internal boundaries, the overall layout suggests that they are associated. Pottery from the hollows dates the phase to the early second century to early third century AD.

The hollows (and smithing)

A series of five hollows were excavated within the excavation corridor. They were broadly similar in shape and profile, but varied in diameter. The hollows were found to have been arranged centrally within the enclosure; an 8.0m wide, structure-free zone or corridor appeared to run around the internal periphery of the round. They appeared clean and almost devoid of dateable artefacts, a common feature of structures found within rounds (Quinnell, 1986). A potentially contemporary ditch fill [281], within one of the phase two ditches is also discussed in this section.

Hollow [282]

The northernmost hollow [282] represents one of the larger hollows, with a diameter of 5.0m and 0.2m deep. Broadly circular in plan, all but its westernmost edge was seen during the excavation, and the majority of the interior was fully excavated. The northern and eastern sides were clearest, the southern edge being less clear due to the proximity of hollow [284]. The base was near level with the exception of a shallow elongated and slightly amorphous central depression. The sides were concave in profile and relatively steep but short. The central depression did not contain a different fill to that found along the base of the rest of the hollow. Contained within the hollow were a number of different features, the majority of which were sampled and provide clear evidence for metalworking, including perhaps secondary smithing (see section 4.6).

Square feature [342] was located within the north-western quadrant of hollow [282]. It had a 0.6m square plan and was 0.07m deep. The sides were concave and the base was near flat with a stone positioned centrally. Fill [343] was sampled and found to contain variable slags and a small broken iron object indicative of secondary smithing (see section 4.5).

The base, edges and central stone setting did not appear burnt, despite charcoal-rich material having built up around the stone. It would seem likely that the stone had a specific function, probably related to smithing. It may have functioned as a stand or perhaps a mini-anvil used during secondary smithing.

Feature [339], an elongated pit located in the central western side of hollow [282], appeared to be contemporary. The fill [338] was dark and loamy and contained a comparatively large number of artefacts: sixteen pieces of pottery (including two jars of 2nd century AD date – P5 and P6 see section 4.3), plus amounts of slag and broken iron objects. Interestingly feature [339] was subsequently cut by shallow bowl-like feature [356].

It is hard to assess the significance of feature [339]. It was the only feature located during the excavation to contain such a variety of artefacts. It is not certain whether this was a specific deposit. It may simply represent midden infilling. Midden waste is likely to have been a fairly ubiquitous material, and its disposal during this period is not well understood. Quinnell (1986, 126) states that where dumps of variable waste material have been found these have usually been associated with pre-existent, cut features, eg in a depression at Carvossa, and in a ditch at Carwarthan and Kilhallon. At Trethurgy a midden was found

within a disused building. Thus the deposit within pit [339] may not be so unusual.

Two further features of probably associated with the hollow were also revealed. **Feature [346]** was circular (0.5m diameter and 0.1m deep. It was located in the northern portion of hollow [282], close to the edge. It contained an orange/red, silty clay with grey and brown patches and charcoal. Positioned centrally on the concave base was an unburned stone. Interpretation of this feature is difficult. Perhaps it represents a burnt out and/or truncated posthole or a hearth pit.

Feature [341] was located in the north-north-eastern portion of hollow [282]. It was 1.25m long, upto 0.7m wide and 0.1m deep. In plan it had an amorphous rounded shape, and in profile a gently rounded base and concave edges. It contained **fill [340]**, a dark grey brown silty clay. The purpose of this feature is uncertain, but within the fill hammer scale, including vesicular slag spheres were found, typical of secondary smithing (see section 4.6).

Following the creation of hollow [282] and use of features [339], [346] and [341], **basal fill [309]** developed. It was silty in consistencey and contained both ash and charcoal, in addition much hammer scale. Basal fill [309] relates to contemporary activity within the hollow, which merged with or overlay the small internal hollow features discussed above. An additional residual Neolithic flint was found within this fill.

Hollow [284]

Hollow [284] was located immediately to the south edge of hollow [282], and the majority of it was excavated. Hollow [284] had a diameter of 4.0m and a depth of 0.2m. As with adjacent hollow [282], [284] had concave, short but relatively steep edges and a near level basal profile. In plan hollow [284] was less clear as a result of its proximity to [282], later fire pit [337] and ditch [499] (which underlay its southern edge). Despite this, it was considered essentially circular in plan.

Located approximately within the centre of [284] was **cut [496]**. From the out-set identification of this feature as belonging to phase three has been problematic. It had a rounded rectangular plan, measuring 0.5 x 0.4m and was 0.2m deep. Its edges were steep and the base was flat. **Fill [286]** included a dense basal scatter of charcoal flecks, overlain by a burnt, loamy clay with a stone pad resting on top. Interpretation of this feature is difficult. It appeared to relate to the primary use of hollow [284]. It may have been a small, central hearth (possibly lined with clay or stone), and could well have been a smithing feature. The stone showed no clear evidence of heat and represents later infilling of the feature, presumably during usage of the subsequent furnace and fire pit. The charcoal within fill [286] was sampled and found to contain hammerscale typical of smithing / secondary smithing plus sufficient alder charcoal for a radiocarbon date (763 - 412 cal BC; see discussion below, and 5.3).

Located to the immediate south of cut [496] was a thin basal skim of material - **fill [334]** representing what appeared to be the primary fill of the hollow. It consisted of a brown sandy clay and pea-grit, had a 0.06m thickness, a 1.4m length from north to south, and was positioned within the lowest part of the hollow. No finds were found, charcoal was minimal and there was no evidence for smithing activity. This fill contrasts significantly with the basal fill of hollow [282], and is a reflection of the different way in which the two were formed, ie [309] relates to contemporary activity within the hollow, while [334] seems to have been silted up after abandonment.

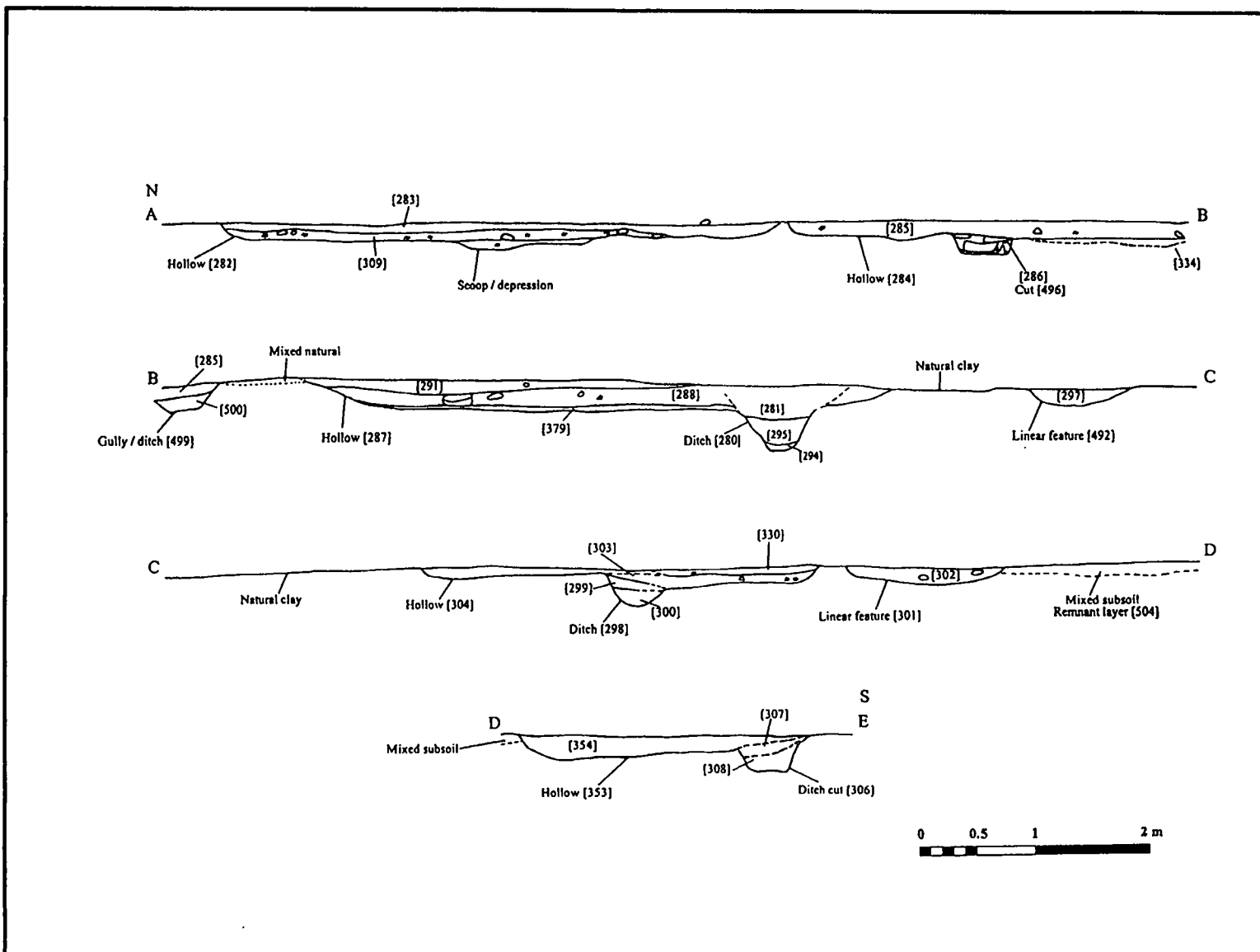


Fig 5 West facing section recorded along much of the length of the round excavation.

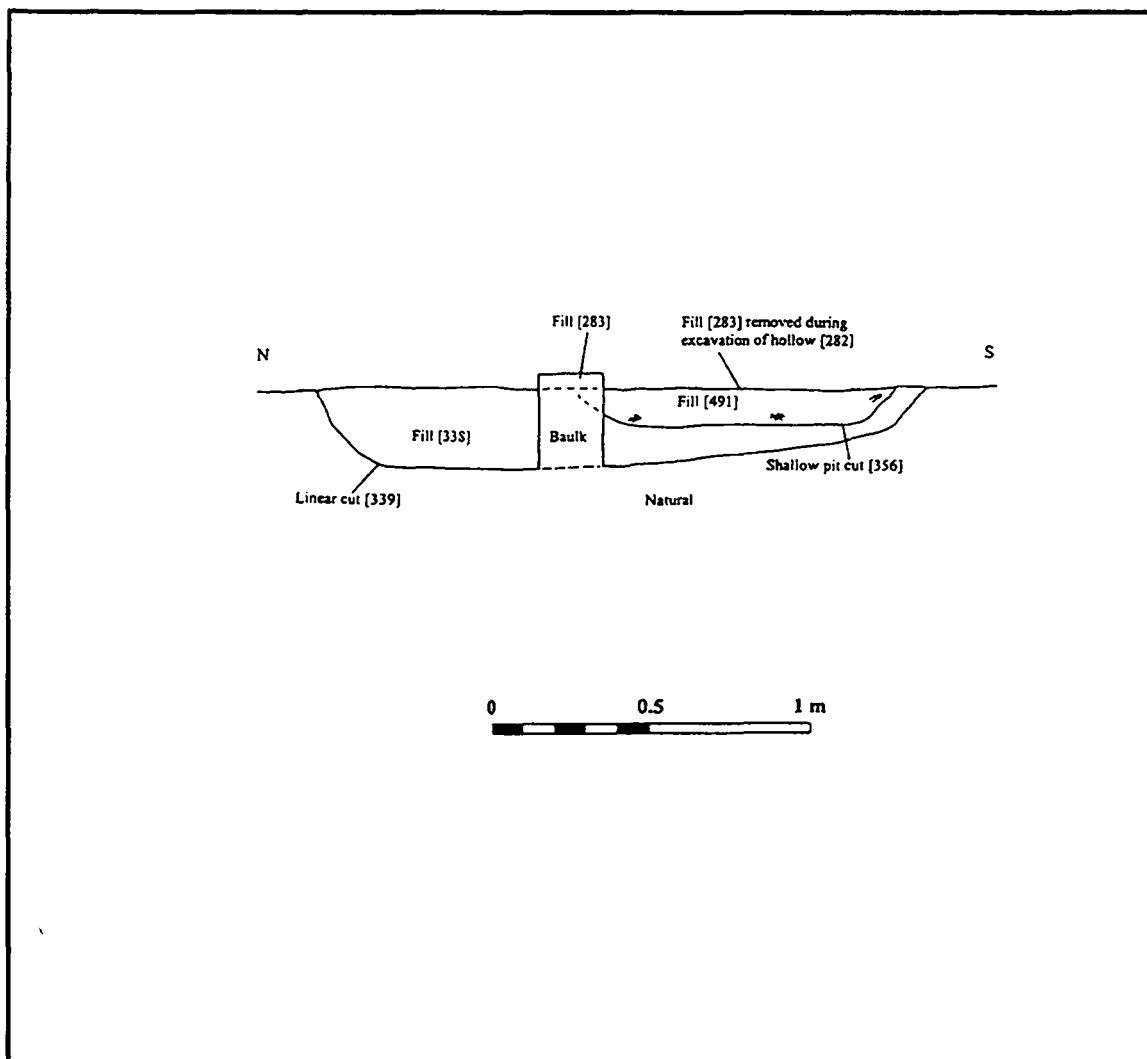


Fig 6 Section drawn through phase three linear pit [339], showing subsequent phase four pit [356].

At a later date a furnace was constructed on the eastern edge of hollow [284] which cut through fill [334]. Although guided by the presence of hollow [284], the construction of the phase four furnace [494] (and fire pit [337]) implies a major change in scale of metalworking activities (a change from smithing to smelting), and perhaps a re-arrangement or dismantling of any hollow [284] superstructure.

Hollow [287]

Located approximately midway between the main enclosure ditches was hollow [287]. It was 5.0m in diameter and 0.26m deep. Its edges were concave, but less steep than those of hollows [282] and [284], although it was deeper. As with hollow [353], hollow [287] was only minimally excavated. A single section was excavated from north to south (part of the main slip trench), and an (eastern) arm extended out to just beyond the eastern edge of the feature (see Fig 4). Basal fill [379] covered only the near flat base of the hollow, and did not extend up on to the sides. It was 0.06m thick and consisted of an ashy silt with occasional tiny charcoal flecks. A soil sample was taken, and oak and gorse or broom

charcoal was identified. It possibly represents the residue of an industrial fuel or fire.

This was the only hollow to produce evidence for a posthole. Since only one posthole was found, its significance is debatable. It may relate to the superstructure of the hollow, although it could also have been truncated by the hollow. **Posthole [289]** was 0.3m in diameter and 0.1m deep, with sheer sides and a flat base. It was located half way down the northern edge of hollow [287]. Its **fill [290]** was very similar to the surrounding natural clay shillet, but slightly more silty and grey.

Hollow [304] was located between the two enigmatic linear features [492] and [301] (see section 3.7). It was near circular, 3.5m in diameter, 0.1m deep in the north and 0.18m in the south. It overlay ditch [298], which marks the point where the depths change within the hollow. The edges of hollow [304] were concave, short and steep, much like the edges to hollows [282] and [284]. Although stepped slightly in terms of depth, the two 'halves' of the hollow were level.

Basal fill [303] was a brownish grey clay with some charcoal flecking. The vast majority of [303] was found to be in the southern half of the hollow, with little more than a skim seen on the northern side. The fill contained twelve pieces of pottery, including a bowl, and a jar (P3) no later than early 2nd century AD. A single fragment of slag, a (probably unshaped/unused) fragment of granite and a water-worn pebble were additionally found within this context.

Approximately 60% of the hollow surface area was excavated; the western portion was not. During excavation of [303] an underlying ditch ([298]) was located. In addition gully features [344] and [331] were located beneath fill [330] cutting down through [303]. The vast majority of [303] was found to be in the southern half of the hollow, with little more than a skim seen on the northern side. No contemporary internal features were found within hollow [304], although it could be interpreted that the 'step' in the floor level formed a design feature.

Context [303] represents the primary fill of hollow [304], and was sealed after abandonment, (see section 3.5) by fill [330], which produced three pieces of undiagnostic gabbroic pottery.

Hollow [353]

The southernmost and smallest hollow was [353]. With a diameter of just 2.5m it was exactly half the diameter of hollows [287] and [282]. It was 0.2m deep and was defined on the north by a short, steep, concave slope. As with hollow [287] only a small portion of this hollow was excavated. A north to south section was recorded running through the centre, (via the slip trench), and a single eastern arm was extended out from this towards its eastern edge. No internal features at all were found.

A single fill was found within hollow [353], which appeared to represent a post-use fill and lay over ditch [306]. **Fill [354]** produced nineteen sherds of gabbroic pottery, none of which was datable.

Ditch fill [281]

Fill [281] is the upper fill of former field ditch [280]. It formed during phase three, after the demise of this part of the field system, but before the phase four construction of slag pit [292]. **Fill [281]** produced substantial quantities of slag, much of which seemed to have originated from east of the excavation corridor. The quantity of material represented by this fill implies that intensive metalworking was taking place during this period within the

enclosure itself. This hypothesis is substantiated by the material found within pit [339], in hollow [282].

Slag filled pit [292] was subsequently cut in to the top of this ditch (phase four, see 3.5).

Discussion

The radiocarbon date for fill [286] (from cut [496] in hollow [284]) was considerably earlier than expected being Early Iron Age (763 - 412 cal BC; see 5.3). It is felt highly unlikely that any contamination of [286] with earlier material could have taken place. Because of this it must be accepted that it only dates feature [496], and not phase three as a whole. Taking the date at face value would suggest an additional phase, pre-dating the Later Iron Age/early Roman phase two ditches. Also since this Iron Age deposit contained direct evidence for metalworking in the form of hammerscale, this early date could be seen as dating the commencement of iron working in the area. However, it remains possible that the date is for some reason unreliable and that [496] is a phase three, 2nd century AD feature.

More generally, none of the hollows exceeded a 5.0m diameter, making them small for domestic houses. Domestic houses found at Trethurgy, Castle Gotha and Grambla, for example, were oval and measured approximately 13.0m in length, (Quinnell 1986,126), making them well over twice the size of the Little Quoit Farm hollows (although Trethurgy also produced smaller structures). The absence of central hearths or typical domestic finds like spindle whorls, mortar stones or typical cooking pots would similarly make their interpretation as domestic houses difficult to sustain.

Of the five hollows, only the northernmost two can be attributed with clear functions. Hollows [282] and [284] were very closely positioned, and may even have been adjoined. Both have produced evidence of smithing activities. Hollow [282] produced the bulk of the evidence, with feature [339] producing pottery dating to the 2nd century AD, iron slag and broken objects. In addition, micro-slags from the majority of the other small features were found (following analysis of the soil samples).

The three remaining, southernmost hollows features, however, are more difficult to interpret. They contained no evidence for either domestic or industrial use. Similarly they are probably too small, and their bases showed no sign of severe disturbance, to have been used for the keeping of livestock.

It is postulated that these three hollows were used for storage, perhaps of wood for fuel (or charcoal – see Gale's report). As McDonnell states (1995, Archaeology Datasheet 4) with regard to smithing and smelting "*... the provision of dry storage for raw materials might be expected*". Storage of iron ore is another potential function. However no clear evidence for quantities of iron ore was found during the excavation – although one would expect such evidence to be limited had smithing/smelting been successfully carried out. The significantly smaller size of hollow [353] in relation to the other hollows might suggest a different function. Perhaps this was the ore store, while the larger two were used for the storage of industrial fuel.

Part of the problem with regard to interpretation of these enigmatic hollow features, is their lack of a clearly identifiable structure. No walls or foundation trenches, frequent or regularly spaced posthole settings, cobbling or drainage features were located. However, there must have been some form of structural or defining element to these features, because all are so similar in terms of shape, depth and profile. At Threemilestone (Schwieso 1976, 56), the excavated structures were found to have surrounding gullies, as were those at Trevisker and St Mawgan, (cited in Appleton-Fox 1992, 75). At Reawla, gully [3] was interpreted as a house enclosure, "*... but not dogmatically*", reinforcing the difficulties

in interpreting features where the structures themselves are not clearly recognised or understood. Shallow hollows partly excavated at Reawla were interpreted as house sites (Appleton-Fox 1992, 77).

At Trethurgy (Miles and Miles 1973, 26), postholes were detected within the house walls, rather than centrally, leaving the central space free. Posthole [289] on the northern edge of hollow [287] might be a parallel for this, although it has to be said that such features were significantly more numerous in the Trethurgy structures than in the Little Quoit Farm hollows. Parallels between these features should probably be treated tentatively.

It may be that the similarity of the hollow edges, ie short, steep, concave edges, is a clue to their original construction. Quinnell (1986, 126), in her review of Cornish rounds, states that the lack of structural details such as postholes relates to the construction of "*a ridged roof, supported probably on a polygonal wall plate*". This type of roof support could have produced the kind of hollow features recorded at Little Quoit Farm. It would also account for the lack of internal, structural features.

A recently excavated 'round' of comparable date, with a metal working association is Killigrew, St Erme (Cole, forthcoming). Dated to between the 2nd and 4th centuries AD, the Killigrew site produced a tin working furnace, a similarly unusual pottery assemblage to that of Little Quoit Farm, a lack of clear domestic structural evidence and two hollowed features. The hollows at Killigrew were considerably larger than the Little Quoit Farm hollows. They should not as such really be compared too closely, except to highlight that they too exhibited little in the way of an obvious structural element.

To conclude, there is no evidence for clear domestic activity at Little Quoit Farm. Five probable open (based on the very limited excavation and evidence for any wooden superstructure) structures, represented by hollows, were arranged centrally within the enclosure. The northern two produced evidence for smithing, probably secondary smithing (and during phase two, very limited smelting - see furnace), while the remaining three have been interpreted as probable storage structures. The relative paucity of finds represents a characteristic of many Iron Age/Romano-British rounds and associated structures found in Cornwall (Quinnell 1986, 126). The lack of clear structural features would imply that they were open features. No stratigraphic evidence or finds were found to suggest that they vary significantly in date.

The central location of the hollows within the internal fence and gully / ditch circuit, (and the subsequent external rampart and ditch circuit) implies that they represent part of a clearly planned site. Rounds that have been looked at, and have produced a clear domestic element, tend to have the house structures located around the inner periphery of the enclosure - sheltered by the rampart bank, as for example at Trethurgy. Little Quoit Farm has interestingly produced evidence for non-domestic structures being deliberately placed in the centre. Why this should be the case is not known. Perhaps this represents a purely practical consideration, or perhaps it reflects a symbolic element. As is suggested in the following section, the palisade fence may well have been concerned with restricting viewing, implying technological secrecy. If this is the case, then to position the working area centrally within the enclosed area would simply be a continuation of this idea. "*In non-literate societies, complex procedures are necessarily ritualised - a sequence of procedures that cannot be written down in a scientific manual must be committed to memory as a formulaic 'spell'*" (Budd and Taylor 1995, 139). In this case the idea of 'spells' might be an over dramatisation of what was going on. Small-scale smithing activity is known to have taken place within other broadly contemporary sites (for example Reawla).

Phase three. Site delineation – palisade and ditch

Contemporary with the five hollows were the enclosure features themselves – the palisade fence and encircling ditches.

The inner palisade and ditch circuit consists of a line of very closely set single and double post and stake holes, collectively numbered [355], plus an external parallel (truncated) ditch, numbered [320]. Both the palisade fence and the very shallow ditch are positioned within the confines of the main, more massive, external ditch and rampart. Both were located on the southern side of the enclosure, although there is no reason to assume that both the palisade fence and its flanking ditch did not continue around the entire circumference of the site. The scotch gates, as luck would have it, were located precisely on top of the rampart and the presumed position of the inner palisade and ditch.



Fig 7 Working shot showing the excavation of posthole [369] and other palisade postholes to either side.

Palisade fence [355] consisted of ten postholes or stakeholes, spanning a 5.0m length. From north-west to south-east the postholes were given context numbers [359], [361], [363], [365], [367], [369], [371], [373], [375] and [377]. Postholes [369] and [371] contained double post settings, while a further two postholes were noted but not excavated (located between postholes [363] and [365], and between [367] and [369]).

The posthole diameters were between 0.21m and 0.51m, while depths varied between 0.18m and 0.35m. The palisade postholes appear to have suffered from some truncation. This is probably a reflection of much later ploughing across the area. If the postholes had not been any deeper than they are today, then the fence would have had a short life-span. The posts would quickly have been loosened by the scouring action of wind and rain, or livestock milling around and rubbing against it.

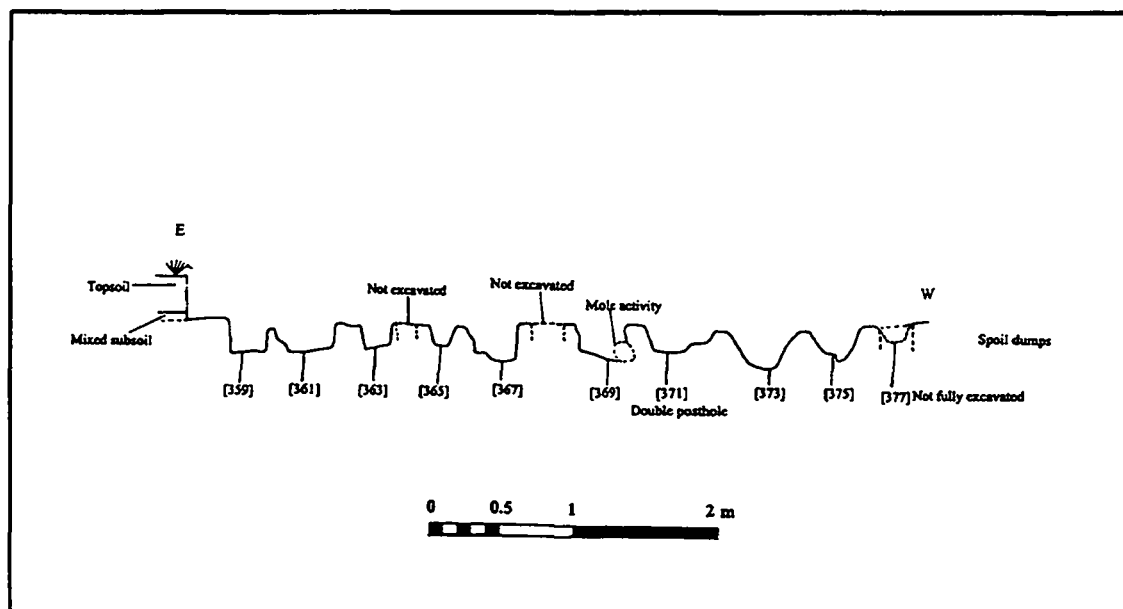


Fig 8 Profile drawing showing all palisade fence ([355]) stake and postholes.

Three postholes were sampled: [367], [371] and [373]. Charcoal was found but no evidence of metalwork debris, suggesting that smithing activity was quite closely confined to the central part of the enclosure, (although charcoal was found). Alternatively this could indicate that the post and stakehole settings predate the smithing activity, thus firmly placing the palisade within the primary construction period.

With respect to spacing, the postholes never exceeded more than 0.18m between each other severely limiting visibility between the interior and the exterior of the site (if not making it impossible). It is probable that the tops of the postholes, prior to truncation, were even closer, making the alignment an even more 'solid' barrier. The posthole bases varied from being flat to pointed in profile, reflecting differential preparation of the posts and stakes, and the majority widened with height. The fills of all ten of the postholes were very similar, ie mid brown, silty clay loam with variable amounts of charcoal flecks. Stone packing varied in quantity and stone size but was essentially present within each. The double postholes may represent either true double post settings, or the replacement of posts or stakes following decay of the original ones. If the second interpretation is correct, and periodic, selective repair work and maintenance was necessary, then this would suggest either that it functioned for some time as a barrier, or that the posts/stakes were not set deep enough. Since the postholes were not massive or notably deep it is likely that their alignment functioned more as a 'symbolic', visual barrier, than a physical barrier. The notably close post settings may well relate to a deliberate restriction of 'uninvited' gaze into the enclosure, and its internal workings from the outside. Fence [355] was never a

defensive feature since it could not have resisted any concerted attempt to push it down.

A colourful, short description of the way that prehistoric metalworking (and quite possibly Romano-British metalworking at the edge of the Roman Empire) was seen by the *'uninitiated'* is presented by Budd and Taylor (1995, 139) as "... *the ability to put on a show of colourful, transmogrifying pyrotechnics may have commanded considerable respect*". If correct, then the palisade fence could well have had a double or an extra function, to shield internal operations from external view.

Ditch [320] mirrored the alignment of the palisade fence and may have 'defined' the site. It could never have physically restricted unwanted access in to the enclosure. It ran parallel to the southern external side of palisade fence [355], and varied in width from 0.48m to 0.58m and had a shallow depth of 0.1m and 0.17m. A maximum 4.0m length of the ditch was exposed (within the corridor). It contained single fill [321] of mottled mid brown loamy clay with occasional stones. It produced a single sherd of pottery, plus the largest (and virtually complete) iron objects to be found on site, - described as five joiners dogs (see section 4.5). Adhering hammerscale may suggest that this represents a deliberate deposit of material from a 'dump' of secondary smithing material, or perhaps they actually represent industrial 'equipment' associated with metalworking on site.

The significance of this discovery is to a large extent open to discussion. The objects were obviously removed and quickly redeposited - hence the still adhering hammerscale. It was not simply 'kicking around' and accidentally buried, but deliberately deposited. Perhaps it had some symbolic significance, a 'rite' traditionally associated with metalworking sites and their demarcation - hence its survival as an intact deposit rather than subsequent reuse during secondary smithing. This would also perhaps account for the joiners dogs being virtually complete as opposed to broken.

Ditch [320] appears to have been truncated. This is possibly what created the eastern terminal to the ditch since an original ditch terminal might be expected to be more abrupt. An alternative explanation might be that ditch [320] predates the palisade fence and that the apparent terminal does actually mark a former entranceway (later blocked by the palisade fence).

It is not certain as to how the ditch was originally designed to function. It would appear to have been little more than a demarcation feature, probably with a bank - either to its north, perhaps pushed up against the palisade, or to the south.

Discussion

In plan the palisade fence and the flanking ditch appear to work as one, and as such they are seen as contemporary. They have been interpreted as representing the primary definition and enclosure of the round, or enclosure. There is no direct stratigraphic evidence to categorically link fence [355] and ditch [320] with phase three (or to one another), but this is felt to be the most likely interpretation. Subsequent activity appears, on the basis of the main metalworking features, to entail an enlargement in scale of activities on site. The more massive, outer rampart and ditch of a later phase (see below) has been interpreted as a continuation of this process.

The five closely spaced, almost huddled, hollow structures are located centrally within the area enclosed by the palisade fence and ditch. It is not suggested that the fence and ditch were defensive, but instead that they relate more to the prevention of uninvited, or general viewing from the outside, of internal enclosed activities. In effect they would have formed an effective visual barrier or definition of the round and its working. They may even have contained a symbolic significance separating the domestic/agricultural world from the skills of metalworking. Certainly during phase three the round's construction overlay (and

perhaps rendered useless) an earlier field system.

Parallels for the palisade fence have not been found elsewhere among the Cornish rounds so far excavated. It is unfortunate that (due to the presence of the scotch gates) it cannot be definitively stated that the fence continued around the entirety of the site's periphery, and that the geophysical survey to the north was unable to detect its presence.

3.5 Phase 4 - Main enclosure activity

This phase involved an increase in the scale of metalworking and features, plus the development of the external ditch and rampart circuit found on both the north and south of the site. The addition of the ditch and rampart may well have had more to do with the site's prestige, appearance or status as a local metalworking centre, than with defence from marauders, despite its significant increase in physical scale. Pottery and radiocarbon dates suggest a predominately third and perhaps fourth century AD date for this phase

Metalworking features (and smelting)

Phase four saw the creation of a number of miscellaneous and more easily recognisable metalworking features in and around the two northernmost hollows.

Feature [356]

Shallow bowl [356] was located within the western portion of hollow [282], and cut down through the top of pit [339] (see 3.4). It had a 0.65m diameter, a 0.18m depth and a concave profile. It was filled with **fill [491]**.

Fill [491] consisted of an ashy, burnt, silty clay with shillet fragments. The function of this feature is not certain, although it was probably related to metalworking. A comparable series of small features of unknown function (like features [342] and [356]) was found at Reawla in association with larger metalworking features (Appleton-Fox 1992,118).

Fire pit [337]

Fire pit [337] was located lying across the junction of hollows [282] and [284], indicating either that the original distinction between the hollows did not continue into this phase, that the hollows were interconnected, or that the hollow superstructure was essentially open sided. The continuing focus of metalworking activity within hollows [282] and [284] implies that phase four was probably not significantly later in date than phase three and that it essentially represents a continuation of previous activity.

Fire pit [337] had a rounded rectangular plan, which measured 1.5m long, 1.0m wide and 0.75m deep. The base was near flat and the edges sheer. Both the base and the lower edges had undergone pronounced heating, the natural clay shillet having turned a deep pinkish-purple red. The pit had four fills. The **lowest fill [495]** essentially represented heavily burnt natural clay and charcoal. **Fill [381]** overlay [495] and was 0.1m thick. It consisted of a dark olive brown, sticky, stone free clay with slag and (two) broken iron objects. During excavation it was thought that this clay might represent a secondary lining to the pit. A charcoal sample from [381] produced a radiocarbon determination of cal AD 238 - 380 (see section 5.3). **Fill [380]** overlay [381] and was 0.15m deep. It consisted of a hard, red fired clay with occasional stones and larger charcoal lumps. (Fill [380] may represent the burnt upper portion of [381].) It represents the last 'use' of this feature.

Located above the 'use-related' fills is context [336]. **Fill [336]** filled the bulk of the pit, and represented an abandonment fill. Approximately half of [336] consisted of a very large stone block. The stone block measured approximately 1.0m by 0.5m by 0.5m in size, and seems to have been pushed in from the east following disuse of the fire pit. It may be that in use the block was located on the edge of the pit, and that it functioned as an anvil or

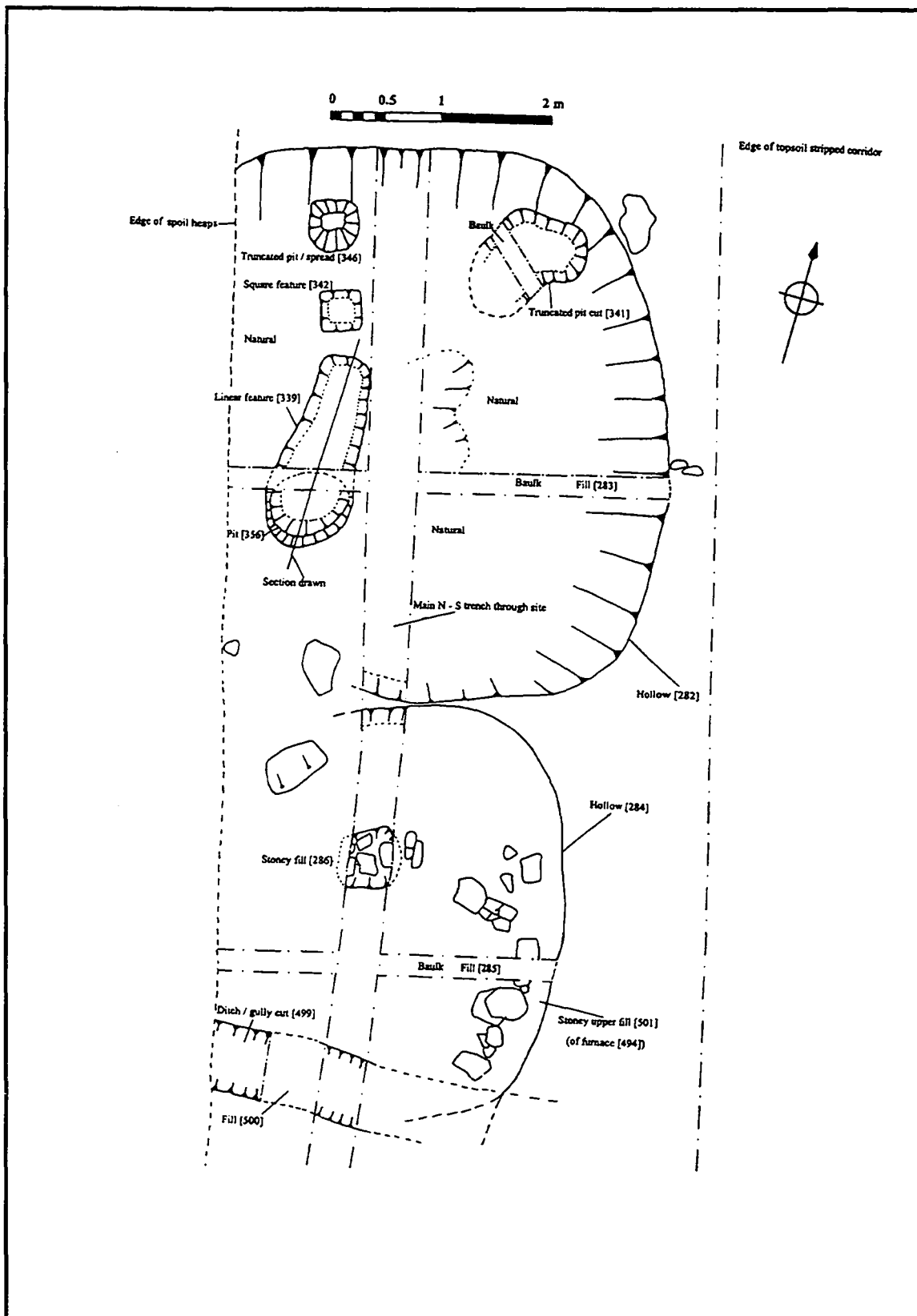


Fig 9 Plan showing phase three of hollow[282] (after the removal of main fill [283] and the excavation of the N-S slip trench), and partially excavated hollow[284].

similar working surface. It had not undergone any obvious heating and did not have any very obvious signs of wear on its surface. Fill [336] produced quantities of slag, small broken iron objects and hammer scale, all of which are indicative of smithing and secondary smithing waste. In addition to this, three pieces of undiagnostic gabbroic pottery were found.

Note:- The relationship between fire pit fill [336] and the main abandonment fill [285] of hollow [284] was not entirely clear – the two appeared to merge. However, the large (probable) anvil block in [336] certainly pre-dated the formation of [285] and presumably the majority of [336].

Furnace [494]

Furnace [494] (Fig.10) was positioned on the eastern edge of hollow [284], and as with fire pit [337] this may indicate either that the original distinction between the hollows did not continue into this phase or that the hollows were interconnected, strengthening the argument that the hollows were essentially open. It was aligned north to south, the southern end extended out beyond hollow [284] and cut across the top of ditch [499]. The whole feature was 4.0m long and 0.5m deep. The bowl had a maximum 0.9m width and the flue was 0.65m wide. The bowl was located at the north western end of the flue, giving the whole feature a 'pipe-like' shape in plan. The flue itself did not show any substantial burning, but at the bowl end the natural clay shillet was heat reddened. As with most metalworking features, after final use the furnace was thoroughly cleaned out, (presumably reflecting a successful episode of smelting). This inevitably removes some of the evidence for heating.

Iron ores were frequently roasted prior to being fed in to a furnace. Roasting the ore makes it *"easier to break up and converts all the iron in them to oxides. In the smelting furnace these oxides are then reduced to metallic iron"* (Bayley 1985, 42). No ore was found on site, and no apparent evidence was found for its roasting. This would have implications as regards raw material acquisition. Perhaps ore was brought on to site having already undergone roasting. Certainly broken objects were being brought in and amassed, and slag-rich residues kept in dumps or defined deposits ie pit [292]. (Also see section 4.5).

Basal fill [382] consisted of a firm, brown sandy clay with frequent small stones. It did not appear to be burnt, but did contain frequent charcoal. The fill dropped down towards the west, and probably represents a post-use filling up of the furnace by pushing material in from the east. A single lump of residual slag was found within [382].

Overlying [382] was fill [335], which again had been tipped in from the east. Fill [335] consisted of a very dark grey brown clay. Ten pieces of gabbroic pottery were found, six of these forming part of a probable bowl. The soil sample contained charcoal, plus fairly large quantities of metalworking waste in the form of slag, occasional broken objects and much hammer scale. This fill is composed of metalworking waste, and perhaps contemporary midden material, (accounting for the pottery). It had been deliberately pushed or tipped in as an abandonment fill.

Uppermost furnace fill [501] appeared in part to merge with hollow abandonment fill [285]. It consisted of a silty loam with large stones possibly representing part of the furnace superstructure. The similarity of [501] to [285] suggests that it too, is residual in origin, filling in the gaps around the collapsed stone work. Fill [501] and [285] may well be near contemporary in date.

The presence of this furnace indicates that smelting was taking place on site during phase four. It is uncertain as to whether it also took place during phase three. The discovery of tap slag in the soil sample taken from upper hollow context [285] represents additional

evidence for furnace(s) not only being constructed, but also used (see section 4.5/4.6).

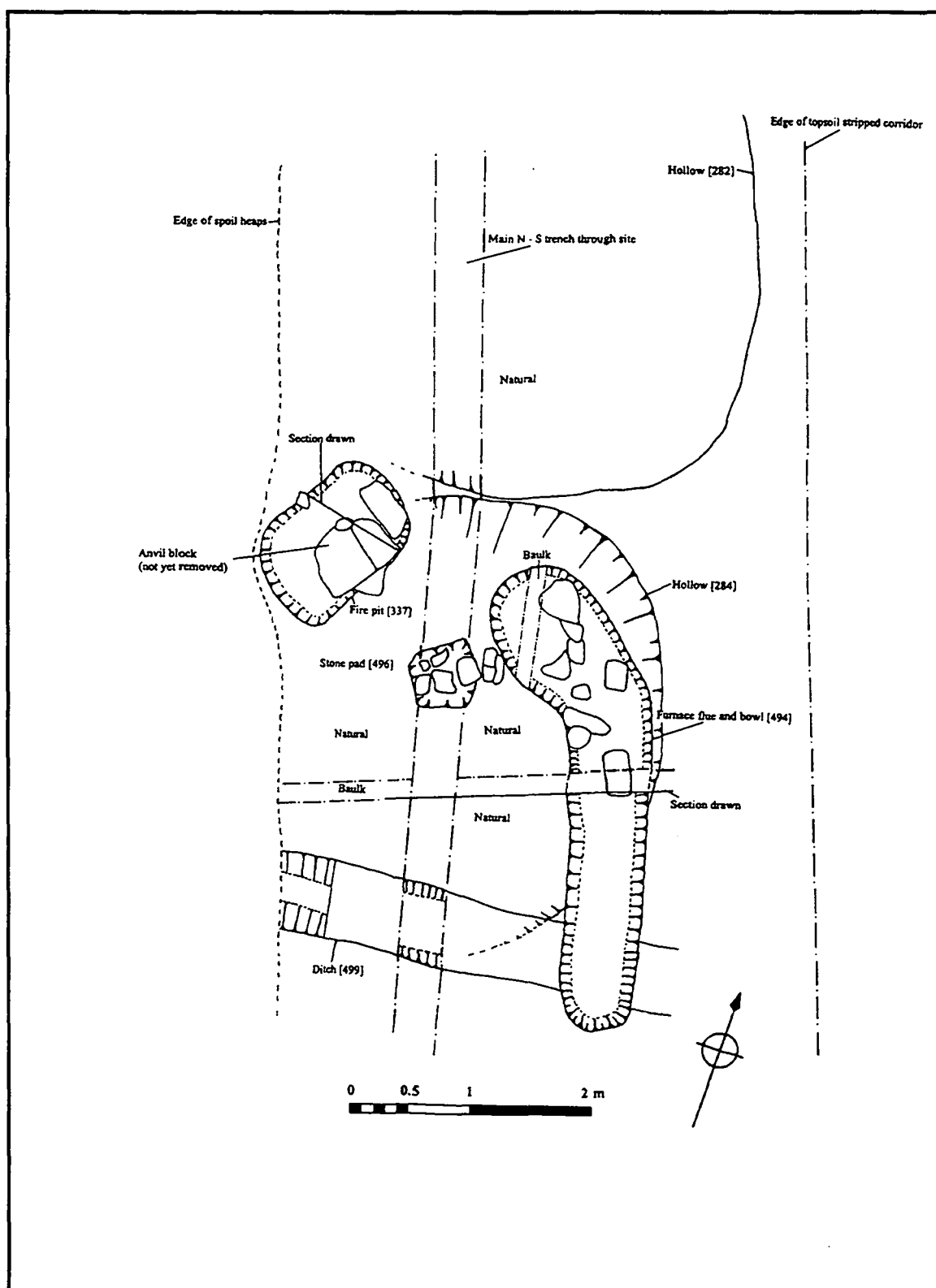


Fig 10 Plan showing hollow [284] and phase four features after the removal of fill [285].

Slag pit [292]

Slag pit [292] was located to the east of hollow [287] and cut into an earlier (now redundant) ditch [280]. Only the western edge of this pit was visible, the eastern side extending beyond the edge of the excavation. It may be that [292] is in fact a linear east to west aligned ditch re-cut, as it had been cut into the now infilled ditch [280] (see above) specifically designed to hold or retain metal rich waste for potential re-use.

Pit [292] contained two fills. The lowest fill overlay a very hard, mineralised 'crust' of burnt soil and slag. This suggested that the first fill had been deposited when still hot. The cut itself was quite steeply 'U' shaped in profile, and exactly centred upon ditch [280].

The lowest fill of pit [292] was fill [296], consisting primarily of slag, burnt clay loam, burnt shillet, and two pit bases (see section 4.5). Metallic pit bases are clear evidence of smithing activity. Included within this fill were pieces of gabbroic pottery (including a bowl, P9, unlikely to be earlier than late 3rd century AD) and a fragment of Roman roofing tile. Fill [293] filled the bulk of pit [292]. It consisted of a dark blackish brown burnt loam with large quantities of slag and hammer scale, pit bases, broken metal objects and another piece of roofing tile. Blackthorn, hazel, and gorse/broom charcoal was found throughout fill [293].

Slag pit [292] would appear to represent the deliberate creation of a dump or reservoir of hot waste slag and broken metal objects. It is uncertain as to why this particular area should have been chosen for the slag pit. Perhaps it was a frequently damp area (due to a slight lynchet) where the problem of hot slag starting a fire was minimised. Alternatively, it might simply have been re-selected as an area to dispose of such material out of custom (upper ditch fill [281], formed during phase three already contains similar material). The contents of this feature appear too rich in metal content to have been deliberately 'abandoned' smithing waste, although strangely it does appear to have been forgotten about. Perhaps unexpected events dictated that they should be left, or perhaps they represent a deliberate (perhaps a symbolic) deposit associated with metalworking and ore collections. The pit was then overlain by [305], which washed in from the east, and may in fact represent a continuation of these disposal activities.

Discussion

Metalwork features during phase four appear to represent part of a developing complex of industrial features located within Little Quoit Farm round. In addition there was an extension from smithing to include smelting (suggested by possible tap slag from context [285]). The construction of the fire pit and related anvil block, the furnace, and the slag filled pit represent the largest of these features. Additional features related to small-scale smithing were also constructed during phase four. These miscellaneous smaller features appear in part to be a continuation of the small features found within phase three of hollow [282]. A similar array of small features was recorded in the 'working area' at Reawla (Appleton-Fox 1992, 80-81, 118).

Little Quoit Farm has produced a relatively large amount of metalworking material, both finds and features. Elements within the assemblage clearly point to smithing, secondary smithing and smelting activity having taken place within the round. The material evidence includes variable types of slag waste and hammer scale, plus broken objects. The objects could represent 'importation' of broken, discarded metalwork from the surrounding population on to site, suggestive of the site serving as an industrial/recycling focal point; a specialist site within the local economy, presumably catering for the local agriculturally based population. A byproduct of Little Quoit Farm's metalworking activity would have been the necessity of secondary, supportive services such as fuel collection and production,

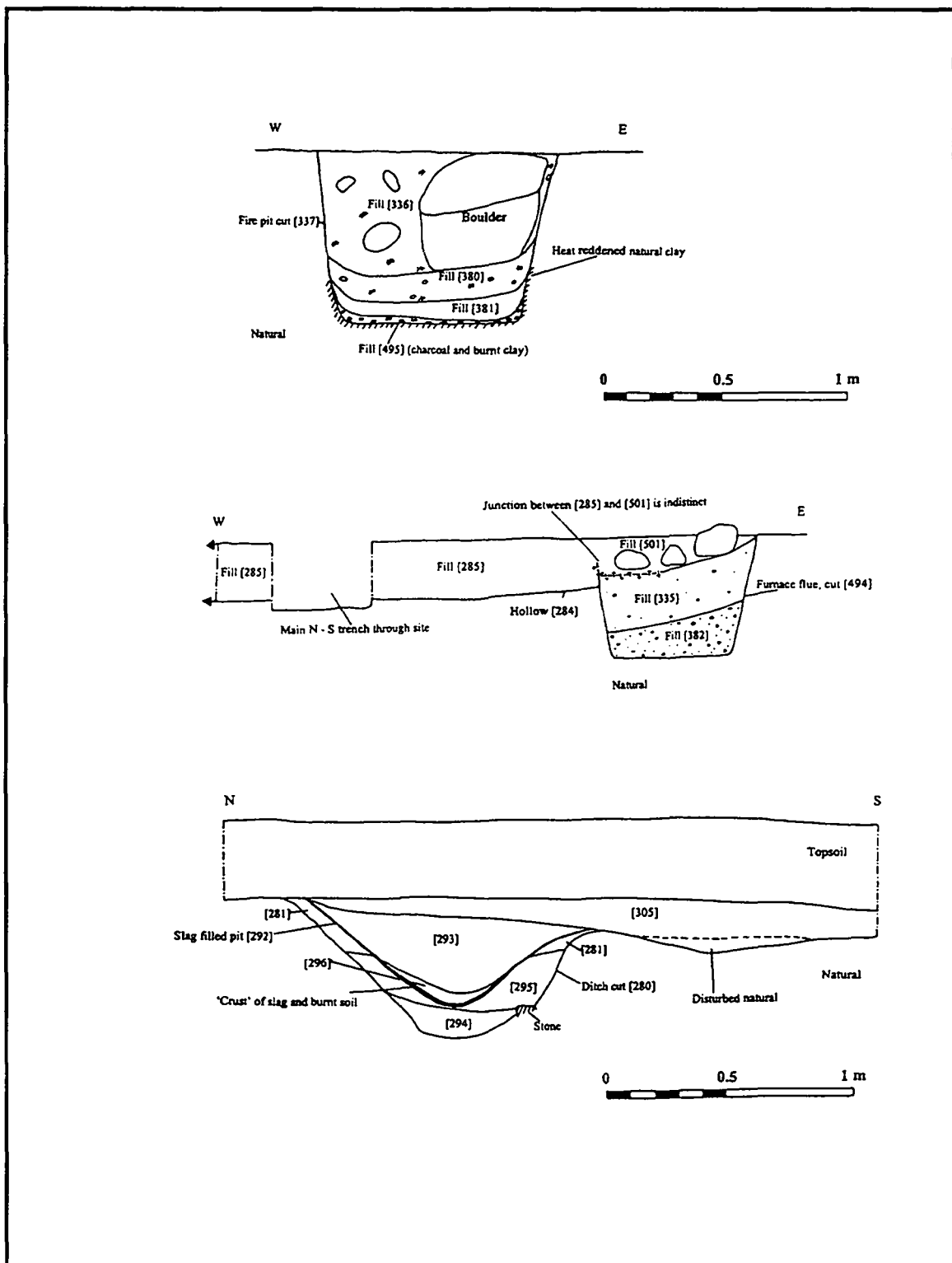


Fig 11 Sections through fire pit [337] (showing possible anvil stone backfill), furnace flue [494] (and hollow [284]), and slag pit [292] (in ditch [280]).

charcoal preparation, ore gathering, preparation and transportation and the apparent preparation (off site?) of food. As regards the status of those working within the round, a higher rather than a lower status might be inferred. For example, "... in *Medieval Ireland, whitesmiths (silver and gold smiths), blacksmiths and bards can be seen as distinct from one another, but with a shared, high 'caste' status, existing in contrast to the king's more secular status*" (Budd and Taylor, 1995, 140).

Since the excavation corridor cut across the centre of the round, and no evidence for domestic activity was found, it would seem probable that the whole enclosure developed from the start as a metal production centre. Many of the Cornish enclosures which have undergone excavation have produced evidence for some, frequently minimal, smithing activity. This has usually been attributed to "... *small scale smithing consistent with the needs of a farming settlement*" (Appleton-Fox 1992, 118). Rounds that have produced evidence for smithing include Shortlanesend, Castle Gotha, Grambla, Trevisker, Goldherring, and more recently Penhale Round (Nowakowski 1998, 73-78). Trethurgy had a tin ingot but there was no evidence for tin smelting on site, and Reawla had working hollows (but not of the type seen here).

Carvossa produced a similar quantity of metalworking material (ie 36kg) to that generated by Little Quoit Farm (30kg) and like Little Quoit Farm had only a small portion of its large, rectangular enclosed site looked at (Carlyon 1987, 103). It would seem likely that both sites contain much more in the way of metalworking debris.

The only site remotely similar to Little Quoit Farm is Killigrew near Trispen (Nowakowski, pers. comm; Cole forthcoming).

Outer circuit- ditch and rampart

Northern enclosure ditch [275]

Northern enclosure ditch [275] was 3.0m wide and 1.3m deep. In profile it had steep sides and a narrow flat base. It had six fills; three tipped in from the south. **Basal fill [313]** consisted of dark coloured silts that had become mineral-stained. Fill [313] did not produce any finds or charcoal suitable for dating. It appears to have formed by gradual silting via erosion of the excavated ditch sides, and was compact and undisturbed. The second fill [312] consisted of a brown sticky clay and shillet. This material has slumped in from the southern edge of the ditch, and probably represents material from an internal rampart.

Third fill [311] overlay context [312] and consisted of a mid brown loamy clay with occasional shillet. It produced charcoal of gorse/broom. It again can be seen to be tipping in from the south, probably from an immediate southern rampart. **Fourth fill [310]** was a dark brown clay. The soil sample contained charcoal, but no associated finds. It had tipped in from the south, probably from the flanking rampart. The top of it has clearly been cut away, probably via ploughing. This would suggest that a considerable degree of erosion has taken place over the rampart and across the then contemporary ground surface.

Fill [277] originated from a different source. It consisted of a mid orange brown loamy clay and came from the northern side of the ditch, perhaps as a result of constant ploughing down the gentle slope. It was more loamy in content than those that originated from the redeposited natural clay rampart. **Upper fill [276]** similarly appeared to have come from the northern side of the ditch. The top of [276] (like fills [310] and [277]) had been removed via subsequent deep ploughing on the northern side of the ditch.

In summary, the sequence of fills for enclosure ditch [275] was as follows. The basal fill (fill [313]) represented the initial naturally eroded material which came from the newly exposed ditch edges. The next three fills ([312], [311] and [310]) represent material eroded

out from the clay and shillet rampart bank. The lack of intermixed material with these fills would suggest that they formed during relatively rapid phases of instability, and that ditch maintenance was not of prime concern. The final, upper two fills (fills [277] and [276]) represent definite post round abandonment. A change in the surrounding agricultural regime (perhaps from a pastoral use to an agricultural use) altered the stability of topsoil in the fields surrounding the round. As a result darker loam-based soils filled the remaining open portion of the ditch. Ploughing continued up to (or over) the by now filled in ditch and denuded the rampart. This is clearly seen in the removal, (or sheering off) of the upper parts of fills [311], [310], [277] and [276]. The un-numbered mixed subsoil (shown on the section drawing of ditch [275]), immediately overlying the ditch probably represents this phase of ploughing. The current topsoil sealed this layer, and was the result of relatively recent deep ploughing, although the field at the time of excavation was improved pasture.

Southern enclosure ditch [319]

Contemporary with the ditch excavated in the north was **southern enclosure ditch [319]** which measured 3.0m across and was 1.3m deep. It had steep sides and a narrow, near flat base. The southern edge had a slightly stepped profile. **Basal fill [318]** consisted of coarse-grained reddish brown silt. It was essentially the result of natural erosion of the ditch edges, plus some limited erosion from the rampart located on the near immediate southern edge of the ditch. **Second fill [317]** was composed of a light reddish brown silty clay. Some of this may well have originated from instability or disturbance located on the southern lip of the ditch. However, a tip line down from the N also indicates that some of this material came from the rampart.

Third fill [316] seems to have originated primarily from the rampart, although some of it may also have come from the unstable southern edge of the ditch. Contained within this fill were seven pieces of gabbroic pottery. **The fourth fill [333]** merged with [316] on the upper southern side of the ditch. It comprised a brown loamy clay, and appeared to have originated from both north and south of the ditch.

Overlying fill [333] was **fill [315]**. Fill [315] was very much paler in colour, a pale grey loamy clay with shillet. It may be that this represents a re-cutting of the still visible ditch. Certainly there would seem to have been some activity within the ditch itself, since a small patch of burning was located between layers [333] and [315]. The burning consisted of a pocket of charcoal and burnt clay. The effects of the heat generated by this fire was seen in underlying layer [333]. It represents a post-Romano-British (or perhaps a medieval) temporary fire-setting.

The upper northern portion of the ditch appears to suggest that either the rampart material underwent fairly considerable slumping into the ditch, or that the ditch itself had been re-cut. Ditch fills [316] and probably [317] appear to abut rampart layers [326] and [328]. The drawn section gives the impression that the southern edge of a 'lip' of natural seen underlying the rampart in fact marked the original upper edge of the ditch.

The sequence of ditch fills starts with basal silts [318], which are the result of erosion of the freshly exposed ditch edges and the rampart. Fills [317], [316] and [333] came primarily from the eroding rampart. Intermixing on the southern side of the ditch between contexts [316] and [333] may be some collapse, animal disturbance or subsequent ploughing. Fill [315] probably formed as a result of a change in the surrounding agricultural regime, creating a quite different loam based fill. As referred to above in the discussion of the northern enclosure ditch, this has been interpreted as marking true abandonment of the round and all that it signified. All recognition of its past importance or status had been forgotten (so much so, that the rampart and ditch was later used for shelter and a temporary fire).

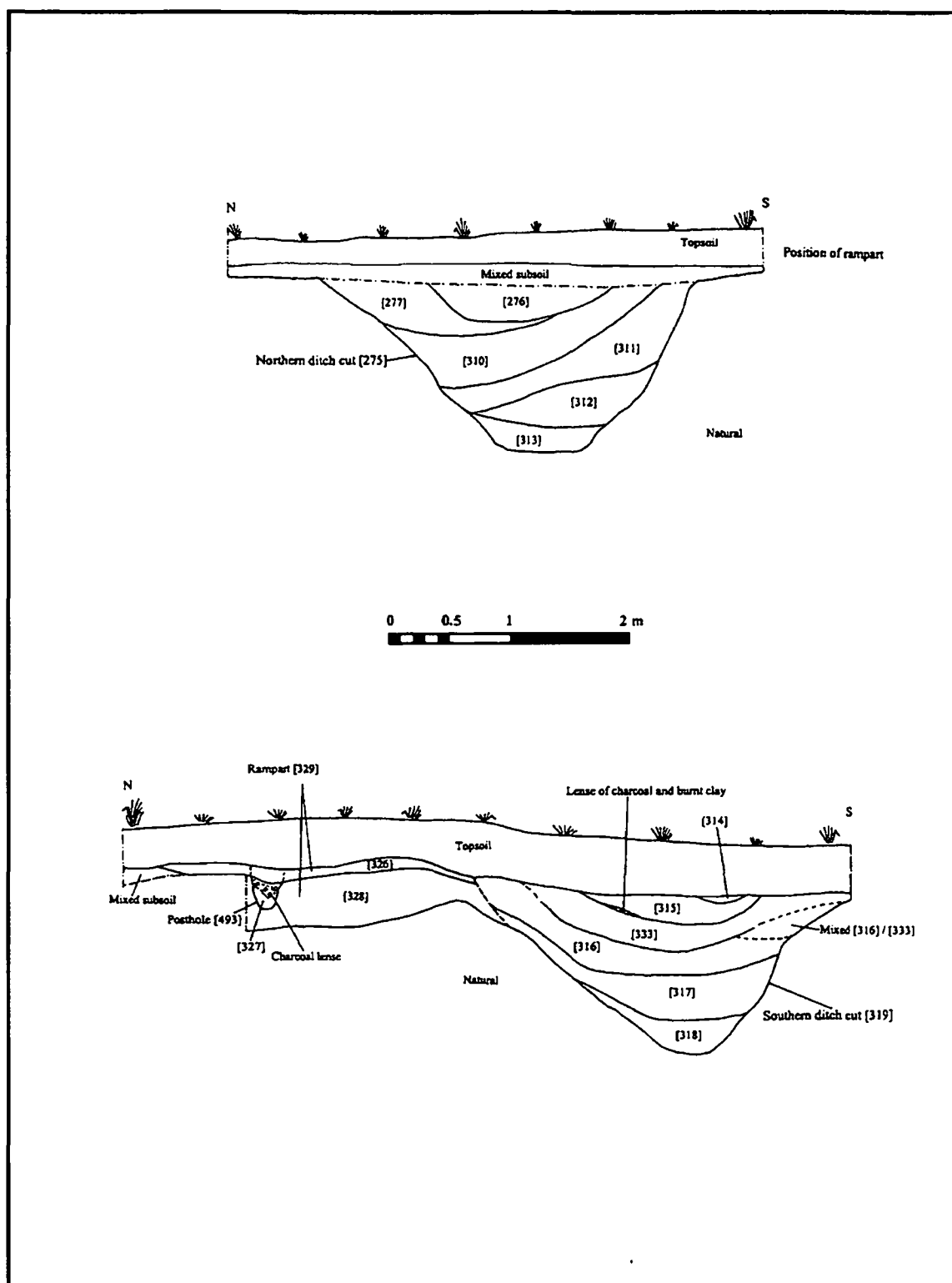


Fig 12 Sections through the northern enclosure ditch [275] and the southern enclosure ditch [319] with associated remnant rampart [329].

Rampart [329]

Rampart [329] was located to the immediate north of southern ditch [319]. It was approximately 2.5m wide and survived to 0.5m high. Where excavated it consisted of two layers and produced evidence for two postholes which cut down into layer [328]. **Basal layer [328]** of the rampart had an approximate 0.4m depth and was composed of a dense orange clay and shillet with occasional oak charcoal flecks. Layer [328] represented a near clean re-deposition of the natural clay shillet removed from ditch [319]. Above this was the upper most surviving layer of the rampart - **layer [326]**. Layer [326] was 0.1m thick, a pale bluish grey redeposited clay with decaying shillet, which was very similar to the decaying bedrock seen in the middle to lower portions of the adjacent ditch cut. A soil sample from context [326] produced charcoal and a radiocarbon determination of cal AD 242 - 383 (see section 5.3).

Postholes [493] and [357] appear to be integral with the rampart. Both were sealed by upper rampart layer [326], but were cut into lower rampart material [328]. They had a stabilising or supportive function, were closely set and presumably represent two of many such postholes which ran along the northern, internal edge of the rampart. No evidence for a southern circuit along the external side of the rampart was found. This might suggest that the rampart had a near vertical timber reinforced inner face with a sloped outer face of clay continuing the lower slope of the ditch. Prior to the construction of the rampart it would appear that the underlying ground surface was prepared. No buried soil was located beneath the rampart.

Discussion

Phase four consists of what would appear to be a fairly major episode of remodelling. A relatively substantial bank and ditch was created, either replacing the palisade fence and shallow ditch or containing it. It has been suggested that this period of remodelling was mirrored by a reorganisation of the internal workings of the round, and perhaps by an increase in the scale of working and the introduction of smelting. Significantly larger metalworking features appear, focussed around the same part of site as the preceding phase. Combined, these two elements of change point towards a revamping of the site and perhaps an increase in the status of the site as a whole. From a visual point of view the round would appear more impressive (and the area enclosed marginally larger), from an industrial point of view the quantity and perhaps range of metalworking activities would seem to have been increased.

The univallate construction of a ditch and rampart is a characteristic of many round sites. The ditch and rampart dimensions of Little Quoit Farm similarly typify such sites, *"their ditches tend to be shallow, 1.5 to 2.0m deep ... and their entrances are simple without inturns"*, (Quinnell 1986, 115). The position of the entrance at Little Quoit Farm round is not known, but there is no reason to suggest that it would be unusually complicated. The 70m diameter of the round is again not dissimilar to a number of other rounds.

3.6 Phase 5 - The decline of the round

This phase primarily involves the filling up of apparently abandoned features, in particular the five hollows and the main metalworking features. (The demise of the external ditch and rampart and subsequent ploughing has already been discussed above). Suffice to say the round decayed away, and once again an agricultural regime came to dominate the site. New boundaries appeared and the medieval settlement of 'Quoit' eventually emerged.

Final fill of hollow [282]

The latest context within hollow [282] was **upper fill [283]**. This consisted of a 0.09m

thick, very dark brown, mixed loam with small stones and charcoal flecks of oak and hawthorn. Fill [283] has been interpreted as residual, and is probably the result of in-washing from the surrounding ground surface. Finds from this context include a quartz pebble, a quantity of slag, plus five pieces of pottery. Some evidence for mole disturbance was recorded, and much later (?) ploughing would have compounded and compacted its formation.

Final fill of hollow [284], and associated furnace/fire pit features.

The main fill of hollow [284] was fill [285]. This consisted of a 0.13m thick mixed clay loam with oak charcoal flecks and lumps. It produced a single sherd of pottery, and had been disturbed by moles. As with fill [283], fill [285] appeared residual in nature and is likely to consist of material washed in from the surrounding ground surface. Some of this material included tap slag, which had been produced by a furnace. Subsequent ploughing would again have finalised or sealed the formation of this deposit.

The uppermost fill [501] of furnace [494] is considered to be near contemporary in date to hollow fill [285]. It was essentially distinguishable only by its stone content, which appeared to represent some form of collapsed superstructure. Fire pit [337] also had a clear abandonment fill [336] (which contained a large stone anvil block and partially merged with hollow fill [285]).

Final fills of hollow [287]

Upper fill [291] of hollow [287] was residual. It consisted of a thin (0.1m thick) mixed clay loam and contained two conjoining iron fragments. This layer filled the remainder of the abandoned hollow, plus the natural ground level to the north of the hollow edge. Located beneath this was fill [288] which might possibly also have been associated with post-use abandonment of the site. Certainly it appears to have become distinctly mixed. Fill [288] had a maximum 0.16m thickness and consisted of a clay loam with occasional charcoal flecks. Finds from [288] include three undiagnostic, gabbroic sherds of pottery, a notched slate fragment and a fine grained granite fragment (interpreted as a probable hammerstone – see finds report section 9.4).

Gully features around / above hollow [304]

Gully features [331], and by implication [344], pre-date hollow abandonment fill [330]. Gully [331] had a 0.9m length, a 0.2m width and a 0.1m depth. The base was concave and the edges were sheer. It contained fill [332], a pale, stony clay and four undiagnostic pieces of pottery. Gully [344] was 0.75m long, 0.2m wide and 0.08m deep. It had a concave base and sheer sides. It contained fill [345], a pale, stony clay.

The purpose of these gullies is not known and their arrangement is not easy to interpret. They do not appear to conform to any particular shape or alignment, while their shallow depth would suggest that they were not associated with a substantial/long-term feature (although what that feature might have been is not known).

Final fill of hollow [304]

Upper fill [330] of hollow [304] was interpreted as residual in origin. It was recorded as primarily overlying the southern half of the hollow (corresponding with the deeper portion of this feature). Fill [330] consisted of a 0.08m thick clay loam with occasional charcoal flecks. It produced three sherds of pottery and a flint. Fill [330], although only recorded as present in the southern portion of the hollow had probably extended across the hollow.

Final fill of hollow [353]

Fill [354] represents the only context found within small hollow [353]. Fill [354] was a

0.2m thick loamy clay. It differed from the other abandonment fills discussed for the hollows due to its uniformity, shillet content and depth, but also due to the quantity of pottery. Nineteen small, gabbroic and rock tempered sherds were found.

This entire fill of hollow [353] would appear to represent a single, possibly deliberate episode of backfilling. The relatively high amount of pottery (in comparison to the size of the hollow and the minimal amount excavated) might suggest midden material. It has already been suggested that due to the small size of hollow [353] it served a different, (possible storage) function to some of the other hollows found on site. If this is the case then this might account for the different treatment of this feature once it fell out of use. At Trethurgy a similar situation was hinted at by the apparent backfilling of a structure with waste or midden material, (Quinnell 1986, 116).

Final layer over slag pit [292]

Located centrally within the round is slag filled pit [292]. Its main upper fill contained seven pieces of pottery dated to the later third and fourth centuries AD. Above this fill was layer [305]. Layer [305] was a mid to dark reddish brown burnt clay loam which would seem most likely to have been created by the washing in of material piled adjacent to the pit, (from the north, or east ?). Layer [305] contained burnt shillet, fragments of iron slag and charcoal.

The creation of layer [305] implies that immediate activity in the area had ceased. Its formation is likely to be contemporary with the formation of the upper residual layers and fills formed within the five hollows (discussed above).

Post-rampart-decay activity

Posthole [324] was located in the southern half of the round, to the north of the rampart and just south of the palisade ditch [320]. The posthole had a 0.35m diameter and a 0.1m depth. The sides were steep and the base was concave in profile. It contained fill [325], a dark, grey-brown clay loam. Pit [322], was located overlying the northern part of the rampart which had by this point started to slump northwards. This feature had a 0.85m diameter and a 0.07m depth. The sides were concave and the base was flat. It contained fill [323], a dark grey brown gritty silty loam – implying that it had been allowed to fill naturally.

Both posthole [324] and pit [322] are likely to be contemporary, and both have presumably undergone considerable truncation, (see comments regarding ploughing and truncation of ditch [275], section 3.4.2). They post-date the slumping of rampart material. Truncation at this southern end of the site does appear to have been more severe or marked than in the north. Palisade related ditch [320] was similarly shallow, as were the postholes representing the palisade itself, (although not to such a severe degree as posthole [324] and pit [322].) This could either suggest that [324] and [322] were very much more ephemeral from the start, or that they are significantly later in date, and were cut from higher up in the topsoil profile.

It is not possible to interpret the likely purpose of posthole [324] and pit [322]. They may well represent two of a whole series of related or contemporary features, which have not survived truncation or were within the excavated area.

Discussion

On the basis of the ceramic evidence it was during the late third to early fourth centuries AD that activities at Little Quoit Farm round appear to have ceased. This material was found in the main upper fill of slag filled pit [292], located in the centre of the site. This would appear to mark the approximate point at which the site was abandoned, an

abandonment which may well have been fairly rapid, since none of the slag and small broken objects filling pit [292] were ever retrieved.

An alternative explanation for the apparent abandonment of pit [292] might be that iron ore was readily available and not sufficiently valuable to warrant collection. This would seem unlikely since it had obviously been amassed in the first place. Alternatively, this material may represent a deliberate central deposit, designed to mark the close of operations at this site. However, it must be stated that no parallels for such behaviour has been found on other investigated rounds, although the burial of half a tin plate in a pit at Killigrew round might be an exception. A final suggestion as to the demise of the site and the abandonment of deposit [293] might be that hurried and/or violent circumstances arose, preventing its collection. However, no direct evidence was found for any such event.

Most, if not all of the hollows underwent post-abandonment filling. The majority of these fills were silt, and are likely to have been produced via relatively rapid but natural erosion processes. Overlying all of these abandonment fills was a skim of mixed clay loam, which underlay today's dark loam topsoil. This was most obvious in the main northern ditch [275] section but elsewhere was seen as a patchy skim of material across the excavated corridor. Initially interpreted as a merge layer (or the junction) between the underlying natural and the ploughing horizon, it was not given a context number, but is likely to relate to an old plough soil horizon – perhaps of a medieval date and associated with the known medieval settlement of Quoit.

3.7 Features of uncertain phasing

A number of other features are not easy to position within the phasing scheme proposed.

Features [301] and [492]

Elongated, oval feature [301] and similar feature [492] have not been assigned a phase. Unfortunately neither was diagnostic in terms of date or function, and neither had stratigraphic relationships with any other features on site, with the exception of naturally formed layer [504]. They were notably similar in size, shape and alignment.

Feature [301] cut through layer [504], and natural clay. It was 3.0m long, 1.3m wide and a 0.18m deep, with a single **fill [302]**, which was compact and clayey. It did not produce any finds. **Feature [492]** had a 2.5m plus length, a 0.95m width and a 0.15m depth. It had a single, firm clayey **fill [297]**, and did not produce any finds.

Miscellaneous features [301] and [492] are difficult to interpret with any confidence. Their lack of any pottery or metallic finds might imply that they predate industrial activity associated with the round. The absence of flint (particularly when such a small assemblage was found in total) is not significant. However, their fills do differ from the paler, slightly more silty clay fills described at the base of the naturally silted-up ditches. Both fills [302] and [297] were slightly darker and more loamy in content, suggesting that they were filled at a much faster rate. They could represent pre round features, or even perhaps significantly later features, perhaps of medieval date.

3.8 Features outside the round

This section deals with all features found within field 12 which were not located within the round itself. Their date is likely to vary very considerably. It has not been possible to relate any of them specifically to the Romano-British period, or to the use of the round. However, it is possible that they may have been external features associated with the use of the round.

External features to the north of the round

Footpaths [271] and [267]

Footpaths [271] and [267] are considered to be broadly contemporary due to their similarity in alignment and appearance. Footpath [271] was 1.9m wide and 0.26m deep. It had a flat base and gradual sloping sides. The flat base was entirely covered with very compacted small gravel pieces. Located above this, and filling the cut of the footpath, was fill [272]. Main fill [272] was a dark brown sticky clay loam, which contained a single piece of cut and shaped probable roof slate. Fill [272] was formed after the abandonment of the footpath's use, and would seem to have been formed during a relatively undisturbed phase of erosion in, or slippage of material in from probable flanking fields.

Footpath [267] had a 1.55m width and a 0.15m depth. It had a flat base and short, but fairly steep sides, and cut across ditch [265] (see below). The whole of the flat base was composed of compacted small gravel. Positioned above this was abandonment related fill [268]. Main fill [268] consisted of a dark grey brown silty loam, and like [272] is likely to be the result of a prolonged phase of natural infilling from the surrounding verge, or fields. Two sherds of modern glass/pottery were found in the upper part of the fill and should be seen as later intrusive activity caused by deep ploughing across the field.

Discussion

Transportation of fuel into the round (see section 5.2 for an appreciation of the sheer scale of timber potentially required), or for the transportation of iron ore, would have required at least one, and probably several developed tracks. It may well be that the metalled footpaths [271] and [267] are just such features. It would seem unlikely that such carefully metalled paths would have been created to simply lead into a field during the medieval period. It would also seem unlikely that two such similar paths would run parallel to each other, and in such close proximity, unless they were leading somewhere specific and expected to carry a certain amount of traffic.

It is postulated that [271] and [267] have Romano-British origins, and that they probably represent just two of the network of paths and tracks required for the maintenance of Little Quoit Farm round when it operated as a production centre. The only problem in this interpretation might be the lack of a clear entranceway through the encircling main ditches, at the point where these two paths would seem to be heading. This is based on the geophysical survey, which shows both features continuing on towards the south-east, and stopping just before reaching the apparently unbroken main northern ditch. There would seem to be three possibilities that would explain this. Firstly, that the paths originally ran around the north-eastern periphery of the main ditch (before entering through an eastern entrance), but that their original course has been truncated or lost through subsequent disturbance. Secondly, that the paths actually pre-date Phase Four of the round, and in fact relate to the initial (Phase Three) phase of the enclosure. This would mean that the creation of ditch [275] removed them. Thirdly, that a 'bridge point' existed in the vicinity which allowed the paths to cross over the main ditch and rampart; one of them does appear to peter out close to its junction with the ditch, perhaps suggestive of it having been raised, and thus was truncated/removed at a quicker rate via ploughing.

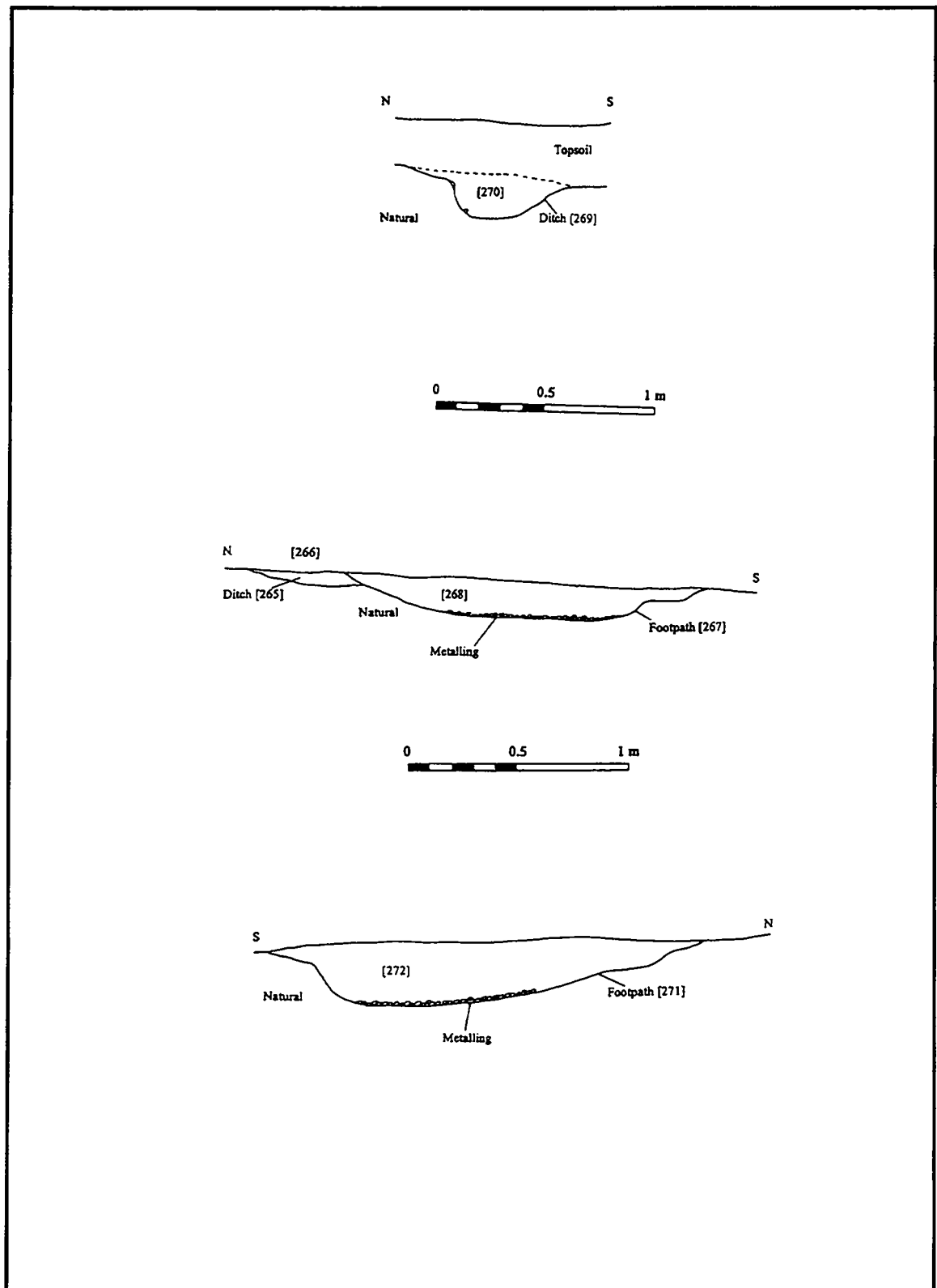


Fig 13 Sections through ditch [269] (part of the pre-round field system), and metalled paths [267] and [271] (located to the immediate north of the round).

Ditches [269] and [265]

Ditch [269] was only 0.5m wide and 0.2m deep. It was concave in profile and ran east to west across the corridor, at variance to the two footpaths discussed above. The ditch was filled by fill [270], a dark greyish brown silty clay loam. This feature is shown on the geophysical survey as a narrowing curvilinear ditched feature, which swings around from the north-west towards the south. The southern terminal can be seen to have crossed over into the internal area of the round. It is considered likely that this feature in fact predates the round (see discussion below).

Ditch [265] had a 1.5m width and a severely truncated 0.1m surviving depth. It had a single fill, fill [266] which was a mid orange brown clay loam. This feature was not located by the geophysical survey, perhaps due to its extreme truncation. It had a flat base and short, relatively steep sides. Interpretation of this feature is difficult due to its above average width (for this site) and the flat base. In profile it would seem more akin to the footpaths, but without the metalling. This feature was cut across by footpath [267] at the western edge of the excavation corridor, giving it a potential pre-Romano-British date. However, it is possible that feature [265] was in fact a pre-cursor to footpath [267], and as such virtually contemporary to it.

Discussion

Ditch [269], due to its similarities with ditches [499], [280], [298], (all of which were shown on the geophysical survey), is interpreted as pre-enclosure in date and as representing part of a lost and probably extensive field system.

In contrast ditch [265] is shallow, flat bottomed and broad – quite different to the other more definite field boundary ditches. It may be that this feature represents the pre-cursor to footpath [267].

Pits [278] and [273]

Pit [278] was the most northerly feature located within field 12. It was circular in plan, 0.75m in diameter with a severely truncated 0.08m depth. It was filled with fill [279], a brown silty clay with occasional stones. It produced no finds.

Pit [273] had an oval shape, was positioned between footpath [271] and linear feature [265], and was again severely truncated. It was 1.0m long, 0.65m wide, and had a 0.05m surviving depth. Its fill, [274], a compacted dark grey brown silty loam, produced no finds.

Discussion

Pits [278] and [273] are difficult to date since they did not have a stratigraphic relationship with any other feature excavated. Similarly they did not produce any dateable material. The fact that there are two such similar features in close proximity, exhibiting similar signs of severe truncation would strongly suggest that they are contemporary. Their extreme shallowness might imply that they are late and cut from higher up (thus never cutting down deeply in to the natural clay shillet). (Alternatively they could be earlier than the round).

External features to the south of the round

Linear stone feature [516]

Located approximately 13.0m to the south of the southern edge of main enclosure ditch [319] was a broad, linear stony feature [516]. It ran west-south-west to east-north-east and had a visible 4.0m width. The stones were very variable in size – ranging from 0.05m to c0.35m in size. The stones represented approximately 30% of the fill matrix, fill [517], which was a dark clay loam (very similar to the covering topsoil). The size of the visible stones, plus the strength of the features reading during the geophysical survey, would

suggest that the feature had some depth to it. The broad width of the feature and the presence of the stones, suggests that this feature originally consisted of a 'cut' element and an extant stone element which subsequently collapsed into it. Subsequent ploughing has probably compounded the damage caused, and would seem to have intermixed some of the stones with the topsoil: a number of stones were noted during the initial topsoil strip, prior to recognition of this feature. What is perhaps strange, is that so many of these stones have apparently escaped re-use elsewhere. None of the other features on site, with the exception of the furnace (and perhaps the fire pit), contained such an obvious stone element, implying that post abandonment robbing of stones for re-use took place across the site. Perhaps re-use of stone took place during the medieval period, as the area once again resumed an agricultural function.

Discussion

Interpretation of this unexcavated feature is difficult. It would appear to be the same feature as that shown on the geophysical survey running south-east to north-west up towards the main southern enclosure ditch, which it abuts. This would suggest that it is broadly contemporary to the round; certainly the linear stony feature and the main southern ditch and rampart respected each other's presence, and as such may well have operated together. It may be a Romano-British feature related specifically to the redesign of land use/ownership as a consequence of the round's construction on top of the earlier pattern of land divisions.

Ditch [502]

Ditch [502] was the most southerly feature located within field 12. It had a mechanically excavated trench cut through it (on the eastern side of the excavation corridor), and represents the ditch of a removed boundary. It had very clear, sharp edges and was filled with a very dark, slimy olive green to black, organic clay fill – quite unlike the drier, paler topsoil, or indeed any other context excavated on this site. It appeared to be a relatively recently sealed feature, but no map evidence for its existence was found. It ran parallel to the current southern (field 12) boundary (boundary number – 119), in an east to west direction. No finds were found.

Discussion

A probable late boundary, unrelated to the round. It mirrors the course of today's field boundary, and is as such seen as a removed component of it.

4 Finds reports

4.1 Introduction

Following initial cataloguing (see 9.4) specialist reports were produced for flints, pottery, metal artefacts and slag samples.

4.2 Flint Report

By Anna Lawson Jones.

A small assemblage of six pieces of flint was found during the excavation. Four still retain part of their original nodular cortex, indicating that they come from raw material imported into Cornwall. The nearest known source for such material is Beer Head, on the south-east coast of Devon (Care 1982, and Tingle 1988). The remaining two pieces are of uncertain source. They could come from a closer secondary source, such as the Devon Head and gravel deposits of western Devon (Wainwright and Smith 1980).

Context no.	Feature	Date	Description
[309]	Hollow [282]	Neolithic	Nodular flake with a large bulb. A long convex and a short straight cutting edge. Dorsal side shows some modification to facilitate hand held usage. A knife.
[315]	Ditch [319]	Neolithic ?	Uncertain raw material source. Bulbar end of a thick, abraded blade. Retouched on both sides.
[330]	Hollow [304]	Neolithic	Nodular flint with serrations down the cutting edge (a common Neolithic trait - see Saville). Possible use related damage in the form of an un-worked notch. A mini-saw (?)
[379]	Hollow [287]	Neolithic	Nodular flint. Snapped distal end of a blade. Severe heat related damage.
U/S	Subsoil	Neolithic	Nodular flint. A snapped, unmodified flake.
U/S	Subsoil	Neolithic ?	Chert-like flint of uncertain source. Near complete long, broad blade with retouch down one side. Opposing edge has sporadic retouch. A thin, arc of gloss just below the bulb, which suggests hafting. Knife.

Discussion

None of the six flints listed above were found in their Neolithic contexts. Four were found as residual finds within very much later circa third century AD features - hollows [282], [304], [287] and ditch [319]. All would have become incorporated within their fills as a result of disturbance. The flint from context [379] had undergone substantial thermal damage with hairline crazing on its ventral surface and a total blistering away of the dorsal face preventing identification of its original form. This could be the result of later metalworking activity rather than contemporary with the flint's use. The piece from ditch context [315] appears to have undergone some considerable disturbance resulting in notable abrasion of its surface.

Two unstratified flints were found in the mechanically stripped soil from the southern half of the field (Field 12), during the pre-excavation walkover. Due to the method of corridor stripping, ie the removal of the dark heavy current topsoil prior to careful removal of the basal skim of material which covered much of the site, it is reasonably certain that the flints came from the lower layer.

As regards date, this assemblage is Neolithic, probably later Neolithic. The majority of this

small assemblage came from a nodular source, which in Cornwall is often considered indicative of the third and second millennia BC (Healy 1985, 18-20; and Berridge and Roberts 1986, 15). The majority of the pieces are (for Cornwall) moderately large and thick. Ford says of 'thicker' flakes, "...this parameter may be useful in order to differentiate between Later Neolithic / Earlier Bronze Age assemblages and those of a later date" (Ford 1987, 69). Edmonds says that, "In place of the (Earlier Neolithic) emphasis upon blades and narrow flakes... flakes tend to be broader and thicker than before. Platforms on individual flakes also have a tendency to be larger... Material of this nature is ubiquitous on Later Neolithic sites", (Edmonds 1995, 82).

In conclusion, the site has produced a small late Neolithic flint assemblage. It should be assumed that there were, or are, potentially Neolithic features within the vicinity - particularly with reference to the nearby location of a quoit. As regards excavated features perhaps the most obvious, potential candidates for Neolithic features would be some of the pre-round field system ditches (although these have not been dated and are more probably of Bronze Age or Iron Age date).

4.3 The Prehistoric and Roman period pottery from Little Quoit Farm

By Henrietta Quinnell.

The assemblage consisted of 150 sherds, weighing 1392g of which all but 2 sherds were gabbroic. 19 sherds had heavy sooting or a black residue on the exterior, 40 on the interior.

Note: s = sherd, g = gramme, se = soot or residue on exterior, si = soot or residue on interior.

Context	Well made gabbroic	standard gabbroic	coarse gabbroic	other
Pre-enclosure, Phase 2				
294 basal fill ditch 280	1s/10g (si)			
299 upper fill ditch 298	2s/33g (si) -base angle and jar neck			
308 lower fill ditch 306	2s/17g (si)			
Phase 3				
281 upper fill ditch 280		11s/113g (5se) including P1 & P2		
288 in hollow 287		33/5g (1se, 1si)		
303 in hollow 304	12s/160g (6se, 1si) including P3 & P4			
321 in ditch 347		1s/12g (se)		
330 in hollow 304		3s/3g (si)		
338 in pit 339	6s/63g including rim from necked jar	7s/27g (1se, 4si)	8s/182g including P5 & P6	
343 in hollow 282	4s/23g		1s/18g (si)	
354 in hollow 353	4s/20g	15s/32g (4se)		
Phase 4				
293 in slag pit 292	3s/25g (1si) all P7	3s/50g (1se) including P8 & P9	1s/164g P10	
296 in slag pit 292				2s/80g (2se) P11 granitic derived

316 in ditch 319		7s/13g (1si)		
335 in furnace 494		4s/45g (2si)	6s/99g (si) all P12	
337 fire pit		3s/17g (si)		
Abandonment, Phase 5				
283 top of hollow 282		4s/6g (2si)		1s/10g (se) granitic P13
285 top of hollow 284			1s/10g (si) from P12	
332 in gully 331		4s/103g (si)		
u/s		2s/12g		
Totals	34s/351g (6se, 7si)	97s/438g (13se, 22si)	17s/473g (8si)	2s/80g (3se) granitic derived 1s/10g granitic

Fabrics

Gabbroic fabrics have been divided into three categories based on variations originally recognised at Trethurgy (Quinnell forthcoming (a)). *Well made* has a compact matrix, inclusions generally less than 2mm and an exterior surface often finished by burnishing; this fabric is used during the Later Iron Age and appears to continue until early in the 2nd century AD. *Standard* has a matrix which often contains small voids from poor mixing and inclusions which are generally 2-5mm although occasionally larger; surfaces are smoothed. *Coarse* has a poorly worked body and inclusions which are frequently over 5mm; surfaces have little finish. Both standard and coarse gabbroic appear by the 2nd century. A Late Variant (LV) fabric, recently recognised in assessment of Penhale Round at Indian Queens (Quinnell in Nowakowski 1998) and thought to be broadly 4th century, or later, in date was not recognised at Little Quoit Farm but may occur in Field 23, Lanhainsworth (Quinnell in Lawson Jones 2001, 51).

At the assessment stage the coarse component appeared to contain rock fragments which might not be expected in gabbroic fabrics. Some 33 sherds with these, together with two with possible granitic temper, were examined by Dr R T Taylor under a x 20 binocular microscope. Dr Taylor, whose full report is filed with the archive, identified the 'rock' fragments as large (5-8mm) pieces of quartz, quartz-tourmaline and magnetic/ilmenite. He describes the 'granitic derived' sherd from 296 as containing 'feldspar, quartz, tourmaline, white mica, all mainly angular; one large quartzitic sandstone fragment and one granitic fragment. A stream-sediment tempered clay with a granitic-derived input. The mainly fine grain size of the temper gives a good surface finish'. Dr Taylor describes the granitic sherd from 283 as containing 'feldspar, which mica, some as large flakes, quartz, some subrounded, and tourmaline; a granitic derived temper'. Both these sherds may have a comparatively local origin, from streams draining from the St Austell granite, or from the small granite outcrops at Castle-an-Dinas 2 km east of the site or Belowda Beacon 4 km to the east. It is generally accepted that gabbroic fabrics were in general use in Cornwall during the Roman period, at any rate in the area where most work has taken place, to the west of Bodmin Moor. It is quite possible that other local sources were utilised and that the production of ceramics in Roman Cornwall was not single centred as has tended to be supposed for the last three decades. The assemblage from Shortlanesend near Truro includes a proportion containing fibrous chlorite grains thought to derive from the Grampound deposits on which the site is situated (D Williams in Harris 1980, 71). Recently an assessment of an assemblage from Atlantic Road, Newquay, suggests that this also contains locally sourced material as well as gabbroic fabrics (author pers. comm.).

Pre-enclosure contexts; Phase Two

The small group of sherds is all in well made gabbroic fabric and breaks are reasonably fresh. There is nothing that can be dated closely. The material could date anywhere through the later centuries of the Iron Age through to the early 2nd century AD.

Enclosure Contexts; Phase Three

(See figure 14 for illustrated sherds)

P1 Context 281. Two joining sherds from dish/bowl with everted rim in standard gabbroic fabric. Carlyon (1995) Group 33. Difficult to date closely as, unlike bowls with flat-topped everted rims put with these in Group 33 by Carlyon, there is no prototype in the Black-burnished ware range widely copied in gabbroic fabrics. Parallels occur at Carvossa (Carlyon 1995, 29), at Shortlanesend (Harris 1980, Fig 30 No 11), a site considered to have a short date range from later 2nd to early 3rd century and at Stenchoose (Quinnell in Jones forthcoming P1 & P3).

P2 Context 281. Rim of small jar in Cordoned ware tradition, with slight groove on rim top and cordon beneath rolled rim, in standard gabbroic fabric. Carlyon (1995) Type 24 deriving from St Mawgan Type Q (Threipland 1956), Trethurgy Nos 92 & 93 (Quinnell forthcoming (a)). A date range through the 2nd century and well into the 3rd may be appropriate.

P3 Context 303. Roll-topped Cordoned jar rim in well made gabbroic fabric. Carlyon Group 25. While the form continues throughout the Roman period the fabric suggests a date no later than the early 2nd century.

P4 Context 303. Bowl with simple everted rim in well made gabbroic fabric. Not grouped by Carlyon and close parallels not located.

P5 Context 338. Bowl with rounded, everted rim and curved wall in coarse gabbroic fabric. Carlyon Group 26, assigned broadly to the 2nd century. Nos 9 and 14 from Shortlanesend may be comparable (Harris 1980).

P6 Context 338. Not illus. Generally similar to P5.

The assemblage contains 26 well made sherds as opposed to 70 well made and 9 coarse; some of the former are abraded and may be redeposited. On balance context 281 is likely to be later 2nd or 3rd century, context 303 early 2nd century and context 338 broadly 2nd century. The Phase as a whole therefore appears to run for perhaps a century from the early 2nd to the early 3rd century but the lack of good dateable comparanda for vessels should be stressed.

(Note by Lawson Jones: One radiocarbon date relates to fill [286] of feature [496] provisionally ascribed to phase three - AA-36505, calibrating at 2 σ to 790-404 BC. Its Iron Age date is markedly different to the diagnostically datable phase three pottery discussed above, and as such is now seen as a pre-phase three feature).

Enclosure Contexts; Phase Four

P7 Context 293. Not illus. Rim, neck and shoulder, three non-joining sherds with fresh breaks, in well made, burnished, gabbroic fabric from jar with upright neck and slightly out-turned rim. This form is the basic vessel form of the Later Iron Age South West Decorated and continues in Late Iron Age Cordoned ware as St Mawgan Type D (Threipland 1956). It is presumed to persist as long as Cordoned ware in well made fabric, until the early 2nd century.

P8 Context 293. Girth sherd from cooking pot in standard gabbroic fabric with wavy line incised on wet clay. A zone of decoration incised on wet clay around the girth appears on cooking pots around the period, probably early to middle 2nd century, when upright necked vessels such as P7 are replaced by those with slacker profiles, everted rims without a vertical neck (see discussion in Carlyon 1995 and Quinnell forthcoming (a)); this decorative feature persists throughout the Roman period.

P9 Context 293. Rim from conical flanged bowl in standard gabbroic fabric. Carlyon Group 39. It is assumed that this form was copied from that in Black-burnished ware thought to have been introduced c. AD 270 (Holbrook & Bidwell 1991, 98). This date works well in published Cornish gabbroic groups and the form persists for the remainder of Roman style gabbroic pottery production.

P10 Context 293. Simple everted rim from large storage jar in coarse gabbroic fabric. Storage jars with simple rims occur throughout the Roman period from Cordoned ware onwards, although they tend to become more common in the 3rd and 4th centuries (see discussion in Quinnell forthcoming (b) on the Killigrew assemblage).

P11 Context 296. Not illus. Two joining sherds from base and wall of dish with curved wall in granitic derived fabric. The form, without the rim, can only be dated to the Roman period.

P12 Context 335, with a sherd from 285. Not illus. Basal sherds probably from bowl/dish in coarse gabbroic fabric with black interior residue that is shiny rather than sooty in appearance. Not closely dateable.

Contexts from Phase 4 contain 17 standard gabbroic and 7 coarse gabbroic sherds as opposed to 3 well made (all from P7 assumed to be curated or residual); Table 00 demonstrates the contrast with Phase 3. The only dateable forms come from context 293 with P9 late 3rd century at earliest. P9 is the only sherd from the site with this late date, and while the assemblage is small, it may indicate that the site did not continue long after AD 300.

Two radiocarbon dates relate to Phase 4 contexts. AA-36504, calibrating at 1 σ to AD 238-380 and at 2 σ to AD 132-415, comes from the fill of fire pit 337 with three standard gabbroic sherds. AA-36503, calibrating at 1 σ to AD 242-383 and 2 σ to AD 180-418, comes from layer 326 of the enclosure rampart. These dates are statistically indistinguishable and suggest a broad third to fourth century date for Phase 4. They are entirely consistent with the ceramic evidence.

Abandonment Contexts; Phase Five

P13 Context 283. Not illus. Body sherd in granitic fabric.

The small quantities from these contexts have no dateable characteristics and the site may well have been abandoned by the 4th century.

General Discussion

The well made gabbroic sherds from pre-enclosure contexts may well be South Western Decorated ware. Their presence (together with the distinctive sherd in this ware from Field 3 at Ruthvoes and the two distinctive and two probable sherds from Field 16 at Tregethian – fields associated with the watching brief carried out along the rest of the pipeline; Quinnell in Lawson Jones 2001, 101), reminds us that the hillfort of Castle-an-Dinas, 2 km to the east, is likely to have been set in a landscape of contemporary farms and settlements. The only pottery reported from the hillfort was described as 'late South-

Western B Iron Age types' (Wailes 1963, 55), an outdated classification synonymous with South Western Decorated ware.

In the small assemblage from enclosure contexts, there are at least seven bowls or dishes and six jars or cooking pots, and a storage jar. Generally jars appear to be at least twice as frequent as bowls on Roman period occupation sites in Cornwall eg Castle Gotha (Saunders & Harris 1982) or Trethurgy (Quinnell forthcoming (a)). Given the suggested focus on iron working, the site may be regarded as something rather different from the regular farming settlement assumed as the function of rounds. There is an obvious parallel with the assemblage from Killigrew (Quinnell forthcoming (b)) where the focus appeared to be on the working of non-ferrous metals. At Killigrew the assemblage, again small although larger than that from Little Quoit Farm, contained a range of bowls and storage jars with very few cooking pots. This was interpreted as related to the provision of prepared food for the site, with the bowls being eating dishes. At Killigrew sherds frequently had sooty residues, interpreted as the result of heating up prepared food. The comparison between the two sites can not be extended too far, but the ceramics from them suggest variations which may reflect variations in the activities taking place. With regard to the sooting/residue on a third of the Little Quoit Farm sherds, this appeared to relate to use because breaks were not sooted.

The study of the assemblage has also been of value in demonstrating the presence, on a small scale, of non-gabbroic material. The granitic derived bowl P11 looks very similar to gabbroic wares. This has two implications. Closer study may reveal that collections assumed to contain only gabbroic vessels in fact have material from other sources. Secondly it may be that other sources were selected and worked to make their products appear similar to the popular gabbroic wares.

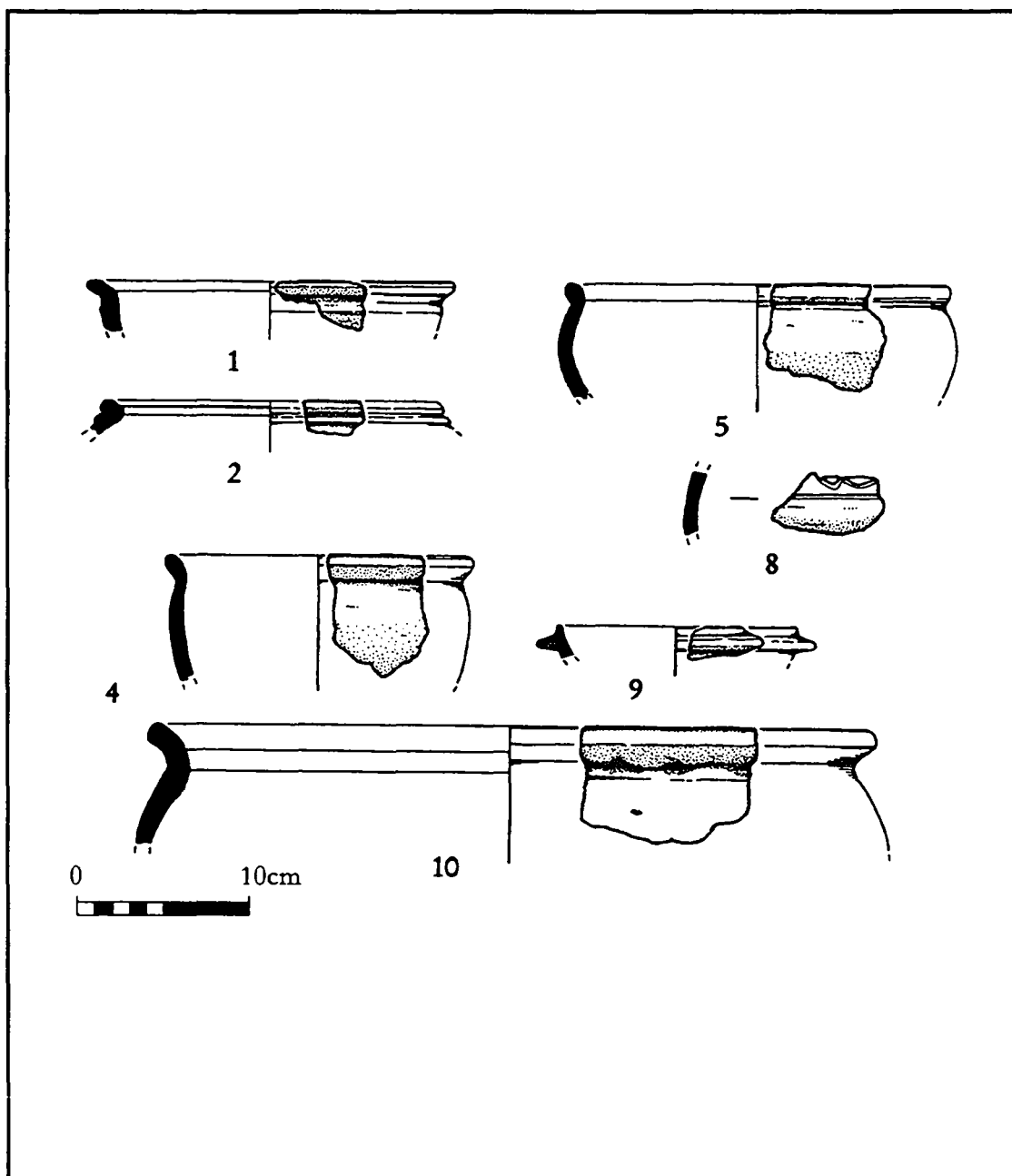


Fig 14 Illustrated pottery sherds from Enclosure Phases Three and Four (see text for description - P1, P2, P4, P5, P8, P9 and P10).

Roof tile from Little Quoit Farm with a comment on the tile from the Magor 'villa'

Two pieces of Roman roofing tile were identified, both considerably abraded.

1. Context 293. Curved fragment of *imbrex* (73g), pink 7.5 YR 7/4, of Exeter Tile Fabric 4, identified by J Allan. This fabric dates from the last quarter of the 3rd century until sometime in the 4th at Exeter; it is only otherwise recorded from Seaton; the fabric includes fossil shell and limestone (Holbrook & Bidwell 1991, 281-2). This fabric has now been identified with one widespread in Southern Britain with a possible source of manufacture in the Solent area (Betts & Foot 1994, 32). The date of this fabric at Exeter Tile is consistent with that of the pottery from this context and Phase 2 generally. The survival of a calcareous tile fabric in good condition may relate to the immediate soil conditions of the context from which it came.

2. Context 296. Fragment of a flat tile (35g), yellowish red 5YR 5/8, possibly a *tegula*. J Allan comments that there is no obvious match among the Exeter tile fabrics, or amongst tile fabrics recorded in Devon. Dr R Taylor examined the fabric under a x 20 binocular microscope and comments 'Quartz occurs as polished, clear to translucent, rounded to subrounded, sand grains. Finer, silt-sized grains are angular. Some fine-grained, quartz-feldspar igneous rock fragments (aplite) are also present; some are rounded, the largest seen 4mm. Very fine-grained white mica is associated with the clay body. The clay body is tempered with marine quartz sand and igneous rock grains. A source in South West Britain is possible but a continental import is more likely. A source in South central or South East England is unlikely because of the igneous fragments.'

A scan of the literature confirms that Roman tile has only so far been recorded in Cornwall from the Magor 'villa' (O'Neil 1933), although over 100 fragments, probably from a late Roman building with a hypocaust, come from Woolster Street in Plymouth (Bidwell 1986). O'Neil's description of the Magor material (*ibid*, 157) divides this tile into 'typically Roman' and 'native'. The former occurred only in small quantities and was assumed to be imported. The latter formed the bulk of the collection; described as 'very coarse, pale-brown earth-coloured, and contains many quite large fragments of local stone, *viz.*, slate and quartz pebbles up to ¼ inch in length'; it was assumed to be local copies of imported material. The two boxes of tile from Magor now in the Royal Cornwall Museum, Truro, were examined; all or most of the 'Roman' variety was probably retained, but only a small part of the 'native' variant. The 'Roman' variety contains at least two fabrics, one hard with white quartz and possible calcareous inclusions, the other softer and sandy. Dr Taylor has done a rapid examination of samples of the 'native' and of two varieties of the 'Roman' fabric. He confirms the author's opinion that the 'native' variety is of gabbroic clay with the addition of coarse quartz and other temper. (The similarity of small fragments of these gabbroic tiles to that of coarse gabbroic pottery may have confused identification of these tiles on other sites.) Dr Taylor agreed the broad character of the harder Roman fabric, but commented that the softer, sandy fabric included much rounded quartz sand and igneous fragments including aplite. He considers therefore that some of the 'Roman' Magor fabrics are likely to be from the same source as the fragment from 296 at Little Quoit Farm. The date range of Magor is not entirely clear but the excavator considered that the period AD 150-230/40 covered the construction phases (O'Neil 1933, 128-9). There is nothing inconsistent here with the presence of the 296 fragment in Phase 4.

The function of the tile fragments at Little Quoit Farm is unclear. The tile fragments come both from a source in a limestone district of Britain and from one in an igneous rock area. They may have been imported for use in some furnace type construction on a part of the site not excavated. Even at Magor the 'Roman' tile was thought to have been used for special features, perhaps connected with ventilation, rather than for a hypocaust for which

the shapes of the tiles were designed. The location of Little Quoit Farm, close to the main routeway into Cornwall still taken by the A30, may be relevant. The round's inhabitants may have become familiar with materials being transported along this route and have acquired small quantities for their own special purposes. However any substantial movement of heavy material such as tile in Cornwall might reasonably be supposed to have taken place by water, such as gabbroic tiles from the Lizard around to the Magor area and movement by water would allow for the possibility of occasional import into Cornwall from further afield, Wales or France as well as along the coast from the Solent.

4.4 Ironwork - conservation treatment report.

By Helen Wilmot.

Conservation treatment

- A total of 60 iron objects from several contexts were submitted for assessment.
- All objects were x-radiographed in order to determine the level of treatment required.
- The results of the x-radiography revealed that approximately 12 objects constituted slag and were therefore not worthy of further treatment. Of the remaining objects, a total of 29 could be considered for conservation.
- The majority of the objects were partially cleaned only, to reveal one or both ends and/or a middle section to give an idea of profile. Two objects were fully cleaned - from contexts [291] and [321] - and sections reconstructed where possible.
- The objects were treated using airbrasion with aluminium oxide powder Grade 3; reconstructed areas were adhered with Paraloid B72 acrylic adhesive.

The objects

The majority of the objects have little or no metal core remaining and a very thin outer shell of corrosion products.

Context [321]:

5 fragments (+ several smaller) of a large tool (?). The main fragment measures approximately 155mm in length and consists of two curved pieces of iron with pointed ends rivetted together. The rivet is still evident on one side of the object. A further attachment (?) is also visible on the opposite side of the object.

Context [291]:

2 fragments, probably joining, of an object with a rectangular cross-section and curved pointed end. The two fragments would measure approximately 70mm in length if joined.

Context [283]:

2 fragments of thin points, spherical in cross-section. The objects are broken at one end. Both measure approximately 5mm in cross-section.

Context [285]:

1 fragment only of a square/rectangular shaped attachment. Areas of the surface are lost. Measures approximately 37mm x 37mm.

1 fragment only of a curved point with a square cross-section. Measures approximately 6mm in cross-section.

Context [293]:

2 fragments of a stud with a domed profile. The head is detached.

1 fragment only of a nail with a flattened head. Measures approximately 18mm across.

1 fragment only of a large object with a square-sectioned head, measuring 25mm across the width, and a narrow tapering end. A large part of the metal core remains.

1 fragment only of a nail, probably with a flattened head. This is missing. Measures approximately 7mm in cross-section.

Context [335]:

1 fragment only of a thin point with a spherical cross-section. One end has broken off. Measures approximately 2mm across the point and 6mm in cross-section.

Context [336]:

2 fragments of a curved object (part of a ring (?)), with a spherical cross-section. The object is fragmented at both ends. Measures 10mm in cross section.

Context [338]:

1 fragment only of a large rod/tack (?). Squared cross-section. Measures 5mm across the point, 15mm across the head.

1 fragment only of a curved point with a square cross-section. Measures approximately 8mm across the point and 7mm in cross-section.

1 fragment only of a rod with a rectangular cross-section. The smaller of the two fragments forms a small loop-hole measuring 12mm across its width, and attaches onto the larger fragment. Measures approximately 68mm x 45mm, the loop-hole attachment measures 40mm x 27mm.

Note:

The following report (see section 4.5) has been written by Henrietta Quinnell, and looks at the results of this conservation work. It includes further descriptive and interpretative work, and presents the assemblage within a Cornish context (based on previous and on-going archaeological work, both on rounds and on other sites of comparable date).

4.5 The Iron Artefacts

By Henrietta Quinnell.

Iron Artefacts

Sixty objects considered to be of iron were sent for further study and appropriate conservation to Helen Wilmot, Contract Conservator for Wiltshire County Council. These were all X-rayed and 12 pieces identified as slag. 27 objects were then partly cleaned and two, from 321 (No 1) and 291 (No 13), fully cleaned. A detailed statement of method is filed with the archive. This report is based on the X-rays, the artefacts after cleaning, and the comments provided by Helen Wilmot. An assemblage of 56 artefacts is discussed, as investigation showed that several pieces were in fact composed of fragments of more than one object.

Context	Nail fragment	Strip	Rod	Bar/Lump	Objects
Phase 1					
[281]	-	1	-	-	-
[321]	-	-	-	-	1
[338]	2	-	3	6	2,3,4,5
Phase 2					
[293]	4	3	1	2	6,7,8
[335]	1	-	-	-	9
[343]	-	-	-	1	-
[381]	-	1	1	-	-
Abandonment					
[283]	-	2	5	-	10
[285]	-	1	-	5	11,12
[291]	-	-	-	-	13
[336]	1	-	-	-	14
Totals	8	8	11	15	14

Table Detailing Iron Artefacts. (Strip up to 20mm wide, flat, rectangular cross-section; bar over 20mm wide but with rectangular cross-section; rod squarish cross-section; lump, pieces over 20mm in one dimension but with overall cross-section not ascertainable.)

Identifiable artefacts

(For illustrated artefacts see figures 15 and 16)

1. Context 321 in Ditch 320. (Fig 00). Five joiner's dogs, mostly complete (Manning 1985, 131 & R52 Pl 61). One with a 150mm stem now firmly adheres to a second with a 100mm stem, the arms pointing in opposite directions; the corner of a third also adheres: another with a 100 mm stem is now separate as is a second with a stem of at least 120mm. Stems are square-sectioned and c. 10mm across. The two complete adhering examples may just possibly be secured by a rivet; if so the dogs have been joined to make some more elaborate fixture. However the protuberance suggested as a rivet is slight and on the edge a stem; any rivet sizeable enough to secure two dogs of this thickness could only have been fixed through holes, the manufacture of which would have distorted the edges of the stems. It seems more likely that a group of dogs of different sizes were bound together and that adherence is caused by corrosion. These dogs are for joining large timbers and certainly are the largest recorded from Cornwall.

2. Context 338, fill of pit 339 in Hollow 282. (Not illus). Small punch, 60mm long, square-sectioned tapering from 15mm across top to point; top roundish with flat facets suggesting that if this was a punch it was never used.
3. Context 338, fill of pit 339 in Hollow 282. (Not illus). Possible tip of socketed hook (Manning 1985, 104 & P30/31 Pl 49); square-sectioned, 20mm across, curving and tapering to a point.
4. Context 338, fill of pit 339 in Hollow 282. (Not illus). Part of knife blade, 22mm wide, with typical cross-section thinning from 7mm to c 2mm.
5. Context 338, fill of pit 339 in Hollow 282. (Fig 00). Looped end of latch-lifter (Manning 1985, 88-89, Pl 37). Looped end forms ring 20mm across turned at right angles to the handle, a usual feature. Simple type which was in use from the Later Iron Age onward.
6. Context 293, fill of slag pit 292. (Fig 00). Upholstery stud (Manning 1985, Type 8 nail, 136 & Fig 32), slightly domed head 25mm across and shank 20mm long. Similar stud from Trethurgy (Quinnell forthcoming (a), No 19).
7. Context 293, fill of slag pit 292. (Fig 00). Probable tip of billhook or pruning hook (Manning 1983, 56-8 'small hooks') with blade at least 17mm across. See Quinnell (1995) for discussion based on parts of two similar hooks from Duckpool.
8. Context 293, fill of slag pit 292. (Fig 00). Ironworking punch, square-sectioned, 25mm across, at least 105mm long, tapering to point which has broken away; head is typically burred, slightly expanded, from use with hammer. Manning (1985, 9-10 & Pl 5 A23-25) discusses the various ways in which punches may have been used.
9. Context 335 near base of furnace 494. (Fig 00). Possible graving tool, 57mm long, square-sectioned 5mm across, narrowing to chisel-like tip 1.5mm across. The identification depends on the shape of the tip (Manning 1985, 11); the small chisel-shaped end might be due to differential preservation and cleaning of a nail.
10. Context 283 upper fill of Hollow 282. (Fig 00). Possible needle broken across eye; survives 57mm long, rounded shaft near point but other end of shaft flattens and may just have the base of the eye hole (Manning 1985, 35-6 & Pl 15 D14-32).
11. Context 285 upper fill of Hollow 284. (Not illus). Possible top of punch as No 8 25 mm across.
12. Context 285 upper fill of Hollow 284. (Not illus). Possible bit-head, the expanded top of a drill-bit which has broken off (cf Manning 1985, 27 & Pl 12 B61).
13. Context 291 over Hollow 287. (Fig 00). Joiner's dog 85mm long (see No 1).
14. Context 336 upper fill of fire pit 337. (Not illus). Part of chain link, surviving 35mm long, round section 10mm across.

Discussion of the Iron Artefacts and Ironworking

Any attempt to consider the significance of this material for the Roman period in Cornwall is hampered by two factors. For the artefacts extensive X-ray and selective cleaning to aid identification has only become general practice from the 1980s. For the slags, there have been significant advances during the 1990s in the understanding of the processes of the production of iron and iron artefacts and many metallurgists who commented on material for past publications had little archaeological background. It is therefore difficult to use published material as comparanda.

The identified artefacts include several, notably the punch No 8, which may be connected with smithing. The suggested bunch of joiner's dogs No 1 would be the results of smithing put aside and not used. Otherwise the range represented is wide, with the latch-lifter No 5, the needle No 10 and the upholstery stud No 6 reflecting general domestic activity. There are very few nails in the assemblage. The situation at Trethurgy, with about half the assemblage nails, is probably more typical of Cornish Roman period sites. Few artefacts are complete. While an object such as the suggested bit-head No 12 is a type that regularly breaks, the collection as a whole appears very fragmented. The modal size of the assemblage is around 70mm in maximum measurement. It is quite possible that most of this represents material used for the smithing of new artefacts, with the fragments chopped up by cold chisel. This fragmentary state, possibly deliberate, was noted at Trethurgy (Quinnell forthcoming (a)). The assemblage at Trethurgy however was much less concentrated, some 480 pieces coming from the complete excavation of the round and no specific focus for smithing work was identified.

The presence of hammerscale and the bunch of joiner's dogs No 1 in the Phase 3 Ditch 320/321 suggest that there was ironworking throughout the use of the round at Little Quoit Farm. The main activity appears to have been in the Phase 4 Hollows 282 and 284. There are two alternatives. Either the focus for smithing before Phase 4 was in an area of the round not excavated or the site became the focus of more specialised smithing in Phase 4. The latter is perhaps more likely. The Hollows associated with smithing run across the interior of the site. Generally, on sites considered to have regular domestic use as at Trethurgy, activity is concentrated around the perimeter, leaving the centre as fairly clear space. The one clear exception to this is the round at Killigrew, Trispen where activity probably connected with tin production spread across the middle of the site (Coles forthcoming). If it is considered that the site was providing smithing services for the surrounding area, the artefacts represented, except those connected with metal working, may have no direct relevance for activity on the site, as they could have been brought in for reprocessing from the surrounding neighbourhood.

The presence of plano-convex slag hearth bottoms/pit bases are considered diagnostic of smithing activity. These distinctive slag pieces have only so far otherwise been identified and published in Cornwall from the round at Reawla (Bayley 1992), where four were found. Reawla also produced a tuyere but no actual smithing hearths were identified. The site only produced c. 3 kg of slag, about a tenth of that from the much smaller area at Little Quoit Farm. Reawla was considered by Bayley to represent small scale smithing throughout a period of time on a site which was generally concerned with farming. The publication of Reawla benefited from modern understanding of ironworking processes and the site probably represents the situation at a broad range of Cornish rounds, Carlidnack, Trevisker, Goldherring, Castle Gotha; references to these sites are given in the discussion on Duckpool, North Cornwall (Ratcliffe 1995, 114), an open settlement with extensive evidence for lead and other non-ferrous metalworking but with that for smithing limited to apparent chopping up of a few iron objects.

The rectangular enclosure at Carvossa produced some 36 kg of slag, described as tap slag, some of it associated with hearths. The report on the Carvossa slags does identify the pieces examined as smelting slag (B Bagshaw in Carlyon 1987, 128). It is however unclear whether smithing slags were also present and whether the identification of smelting slag would be maintained by modern analysis. A full stratigraphic report on Carvossa has not been possible due to problems with the excavation record (Carlyon 1987, 105). An archive report (Carlyon 1999) includes photographs which suggest that features were present similar to the furnaces and slag pits at Little Quoit Farm, the only other structures connected with ferrous metallurgy so far identified for Cornwall in the Roman period. The

structures at Killigrew Round, Trispen (Coles forthcoming) appear to have been connected with non-ferrous metallurgy, mainly tin.

In assessing the significance of the ferrous metallurgy at Little Quoit Farm it should be emphasised that the material studied was only a sample of what was present (see 4.6) and that only parts of features were excavated on a small part of the site. Not all the slag was examined by a specialist and it is possible that some smelting slag was present: however regular smelting would be expected to produce much larger quantities of slag and can probably be discounted. The quantity of smithing slag, especially furnace bottoms, and related ironwork, tools and broken-up pieces, is so far the largest concentration found in Cornwall for the Roman period. Until recently rounds have been seen as the settlements of farming communities, perhaps of some status, performing a range of crafts on a 'household production' basis primarily for the benefit of their inhabitants (Quinnell 1986, 124). Little appears to be known about the organisation of smithing in the Roman countryside (Manning 1976). Little Quoit Farm appears to be a round at which, at least for a time, the production of iron objects was on a larger scale than needed by its inhabitants, implying that the round became a centre serving the surrounding neighbourhood, something akin the 'household industry' suggested by Peacock (1982, 17-23) for potting: Killigrew round appears to have functioned on the same scale for tin.

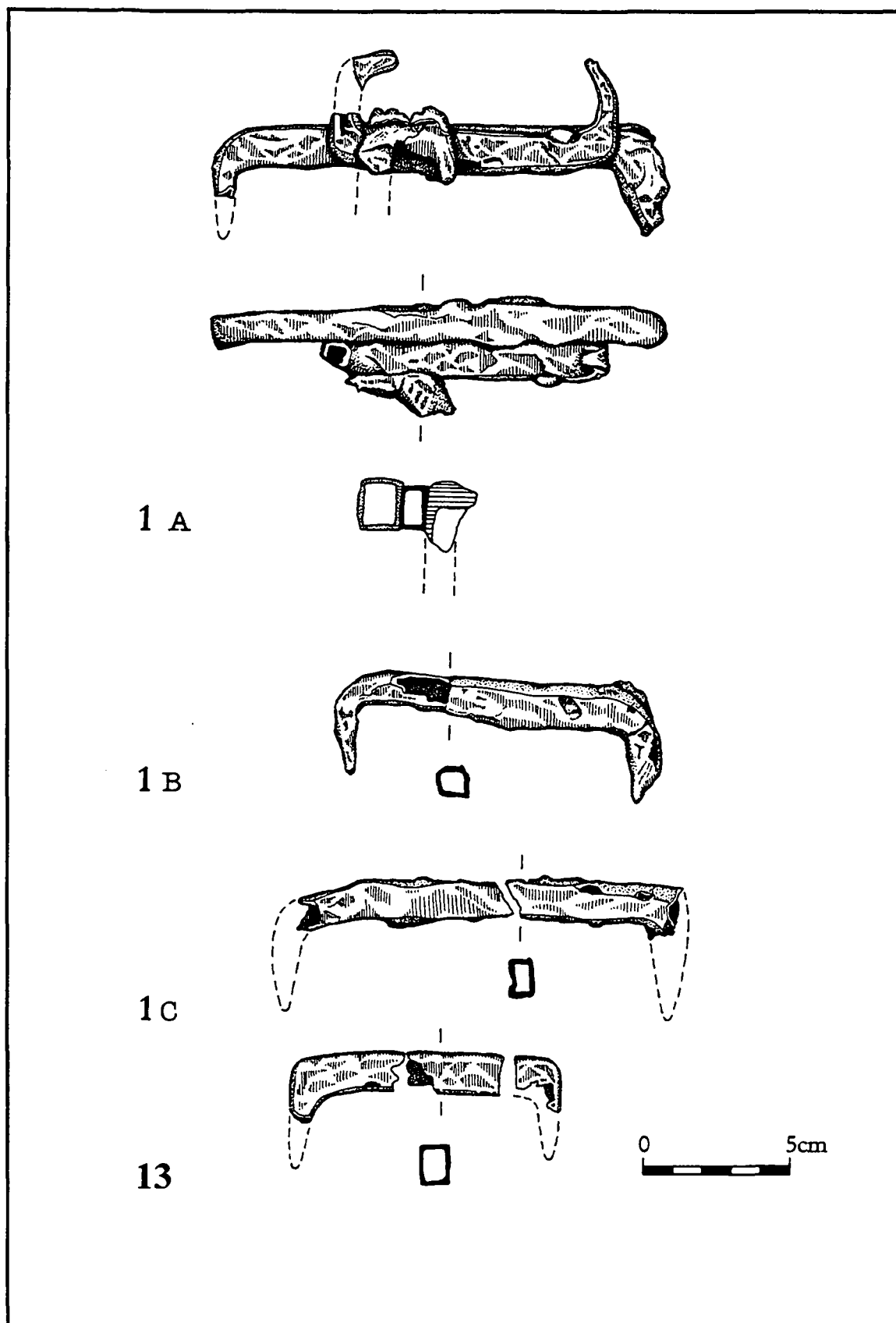


Fig 15 Identifiable iron artefacts (described in Quinnell's report). Number 1A represents three adjoining joiners dogs, numbers 1B, 1C and 13 are single examples.

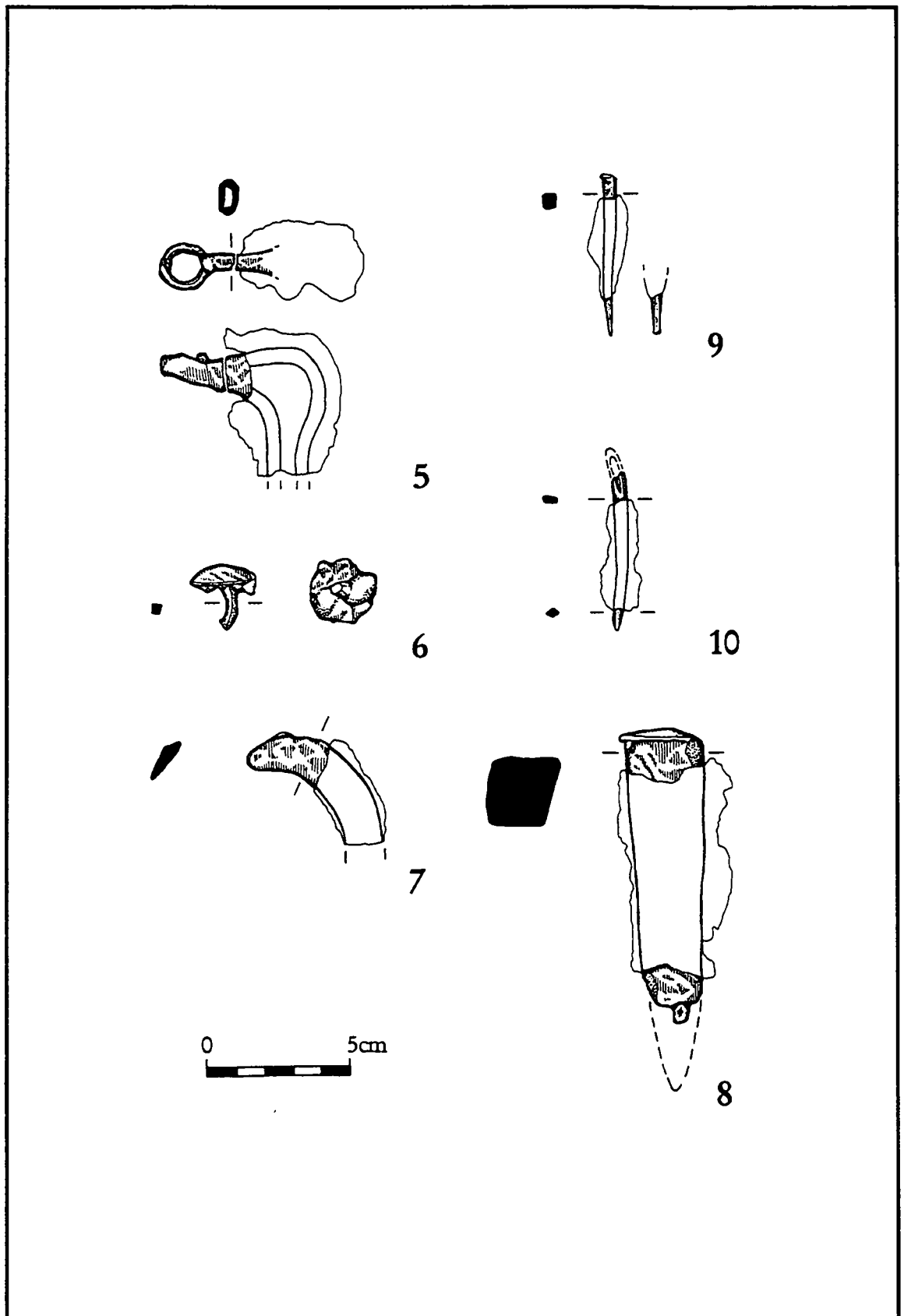


Fig 16 Identifiable iron artefacts (described in Quirrell's report). Number 5 is a latch lifter, 6 an upholstery stud, 7 the tip of a billhook, 8 an ironworking punch, 9 a possible graving tool and 10 a possible needle.

4.6 Slag samples and other metalworking debris

By Anna Lawson Jones (based on comments by Justine Bayley).

This section presents the results of a visual examination of all metalworking debris found during the excavation. Justine Bayley kindly gave advice and agreed to write brief comments. Associated with this report are reports written by Henrietta Quinnell and Helen Wilmot (sections 4.4 and 4.5).

The bulk of the material looked at in this report came from bulk samples of slag-rich contexts. Material specifically picked out, including that removed from environmentally processed samples, is included in the table below. Evidence for smithing and probable small-scale smelting was found. Much of the raw material for smithing (secondary smithing) came from chopped up, previously worked iron objects – based on the material seen during this excavation. The ore source is unknown, but given that *"a major ore source in antiquity was bog iron ore, which formed by the precipitation of iron compounds in lakes and bogs. (and that) Bog ores could easily be worked by digging"* (McDonnell, 1995, Datasheet no.3), it is likely that nearby Goss Moor (a known source of bog iron) was the source for some of it.

Metalworking debris from the Little Quoit Farm excavations

Context No.	Context description / Location	Weight (g)	Debris interpretation	Comments
[281]	Upper fill of ditch [280] (Associated with / below slag pit [292])	1070g 11g	Slag Iron object x 1	No pit bases A
[283]	Upper fill of hollow [282]	441g 139g 41g	Slag / pit bases Iron objects x 6 Hammerscale	Pit base x 1 A-F Plus inseparable dust.
[285]	Upper fill of hollow [284]	890g 454g 130g -	Slag - including tap slag Iron objects x 8 Hammerscale Slag - vesicular spheres	Indicates smithing and smelting - see furnace. A-H Plus inseparable dust. Identified during charcoal analysis of sample.
[286]	Central feature [496] within hollow [284]	-	Slag - vesicular spheres	Identified during charcoal analysis of sample. Dated to the Iron Age.
[291]	Layer overlying natural and hollow [287]	336g	Iron object	Broken in half when found
[293]	Main (upper) fill of slag pit [292]	14568g 1199g 2321g - -	Slag / pit bases Iron objects x 18 Hammerscale. Slag - vesicular spheres Fired clay	Pit bases x 7 A-R Plus inseparable dust. Identified during charcoal analysis of sample. Furnace lining fragments
[296]	Basal fill of slag pit [292]	1559g 208g	Slag / pit bases Hammerscale	Pit bases x 2 Plus inseparable dust.
[303]	Fill of hollow [304]	-	Heavily burnt stone	Not ore (?)
[309]	Fill of hollow [282]	-	Slag - vesicular spheres.	Identified during charcoal analysis of sample.

Context No.	Context description / Location	Weight (g)	Debris interpretation	Comments
[321]	Fill of ditch [320] (associated with palisade fence [355])	704g 14g	Large iron object Hammerscale and corrosion.	Broken in half when found. (Retrieved from the soil adhering to the object)
[335]	Near basal fill of furnace [494]	3078g 251g 641g -	Slag / pit base Iron objects x 5 Hammerscale Slag - vesicular spheres.	Pit base x 1 A-E Plus inseparable dust. Identified during charcoal analysis of sample.
[336]	Main (upper) fill of fire pit [337]	146g 209g 57g - -	Slag Iron objects x 3 Hammerscale Slag - vesicular spheres. Fired and moulded clay	No pit bases A-C Plus inseparable dust Identified during charcoal analysis of sample. Probable furnace blow hole fragment (or possible piece of tuyere ?).
[338]	Main (upper) fill of shallow, linear pit [339] (Hollow [282])	666g 709g 218g - -	Slag Iron objects x 14 Hammerscale Slag - vesicular spheres. Fired clay fragments	No pit bases A-N Plus inseparable dust. Identified during charcoal analysis of sample. Possible furnace or pit lining.
[340]	Fill of pit [341] (Hollow [282])	- -	Slag - vesicular spheres	Identified during charcoal analysis of sample.
[343]	Fill of square pit [342] (Hollow [282])	69g 14g -	Slag Iron object x 1 Slag - vesicular spheres.	No pit bases A Identified during charcoal analysis of sample.
[381]	A lower fill of fire pit [337]	133g 21g 15g -	Slag Iron objects x 2 Hammerscale Slag - vesicular spheres.	No pit bases A-B Plus inseparable dust. Identified during charcoal analysis of sample.
[382]	Basal fill of furnace feature [494]	27g	Slag	No pit bases

Results

The following section categorises the different types of material found during visual examination of the metalworking debris.

Slag - Iron silicate slag with no specific shape, formed within a blacksmith's hearth. The slag included fuel ash slag, a heavier more solid slag composed of slag prills, and a possible

piece of tap slag, which can only be formed during smelting (McDonnell 1983, 81).

Slag was found within the majority of the seventeen contexts listed. In terms of quantity, most of the slag came from slag pit [292], furnace [494] and fire pit [337].

Pit / hearth bases – a plano-convex mass of smithing slag, mirroring the base of the pit that it collected in (the largest measured approximately 13cm in diameter and 7cm thick)

A total of eleven pit bases were retrieved from four different contexts, representing three different features. They are an easily recognisable by-product formed by the hot working of iron, and are diagnostic of smithing activity.

Objects – pieces of heavily corroded metallic iron.

During the excavation two large broken, iron objects were found in contexts [291] and [321]. In addition a fairly substantial number of small, predominantly broken iron objects were found within nine different contexts. The presence of these objects indicates deliberate collection, probably for re-use. In addition, the bulk deposit of slag and broken objects found in pit [292], probably represents a forgotten or lost cache of similarly collected material. Secondary smithing, or the re-working/repairing of iron objects, characteristically forms spherical hammerscale. Numerous contexts produced evidence for such.

Once identified the objects were taken to Salisbury for further specialist analysis in the form of x-ray and selected conservation.

Hammerscale – flake or spheroidal fragments of solidified, liquid slag. Typically hammerscale takes either the form of flakes (1-3mm in size) or similarly sized spheroids.

Flake hammerscale is composed of oxide/silicate skin dislodged by mechanical or thermal shock when iron is forged. Spheroidal hammerscale (or small spheres of slag) results from the solidification of small droplets of liquid slag expelled from within the iron during hot working. *"This happens particularly when two components are fire welded together, but also during the primary smithing of the bloom into a bar or billet"* (Historical Metallurgy Society: Archaeology Datasheet No 10).

The identification of hammerscale is important because it is diagnostic of iron smithing, and because it is often found in the immediate vicinity of the smithing hearth and anvil – see comments regarding possible anvil block found within the abandonment, upper fill of fire pit [337].

The presence of hammerscale precisely locates areas of smithing activity. During excavation it became apparent that the bulk of obvious metalworking waste was located within the northern portion of the excavation – centred around hollows [282] and [284]. This on-site impression has subsequently been borne out by the environmental examination of soil samples (taken from across the site) which recorded that spheroidal hammerscale only occurred in and around hollows [282] and [284].

The exception to this northern concentration is the hammerscale found in context [321], which came specifically from soil/hammerscale concretions associated with the large broken iron object found.

Fired clay – furnace / hearth lining fragments which have acquired a vitrified (fuel ash slag) surface from contact with the fire (Bayley 1992, 114). Furnace and hearth lining clay cannot as yet be distinguished (McDonnell 1983, 82). In addition, a piece of shaped, curved fired clay which probably relates either to a blowing hole associated with the furnace, or perhaps a smashed piece of tuyere was found in context [336]. (This piece of curved and shaped, fired clay has not been definitively identified. Only a small portion was

found, and that was brittle and easily fractured).

No evidence was found during the excavation to suggest that any of the metalworking features were specifically lined with clay below ground level, with the possible exception of fire pit [337]. Some at least of this fired clay is likely to represent the heat reddened, fired, underlying natural clay shillet, fragments of heat reddened shillet were noted during the excavation, which would seem to substantiate this suggestion.

Quantification of material by area

A series of short tables have been created to show the relative weights of metalworking waste material in relation to features.

Hollow [282]

The table below lists all contexts containing weighed metalworking waste, within or associated with hollow [282].

Feature	Context	Weight
Upper fill of hollow [282]	Fill [283]	621g
Shallow linear pit [339]	Fill [338]	1593g
Shallow square pit [342]	Fill [343]	83g
Total weight		2297g

Hollow [282] contained approximately 38% of the amount of material that hollow [284] did, but it would seem to have been equally strongly related to smithing activity, (during both the first and the second phase of the site). Each of its miscellaneous shaped pits produced evidence for smithing, (including the fills of the hollow itself).

Hollow [284]

The table below lists all contexts containing weighed metalworking waste, within or associated with hollow [284].

Feature	Context	Weight
Upper fill of hollow [284]	Fill [285]	1474g
Furnace [494] (abandonment fills)	Fills [335] + [382]	3970g
Fire pit [337]	Fill [336]	412g
Fire pit [337] (abandonment fills)	Fill [381]	169g
Total weight		6025g

A significantly larger amount of material related to metalworking was found within hollow [284] and its associated features, than for hollow [282]. Much of this is due to the presence of larger features into which surrounding waste was pushed during the abandonment phase. However, it also no doubt reflects the scale of activity taking place within this hollow.

Ditch [280]

The table below lists all contexts containing weighed metalworking waste, excavated from ditch [280].

Feature	Context	Weight
Upper fill of ditch [280]	Fill [281]	1081g
Total weight		1081g

This material reflects metalworking waste pushed or washed into a partially open pre-existent feature (from the east). it may well relate to subsequent slag pit [292] (and perhaps layer [305].

Slag pit [292]

The table below lists all contexts containing weighed metalworking waste from within slag pit [292].

Feature	Context	Weight
Main upper fill of slag pit [292]	Fill [293]	18088g
Basal concreted fill of slag pit [292]	Fill [296]	1767g
Total weight		19855g

Slag pit [292] represents part of an apparently *in situ* cache of iron waste, primarily in the form of slag and small, broken iron objects. As a result it produced a significantly heavy amount of smithing waste.

Quantification of material by type

Slag type	Total weight (g)
Undifferentiated slag and pit bases	22647g
Hammerscale - flake and spheroidal	3645g
Iron objects (from within slag contexts)	3007g
Lone iron objects	1040g
Total weight	30339g

Concluding comments

A total of some 30.339kg of metalworking waste was found in seventeen different contexts during the excavation of Little Quoit Farm. The seventeen different contexts come from thirteen separate features. Nine of the thirteen features were located specifically within the two northern most hollows found on site (hollows [282] and [284]).

Metalworking within the round was not confined to the area seen during excavation. Metalworking debris appeared to quite clearly have been washing in from the east, while pit [292] itself extended beyond the eastern edge of the excavation. Similarly, the identification of pit bottoms from soil samples, but not the identification of the hearth pits themselves, means that an unquantified amount of smithing activity was taking place outside the excavation area itself. (The identification of hammerscale from pit [496], the fill of which was radiocarbon dated to the Iron Age would suggest that such smithing activity continued for a very considerable amount of time on site). No evidence was found for metalworking activity outside the round, during the related SWW pipeline watching brief. However, probable small-scale ore collection - and possibly roasting, plus the gathering of wood - and probable charcoal production, would have taken place outside the round (see charcoal report, section 5.2).

Note: In no case was the entirety of any of the features discussed above sampled. An estimated 50%+ was not sampled. In addition, the excavation corridor itself only looked at a small proportion of the round (approximately 15%). Total excavation of Little Quoit Farm, along with a comprehensive 100% sampling strategy would almost certainly have produced a very substantial amount of metalworking material, and a whole array of associated features.

The existence of a specific layout of metalworking features has been hinted at elsewhere in the text: potential storage structures to the south, heat related work and features to the north, and the specific storage or dumping of related material all hint at a clearly defined use of features and space within the round during phases three and four.

5 Environmental reports.

5.1 Charred plant remains

By Julie Jones

Introduction

The samples were sieved in the School of Geographical Science at Bristol University in a flotation tank to a 250 micron float and 500 micron residue. The floats and residues were then dried before examination. While most of the samples produced charcoal, many contained no other plant remains and are indicated as 'assessed' on the table. Those samples that did contain plant macrofossils, included mostly very small assemblages of cereal grain, chaff and weed seeds and other remains. A table showing the full details are shown in section 9.3. Nomenclature follows Stace (1991).

Northern Enclosure Ditch [275]

Of the three contexts examined from this feature (310, 311 and 313), 310 only produced a single rush seed (*Juncus* sp) and a heath-grass (*Danthonia decumbens*) caryopsis.

Hollow [282]

The six samples (contexts 338A, 338B, 340, 343, 346, and 309) from this large circular hollow with several associated pits, produced no plant remains.

Fire Pit [337]

Two samples were examined from a steep-sided rectangular pit (contexts 336 and 381) which lay close to the working hollow. It is thought from the scorched sides and base of the pit that burning *in situ* occurred. The basal fill (context 381) contained two grains and two glume bases of wheat (*Triticum* sp) plus barley chaff fragments. Remains of gorse (*Ulex* sp) were also noted and included seeds, spines and stem fragments. A few other seeds included heath-grass, sedge (*Carex* sp), buttercup (*Ranunculus acris/reperis/bulbosus*) and clover/medick (*Trifolium/Medicago* spp). Charcoal from this basal fill was submitted for radiocarbon dating. The upper fill (context 336) also had remains of gorse spines and stems with one fragment of hazel nut (*Corylus avellana*), plus a single wheat grain.

Hollow [284] and furnace [494]

Four samples from these features (contexts 285, 286, 382 and 335) produced no plant remains. Alder (*Alnus glutinosa*) charcoal from a basal fill of a hearth-like feature (context 286) was submitted for radiocarbon dating.

Hollow [287]

The basal fill (context 379) of hollow [287] included one unidentifiable cereal grain plus a possible wheat glume base. There were also two fragments of gorse stem plus a single seed of sheep's sorrel.

Ditch [280] and pit [292]

Although the basal fill of the ditch (context 294) produced no plant remains, the middle fill (context 295) included a single barley grain. The upper fill of a pit cut into the top of the ditch which contained much slag and charcoal also included a single charred fragment of hazel nut shell and one rush seed.

Ditch [298] and hollow [304]

The basal fill of ditch 298 (context 300) included a single wheat grain and glume base, with seeds of sedge, heath-grass, brome (*Bromus* sp) and dwarf spurge (*Euphorbia exigua*). The basal fill of hollow 304 (context 303), included three oat (*Avena* sp) and one barley grains with a few fragments of wheat and barley chaff. Two seeds included clover/medick and cleavers (*Galium aparine*).

Rampart [329], palisade fence [355] and southern enclosure ditch [319]

None of the samples associated with these features produced any plant remains. However gorse/broom (*Ulex/Cytisus*) charcoal from the upper fill of the rampart (context 326) was submitted for radiocarbon dating.

Discussion

Many of the features examined were from industrial contexts associated with smithing, with deposits containing quantities of slag and charcoal. It is not surprising therefore that most deposits contained a low abundance of charred plant remains. Some of the macrofossils which do occur can be related directly to the charcoal also present in the samples. Rowena Gale found that charcoal of gorse/broom (*Ulex/Cytisus*) was common and other evidence for the presence of gorse was recovered in the form of seeds, spines and stem fragments from several samples. Similarly hazelnut shells were probably collected along with the hazel wood for use as fuel. Gorse commonly occurs in grassy places, in open woods and on heathland mostly on sandy or peaty soil, and could have occurred in some of the pockets of heathland that occur in places along the pipeline or from Bodmin Moor further to the north. Some of the other weeds present in the samples are also typical of heathland. These include heath-grass, which also likes sandy or peaty soils on heaths and moors and sheep's sorrel, which prefers acid sandy soils. As well as occurring on heathy open ground, it can also thrive in short grassland and cultivated land (Stace 1991).

Charred remains of cereals are sparse from most features producing only a few examples of grains and chaff of wheat and barley with the addition of oat grains. Several of the weed species, again mostly present in singular numbers, include brome, clover/medick and scarlet pimpernel and are likely to be arable weeds, which grew with the crops. The charred remains of gorse and hazel are likely to have become incorporated into the fills of features, along with the wood charcoal of these species and used as a fuel associated with smithing. The charred cereal remains, however, are more likely to represent background material from within the complex, which had become incorporated into these features. It is possible to say that cereals including wheat and barley, with the possible addition of oats (although there is no chaff present to confirm whether these are wild or cultivated) were being used on the site. It is not possible to tell if the crops would have been grown nearby, although there would have been areas locally suitable for cultivation. Much of the route of the pipeline today crosses agricultural land and although the soils are acidic and fairly nutrient poor these would have been suitable for small-scale cultivation. The general paucity of cereal chaff and weeds may also suggest that cereals were not processed in the areas excavated.

Conclusion

The evidence gained from the charred plant remains is fairly limited. Remains of gorse and hazel in some deposits clearly relate to the use of the wood of these species, also identified from their charcoal as a fuel in metal-working activities carried out on site. Remains of cereal crops are sparse, but it is suggested that wheat, barley, and possibly oats were cultivated in the vicinity and may have reached the site in a processed form ready for use.

5.2 Charcoal report

By Rowena Gale

Introduction

Charcoal-rich contexts from industrial features associated with a 2nd to 3rd century Romano-British metal-working site in Field 12 (site 16), at Little Quoit Farm, provided the opportunity to study the use of local resources to fuel the industry. In total, detailed analysis was carried out on charcoal from 27 bulk soil samples, to provide economic and environmental data, and to isolate suitable material for radiocarbon dating.

Materials and methods

Bulk soil samples taken from various features along the course of the pipeline were processed by flotation and sieving by Vanessa Straker at the Bristol Unit. The resultant flots and residues were scanned for charcoal. Hand-picked samples required no further processing.

Charcoal fragments measuring >2mm in cross-section were prepared for examination using standard methods. Fragments from each sample were fractured to expose fresh transverse surfaces and sorted into groups based on the anatomical features observed using a x20 hand lens. Representative fragments from each sample were selected for detailed study at high magnification. These were fractured to expose the tangential and radial planes, supported in washed sand, and examined using a Nikon Labophot microscope at magnifications of up to x400. The anatomical structure was matched to prepared reference slides.

Where possible the maturity (i.e. heartwood/ sapwood) of the wood was assessed and number of growth rings recorded. It should be noted that measurements of stem diameters are from charred material; when living these stems may have been up to 40% wider.

Results

The results of the charcoal analysis are summarised in the Table, and discussed in detail below. The anatomical structure of the charcoal was consistent with the taxa or groups of taxa given below. It should be noted that the anatomical structure of some related taxa can not be distinguished with any certainty, for example, members of the Pomoideae (*Crataegus*, *Malus*, *Pyrus* and *Sorbus*), Leguminosae (*Ulex* and *Cytisus*) and Salicaceae (*Salix* and *Populus*). Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964-80).

Betulaceae. *Alnus* sp., alder; *Betula* sp., birch

Caprifoliaceae. *Sambucus* sp., elder

Corylaceae. *Corylus* sp., hazel

Fagaceae. *Quercus* sp., oak

Oleaceae. *Fraxinus* sp., ash

Leguminosae. *Cytisus* sp., broom; *Ulex* sp., gorse.

Rosaceae. Subfamilies -

Pomoideae: includes *Crataegus* sp., hawthorn; *Malus* sp., apple;

Pyrus sp., pear; *Sorbus* spp., rowan, service tree and whitebeam.

Prunoideae: *P. spinosa*, blackthorn.

Salicaceae. *Salix* sp., willow and *Populus* sp., poplar.

Oak heartwood was common to almost all features. In the following text and tables heartwood is referred to as (h), while roundwood ($\varnothing < 20\text{mm}$) and sapwood (including roundwood $\varnothing > 20\text{mm}$) are indicated by (r) and (s).

Key r: roundwood ($\varnothing < 20\text{mm}$); s: sapwood (including roundwood $\varnothing > 20\text{mm}$);

h: heartwood (including unknown maturity); hp: hand-picked charcoal

Radiocarbon dating: with the exception of oak heartwood all the charcoal identified below is suitable for submission.

Cont	Samp	<i>Alnus</i>	<i>Betula</i>	<i>Corylus</i>	<i>Fraxinus</i>	Pom- oideae	<i>Prunus</i>	<i>Quercus</i>	<i>Salicaceae</i>	<i>Sambucus</i>	<i>Ulex/Cytisus</i>
[275] N. enclosure ditch											
310	9	-	-	-	-	-	-	-	-	-	3
311	10	-	-	-	-	-	-	2sh	-	-	6r
313	11	-	-	-	-	-	-	2h	-	-	-
[339] linear pit											
338	16	-	-	1s	-	-	-	68rh	-	-	18
[346] pit											
346	19	-	-	1	-	-	-	101sh	-	-	44r
[282] hollow											
283	hp	-	-	1	-	3s	-	22rsh	-	-	2
309	8	1	-	-	-	-	5	68r	-	-	10r
[341] pit											
340	17	-	-	-	-	-	-	6rsh	-	-	1
[342] pit											
343	18	1	-	1	-	-	-	56sh	-	-	39r
[337] fire pit											
336	15	-	2r	10	-	-	-	9rh	1	-	1s
381	25	-	-	56r	-	2	-	19r	2	1r	29r
[284] hollow											
285	1	1	-	1	-	-	-	8sh	3r	-	2r
[496] pit (hearth)											
286	2	1	-	-	-	-	-	36sh	-	-	-
[494] furnace											
335	14	2	-	2r	-	1	-	71rsh	-	-	62r
382	26	-	-	-	-	-	-	12sh	-	-	4r
[287] hollow											
288	hp	-	-	-	-	-	2	-	-	3	-
379	24	-	-	-	-	-	-	5h	-	-	1
[292] Slag filled pit											
293	3	-	-	17r	-	1	4	47rh	1	-	6
[280] ditch											
294	4	-	-	-	-	-	-	1h	-	-	-
295	5	-	-	-	-	1	-	4sh	-	-	2r
[298] ditch											
300	6	-	-	-	-	1	-	3sh	-	-	1r

Cont	Samp	<i>Alnus</i>	<i>Betula</i>	<i>Corylus</i>	<i>Fragaria</i>	<i>Pom- oideae</i>	<i>Prunus</i>	<i>Querc- us</i>	<i>Salic- aceae</i>	<i>Samb- ucus</i>	<i>Ulex/ Cytisus</i>
[304] hollow											
303	7	-	-	-	1	1	-	4sh	-	1	2r
[371] palisade posthole											
372	22	-	-	-	-	-	-	1	-	-	-
[374] palisade posthole											
374	23	-	-	-	-	-	-	2	-	-	1
[357] palisade posthole											
358	20	-	-	-	-	-	-	6h	-	-	-
[329] rampart											
326	12	-	-	-	-	-	-	2s	-	-	1
328	13	-	-	-	-	-	-	3sh	-	-	-

Northern enclosure ditch [275]

Charcoal from contexts [310], [311] and [313] was sparse, but included oak (s,h) and gorse/ broom.

Hollow [282]

Hollow [282] was a large, almost circular working hollow, roughly 5m in diameter. Several pits occurred within the hollow, and it was evident that the area had been associated with metalworking.

The hollow contained a north-south aligned linear pit [339], of which the main upper fill, [338], included oak (r,h), gorse/ broom and hazel. The morphology and structure of the oak roundwood (eg. Ø 8mm, 6 annual rings – Ø 15mm, 9 annual rings) suggested an origin from coppiced rods, which were probably cut during the summer months.

The large volume of charcoal excavated from a 'spread' [346], within hollow [282], consisted mainly of very fast-grown oak roundwood (eg. Ø 20mm, 4 growth rings), with more mature oak containing heartwood. Gorse/ broom was also frequent, but hazel was sparse. Charcoal residues from context [309], from the mid/ basal fill of [282] mostly consisted of fragments of oak roundwood (eg. Ø 15mm, 7 growth rings), although small quantities of blackthorn, gorse/ broom and alder were also present. Charcoal from an area around a furnace feature in the upper fill, [283], consisted mostly of oak (r,s,h), which included fast-grown coppice stems (eg. Ø 10mm, 8 growth rings); and, in addition, hazel, gorse/ broom and hawthorn type roundwood (Ø 30mm, 35 growth rings).

Charcoal was also examined from the fills of 2 features within the hollow: a shallow truncated pit [341], at the northern edge of the working hollow, and a square-shaped pit [342]. Oak (s,h) and gorse/ broom were common to both, while pit [342] also included small amounts of hazel and alder.

Fire pit [337]

The scorched base and sides of a steep-sided, rectangular pit, abutting the southern edge of the working hollow [282], were consistent with *in situ* burning. It seems likely that at least some of the charcoal examined represents debris from burning within the pit. Fills [336] and [381] included oak (r,h), gorse/ broom stems, hazel stems (Ø 5-25mm), willow/ poplar, birch, elder and the hawthorn group.

Hollow [284] and furnace [494]

The shallow, almost circular hollow, some 4m in diameter, lay immediately to the south of working hollow [282]. The upper fill [285] of the hollow included oak (s,h), gorse/ broom, alder, hazel and willow/ poplar stems (\varnothing 10mm). A rectangular feature, [496], within the hollow, contained a burnt fill [286] with (mostly) oak (s,h) charcoal, but also alder.

A furnace bowl and flue [494], cut into the edge of the hollow, measured some 4m in length. Charcoal [382], from the basal fill of the flue [381], consisted of oak (s,h) and gorse/ broom stems. Charcoal was more abundant in the second fill of the flue and although mostly from oak (r,s,h) and gorse/ broom stems (\varnothing 5-15mm), other taxa identified included hazel (r), alder and the hawthorn group. Fast-grown oak stems (eg. \varnothing 10mm, 4 growth rings) suggested the use of coppice rods.

Hollow [287]

The hollow was sited adjacent to, and south of, hollow [284]. Charcoal was sparse in its basal fill [379], and consisted of oak (s,h) and gorse/ broom. Elder and blackthorn were identified from hand-picked charcoal, [288], from the main fill of the hollow.

Ditch [280] and pit [292]

The ditch underlay the southern end of hollow [287]. Although charcoal was rare in the ditch [280], a piece of oak (h) was recorded from the basal fill [294], and fragments of oak (s,h), gorse/ broom, and the hawthorn group from the middle fill [295]. Pit [292], cut into the top of the ditch, contained slag, burnt soil and charcoal.

The slag derived from iron smithing and was not related to the use of the furnace. Charcoal from the upper fill, [293], included oak (r,h), gorse/ broom, hazel (r), blackthorn, willow/ poplar, and the hawthorn group. Some fast-grown oak stems measured 8mm in diameter (3 growth rings), while oak heartwood included narrow growth rings, indicating slow-growth.

Ditch [298] and hollow [304]

Charcoal was sparse in the fills of both the shallow oval hollow [304] and the ditch [298] underlying the hollow. Oak (s,h), gorse/ broom and hawthorn group were common to both features, while elder and ash were recorded only from the hollow.

Rampart [329], palisade fence [355] and southern enclosure ditch [319]

Contexts [326] and [328] represent the upper and lower fills, respectively, of the surviving layer of the rampart [329]. Charcoal occurred infrequently in the clayish deposit (from the southern enclosure ditch [319]). Both samples included oak, and the upper fill also included gorse/ broom. Charcoal from the fill [358] of posthole [357] was very comminuted, and composed of oak (h). This posthole represents one of a series of 10 or 11 postholes forming palisade fence [355] which ran parallel to rampart [329], on the northern internal side of the round. Although sparse, charcoal from the fills of postholes [371] and [374] included oak and gorse/ broom.

Discussion

Environmental evidence

The route of the pipeline crosses fields and agricultural land in mid Cornwall. Small local pockets of heathland are shown on the Ordnance Survey map close to some stretches of the pipeline. The soils of the region are generally thin, nutrient poor and acidic, except where sheltered or alluvial deposits provide richer conditions and deeper soils.

The generally harsh conditions prevalent in exposed areas of the Cornish landscape have reduced potential woodland to sparse, stunted trees and scrub. In the present landscape (and that of the past few centuries) climax woodland is predominantly oak (*Quercus*); in some places almost pure sessile oak woods exist, with little or no understorey (Marren 1992). Despite the abundance of oak, the trees rarely produce good quality timber except in sheltered woods, which allow the trees to develop to reasonable dimensions, as for example in the deep gorges at Draynes Wood, on the edge of Bodmin Moor (Marren 1992). In the past the main economic value of the woods was in the production of coppice for wood fuel, charcoal, pit props for the numerous tin mines, and tanbark. In historic times such coppices usually lacked standard trees.

The presence of iron slag verifies that on-site smithing took place. Although there was no direct evidence of iron-smelting at the site it could not be ruled out, and similarly, given its locality, neither could the processing of tin or other metals. Until the introduction of coke in the relatively recent past, charcoal was the only heat source capable of producing the requisite temperature in the reduced atmosphere of the iron-smelting furnace. Charcoal was probably equally important in smithing, although recent experiments have suggested that this process could be carried out using well-seasoned wood (Jane Cowgill, pers comm.).

The existence of managed oak woodlands is clearly demonstrated by the remains of coppiced rods in the residues of industrial fuel. Although the site was some distance from coastal exposure, the effects of salt-laden winds and impoverished soils probably diminished the normally rapid growth rates of coppice stems (visible in the wood as wide annual increments, which reduce in width after the first few years). If below average wood growth persisted, then regenerating coppice stools would have been slower to attain useful dimensions, and, depending on the demands of the industry, wood supplies may have been rapidly depleted. Charcoal production, in particular, consumes huge quantities of wood; for example, it takes approximately 6 tons of wood to produce 1 ton of charcoal (Percy 1864; Edlin 1949).

Since the narrow corridor of excavation at Little Quoit Farm probably exposed only a proportion of the total iron-working area, neither the output nor the life span of the unit could be assessed. Even if operated on a relatively small-scale it is likely that most oak woodland in the area would have been coppiced at this time.

The dominance of oak at or near the site is substantiated by its frequency in the charcoal residues, and accords with the typical Cornish woodland described above. Similarly, gorse (*Ulex*) and/ or broom (*Cytisus*) also appear to have been common in the region. Gorse typically grows on leached, acid or disturbed soils, sometimes in association with, although usually dominant over, broom (*Cytisus*). Although the anatomical similarity of gorse and broom prevents definitive identification of the charcoal, it is probably more likely to be gorse (see below – fuel). Certain modifications in structure allow gorse to grow in less favourable habitats, and although unpleasant to handle, the spiny branches and stems have had numerous economic uses. In some areas (eg in Ireland) gorse has been managed and regularly coppiced (Lucas 1960). There was no evidence to suggest that coppiced wood was used here, but its abundance implies that it was probably common nearby, perhaps on heathland.

The paucity of other taxa in the charcoal residues may reflect the preferential selection of fuel woods, but it is probably also a measure of their distribution in the environment. Additional taxa, used sporadically and sparingly, include alder (*Alnus*), birch (*Betula*), hazel (*Corylus*), ash (*Fraxinus*), blackthorn (*P. spinosa*), hawthorn/ *Sorbus* group (Pomoideae), willow/ poplar (*Salix/ Populus*) and elder (*Sambucus*). Hazel may have grown as understorey

in oak woodland but may also have flourished in open areas with marginal woodland species such as elder, hawthorn, blackthorn and birch. Birch typically grows on poor acid soils and possibly formed open communities with gorse, and perhaps with oak. There was some evidence (from field 25) to suggest that rowan (*Sorbus aucuparia*) also grew locally. Willows and alder usually require soils with a high water content.

The extent of tree/ shrub communities along the course of the pipeline would have varied according to the local topography and edaphic conditions. Tree cover may have been modified and managed to a greater or lesser extent to supply local settlements, industries, grazing and land for arable farming. Woody taxa identified from charcoal from the watching brief in the southern half of the pipeline indicated similar findings to those described above, although poor preservation of the charcoal resulted in a paucity of material from most fields. Only field 25 provided good-sized samples, from pit [262]. Interestingly, oak charcoal was exceedingly sparse compared to alder, birch, hazel, rowan/ hawthorn and blackthorn. This could imply either:

- a) a significant reduction of the oak woodland; or
- b) the preferential selection of other taxa; or
- c) an area topographically unsuited to oak woodland.

Fuel and fuel resources

The numerous features associated with the iron-works at Little Quoit Farm suggest that the industry was well established and possibly endured for some years or even decades. This would imply that adequate fuel supplies were available in area. Slag occurred throughout the site. There was evidence for smithing and perhaps smelting taking place on the site.

As discussed above charcoal was essential for smelting and was traditionally used for smithing. The quality and performance of charcoal is dependent on the efficiency of its production (ie its carbon content) (Chris Irwin, pers comm.), and oak charcoal was one the most heat-efficient fuels available in Britain in the Romano-British period (Marren 1992). Evidence from Late Iron Age – Romano British iron-working sites in Britain shows a strong preference for the use of oak, as for example at Creeton Quarry, Lincolnshire (Cowgill, in prep), Bonemills Farm, Cambridge (Gale, unpub), Pomeroy, Devon (Gale, in Fitzpatrick, in prep), Bardown, Sussex (Cleere and Crossley 1995), Lefevre Walk and Parnell Road, Bow, London (Gale, in Rackham, in prep) and Welwyn Hall, Hertfordshire (Gale, unpub). In common with the Little Quoit Farm site, fuel residues from these sites included both narrow roundwood and oak heartwood, indicating the use of wood mature enough to have developed heartwood. Heartwood formation increases the density of the wood and thus raises its calorific potential. It appears that not all sites, however, favoured or followed this practice, since fuel residues from 5 Roman sites in the Forest of Dean (Chesters Villa, Woolaston and 4 at Ariconium), clearly indicated the specific use of narrow oak roundwood (Leyell, in Jack 1923; Figueiral, in Fulford and Allen 1992; Gale, unpub).

Traditionally charcoal clamps have been constructed with billets or cordwood, sometimes with narrower roundwood stacked upright around the perimeter (Armstrong 1978). Charcoal residues from the fuel industry at Little Quoit Farm consisted mainly of oak sapwood (including roundwood $\varnothing >20\text{mm}$) and heartwood, and sometimes narrow roundwood (charred $\varnothing <20\text{mm}$). Alder, birch, hazel, ash, member/s of the hawthorn group, blackthorn, willow/ poplar and elder could conveniently have been included in the charcoal clamp as narrow roundwood. Gorse, however, poses more of a problem since its morphology does not lend itself easily to upright stacking. Gorse stemwood burns with immense heat and leaves very little ash (Edlin 1949), and has traditionally provided an

important source of fuel. Gorse from Little Quoit Farm mainly consisted of fairly narrow stems and its consistent occurrence in the fuel residues implies that it was used with the oak, as an industrial fuel. This could infer either that:

- a) gorse stems were, in fact, included in the charcoal clamp, or
- b) that all the fuel consisted of a mixture of charcoal and wood fuel, or
- c) that only wood fuel was used.

If the latter, then it seems probable that all the metal-working fuel residues examined derive from smithing, and would accord with the use of highly seasoned wood as suggested above.

It may be significant that, even in contexts not apparently associated with metal-working, eg the northern and southern enclosure ditches [275] and [329], rampart [326] and palisade postholes [371] and [372], charcoal residues, although sparse, were still predominantly composed of oak and gorse. Although it is feasible that waste materials from industrial uses may have been widely scattered, this bias could reflect the multipurpose use of oak and gorse, owing to their ready availability. Only from the fill of the fire pit [337], was there a suggestion of the increased use of another taxon, in this instance hazel. The purpose of the fire pit is unknown.

Evidence of the use of narrow roundwood and coppiced wood occurred in the working hollows [282] and [284], the fire pit [337], and pit [292]. Charcoal in other contexts was too comminuted to assess. From the few fragments from which it was possible to obtain data, oak diameters ranged from 8 to 15mm, and included from 3 to 9 annual rings; hazel ranged from 5 to 15mm; willow/ poplar 10mm; and a member of the hawthorn group 30mm with 35 annual rings. When living these diameters were probably about 40% wider. Oak stems in the fill of the linear pit [339], underlying the working hollow [282], appear to have been felled in the summer months (although an abrupt cessation of growth early in the season would produce a similar effect in the wood structure). It would have been more practical to fell wood in the winter, after leaf fall and when the stem sap was low. Medieval records from iron-workings in the Weald of Sussex indicate that woodsmen cut wood and made charcoal in the winter months, while smelting was carried out in the summer (Cleere and Crossley 1995).

Evidence of coppicing taxa other than oak was inconclusive. Cross-sections of oak showed the characteristic growth pattern of coppiced rods. In narrower stems the age of felling varied from 3 to 9 years. The frequency of oak heartwood, which does not usually develop in stems less than 20 years of age and may not form until the stems are very much older, indicates the use of considerably wider stems or poles. The use of such a wide range of diameter of oak stems may be explained by the method of harvesting oak poles. Coppice stools produce new growth in successive years, and when clear felling, for example, 100mm diameter poles, much narrower (younger) rods would also have been cut. In addition, wide poles would carry lateral branches, which could provide useful fuel (of the dimensions described above), particularly in areas where wood was a valuable and possibly scarce economic commodity.

Conclusion

Environmental and economic data from the charcoal analysis was obtained from the Romano-British contexts associated with the iron-working site at Little Quoit Farm.

Fuel residues from the iron-working site indicates the use of coppiced oak (*Quercus*) wood, which included both narrow roundwood and poles old enough to have developed heartwood (probably exceeding 20 years of age). Gorse (*Ulex*) (and possibly broom,

(*Cytisus*) was also important in the fuel but other taxa, such as alder (*Alnus*), birch (*Betula*), hazel (*Corylus*), ash (*Fraxinus*), the hawthorn/ *Sorbus* group (Pomoideae), blackthorn (*P. spinosa*), willow/ poplar (*Salix/ Populus*), and elder (*Sambucus*) appear to have been used only sporadically.

It seems likely that, in common with Cornish woods of today and in historical times, the woodland element of the Romano-British landscape was dominated by oak coppices. The high frequency of gorse/ broom suggests that heathland or scrub was also common. Other taxa may have been comparatively infrequent.

5.3 Radiocarbon dating.

Charcoal analysis, carried out by wood anatomist Rowena Gale, allowed for the identification of contexts suitable for radiocarbon dating. Selection of suitable material was then made from this list. (For contexts which produced significant quantities of diagnostically, datable finds, radiocarbon dating was not deemed a priority).

- Three samples were selected firstly to test the start date for the activity in the round (phase three), and secondly to test the two phased interpretation of the round's development. In addition, the third sample in the table should provide a reasonably secure date for the construction of the rampart, this had not been securely dated by stratigraphy, but was placed within phase four by supposition.
- Despite the number of definite pre-round ditch features, none of the samples taken produced suitable material for radiocarbon dating. Fill [295] of ditch [280] produced dateable charcoal, but this probably represents contamination from upper fill [281].
- The basal fills of the outer ditches and rampart failed to produce adequate material while one of the rampart postholes did produce charcoal it was from relatively high up in its profile and could have been introduced after the removal or rotting away of the original post. None of the postholes contained evidence for intact, *in situ* post-pipes, indicative of the fills actually relating to the construction of the palisade.
- Although a number of the samples taken produced sufficient charcoal for dating, many of these contexts could have been contaminated by the ubiquitous presence of charcoal associated with on site metalworking.

Context no.	Description	Phase
[286]	Fill of central hearth-like [496] located centrally within hollow [284].	Pre-round or phase three ?
[381]	Deep, rectangular fire pit [337], located at junction between hollows [282] and [284].	Phase four
[326]	Upper clayey fill of external southern rampart circuit [329].	Phase four

Results

The three samples were measured at the University of Arizona AMS Facility on behalf of the Scottish Universities Research and Reactor Centre. The details below are drawn from SURRC's radiocarbon dating certificates, produced by P. Naysmith and G. Cook.

Context	SURRC ref	Radiocarbon age BP (Uncalibrated)	Calibrated age range, 1 σ	Calibrated age range, 2 σ
[286]	AA - 36505 (GU - 8760)	2470 \pm 45	Cal BC 763 - 412	Cal BC 790 - 404
[381]	AA - 36504 (GU - 8759)	1750 \pm 50	Cal AD 238 - 380	Cal AD 132 - 415
[326]	AA - 36503 (GU - 8758)	1735 \pm 45	Cal AD 242 - 383	Cal AD 180 - 418

The uncalibrated ages are quoted in conventional years BP (before AD 1450). The errors are expressed at one sigma level of confidence. The calibrated age ranges are determined from the University of Washington, Quaternary Isotope Laboratory, Radiocarbon Dating Program. The decadal atmospheric calibration curve is used throughout and the calendar age ranges, obtained from the intercepts (method A), are expressed at both the one and two levels of confidence.

As can be seen the radiocarbon results obtained from context [286] are significantly earlier than expected. The results suggest that the use of feature [496] dates to the Iron Age, which on the basis of the pottery report would imply that this feature does not belong to phase three, but rather a pre-Romano-British period of activity. Interestingly, deposit [286] contained hammerscale (indicative of smithing) which would suggest that iron working in the immediate vicinity of the round went on for around a thousand years.

The remaining two radiocarbon dates are consistent with the dates from the pottery assemblage for phase four. They are almost indistinguishable from each other and clearly tie in the phase four metalworking activity with the apparent redesign and construction of the round's perimeter, ie the rampart construction.

6 Conclusions

The excavations at Little Quoit Farm were intended to record the date and character of an enclosure and possible early field system, identified by geophysical survey, where they were cut by a South West Water pipeline corridor. Five main phases were identified, three of them (3-5) related to the enclosure.

Phase one is represented by a small scatter of residual Neolithic flints, indicative of activity broadly contemporary with the Devil's Quoit chambered tomb which stood 300m to the west. The quoit would have been a prominent local feature throughout the successive phases. In the watching brief on the pipeline more obvious concentrations of flint, perhaps Neolithic, were found in Field 9, 400m to the south (SW 925 615, 19 pieces) and in Field 16, 800m to the north (SW 922 627, 13 pieces).

There is a gap of many centuries before further evidence for activity on the site; phase two is represented by the ditches of a field system. Some ditches underlie 2nd century AD features associated with the round, and the few sherds from the ditch fills suggest a date anywhere from the later Iron Age to the early 2nd century AD. The field system could therefore be late Iron Age or Romano-British. Too little of the field system was recorded, either by excavation or by geophysical survey, to say much about its extent and form. It appears to be rectilinear but irregular. No complete dimensions of enclosures were

recorded but they appear small. The closeness of some of the ditches could suggest successive phases or perhaps a more intricate complex of ditches (eg trackways or enclosures) suggestive of a focus of activity in the area of the later round. There was no concentration of finds to suggest a contemporary settlement but there must have been one nearby. More extensive geophysical survey would help to provide a clearer context for the excavated area. There has been little work in field systems in lowland Cornwall; excavated examples at Stencoose (St Agnes), Penhale (St Enoder) and Tremough (Penryn) may be broadly contemporary (Jones forthcoming, Nowakowski 1998, Lawson-Jones 2002).

The enclosure or 'round' was constructed in the 2nd century AD and probably abandoned by or in the 4th century (phases three, four and five). Just 15% of the site was excavated but running as it does across the middle of the site the excavated strip provides a good sample. The first phase of the enclosure boundary, a palisade with shallow outer ditch, is unparalleled in Cornwall. This was replaced, probably in the 3rd century, by a bank or rampart with outer ditch, 3.0m wide and 1.3m deep, typical of a round. The rampart would have enclosed an area about 54m across, about the same as Trethurgy and an average sort of size for a round. Charcoal from the rampart material produced a determination of cal AD 242-383.

The two main phases of activity within the round (three and four) cannot be stratigraphically linked to the phases of the perimeter but are presumed to broadly coincide with them. The few datable finds, and radiocarbon dates, suggest a 2nd – 3rd century date for phase three and a late 3rd century date for phase four. In the interior, phase three is represented by five closely spaced roughly circular hollows, 2.5m to 5.0m in diameter, typically 0.2m deep. There were no clear relationships between them and they need not be directly contemporary. No evidence for superstructures was found and there were few internal features, except in the two northern hollows which produced considerable evidence for iron working. Hollow [282] contained an elongated pit and a shallow square cut containing a stone pad, perhaps to act as a stand, and finds of slags, hammerscale and broken iron objects. A central pit in hollow [284] contained hammerscale and a stone slab, though the Early Iron Age radiocarbon date, if accepted, would suggest that this feature (with its evidence for iron working) predated the hollow by several centuries. Hammerscale and iron objects (joiner's dogs) were also found in the phase three palisade ditch.

Phase four involved further metalworking within and around the two northern hollows: bowl [356], fire pit [337], slag pit [292] and furnace [494].

Evidence for metalworking took the following form:

- Slags, which would have formed in the blacksmith's hearth.
- Pit/hearth bases: plano-convex masses of smithing slag; eleven examples were found, but no actual pits.
- Broken iron objects, for reprocessing.
- Hammerscale, the result of hot working of iron, often found in the immediate vicinity of hearth and anvil ([337] may be an anvil block).
- Fired clay, from furnaces or hearths.

Little Quoit Farm has produced the largest quantity of smithing material found so far on a Roman period site in Cornwall. A very small quantity of possible tap slag was found, suggesting the smelting of iron, but it is clear that the predominant metalworking activity was smithing. Analysis of charcoal from the site has shown that the principal fuels were

oak and gorse, though it is not known whether the fuel was burnt as charcoal, or a mix of charcoal (oak) and wood fuel (gorse) or entirely as wood fuel. The identification of roundwood and poles has demonstrated that the site was dependent on the management of coppiced oak woodlands.

The round may have existed within an agricultural landscape but may not itself have been directly involved in the production and processing of crops. Wheat, barley and possibly oats were found in small quantities but the general lack of cereal chaff and weeds may suggest that cereals were not being processed here. This evidence may also be reflected in the forms of pottery represented, with a smaller than usual ratio of cooking pots to bowls, perhaps suggesting that much of the food may have been brought to the site ready cooked.

There are, then, a number of ways in which the site is distinctive from most rounds, giving it a special character.

- The form of the phase three enclosure – a palisade.
- No obvious domestic structures.
- The grouping of the hollows in the centre of the round, rather than against the rampart.
- The abundant evidence of metalworking.
- The evidence from pot forms and plant macrofossils suggesting that food may not have been routinely processed and cooked on site.
- The presence of two fragments of Roman roofing tile, perhaps brought onto the site for use in a particular structure.

A somewhat comparable site may be Killigrew round, St Erme (Cole, forthcoming), thought to be a non-ferrous metalworking site. Duckpool, Morwenstow (Ratcliffe 1995) also specialised in non-ferrous metalworking but its special character is emphasised by its coastal location in a steep-sided valley, physically separating it from the local agricultural landscape. Such sites are becoming a recognisable element in Romano-British Cornwall. Their location may depend partly on nearby access to the necessary resources – fuel, water, raw materials – but they are also likely to be closely tied to the social and economic landscape as components of a network of settlements and communities to which they provided specialist services.

7 Archive. 1998067

The CAU project number is ~~HEXPR8067~~. The site code (for finds) is LQF98

The projects documentary, photographic and drawn archive is housed at the offices of Cornwall Archaeological Unit, Cornwall County Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive is listed below:

An administrative file containing the project correspondence.

An information file containing copies of documentary and cartographic source material.

Field plans and sections, copies of historic maps stored in an A2 sized plastic envelope: GRE 321

Inked plans and sections:

GRH: 297 / 1-9

Monochrome photographs archived under the following index numbers:

GBP: 881 / 24-36,

875 / 5-36,

884 / 7-37,

890 / 0-13,

Colour slides archived under the following index numbers:

GCS: 24888 - 24946, 24949,

A computer file containing the report text:

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WB+Round Excav 1998067\Little Quoit Farm.doc

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9 Appendices.

9.1 List of contexts.

Context no.	Context descriptions
265	Ditch cut. Truncated / shallow. Gentle slopes and flat base. 1.5m wide and 0.1m deep. Runs across corridor.
266	Fill of [265]. Mid orange brown clay loam. Cut by [267].
267	Pathway. 1.55m wide and 0.15m deep. (Base composed of compacted small stones or metalling). Runs across corridor and cuts across [265]. Flat base.
268	Upper / main fill of [267]. Dark grey brown silty loam.
269	Ditch cut. 0.5m wide and 0.2m deep. Slightly curvilinear and runs across the corridor. Concave base.
270	Fill of [269]. Dark greyish brown sticky clay loam.
271	Pathway. 1.9m wide and 0.26m deep. (Base composed of compacted small stones or metalling). Runs across corridor. Flat base.
272	Main / upper fill of [271]. Dark brown sticky clay loam.
273	Pit cut. Oval, truncated. 1.0m long and 0.65m wide. 0.05m deep. Concave sides and flat base.
274	Fill of [273]. Compacted dark grey brown silty loam.
275	Large external, northern enclosure ditch cut. 3.0m wide and 1.3m deep. (1.75m deep from top of topsoil). Steep sides and a narrow flat base. (Probably had an associated southern rampart - located beneath non-topsoil stripped scotch gate/livestock crossing).)
276	Upper fill of ditch [275]. Compact, grey brown silty loam. Occasional small stones. Much mole activity.
277	An upper fill of ditch [275]. Mid orange brown loamy clay. Much mole activity.
278	Truncated pit cut. Near circular. 0.75m diameter. 0.08m depth.
279	Fill of [278]. Brown silty clay. Occasional small stones.
280	Ditch cut. Steep sided with a narrow flat base. 0.8-1.2m wide and 0.4-0.6m deep. Under hollow [287].
281	Upper fill of [280]. Dark brown, burnt clay loam with charcoal, slag and some burnt clay fragments.
282	Hollow. Shallow, near circular - 5.0m diameter. 0.2m max. deep. Gradual concave sloping sides and base.
283	Upper fill of [282]. Very dark brown mixed silty clay loam with occasional small stones and charcoal flecks. Some mole disturbance.
284	Hollow. Shallow, near circular, c4.0m diameter. 0.2m deep. Gradual concave sloping sides and base.
285	Upper fill of [284]. A mixed grey brown silty clay loam. Charcoal flecks and occasional lumps. Some mole disturbance.
286	Fill of [496]. A burnt loamy clay with many charcoal flecks beneath and surrounding a stone setting (?).
287	A shallow, near circular hollow with a 5.0m diameter and a 0.26m depth. The sides were concave and the base near flat.
288	Middle fill of [287]. Mixed orange brown, silty clay loam. Occasional small stones and charcoal.
289	A posthole. 0.3m diameter and a 0.1m depth. Vertical sides and a flat base. Associated with [287].
290	Fill of [289]. Quite indistinct against the natural surrounding clay. Mixed pale brownish grey silty clay. Occasional shillet.
291	Layer overlying [288] (and the natural located between hollows [287] and [284]). 4.0m long and 0.1m max. deep. Mixed grey brown clay loam.
292	Slag filled pit, cut in to the top of ditch [280]. 1.0m + wide and 0.64m deep. (Probably associated with upper layer/fill [305]). Steep northern and southern sides, gentler sloping W side and a concave base. Eastern edge extends beyond excavation corridor.

Context no	Context descriptions
293	Upper fill of [292]. Dark blackish brown burnt loam with much iron slag and charcoal.
294	Basal fill of [280]. Compact grey silts and some mineral staining.
295	Middle fill of [280]. Pale tan coloured silty clay with occasional charcoal flecks and stones.
296	Basal fill of [292]. Burnt shillet and soil concreted together with large quantities of iron slag, forming a hard shell-like base to [292].
297	Fill of [492]. Mid grey brown clay loam. Some mole disturbance.
298	Ditch / gully cut. Steep sides and a narrow concave base. 4.0m+ long, 0.5m wide and 0.3m deep. Overlain by hollow [304].
299	Upper fill of [298]. Partially cut away by [304]. Firm mid grey brown clay loam.
300	Basal fill of [298]. Compact greyish coloured silts.
301	Elongated oval, shallow E-W aligned feature. 3.0m long, 1.3m wide and 0.18m deep. Concave sides and a near flat base. Cuts layer [504].
302	Fill of [301]. Mid to pale brown clay loam with very occasional tiny charcoal flecks.
303	Basal fill of [304]. Brownish grey clay with occasional small stones and charcoal flecks. Sealed underlying ditch [298].
304	Hollow. Shallow oval. c3.5m diameter and a 0.15m depth. Concave sides and a stepped, flattish base.
305	A layer (or possible upper fill) of [292]. A mid to dark reddish brown burnt clay loam, contained burnt shillet, iron slag and charcoal.
306	Ditch / gully cut. 4.5m+ long, 0.60m wide and 0.25m deep. Underlies the southern limit of hollow [353].
307	Upper fill of [306]. Mixed orangy brown clay loam.
308	Lower fill of [306]. Compacted slightly brownish grey silts.
309	Mid / basal fill of [282]. A silty pale brownish grey ashy layer with small charcoal flecks.
310	Forth fill of large ditch [275]. Mid dark brown clayey loam with shillet and occasional small charcoal flecks.
311	Third fill of large ditch [275]. Mid brown loamy clay and occasional shillet.
312	Second fill of large ditch [275]. Mid brown sticky clay shillet with paler yellowish brown clay patches slumping in from the south (probably from an internal rampart, overlain by the scotch gates and non-topsoil stripped livestock crossing).
313	Basal fill of large ditch [275]. Mid to dark grey silts with mineral staining causing veining.
314	Upper-most remnant fill of large ditch [319]. A thin skim of burnt orangey red clay and charcoal.
315	Fifth fill of large ditch [319]. A pale grey loamy clay with shillet inclusions and occasional small charcoal flecks.
316	Third fill of large ditch [319]. Pale brown / beige clay with lenses of redeposited clay - particularly on the northern side, reflecting proximity to the clay inner rampart [329].
317	Second fill of large ditch [319]. Light reddish brown silty clay with charcoal.
318	Basal fill of large ditch [319]. Coarse grained reddish brown silts with occasional charcoal flecks.
319	Large, external southern enclosure ditch with an associated internal rampart = [329]. 3.0m across and 1.3m deep (1.8m deep from the top of the topsoil).
320	Truncated ditch cut. 4.0m long, 0.58m wide and 0.17m max. deep. Steep sides and a concave base. (Same as [347]).
321	Fill of [320]. Mottled mid brown loamy clay with occasional small stones and charcoal. (Same as [348]).
322	Circular pit cut. (Same as [347]). Truncated. 0.85m diameter and a 0.07m depth. Concave sides and a flat base. (Same as [351]).
323	Fill of [322]. (Same as [348]). Dark grey brown gritty silty loam. Occasional small stones. (Same as [352]).
324	Posthole cut. 0.35m diameter and a 0.1m depth. Steep sides and a rounded base. (Same as [350]).
325	Fill of [324]. Dark grey brown clay loam and occasional small stones. (Same as [349]).
326	Pale bluish grey redeposited natural clay / decaying shillet - from ditch [319]. Represents the upper fill or surviving layer of rampart [329]. 0.14m thick.
327	Fill of post hole [493]. Associated with posthole [357] and rampart [329]. Pale brownish grey

Context no.	Context descriptions
	slightly loamy silt with much charcoal flecking.
328	Lower fill of rampart [329]. Dense, coarse orange clay and shillet. Very occasional tiny charcoal flecks.
329	Clay rampart bank on the southern periphery of the enclosure. External edge defined by ditch [319]. Northern edge contained or partially sealed a series of probably supportive or stabilising postholes ie. [493] and [357].
330	Upper fill of hollow [304]. A brown clay loam with occasional small stones and charcoal flecks. Sealed gullies [331] and [344].
331	Short linear gully partially underlying hollow [304] and associated with [344]. 0.9m long, 0.2m wide and 0.1m deep. Steep sides and a concave base.
332	Fill of [331]. Pale grey stony, silty clay with charcoal flecks.
333	Fourth fill of large ditch [319]. Mid brown loamy clay with charcoal flecks.
334	Fill of depression at base of hollow [284]. Brown gravely sandy clay. 0.06m thick, 1.4m long in section. Cut by [494].
335	Second fill of furnace [494] flue. Very dark grey brown gravely clay.
336	Fill of [337]. Dark grey brown silty clay with charcoal and red clay flecks.
337	Fire pit. Rectangular with rounded corners, sheer sides, flattish base. 1.5m long, 1.0m wide and 0.75m deep. Very large boulder in backfill. Very burnt base and edges.
338	Upper / main fill of [339]. Dark grey brown, burnt silty clay.
339	Linear pit cut. Steep sides, NS aligned and a flat base. Overlain by [282].
340	Fill of [341]. Dark grey brown silty clay.
341	Shallow/truncated pit cut. 1.25m long, 0.7m wide and 0.1m deep. An amorphous rounded shape in plan.
342	Square shaped pit cut. 0.6m wide and long, and 0.07m deep. Large stone found within fill - m of fill.
343	Fill of [342]. Burnt loamy clay and charcoal.
344	Short linear gully underlying hollow [304] and associated with [331]. 0.75m long, 0.2m wide and 0.08m deep. Steep sides and a concave base.
345	Fill of [344]. Pale grey stony, silty clay with charcoal flecks.
346	Near circular in plan. 0.5m diameter. Orangey red silty clay with grey brown and black charcoal patches. 0.1m deep max. A 0.25m stone was positioned centrally. Concave in profile.
347	(Same as [320]).
348	(Same as [321]).
349	(Same as [325]).
350	(Same as [324]).
351	(Same as [322]).
352	(Same as [323]).
353	Hollow. Oval, defined by a distinct concave slope 0.2m deep to the N and by ditch / gully [306] to the S. Flattish based with a 2.5m diameter. Cuts layer [504].
354	Fill of [353]. Mixed grey brown silty loamy clay. Firm. Small shillet stones.
355	Palisade / post hole alignment running WNW-ESE across the corridor. The alignment consisted of 10 or 11 substantial post holes, numbered [359] to [378].
356	Pit / bowl cut. Positioned on top of southern end of cut [339]. 0.65m diameter and 0.18m deep. Filled with [491] charcoal and burnt soils.
357	Posthole cut. 0.2m diameter and a 0.2m depth.
358	Fill of [357]. Firm, pale, orangey grey brown silty loamy clay. Charcoal rich.
359	Posthole cut - part of [355] alignment. Sheer sides, flat base. 0.22m diameter and a 0.22m depth.
360	Fill of [359]. Mid brown silty clay loam. Some stone packing.
361	Posthole cut - part of [355] alignment. Sheer sides and a near flat base. 0.42m diameter and a 0.25m depth.
362	Fill of [361]. Mid brown silty clay loam and occasional charcoal. Some stone packing.
363	Posthole cut - part of [355] alignment. Sheer sides and a flat base. 0.22m diameter and a 0.18m

Context no.	Context descriptions
	depth.
364	Fill of [363]. Mid brown silty loamy clay. Some charcoal flecks and stone packing.
365	Posthole cut - part of [355] alignment. Sheer sides and a flat base. 0.21m diameter and a 0.18m depth.
366	Fill of [365]. Mid brown silty loamy clay. Some charcoal flecks and stone packing.
367	Posthole cut - part of [355] alignment. Sheer sides and an E-W sloping base. 0.4m diameter and a 0.24m depth.
368	Fill of [367]. Mid brown silty clay. Some charcoal flecks. Stone packing.
369	Posthole cut - part of [355] alignment. A possible double post hole. 0.35m long, 0.27m wide and 0.24m deep. E-W sloping base. Some mole activity.
370	Fill of [369]. Mid brown silty loamy clay. Occasional stones.
371	Posthole cut - part of [355] alignment. A definite double post hole. Steep sides and a stepped base. 0.51m long, 0.34m wide and 0.18m deep.
372	Fill of [371]. Mid brown silty loamy clay. Some stone packing.
373	Posthole cut - part of [355] alignment. Steep sides and a narrow rounded base. 0.49m diameter and a 0.3m depth.
374	Fill of [373]. Mid brown silty loamy clay. Some stone packing.
375	Posthole cut - part of [355] alignment. Sheer sides and a pointed base. 0.37m diameter and a 0.35m depth.
376	Fill of [375]. Mid brown silty loamy clay. Stone packing at base.
377	Posthole cut - part of [355] alignment. Only partially excavated. Mole activity. 0.25m diameter.
378	Fill of [378]. Mid brown silty loamy clay. Some stone packing.
379	Lowest fill of hollow [287]. 0-6cm thick. An ashy silt matrix with charcoal flecks.
380	Fill of pit [337]. A hard, fired red clay. Occasional tiny stones.
381	Fill of pit [337]. A brown / olive brown sticky, stone-free clay. Overlay [495].
382	Basal fill of [494] flue. Firm brown sandy clay with frequent small stones.
491	Fill of bowl shaped shallow pit [356] which was cut in to the top southern portion of [339]. Ashy, burnt silty clay and shillet fragments.
492	Shallow, broad, linear depression. 2.5m long, 0.95m wide and 0.15m deep. Concave sides and base.
493	Posthole cut. 0.2m diameter at top and 0.2m deep. Associated with rampart [329] and post hole [357].
494	Furnace cut. 4.0m long bowl and flue. The flue is 0.65m wide, 0.5m deep and the bowl is 0.9m wide. The flue is aligned N-S while the bowl is located at the northern end on the NW corner of the flue - giving the furnace a 'pipe shaped' plan.
495	Lowest fill of pit [337]. Consisted of a thin band of charcoal and burnt clay.
496	A rectangular feature containing a large stone and burnt fill [286]. 0.5m long, 0.4m wide and 0.2m deep.
499	Shallow gully partially defining southern edge of hollow [284]. 0.4m wide and 0.1m deep. Overlain by [284].
500	Fill of [499]. A mixed pale brownish grey loamy clay silt. Compact. 0.1m deep.
501	Upper fill of furnace [494]. Mixed grey brown silty loam with up to 0.3m sized stones.
502	Linear east to west ditch cut. Very distinct and sharp edges. Recent.
503	Main fill of ditch [502]. Very dark blackish brown sticky clay loam. 0.45m deep. (Machine excavated slot).
504	A mixed silty clay loam. Pale mushroom brownish grey. Firm. Cut by [301] and [353]. Appears to have been naturally produced.
516	Linear, broad WSW - ENE aligned features on southern external side of the round. Ditch? 4.0m wide.
517	Fill of [516]. Stony, dark clay loam matrix.

9.2 List of all sampled contexts.

Sampled context	Description
1 = 285	Fill of shallow hollow [284]. 1 sample bag.
2 = 286	Fill of depression within hollow [284]. 0.5 sample bag.
3 = 293	Upper fill of slag pit [292]. 2 sample bags.
4 = 294	Basal fill of ditch [280]. 2 sample bags.
5 = 295	Middle fill of ditch [280]. 2 sample bags.
6 = 300	Basal fill of ditch [298] (under hollow [304]). 2 sample bags.
7 = 303	Basal fill of hollow [304]. 2 sample bags.
8 = 309	Basal fill of hollow [282]. 2 sample bags.
9 = 310	Fourth fill of enclosure ditch [275]. 2 sample bags.
10 = 311	Third fill of northern enclosure ditch [275]. 2 sample bags.
11 = 313	Basal (first) fill of northern enclosure ditch [275]. 2 sample bags.
12 = 326	Upper layer of rampart [329]. 2 sample bags.
13 = 328	Basal layer of rampart [329]. 1 sample bag.
14 = 335	Main / upper fill of furnace bowl [494]. 2 sample bags.
15 = 336	Main / upper fill of fire pit [337]. 2 sample bags.
16 = 338	Main / upper fill of linear pit [339]. 2 sample bags.
17 = 340	Fill of shallow hollow / pit [341]. 1 sample bag.
18 = 343	Fill of shallow, square pit [342]. 1 sample bag.
19 = 346	Small, shallow spread under hollow [282]. 1 sample bag.
20 = 358	Fill of rampart posthole. 1 sample bag.
21 = 368	Fill of palisade post hole [367]. 2 sample bags.
22 = 372	Fill of palisade post hole [371]. 2 sample bags.
23 = 374	Fill of palisade post hole [373]. 2 sample bags.
24 = 379	Basal fill of hollow [287].

Sampled context	Description
	1 sample bag.
25 = 381	A basal fill of burnt pit [337] 1 sample bag.
26 = 382	Basal fill of furnace [494] flue. 1 sample bag.

9.3 Charred Plant Remains

Section 5.1 refers to the results in this table.

Sample No.	Context No.	Context Type	Sample Size (kg / litres)	Float vol (ml)	Charred cereal grain / chaff	Charred seeds / other plant remains	Comments
Northern enclosure ditch [275]							
9	310	4 th fill of N. enclosure ditch [275].	11.9 / 11.8	5		c.f. <i>Danthonia decumbens</i> (heath-grass) 1 <i>Juncus</i> sp (rush) 1 Indet 1	
10	311	3 rd fill of N. enclosure ditch [275].	9.5 / 9.0	<5			Assessed
11	313	Basal fill of N. enclosure ditch [275].	9.8 / 9.5	<5			Assessed
Hollow [282]							
16	338 (A)	Main / Upper fill of linear pit [339].	7.35 / 6.5	150			Assessed
16	338 (B)	Main / Upper fill of linear pit [339].	7.4 / 6.5	75			Assessed
17	340	Fill of shallow, hollow pit [341].	4.1 / 3.3	10			Assessed
18	343	Fill of shallow, square pit [342].	7.6 / 7.1	285			Assessed
19	346	Spread under "working" hollow [282].	6.2 / 6.4	300			Assessed
8	309	Basal fill of "working" hollow [282].	13.4 / 14.4	110			Assessed
Fire pit [337]							
15	336	Main / Upper fill of deep burnt pit [337].	5.2 / 4.9	110	<i>Triticum</i> sp (grain) 1	<i>Corylus avellana</i> (hazel) 1f <i>Ulex</i> sp - spine (gorse) 1 <i>Ulex</i> sp - stem (gorse) 3f	
25	381	Basal fill of burnt pit [337].	5.2 / 5.0	130	<i>Triticum</i> sp (grain) 2 <i>Triticum</i> s (glume base) 2 <i>Hordeum</i> sp (rachis internode) 5 <i>Hordeum</i> sp (rachis internode base) 1	<i>Carex</i> sp (sedge) 3 c.f. <i>Danthonia decumbens</i> (heath-grass) 1 <i>Ranunculus acris/repens/bulbosus</i> (buttercup) 1 <i>Trifolium/Medicago</i> (clover/medick) 1 <i>Ulex</i> sp - seeds (gorse) 3 c.f. <i>Ulex</i> sp - seeds 6 <i>Ulex</i> sp - spines 10 <i>Ulex</i> sp - stems 12f Indet seeds 2	C14 dating from charcoal

Hollow [284] and Furnace [494]						
1	285	Fill of shallow "working" hollow [284].	7.75 / 7.1	15		Assessed
2	286	Basal fill of depression within [284].	3.3 / 3.2	25		Assessed C14 dating from charcoal
26	382	Basal fill of furnace [494] flue.	5.6 / 4.9	25		Modern seeds only
14	335	Main / Upper fill of furnace bowl [494].	12.3 / 11.4	250		Modern seeds only
Hollow [287]						
24	379	Basal fill of hollow [287].	6.7 / 6.1	5	c.f. <i>Triticum</i> sp (glume base) Cereal indet	1 1 c.f. <i>Rumex acetosella</i> (sheep's sorrel) <i>Ulex</i> sp -stem (gorse)

Sample No.	Context No.	Context Type	Sample Size (Kg/L)	Float Volume (ml)	Charred cereal grain / chaff	Charred weeds / other plant remains	Comments
Ditch [280] and pit [292]							
3	293	Upper fill of burnt "scoop" [290].	14.0 / 15.1	300		<i>Corylus avellana</i> (hazel) 1f <i>Juncus</i> sp (rush) 1 Indet 2	Few modern seeds
4	294	Basal fill of ditch [280].	14.2 / 14.4	5			Assessed
5	295	Middle fill of ditch [280].	14.0 / 14.3	20	<i>Hordeum</i> sp (grain) 1	Indet 3	
Ditch [298] and Hollow [304]							
6	300	Basal fill of ditch [298].	14.3 / 13.2	5	<i>Triticum</i> sp (grain) 1 <i>Triticum</i> sp (glume base) 1	<i>Bromus</i> sp (brome) 1 <i>Carex</i> sp (sedge) 1 <i>Danthonia decumbens</i> (heath-grass) 1 <i>Euphorbia exigua</i> (dwarf spurge) 1	
7	303	Basal fill of hollow [304].	15.2 / 13.5	5	<i>Hordeum</i> sp (grain) 1 <i>Avena</i> sp (grain) 3 <i>Triticum</i> sp (glume base)	<i>Galium aparine</i> (cleavers) 1 <i>Trifolium/Medicago</i> (clover/medick) 1	

					2 <i>Hordeum</i> sp (rachis internode base) 1		
Rampart [329], palisade fence [355] and southern enclosure ditch [319]							
12	326	Upper layer of intern. S. encl. bank [329]	10.3 / 8.2	10			Assessed C14 dating from charcoal
13	328	Basal layer of intern. S encl. bank [329].	6.2 / 5.9	5			Modern seeds only
20	358	Fill of rampart post hole [326].	3.8 / 3.5	15			Assessed
21	368	Fill of palisade post hole [367].	17.4 / 16.1	<5			Assessed
22	372	Fill of palisade post hole [371].	21.9 / 16.2	<5			Assessed
23	374	Fill of palisade post hole [373].	15.1 / 14.8	<5			Assessed

9.4 General finds report

By Carl Thorpe.

A total of 221 artefacts were recovered from Little Quoit Farm. Ceramics constitute the largest group (136) some 61.4% of the total, some 123 being of Romano-British date. The fabrics are gabbroic, with a little gabbroic admixture. There was also flint, stone, iron, glass shell and slag recovered. Most of the slag was bulk collected and has not been quantified.

The site was stripped of topsoil and examined for features. It was this, and the subsequent overall cleaning that produced the un-stratified finds. When excavation in earnest was commenced, all finds were collected as bulk finds by context.

They were then air dried, allowing the pottery to harden before being cleaned by Imogen Wood in water (to whom the Unit is grateful) and then finally dried.

Currently all the artefacts are being temporarily stored in the Cornwall Archaeological Unit finds store, Kennall Building, Old County Hall, Station Road, Truro, Cornwall.

The total number of finds in each context is summarised below.

Context	Dating
Unstratified	Provisional date
2 Undiagnostic bodysherds fabric	Romano - British
10 Sherds Modern White Glazed Stoneware	19th to 20th Centuries
1 sherd Modern Yellow Glazed Stoneware	19th to 20th Centuries
2 Modern glass fragments	19th to 20th Centuries
1 Iron horse shoe	19th to 20th Centuries
1 Cockle shell	
1 Chalk fragment	
7 Water rounded pebbles	
2 Flints	
Context [266].	Provisional date.
1 Water rounded vein quartz pebble	?
Context [268].	Provisional date.
1 Sherd Modern White Glazed Stoneware	19th to 20th Centuries
1 Shard Modern glass	19th to 20th Centuries
2 Water rounded pebbles	?
Context [272].	Provisional date.
1 Slate fragment, cut and shaped, roof slate remnant	?
Context [281].	Provisional date.
1 Rimsherd beaded rim bowl with cordon immediately below. Internal bevel for lid. Gabbroic fabric.	Romano - British
Carlyon Group 29 or 32	c 2nd to 3rd Centuries AD
2 Co - joining rimsherds, bowl with simple rim, slightly everted. Gabbroic fabric	Romano - British
8 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
slag	Romano - British
Context [283].	Provisional date.
5 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
1 Water rounded vein quartz pebble	?
slag	Romano - British

Context	Dating
Context [285].	Provisional date.
1 Undiagnostic bodysherd. Gabbroic fabric	Romano - British
slag	Romano - British
Context [288].	Provisional date.
3 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
1 Notched slate fragment	?
1 Fine grained granite fragment. Hammerstone ?	?
Context [291].	Provisional date.
2 Iron fragments forming one artefact	?
Context [293].	Provisional date.
1 Large rimsherd of a storage jar.	Romano - British
Carlyon Group 7	c 2nd to 3rd Centuries AD
1 Rimsherd flanged bowl. Carlyon Group 39d	c 3rd to 4th Centuries AD
1 Rimsherd beaded rim slightly everted	Romano - British
1 Decorated bodysherd with incised linear and curvilinear pattern. Iron rivet repair	IA / RB ?
3 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
3 Fragments of burnt clay. Furnace lining ?	
1 Large ceramic fragment, Amphora or Tegula ?	Romano - British
slag	Romano - British
Context [294].	Provisional date.
1 Undiagnostic bodysherd. Gabbroic fabric	Romano - British
Context [296].	Provisional date.
1 Basal angle sherd. Gabbroic fabric	Romano - British
1 Undiagnostic bodysherd. Gabbroic fabric	Romano - British
1 Triangular fragment of ochre ? Pottery ?	?
1 Shillet fragment, natural ?	?
slag	Romano - British
Context [299].	Provisional date.
1 Basal angle sherd. Gabbroic fabric	Romano - British
1 Necksherd. Gabbroic fabric	Romano - British
Context [303].	Provisional date.
1 Rimsherd ovoid jar with cordon below rim.	Romano - British
Carlyon Group 24	c 2nd to 3rd Centuries AD
1 Rimsherd, cooking pot simple everted rim	Romano - British
10 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
1 Water rounded pebble	?
1 Granite fragment, natural ?	?
Context [305].	Provisional date.
1 Burnt flint pebble	?
Context [308].	Provisional date.
2 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
Context [309].	Provisional date.
1 Flint	Prehistoric
Context [315].	Provisional date.
1 Flint	Prehistoric
Context [316].	Provisional date.
7 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
4 Fragments of burnt granite	?

Context	Dating
1 Water rounded vein quartz pebble, chipped	?
Context [321]:	Provisional date.
1 Undiagnostic bodysherd. Gabbroic fabric	Romano - British
2 Hand forged U shaped iron fittings, hollow square section	?
4 Fragments iron fittings, hollow square section	?
1 Undiagnostic iron lump	?
6 Small iron fragments	?
Context [327]:	Provisional date.
15 Grey clay fragments	?
Context [330]:	Provisional date.
3 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
1 Flint	Prehistoric
Context [332]:	Provisional date.
4 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
Context [335]:	Provisional date.
2 Basal angle sherds. Gabbroic fabric	Romano - British
8 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
slag	Romano - British
Context [336]:	Provisional date.
slag	Romano - British
Context [337]:	Provisional date.
3 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
2 Charcoal fragments	?
Context [338]:	Provisional date.
2 Rimsherds rounded bowl, beaded rim. Carlyon Group 40	Romano - British c 2nd to 3rd Centuries AD
1 Rimsherd, simple slightly everted	Romano - British
1 Bodysherd with iron rivet repair	Romano - British
1 Basal angle sherd	Romano - British
18 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
2 Iron objects	?
slag	Romano - British
Context [343]:	Provisional date.
5 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
1 Iron object	?
slag	Romano - British
Context [354]:	Provisional date.
19 Undiagnostic bodysherds. Gabbroic fabric	Romano - British
Context [379]:	Provisional date.
1 Flint	Prehistoric
Context [381]:	Provisional date.
Slag	?
Context [382]:	Provisional date.
Slag	?

The Pottery Assemblage: a discussion

The assemblage of pottery recovered during this excavation is remarkably uniform the forms appearing to date from the 2nd to 3rd centuries AD. There seems to be a usual

domestic range of vessels represented with storage jars, cooking pots and bowls being present, though bowls predominate. The fabrics of all the vessels are similar, and are of the following.

Gabbroic

Hand made, thin walled, wheel finished, often with a black coating on the exterior, sometimes burnished. The fabric is coarse containing a large quantity of white angular grits (feldspars), and other dark minerals such as amphibole and black tourmaline (for full petrological description see Williams D.F in Carlyon 1987). Gabbroic fabrics are found from the Late Iron Age through to the Late Roman Period and are from clays derived from the weathering of the gabbro on the Lizard Peninsula.

Gabbroic Admixture

Similar in form and finish to those vessels in gabbroic fabric however the gabbroic clays have been mixed with crushed stone inclusions (mostly slate) from other sources. It is suggested that the gabbroic clays were transported to other sites before being made into pots, the local stone being added as filler (Quinnell pers comm). Decoration in either fabric is uncommon restricted to the burnishing of the surfaces, carination at the shoulder, slight cordon and the occasional incised line.

Conclusions

Individual specialist reports are required from an Iron Age, Romano - British pottery specialist, a lithics specialist and a stonework specialist. The large amount of slag in the above catalogue, plus the metalwork, must also be examined by a metallurgist. Residue analysis on some of the potsherds would be a useful exercise, and a petrological report on the fabrics would be required.