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A Late Iron Age and Roman Farmstead at RAF St Athan, Vale of Glamorgan. Evaluation and Excavation 2002–03

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SUMMARY. Excavation revealed archaeological remains ranging from the Bronze Age to post-medieval periods, with the main period of settlement dating to the Late Iron Age. The earliest identifiable activity was a Late Bronze Age inhumation burial, whilst the first discernible settlement was within a Late Iron Age enclosure, containing roundhouses, two- and four-post structures, inhumation burials and other features. The enclosure was succeeded by a Roman field system which contained drying ovens.

INTRODUCTION

Between March and May 2003 Cotswold Archaeology (CA; formerly Cotswold Archaeological Trust: CAT) carried out an archaeological excavation for the Defence Aviation Repair Agency (DARA) at RAF St Athan, Vale of Glamorgan (centred on ST 0045 6867; Figs 1–3) in advance of the construction of a new aircraft maintenance, repair and overhaul facility or 'Superhanger'.

Archaeological interest in the site arose from prehistoric, Roman and medieval sites and findspots within the wider vicinity (Fig. 1; Table 1). This potential has been further highlighted by the discovery from the air of cropmarks indicative of a Neolithic causewayed camp near the airfield in the summer of 2006 (Pitts 2006, 6). Two Bronze Age amber beads were found 1km east of the airfield (Fig. 1b, E; Grimes 1951), and two ploughed-out round barrows 1.5km to the south-west (Fig. 1b, I and J). A large number of Iron Age hillforts are situated in easily defended coastal locations in the Vale of Glamorgan, and one such, Summerhouse Camp, lies 2km north-west of St Athan (Fig. 1a). Numerous rural lowland settlements of probable Iron Age and Roman date have also been identified from aerial survey by the Royal Commission on the Ancient and Historical Monuments of Wales in the Vale of Glamorgan. Four cropmark enclosures and linear features have been identified to the east of St Athan in advantageous locations overlooking the Rills and Thaw valleys (Fig. 1b, A–D; Driver 1995, fig. 3). Twelve amber beads of diagnostically Iron Age date are recorded from the Castleton area, although their exact provenance is uncertain (Fig. 1b, H).

The line of a conjectural Roman road is recorded in the Historic Environment Record (HER) running southwards from the small town at Cowbridge towards West Aberthaw. The line of the road may be preserved as the St Athan Road to the north of the site (Fig. 1c, G). A hoard of 38 Roman coins is recorded from an uncertain location around Eglwys Brewis (Fig. 1c, F).

Medieval sites in the vicinity include the thirteenth-century or earlier church of St Braise at Eglwys Brewis, and a medieval coin hoard found in a house at Eglwys Brewis (Fig. 1c, K; CAT 2001).

Archaeological work at RAF St Athan commenced in 2001 when an archaeological desk study of the base and its environs was commissioned to inform proposed redevelopments at the site (CAT 2001).

Table 1: Archaeological sites in the vicinity of RAF St Athan marked on Figure 1

Site	Description	Source
A	Castleton Wood, oval cropmark enclosure (ST 02606815)	Driver 1995
B	East Orchard Wood, double-ditched sub-square enclosure (ST 02786785)	Driver 1995
C	East Orchard Wood, double-ditched cropmark linear feature (ST 02786785)	Driver 1995
D	East Orchard Wood, ? part of double-ditched cropmark enclosure (ST 02546780)	Driver 1995
E	2 Bronze Age amber beads, uncertain origin (ST 01006800)	Grimes 1951
F	38 Roman coins from quarry (ST 00006900)	Roberston 2000
G	possible Roman road (ST 02636690 to ST 02246800)	HER
H	12 amber beads, uncertain origin (ST 0200 6800)	Thaw Valley Survey
I	ploughed-out barrow (ST 9848 6726)	HER
J	ploughed-out barrow (ST 9964 6723)	HER
K	medieval coin hoard found in house (ST 0056 6910)	HER

In 2002–03 evaluation of the route of a temporary construction road, and a proposed new access road, was undertaken by Cotswold Archaeology on behalf of the Welsh Development Agency. Evaluation in the vicinity of Eglwys Brewis church revealed medieval and later remains (Fig. 1c; CAT 2002). Geophysical survey in December 2002 and additional trenching in February 2003 also identified post-medieval building remains, as well as possible twelfth- to fourteenth-century pits (or the heavily truncated remains of graves) and a ditch to the north and west of the church (Fig.1 and Stratascan 2003a; CA 2003a).

Between December 2002 and February 2003 Cotswold Archaeology undertook a staged programme of archaeological evaluation survey of the proposed 'Superhanger' site in order to characterise any archaeological remains present. As this was a Crown Development archaeological works were not required through the normal process of obtaining planning approval. However, the work was funded on a voluntary basis by DARA following liaison between their consultants Arup, the Vale of Glamorgan Council and the Glamorgan-Gwent Archaeological Trust (GGAT). The first phase of the evaluation programme comprised magnetic susceptibility scanning (Fig. 1). Discrete areas of archaeological potential and some blank 'test' areas were then targeted with four blocks of more detailed magnetometer survey (Areas 1–4, Fig. 2), which suggested the presence of a large ditched enclosure, approximately 60m across, in the south-central portion of Area 2 (Stratascan 2003b; fig. 2). Other faint anomalies suggested the presence of additional ditches. Very few anomalies were detected in Areas 1, 3 and 4.

Excavation of three evaluation trenches confirmed the presence of a substantial undated enclosure ditch, a Roman ditch and several post-medieval field boundaries (CA 2003b; trenches 15–17 on Fig. 2). The main enclosure, although undated, appeared characteristic on morphological grounds of a fairly common form of later prehistoric and Roman settlement found in the Vale of Glamorgan (Lynch *et al*. 2000, 163–72).

Excavation methodology

In the light of the evaluation results DARA generously agreed to make time and resources available for the further investigation of the site. A mitigation strategy was devised which comprised the archaeological supervision of mechanical ground reduction over the whole of the area of archaeological

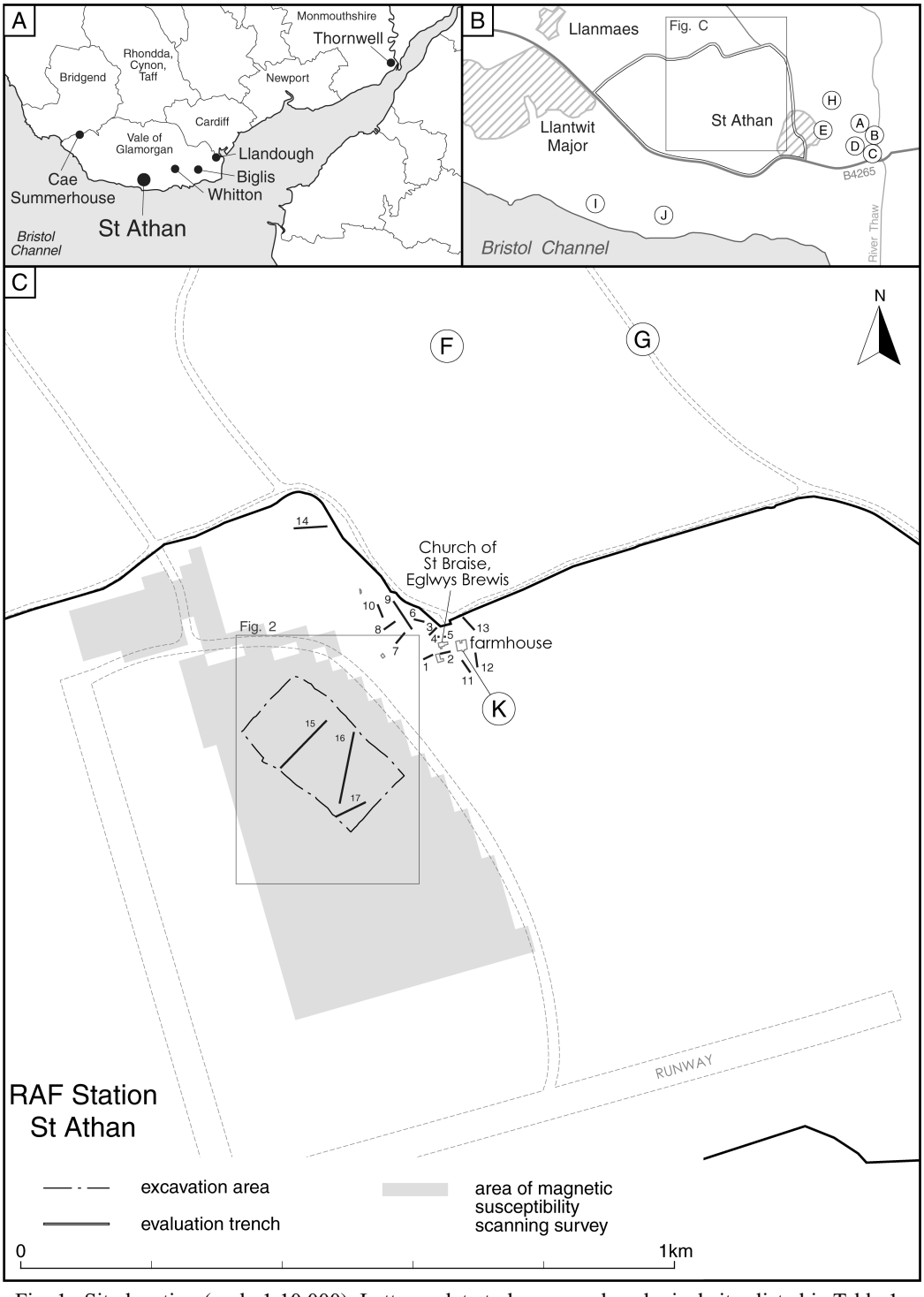

Fig. 1. Site location (scale 1:10,000). Letters relate to known archaeological sites listed in Table 1.

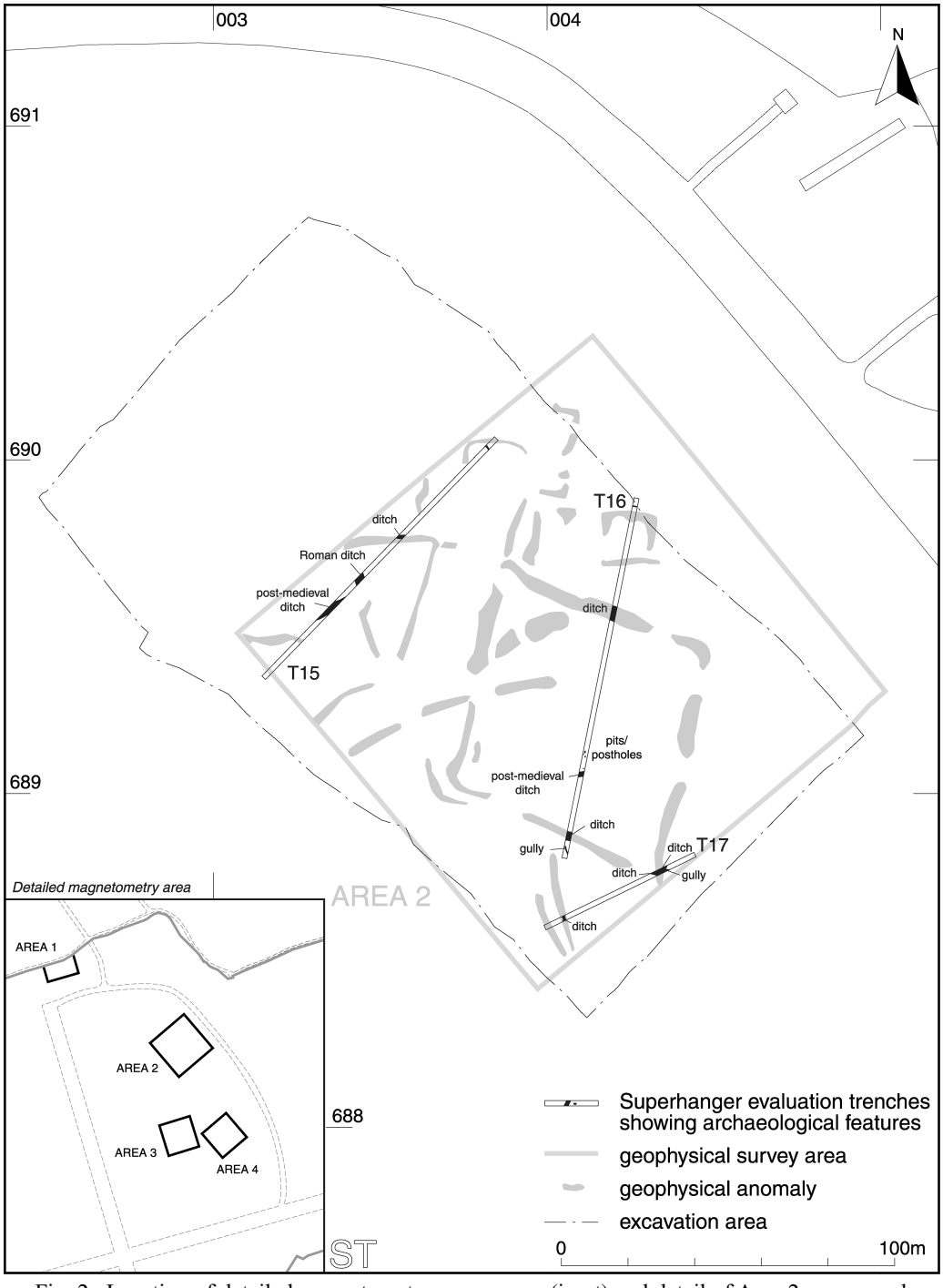

Fig. 2. Location of detailed magnetometer survey area (inset) and detail of Area 2 survey and evaluation trenches 15–17 (scale 1:2,000).

potential identified by the magnetometer survey (Area 2), and extending north-westwards into an area into which archaeological features appeared to extend (Fig. 2). The area thus stripped totalled around 2.7ha, and archaeological remains within this area were sample excavated and recorded (Fig. 3). The excavation was carried out in accordance with a written specification compiled by CA and approved by GGAT on behalf of the Vale of Glamorgan Council.

During the course of fieldwork numerous features only became discernible towards the end of the project, after weathering had occurred to the natural clay within the western half of the site. Due to time constraints it was not possible to investigate by hand all features within this western area. Priority was given to the retrieval of artefactual material from their surface fills wherever possible, and a series of machine-cut sections were excavated through these features in order to characterise them and to maximise the retrieval of datable material (see Fig. 18 for location of machine excavated sections through the main enclosure). These factors necessarily resulted in the limited interpretation of these features.

The excavation area lay close to an active runway on a broadly flat but elevated plateau at approximately 47m above Ordnance Datum, with the ground surface sloping gently to the north-east to the narrow valley of the river Thaw (Fig. 1). The natural substrate consisted of yellow-brown clay within the eastern part of the site and outcropping Lower Lias limestone immediately to the west (IGS 1979).

EXCAVATION RESULTS

Identification of key relationships, and the allocation of individual features to periods, has been achieved through the combined analysis of the site stratigraphy, spatial patterning of features, fill characteristics, the ceramic evidence and other categories of artefactual material. This analysis has been enhanced further by the results of a programme of radiocarbon dating. All radiocarbon dates cited in the text are calibrated at 95% confidence. Four broad chronological periods have been identified.

Period 1: Late Bronze Age (late twelfth to mid ninth century BC)
Period 2: Middle to Late Iron Age (fourth century BC to AD 50/80)
Period 3: Roman (mid second to mid to late third centuries AD)
Period 4: Post-medieval/modern

The overwhelming majority of features have been assigned to the Middle to Late Iron Age and Roman periods (Periods 2 and 3). The paucity of stratigraphic relationships, and the chronologically imprecise ceramic assemblage, generally precluded the identification of any phasing of activity within these periods, although a set of radiocarbon dates allow some chronological distinction to be made within Period 2. Therefore, for the purposes of this report, Middle Iron Age is defined as the period from 400 BC to 100 BC, and Late Iron Age from 100 BC to AD 50/80.

PERIOD 1: LATE BRONZE AGE

Inhumation burial (Fig. 4)

The truncated remains of a human skeleton were found within a shallow north-west/south-east aligned grave (burial 3). Although bone preservation was poor fragments of skull, upper and lower right arm, pelvis and upper right leg survived. Articulation between the pelvis and right femur, and the anatomically

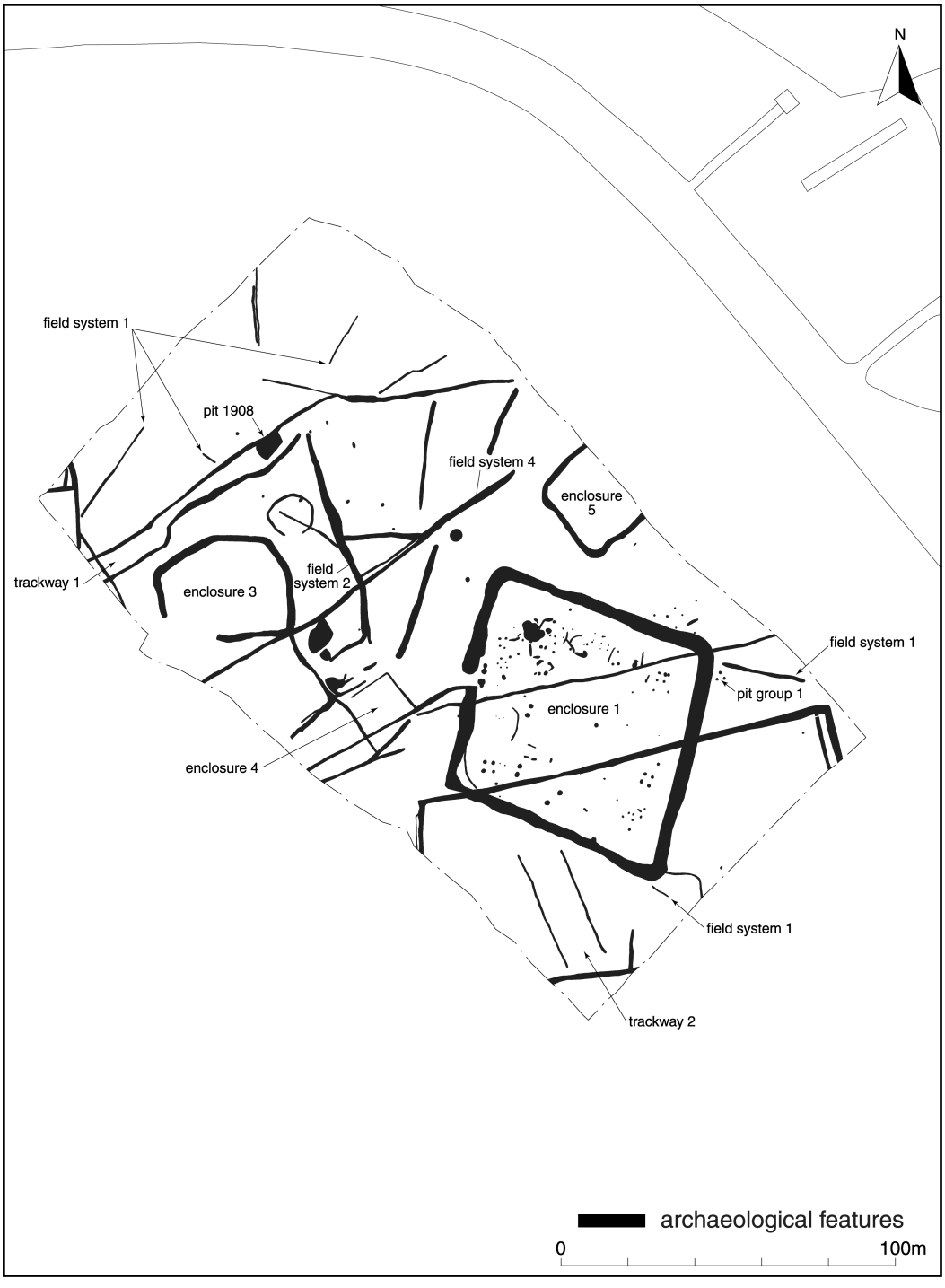

Fig. 3. Plan of all features (scale 1:2,000).

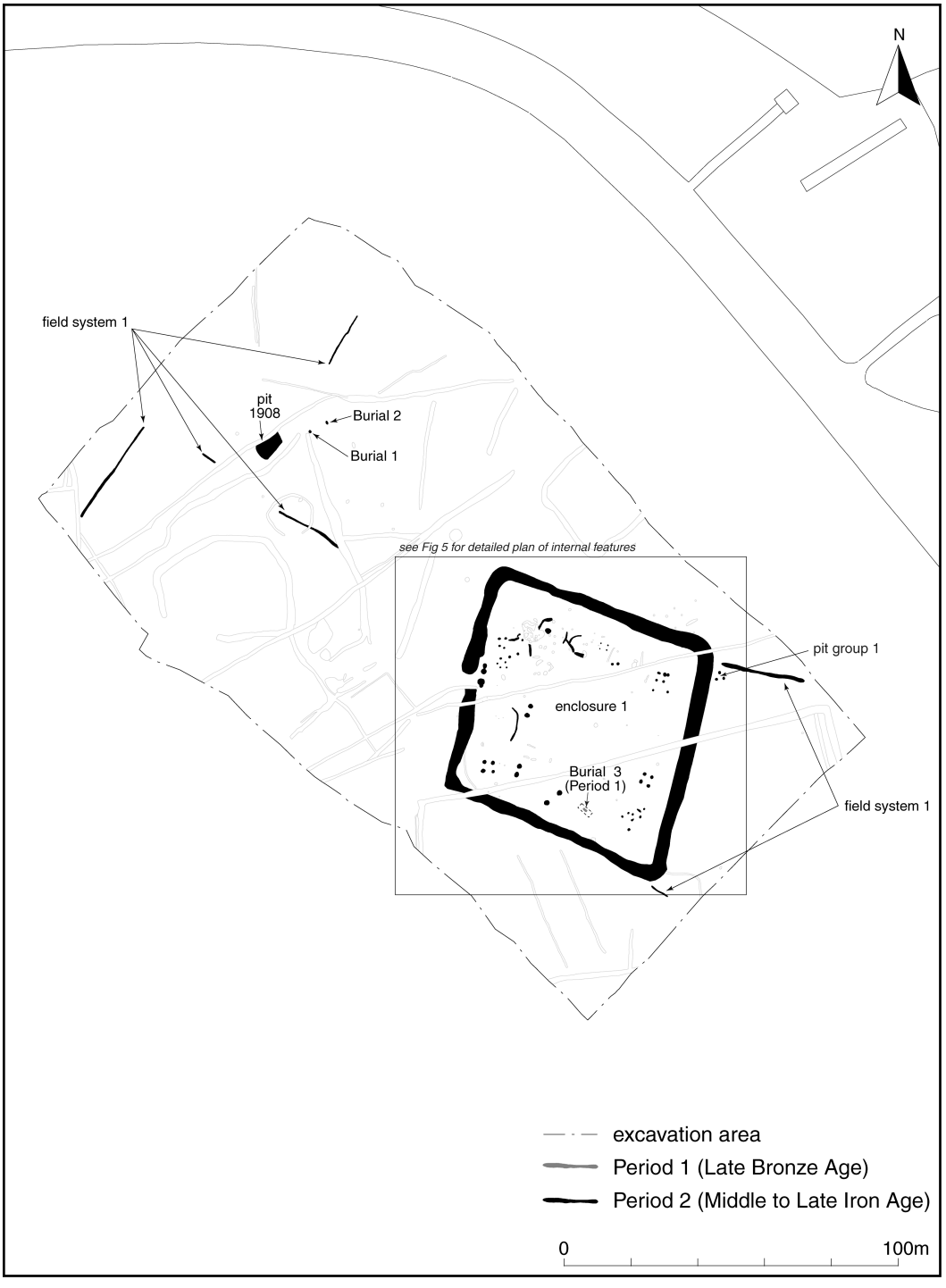

Fig. 4. Periods 1 and 2 phase plan (scale 1:2,000).

correct position of other surviving bones identified this as an extended and supine inhumation, with the right forearm bent at the elbow and resting over the pelvis, rather than the selective burial of partial or disarticulated human remains. A large canine tooth, possibly from a wild boar, lay centrally over the pelvis and appears to have been a deliberate placement. No other grave accompaniments, if ever present, survived. A radiocarbon date of 1110–840 cal. BC (Wk-15362) was obtained from one of the bones. No evidence was found to indicate the former presence of an associated ring-ditch, cist, earth mound, stone cairn or other grave marker, or for any contemporary settlement.

PERIOD 2: MIDDLE TO LATE IRON AGE

Enclosure 1 (Figs 4–9)

A sub-square enclosure, approximately 60m by 60m in size, with a central gateway on its west side, was constructed (Figs 4–6). The rock-cut enclosure ditch varied from approximately 3m to 4.5m in width, being generally widest at its corners, and averaged 1.5m in depth. The ditch had a generally steeply-sloping V-shaped profile with flat base that contained a 0.5m-wide flat-bottomed central slot on its western and eastern sides (Figs 6–9). Where the broadly north/south aligned fault lines in the natural lias coincided with the line of the ditch the opportunity was taken to remove further limestone and take the maximum depth of the enclosure ditch to approximately 1.8m (Figs 7 and 8, sections 5, 7 and 9).

The western entrance to the enclosure was approximately 2m wide, to judge from the paired post-pits at the gate structure (1070 and 1202; Fig. 6, sections 1 and 3). Subsequent recutting of the enclosure ditch (as enclosure recuts 1 and 2) led to a southward shift in the position of the northernmost ditch terminal. There appears to have been a corresponding southward shift in the position of the gate, suggested by post-pit 1070 having been replaced by later post setting 1826 and post-pit 1202 by 1200. Inside the enclosure ditch was a bank approximately 3–4m in width. This dimension is inferred from a strip of ground devoid of contemporaneous features immediately inside the enclosure ditch, and from stony backfill deposits within the ditch which had clearly been pushed in from the inside (Figs 7 and 8, sections 5–11). The bank appears to have been formed largely from stone derived from excavation of the rock-cut ditch, but is likely to have incorporated material from periodic recutting or scouring-out of accumulated ditch silts (as evidenced by enclosure recuts 1 and 2). The volume of material that would have arisen from excavation of the enclosure ditch suggests that the internal bank was originally at least 1–1.5m high.

Basal deposits of yellow-brown, relatively stone-free, clay-silt were encountered in all ditch sections. These appear to derive, at least in part, from initial weathering of the newly-excavated ditch sides, deposits largely removed by subsequent episodes of ditch cleaning. A charred cereal grain from primary silt 1113 (Fig. 8, section 10) produced a radiocarbon date of 760–370 cal. BC (Wk-15350). The radiocarbon date is much earlier than the pottery recovered from the enclosure and the grain may be residual, but conceivably identifies a construction date for the enclosure as early as the Early Iron Age. Six sherds of Late Iron Age pottery were recovered from primary silt 1324, presumably introduced during later cleaning. Subsequent, more humic, ditch fills suggest the more gradual accumulation of silts and included stone fragments which, from their angle of pitch, presumably derive from erosion of the internal bank. Three sherds of Late Iron Age pottery recovered from ditch fill 1025 (Fig. 7, section 7) testify to the continued use of the enclosure. A sherd of second- to fourth-century AD pottery from levelling fill 1462 (Fig. 7, section 5) is considered intrusive.

Two major episodes of ditch recutting were identified, although periodic scouring-out of ditch silts is likely to have occurred throughout the life of the enclosure. The first discernible recutting (enclosure ditch recut 1) encompassed only a 30m-long section of silted ditch immediately north of the gateway,

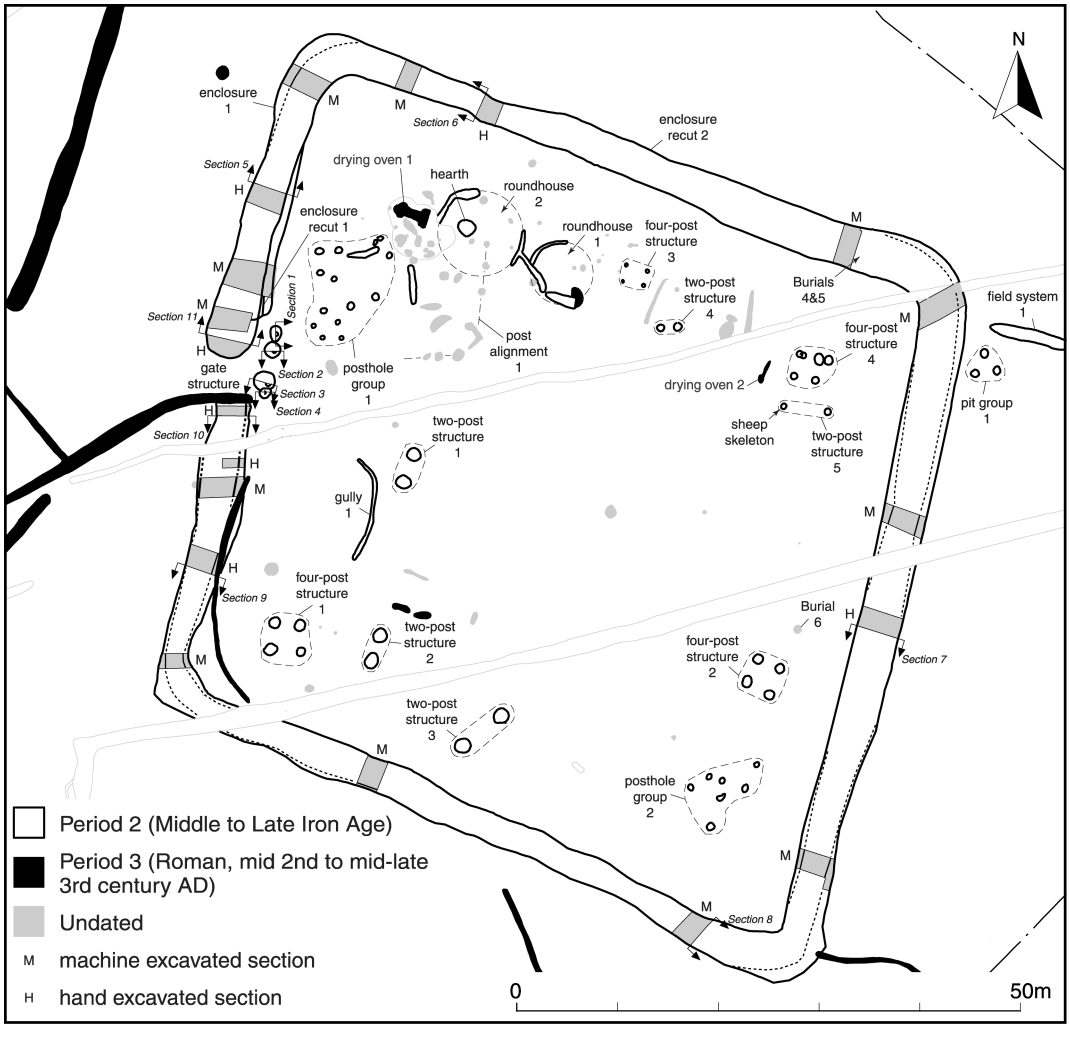

Fig. 5. Period 2, enclosure 1, with ditch recuts 1 and 2, showing associated settlement. features, Period 3 and undated activity (scale 1:750).

stopping short of the north-western corner of the enclosure, and was of similar width but shallower than the original ditch cut (Figs 5 and 6). The exclusive recutting of this small length of enclosure ditch suggests that it may have held a particular visual importance, perhaps by virtue of its proximity to the settlement approach and gate, or that material accumulated more rapidly here, perhaps given the proximity of several roundhouses, and required more regular maintenance. The distribution of Iron Age pottery within the settlement suggests that preferential deposition occurred within this part of the enclosure ditch immediately north of the gate (Gwilt below; Fig. 18). It may be noteworthy that five large sherds from a single Late Iron Age vessel were recovered from enclosure recut 1 ditch fill 1436 (Fig. 7, section 5). This may represent casual discard, or perhaps the deliberate placement, of a complete vessel within the enclosure ditch north of the entrance.

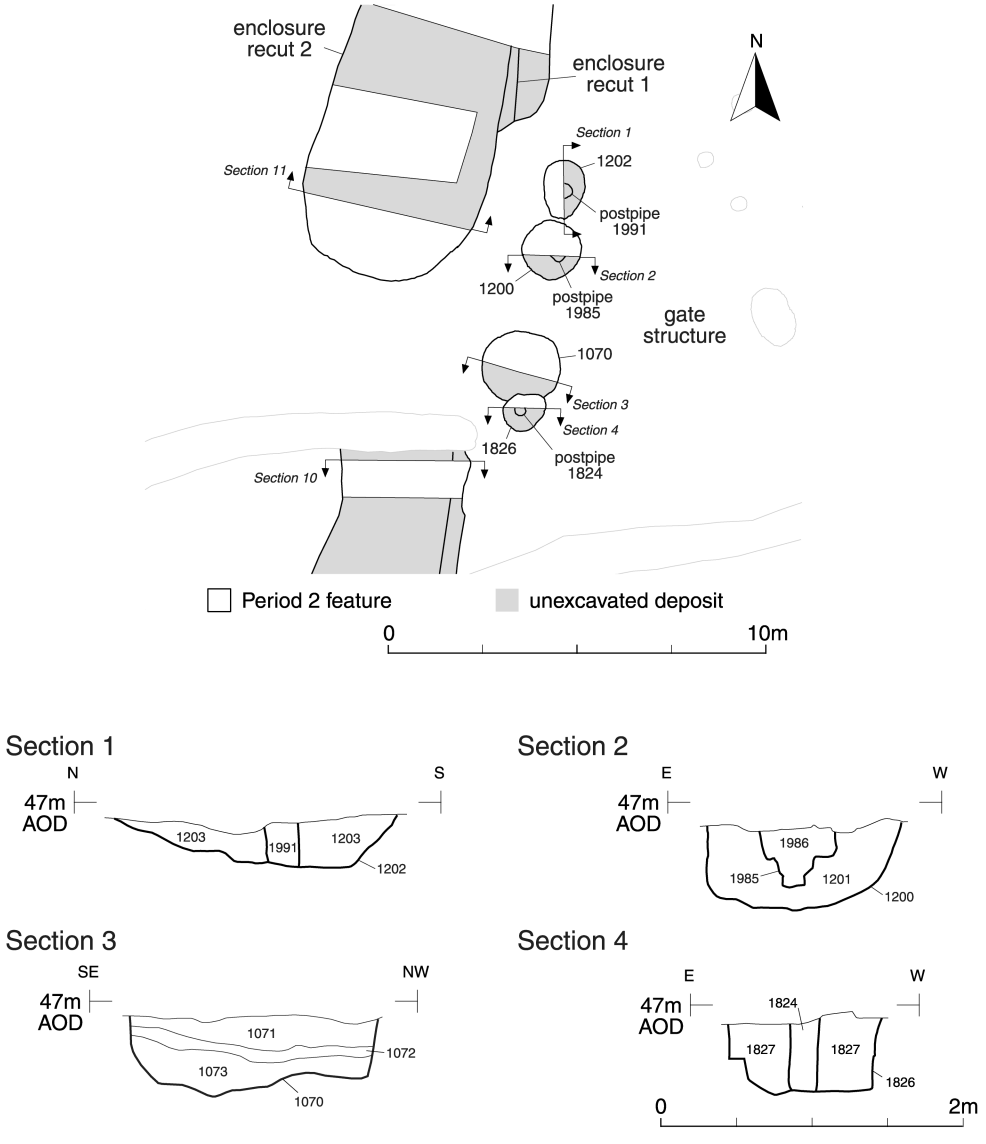

Fig. 6. Period 2, enclosure 1, with ditch recuts 1 and 2, showing detail of gateway (scale 1:200).

Following the gradual silting of enclosure recut 1 a comprehensive recutting of the entire enclosure circuit was undertaken (enclosure recut 2), followed again by the apparently rapid accumulation of primary silts. Eight sherds of Late Iron Age pottery were recovered from basal fill 1017, together with seven sherds of the same date and a piece of slag from silts 1010, overlying 1014, within enclosure recut 2 (Fig. 8, section 11).

The primary silts which had accumulated within enclosure recut 2 were overlain by a series of clay and stony-clay deposits suggesting that the enclosure ditch had, at least in places, ceased to be maintained and

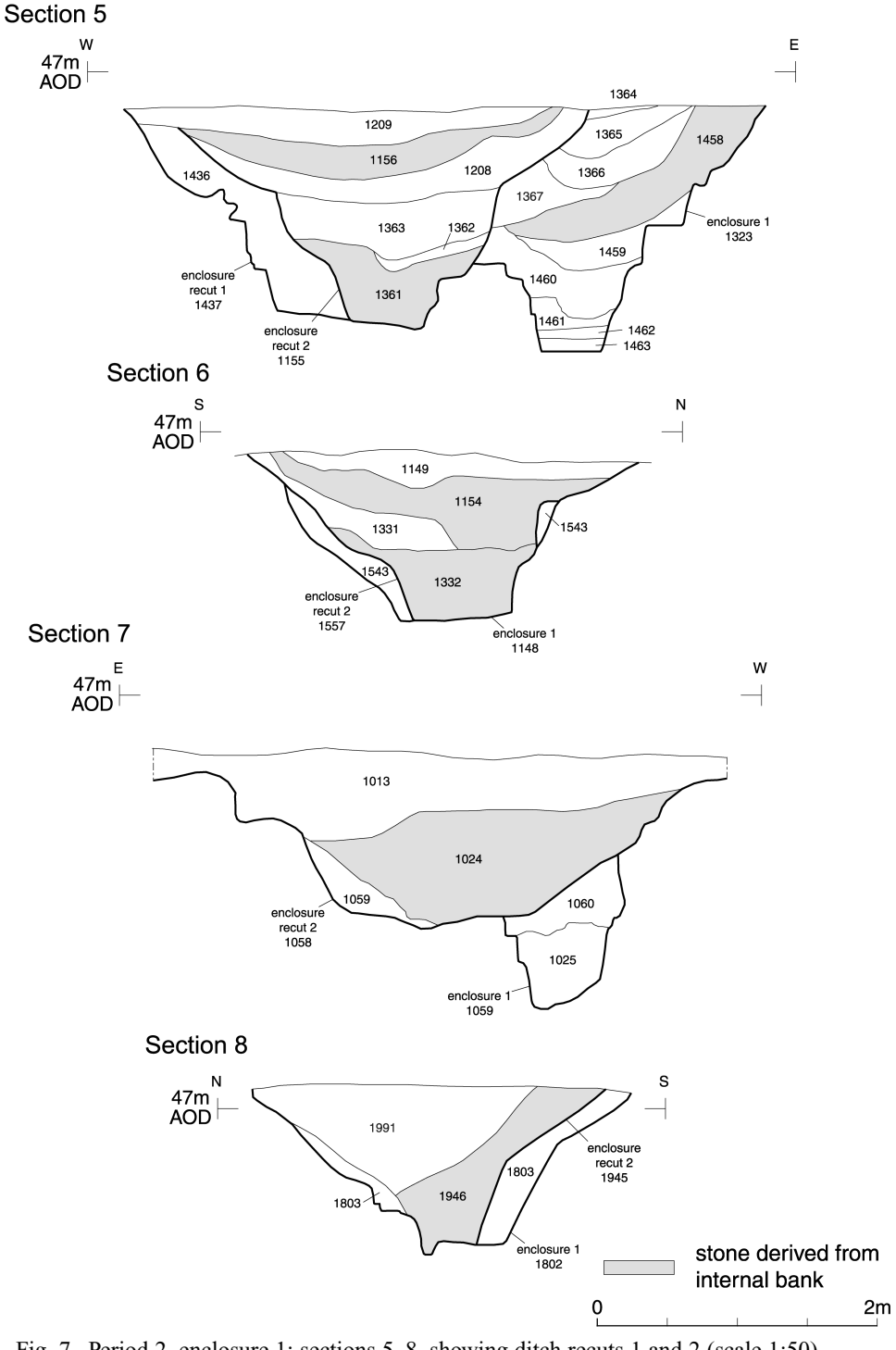

Fig. 7. Period 2, enclosure 1; sections 5–8, showing ditch recuts 1 and 2 (scale 1:50).

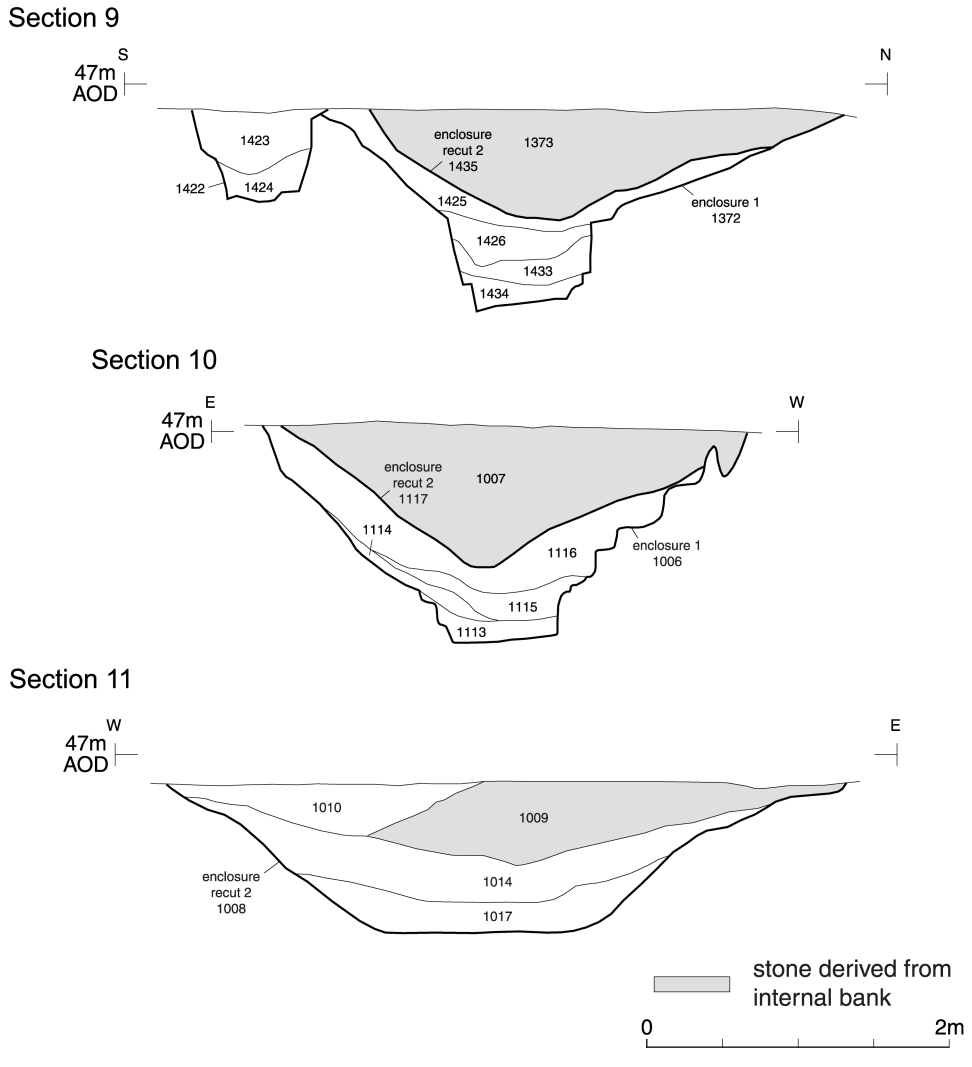

Fig. 8. Period 2, enclosure 1; sections 9–11, showing ditch recut 2 (scale 1:50).

been allowed to gradually silt up during the latter part of Period 2. Twenty-one first-century BC to first-century AD sherds, in unabraded condition, were recovered from a basal deposit 1361, containing abundant sub-angular stone, within a section of ditch north of the entrance (Fig. 7, section 5). This material may derive from a partial, localised, collapse of the internal bank and was overlain by clays 1362, 1363 and 1208, suggesting gradual silting of this ditch section. Fill 1208 contained four sherds of unabraded first-century BC to first-century AD pottery. A similar sequence was noted within the northern section of enclosure recut 2, close to the roundhouses, where a basal stone deposit 1332 may mark a further area of bank collapse (Fig. 7, section 6). Clay 1331, directly above 1332, also suggests a period of gradual silting prior to the final levelling of the internal bank, represented by deposit 1154, in Period 3.

Enclosure recut 2 was backfilled during Period 3 by levelling of the internal bank. Deposits containing large amounts of fragmentary angular stone could be discerned intermittently on the surface along all four sides of the backfilled enclosure ditch. Multiple sections excavated through this deposit suggested that the bank material had collapsed or been pushed in from the inside of the enclosure (Figs 7 and 8, sections 5–11, Fig. 9).

Internal features (Fig. 5)

Settlement remains including roundhouses, hearths and two- and four-post structures were encountered throughout the enclosure. All features respect the layout of the enclosure, with no evidence for an earlier phase of unenclosed occupation. The paucity of intercutting features suggests that no major reorganisation of the internal layout of the enclosure occurred, and the pottery and radiocarbon dates together suggest that occupation predominantly dates to the period from the second century BC to *c*. AD 50/80, although the possibility of earlier activity cannot be entirely excluded.

A degree of zoning was apparent within the enclosure. The remains of up to two roundhouses, truncated by Roman activity in Period 3, were encountered within the north-western corner, away from the entrance and close to its internal bank. They were, perhaps, situated here to afford some protection from strong prevailing westerly winds. Most of the Iron Age pottery recovered during the excavation came from the northern part of the enclosure, particularly from contexts associated with Roundhouses 1 and 2. Abundant Iron Age pottery, although residual in context, was also recovered immediately to the west of these two roundhouses and might suggest the former presence of an additional roundhouse, or midden, hereabouts.

The central strip running east of the entrance appeared generally devoid of features. This area may have been utilised for access, hardstanding or stock corralling. The south-western part of the enclosure appears

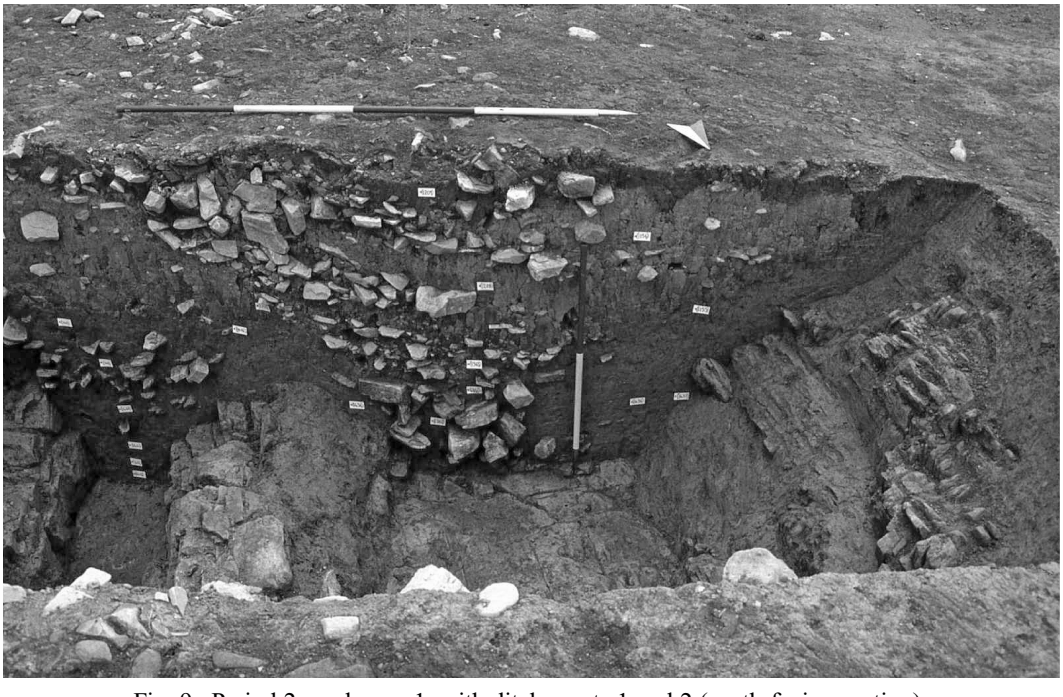

Fig. 9. Period 2, enclosure 1, with ditch recuts 1 and 2 (north-facing section).

to have been largely given over to storage, probably raised granaries to judge from the remains of a series of post-built structures and the paucity of domestic finds in this area.

Roundhouses (Fig. 10)

Roundhouse 1 was represented by gully 1710, averaging 0.3m in width and 0.2m in depth, potentially defining a building up to 6m in diameter. Its V-shaped profile suggests that this was an eaves-drip gully rather than a wall trench. No internal postholes, padstones, hearths or floor surfaces remained (Fig. 10), and no trace of a drip gully survived on the projected eastern side of the roundhouse. On the projected southern side, Period 3 feature 1151 may have truncated an earlier Period 2 gully, 1150 (Fig. 10), which could have functioned either as part of the drip gully for Roundhouse 1, or as an extension of the drainage spur 1662 from Roundhouse 2. However, the stratigraphic relationship between features 1150 and 1151 was unclear, and therefore the interpretation of their relationship and indeed of Roundhouse 1 as a whole is not conclusive.

The fill (1710) of the north-western segment of drip gully produced a single sherd of Late Iron Age pottery and two charred emmer seeds which produced radiocarbon dates of cal. AD 80–340 (Wk-15351) and 50 cal. BC–cal. AD 140 (Wk-15352). The occupation of Roundhouse 1 therefore appears likely to be Late Iron Age in date and contemporary with the enclosure.

Roundhouse 2, approximately 8m in diameter, was identified from two segments of drip gully within V-shaped profiles (1048 and 1066) *c*. 0.4m wide and 0.15m deep. Internal postholes, an off-centred oval feature (1187), and an attached drainage spur (1662), which cut the drip gully of Roundhouse 1 were also found. Roundhouse 2 therefore appears to have been contemporary with, but longer lasting than, Roundhouse 1, or a later replacement on a larger scale. An undated section of gully (1150), to the east of

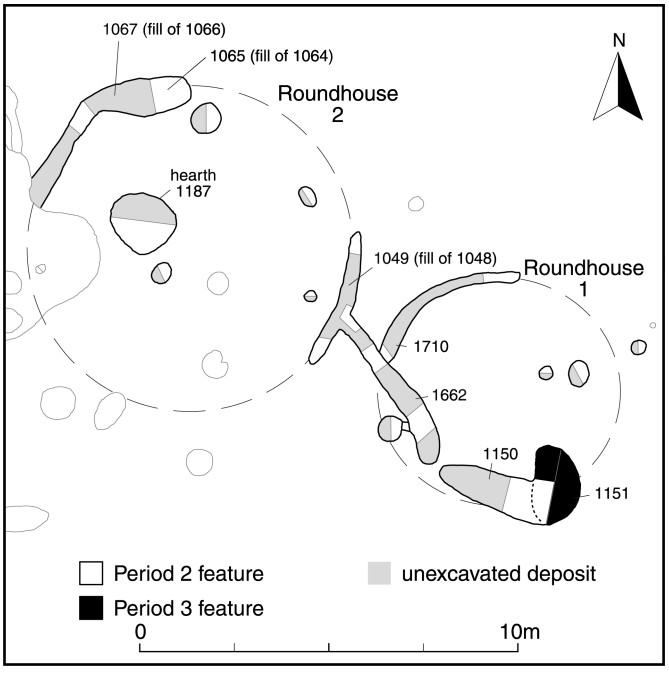

Fig. 10. Period 2, Roundhouses 1 and 2 (scale 1:200).

drainage spur 1662 is truncated by a later Period 3 feature (1151), and may either be associated with drainage spur 1662, or with the drip gully of Roundhouse 1.

The drip gully of Roundhouse 2 was shallow and heavily truncated, and only four possible internal postholes survived. Two sherds of Late Iron Age pottery were recovered from drainage spur 1662. Two unidentified cereals from the fill 1049 of drip gully 1048 produced radiocarbon dates of 100 cal. BC–cal. AD 80 (Wk-15353) and 160 cal. BC–cal. AD 80 (Wk-15354). A single fired-clay fragment and two charred pulse fragments were recovered from an oval feature up to 1.87m in diameter and 0.3m deep with two charcoal-rich fills (1187), which is interpreted as a hearth located inside Roundhouse 2. The pulse fragments produced radiocarbon dates of 170 cal. BC–cal. AD 60 (Wk-15355) and cal. AD 130–350 (Wk-15356). The abundant charcoal recovered from the hearth suggests the use of oak as a fuel, although given the ambiguities of the radiocarbon dates the interpretation of this feature must remain tentative.

Three of the four radiocarbon determinations from Roundhouse 2, including both dates from drip gully 1048, suggest a Late Iron Age date for its disuse. The fourth radiocarbon date from the possible hearth 1187 is no earlier than the second century AD and suggests that contamination of the shallow roundhouse features may have occurred during the operation of drying oven 1 during Period 3. Indeed, it is possible that the earlier radiocarbon date from hearth 1187 is from residual material within a Period 3 feature. A radiocarbon date obtained from a food residue on a residual Iron Age pot sherd from the later drying oven gave a date of 200 cal. BC– cal. AD 10 (Wk-15361).

Both roundhouses thus appear likely to have been built and occupied sometime during the period from the first century BC to first century AD, and possibly even as early as the mid second century BC. The absence of any diagnostically earlier pottery, or radiocarbon dates pre-dating 170 cal. BC, associated with the roundhouses suggests that they either significantly post-date the earliest postulated date for construction of the enclosure (760–370 cal. BC), or that they are broadly contemporary with an enclosure of mid second century BC or later date. An absence of pottery datable to later than *c*. AD 50/80 suggests that disuse of both structures probably occurred around this time at the latest. The Period 3 drying oven adjacent to Roundhouse 2 was not built until the second century AD or later.

Although no further drip gullies were discernible it is conceivable that one or more additional roundhouses existed within the northern part of the enclosure, reflected by posthole group 1 (Fig. 5) and the recovery of abundant Iron Age pottery in a residual context (1565) adjacent to Period 3, drying oven 1.

Post-built structures (Fig. 5)

The posthole and padstone remains of a series of post-built structures lay within the southern and eastern parts of the enclosure, areas where little artefactual material was recovered. As with Roundhouses 1 and 2, the majority of the post-built structures appear to have been positioned tight against, and aligned with, the rampart. Identified structures include square four-post structures 1 to 4, which may have functioned as raised granaries. These averaged 2.5m square, with postholes approximately 0.6m in diameter and 0.1–0.45m in depth. There is evidence of recutting of post-pits for some of the four-post structures, providing rare evidence for the replacement of structures within the enclosure. An oat fragment and cereal grain from a post-pit of four-post structure 4 produced two radiocarbon dates of 400–200 cal. BC (Wk-15357 and Wk-15358). This is the best evidence that activity was occurring within the enclosed area pre-170 cal. BC. Oak wood charcoal, apparently from the *in situ* decay of posts, was recovered from three of the four postholes of four-post structure 4. Charred wheat grains and weed seeds from posthole fill 1508 of the same structure may have derived from the cleaning-out of domestic hearths.

Five two-post structures, possibly storage racks, were also recorded. These were constructed with postholes 0.1–0.3m in depth set 2 to 4m apart. Two-post structures 1 and 4 both had discernible

post-pipes, indicating posts approximately 0.15m in diameter. Nineteen sherds of Late Iron Age pottery were recovered from post-packing 1304 of two-post structure 2, possibly a deliberate foundation deposit during its construction. A potentially earlier first-century BC date for this structure is suggested by a single sherd of coarse shelly fabric within this group. Deposited within the western posthole of two-post structure 5 was the near complete skeleton of a sheep, representing another deliberate foundation deposit. Four perinatal bones from the same context identify the loss of a lamb during the early stages of pregnancy. Two wheat grains from posthole 1569 of this two-post structure produced radiocarbon dates of cal. AD 80–330 (Wk-15359) and cal. AD 50–240 (Wk-15360), dating the disuse of this feature to the mid first century AD or later. Immediately inside, and north of, the entrance to the enclosure was a concentration of postholes, averaging 0.25m in diameter and 0.15m in depth (posthole group 1). No datable material was recoverable but the similarity of their fills to those from other Period 2 features suggests that these represent the remains of one or more contemporary structures adjacent to Roundhouses 1 and 2.

Other activity within the enclosure (Fig. 5)

A curving section of gully was found within the south-western part of the enclosure (gully 1). The absence of associated postholes or internal features suggests that this was not a roundhouse drip gully; its function is unclear. Dispersed pits and postholes were also encountered. Although undated these features, including posthole groups 1 and 2, have been assigned to Period 2 based on their fill characteristics and spatial patterning. Posthole group 1 has been discussed above, while posthole group 2 perhaps testifies to further storage structures in the southern part of the settlement.

The incomplete remains of two inhumation burials, 4 and 5, were recovered during the machine excavation of stony Period 3 backfill deposit 1833 within the northern section of enclosure recut 2 (Fig. 5). Disarticulated skeletal remains from these burials (contained within a single fill 1720) were recovered from the excavated spoil, but bones examined *in situ* within the section face included some partially articulated remains. Several bones had old rather than fresh breaks, indicating that they were originally deposited as partial and damaged remains. No grave cut was discernible, the human bone instead lying amongst the former bank material filling enclosure ditch recut 2. Burials 4 and 5 both appear to represent inhumations originally set into the internal bank of the enclosure, and damaged during their redeposition within the backfill of the final enclosure ditch. Burial 4 was male, and bone deformation was noted on its left radius, a condition which may have severely affected the use of the right wrist. A radiocarbon date of 160 cal. BC–cal. AD 60 (Wk-15363) was obtained from human bone recovered from burial 4.

A shallow circular pit, near the back of the enclosure contained the moderately preserved leg bones of a further inhumation, burial 6 (Fig. 5), a juvenile, which produced a radiocarbon date of 170 cal. BC–cal. AD 60 (Wk-15364). The pit may originally have been dug into or sealed by, the tail of the enclosure bank.

Inhumation burials outside the enclosure (Fig. 4, 11 and 12)

Two flexed inhumations (burials 1 and 2) were found 70m west of the enclosure. Both burials, set 5m apart, lay within shallow rock-cut graves and contained poorly-preserved semi-crouched inhumations. No datable material was recovered from either grave fill. Burial 1 lay within a well-defined, vertical-sided, oval grave, 1.1m long, 0.6m wide and 0.1m in deep. The north-west/south-east aligned grave contained an adult burial, probably a female, set on her right side with the head to the north-west. A radiocarbon date of 400–200 cal. BC (Wk-15365) was obtained from a sample of bone. Burial 2 lay within a less well-defined grave, parallel to that for burial 1, approximately 0.9m long, 0.7m wide and 0.1m deep. The grave contained an adult burial, again probably a female, at least 20 years of age, also set on her right side with

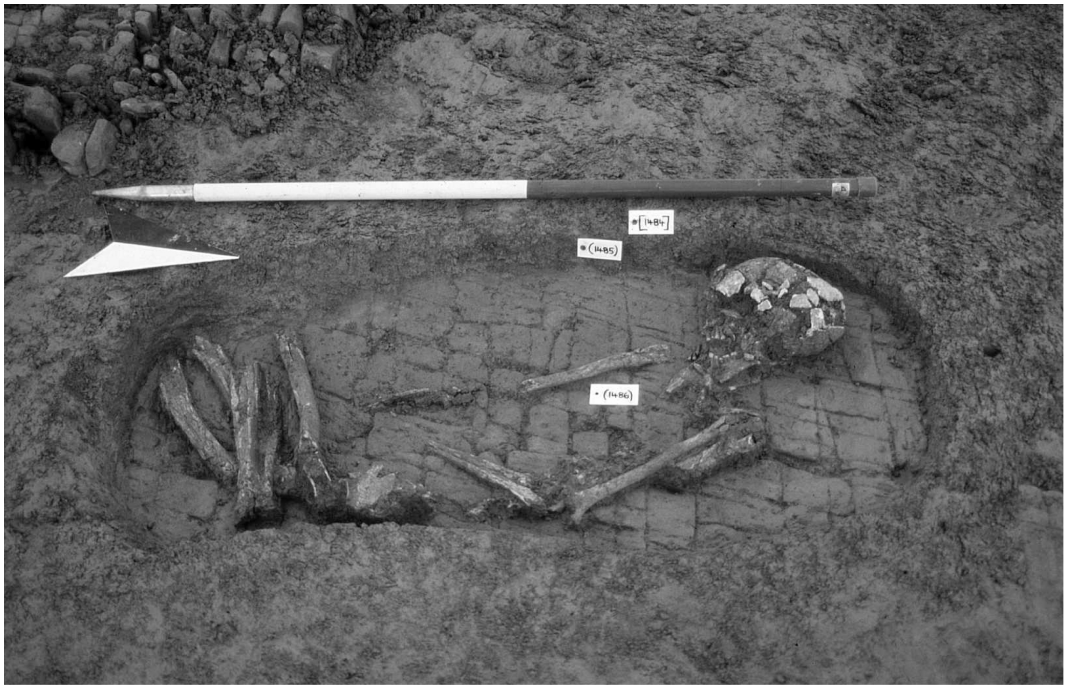

Fig. 11. Period 2, inhumation burial 1.

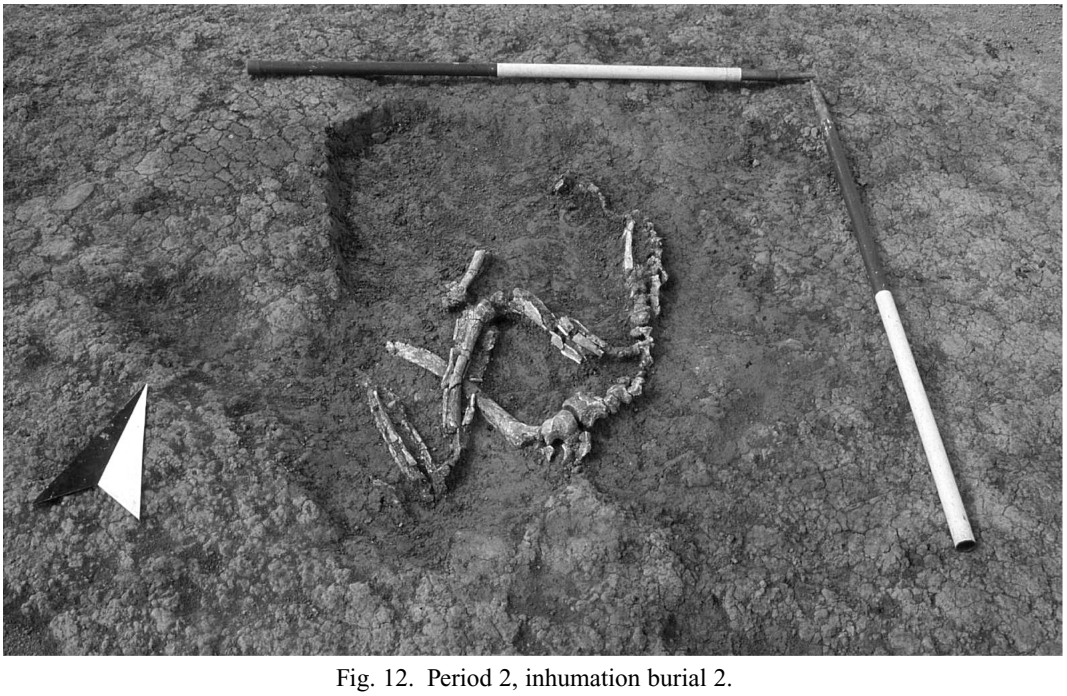

Fig. 12. Period 2, inhumation burial 2.

the head to the north. A sample of bone provided a similar Middle Iron Age radiocarbon date of 390–200 cal. BC (Wk-15366).

Field system (Fig. 4)

Two ditched boundaries to the east of the enclosure appeared to demarcate part of a field system (1, Fig. 4). The two ditches, 6m and 25m in length respectively, ran broadly parallel with the northern and southern sides of the enclosure and stopped close to and respected its south-east and north-east corners. No dating evidence was recovered from their fills.

Four further undated ditches of field system 1, varying from 5m to 25m in length, ran on alignments broadly parallel with and west of enclosure 1. No datable material was recovered from their fills but one was cut by Period 3, enclosure 2 (Fig. 13). The nature of land use immediately beyond the enclosure is uncertain, but these ditches appear to identify agricultural plots in a landscape which the molluscan evidence from the enclosure ditch suggests was used for pasture rather than arable.

A cluster of three broadly circular pits (pit group 1), each approximately 1m in diameter, was set within a possible plot or field corner defined by the eastern side of enclosure 1 and field system 1 to the north (Fig. 4). No datable material was recovered from their surface fills (they were not excavated).

A sub-rectangular pit 1908, approximately 8m long, 6m wide and 1m deep, lay 80m north-west of enclosure 1. The pit, with steep rock-cut sides and a concave base, was cut by Period 3 trackway 1, and contained a silt-clay fill 1909 which produced 16 sherds of first-century BC to first-century AD pottery together with fragments of animal bone and abundant fragmentary stone. The function of the pit is unclear, although it conceivably represents a small stone quarry.

PERIOD 3: ROMAN

Reuse of enclosure 1

The pottery suggests that occupation within enclosure 1 ceased by *c*. AD 50/80, or at least that the level of activity within it significantly diminished, and that reuse of the site dates to after *c*. AD 140, activity continuing until the mid to late third century AD. Identifiable Roman activity included the comprehensive backfilling of the enclosure ditch, including the deliberate slighting of its internal bank, and the construction of two drying ovens and associated post-built structures inside the denuded enclosure. To the west a rectilinear field system with associated trackways was laid out.

Although limited activity occurred within the slighted enclosure the main focus of later Roman settlement appears to have shifted to an as yet unidentified location during Period 3. No evidence was encountered for Late Roman domestic buildings within the slighted enclosure and no artefactual material of certain fourth-century date AD was recovered.

Recut 2 of the enclosure ditch contained basal stone deposits, perhaps associated with localised collapses of the internal bank, together with clay fills suggesting subsequent, gradual, silting of at least parts of the ditch (see above). Other sections of the ditch, including parts of the southern and western arms, appear to have been kept relatively clean of deposits until their eventual backfilling. This process involved at least partial levelling of the internal stone bank, with its component material tipped into the ditch, a process which introduced large quantities of residual Late Iron Age pottery, in both fresh and abraded condition, into the upper levels of recut 2. This was followed in places by the deposition of stone-free loam perhaps a consequence of agriculture (Figs 7 and 8). Roman pottery associated with this backfilling included a sherd of mid second- to early third-century AD pottery from redeposited bank material 1007; three undiagnostic Roman sherds and a Late Iron Age loomweight from bank material

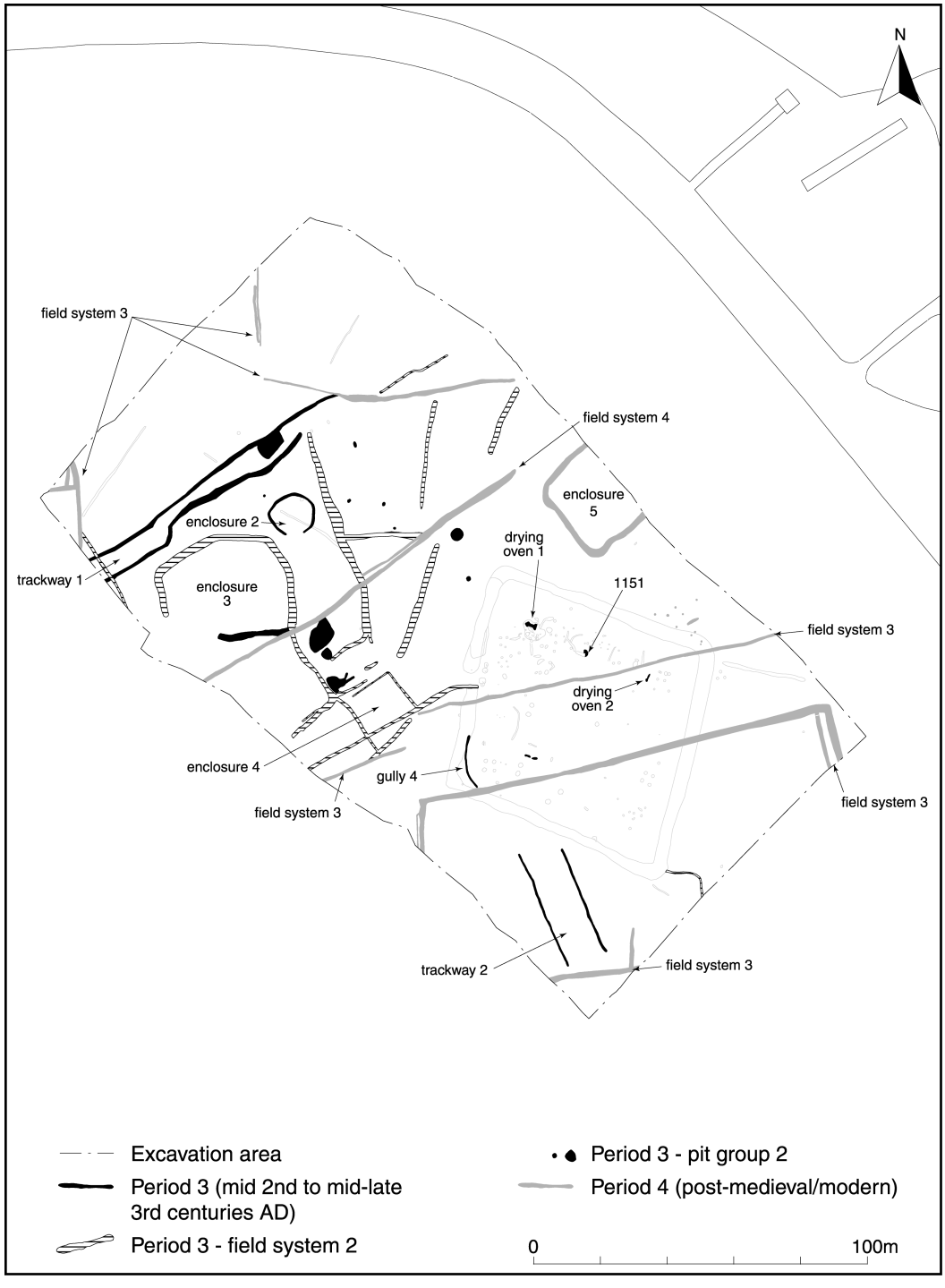

Fig. 13. Period 3, and 4 features (scale 1:2,000).

1373; three second- to fourth-century AD sherds from bank material 1156, and three second- to third-century AD sherds from overlying fill 1209 (Figs 7 and 8, sections 5, 9 and 10).

Roman activity within the denuded enclosure

Whilst several ditched field boundaries and gully 4 drained into the partially backfilled enclosure ditch none encroached upon the former enclosure, which appears instead to have been used for agricultural activities including the operation of one or more drying ovens.

A T-shaped drying oven with associated working area and post-built structures (drying oven 1) lay within the north-western corner of the enclosure (Figs 13–15). The drying oven, approximately 7m by 5m in size, contained a stoking area, a main flue and a cross flue. The oven had a partially-surviving pitched slab and coursed stone lining, as well as a flat stone base that was heavily scorched. No suspended floor or associated superstructure survived.

To the south of the drying oven was a group of postholes and padstones (posthole group 3; Fig. 14), set within a shallow worn area, 11m by 14m in size, which cut across the remains of Roundhouse 2. Together, the remains suggest the former presence of a small roofed working area or possibly even a fully enclosed shed next to the oven. A second posthole/padstone line (post-alignment 1) to the south and east partially enclosed an area *c*. 12m by 4m was perhaps a fenced enclosure surrounding drying oven 1 (Fig. 5). The flue was largely backfilled with rubble from the upper courses of the lining. A socketed iron object was recovered from layer 1565 which infilled the worn area adjacent to drying oven 1. This appears to have been adapted from another, presumably broken implement, and may represent a stoking or clearing device (Fig. 21, no. 3 below). Slightly further east a shallow pit or gully 1151 appeared likely to have truncated a section of gully (1150) associated with the Period 2 roundhouses, although the stratigraphic relationship between the two features was unclear. Feature 1151 contained two sherds of second- to fourth-century AD pottery (Figs 10 and 13).

A narrow flue, approximately 35m east of drying oven 1, had no datable material from its fill but the feature may represent a second oven given that the natural clay through which it was dug was scorched. No remains of any superstructure associated with drying oven 2 survived. The fills of the flue 1666 and 1667 contained only occasional barley, possible wheat grains, and grasses which shed little light on the function of this feature.

Dispersed undated pits and postholes were also found within the area of the former enclosure (Fig. 5). These have been assigned to Period 3 on the basis of their fill characteristics and the fact that they could not be related to any of the Period 2 structures.

Field system, trackways, and pits

An extensive network of mainly north-east/south-west and north-west/south-east aligned ditches was established during Period 3 to the west of enclosure 1. These U- and V-shaped ditches defined a small rectangular plot up to 13m by 20m in size (enclosure 4). To the north-west lay a penannular ditch, 10m in diameter, with an entrance on its south side (enclosure 2). It is possible that this may have contained a roundhouse, although if so no traces of internal features survived. Enclosure 3, a larger D-shaped enclosure, 25m by 35m in size, possibly used for stock, lay adjacent to enclosure 2. Other ditches defined field systems or trackways. Molluscan remains from the ditches suggest the presence of woodland and scrub in the vicinity, although perhaps open and secondary in character given an absence of old established stable woodland species. Abundant charred plant remains of blackthorn and hawthorn recovered suggest that the ditched field boundaries may have been associated with hedgerows.

The focus of settlement associated with the ditched enclosures remains uncertain, but artefacts and ecofacts recovered from their fills hint at the possible character of the later Roman occupation. The

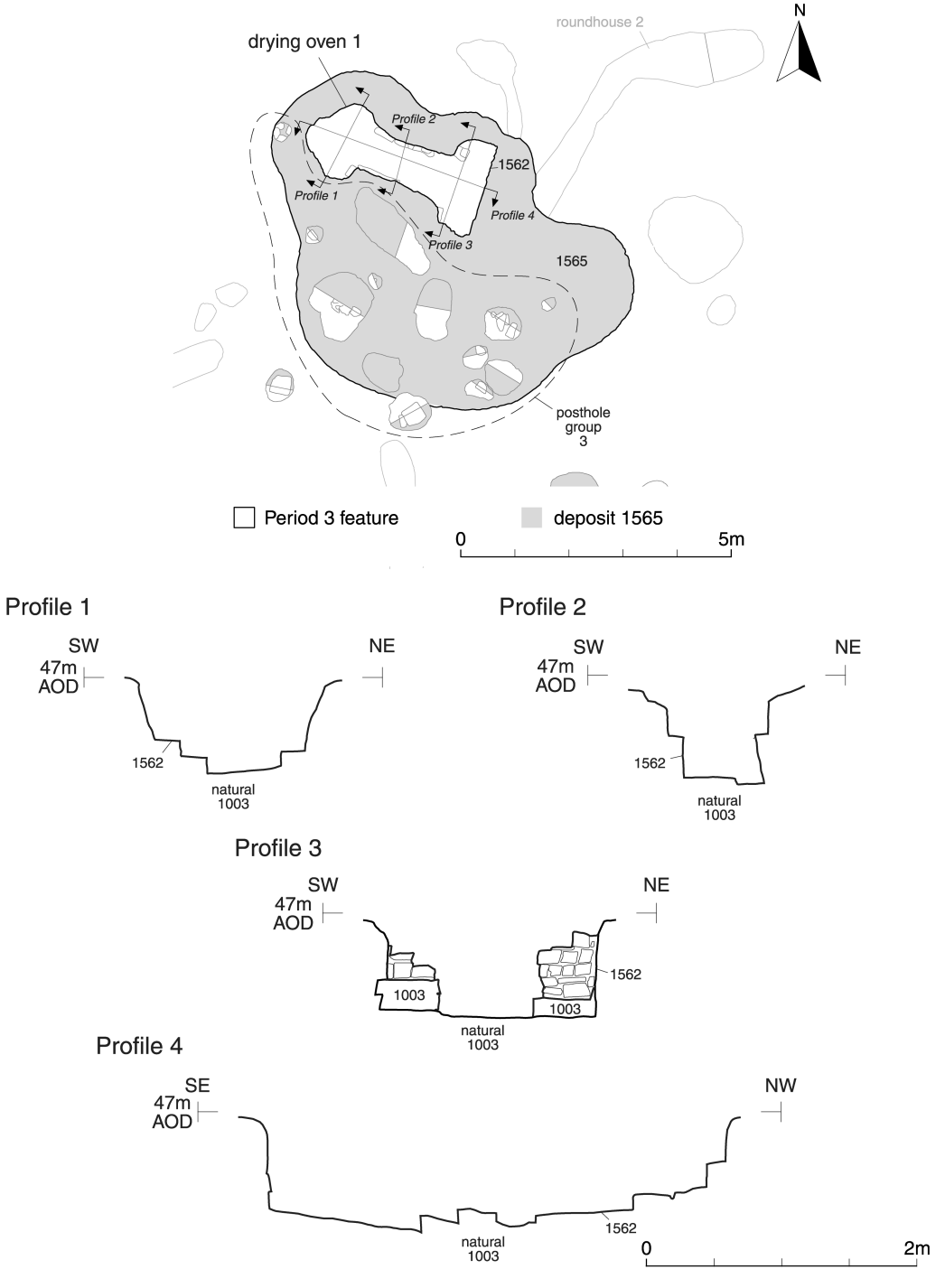

Fig. 14. Period 3, drying oven 1 (scale 1:125 and 1:50).

Fig. 15. Period 3, drying oven 1.

pottery assemblage exhibits a paucity of continental imports and specialist wares, and is dominated by kitchen/storage vessels suggestive of a lower status rural population. Whilst the animal bone assemblage is too small to say much about the pastoral economy cattle, sheep and pig were all represented, including some juvenile cattle and sheep, and butchery marks are evident.

Associated with the network of enclosures was a north-east/south-west aligned ditch-defined trackway 1, 2m to 7m in width. The trackway cut across earlier field system 1, suggesting some minor reorganisation of settlement-related features must have occurred during Period 3.

Enclosure 1 must have remained at least partially visible as a landscape feature during Period 3 since several ditches of field system 3 cut across and drained into the partially infilled enclosure ditch at the east and west corners, and the southern entrance terminal (Fig. 13). In addition trackway 2, 11m in width and constructed on the same alignment as the newly-created field system 2, stopped short of the backfilled enclosure, suggesting that it remained visible as a slight earthwork.

A dispersed group of 13 shallow circular and sub-circular pits (pit group 2), varying from 1m in diameter to 9m by 7m in size, were found north-west of enclosure 1. These pits varied from approximately 0.25m to 1.1m in depth. The function of the pits remains uncertain but they may have been small quarries dug to extract small amounts of limestone for use within an as yet unlocated Period 3 settlement.

PERIOD 4: POST-MEDIEVAL/MODERN

A number of ditches on broadly east-west/north-south axes contained post-medieval glazed earthenware pottery (field system 3; Fig. 13). The ditches generally correspond well with field boundaries depicted on the 1921 3rd edition Ordnance Survey 25-inch map (Sheet 45. SE), although it appears likely that some, which are not depicted, were removed at an earlier date. These fields may conceivably have originated with the enclosure of formerly open fields which had occurred in the Vale of Glamorgan by the end of the sixteenth century (Griffiths 1979, 5).

Enclosure 5, 25m wide and at least 20m in length and recut boundary ditch (field system 4) were identified on a more south-west/north-east orientation than field system 3. These are also depicted on the 3rd edition map of 1921, and may again have originated with the enclosure of open fields. Period 4 deposits also included modern postholes and extensive land drain network cutting subsoil and topsoil horizons.

PERIOD 5: UNDATED

A number of dispersed pits and postholes were noted within enclosure 1. Although undated they appear likely to be associated with Period 2 or Period 3 occupation.

IRON AGE POTTERY

By Peter Webster, Adam Gwilt and Jana Horák
Cardiff University and National Museum Wales

The assemblage includes 27 stratified contexts which yielded a distinctive calcite-gritted pottery generally thought of as typical of the Late Iron Age and Early Roman period in south-east Wales (cf. Allen 1998; Spencer 1983). A total of 268 sherds, weighing 1.2kg was recovered during the excavation. The Iron Age assemblage is larger than is usual for the region and occurs largely in isolation from early Roman material, suggesting a wholly pre-Roman date though with some redeposition. The commissioning of a sizeable series of radiocarbon dates has provided independent evidence for the dating of this Iron Age ceramic assemblage. As such St Athan provides an opportunity to study this important class of pottery in greater detail than is usually warranted.

An extended archive report is lodged within the site archive. This contains a detailed quantification of the ceramic assemblage and a ceramic petrology report including photographs of thin sections. In addition, a study of sherd fragmentation and abrasion by context group provides further information about the range of formation processes occurring on this settlement.

Fabric

Iron Age fabrics were handmade and apparently fired in reducing conditions to produce a dark grey-brown to dark grey/black colour, sometimes modified by subsequent use. Examination using a hand lens suggested three subgroups, although subsequent geological examination suggested that these were the result of changes brought about by use and deposition.

Subgroup C1 contains plentiful, poorly sorted angular crystalline calcite fragments (0.1 to 3.5mm in size). Some sherds show secondary oxidisation, while others have a core, which appears to show that reduction was not always total.

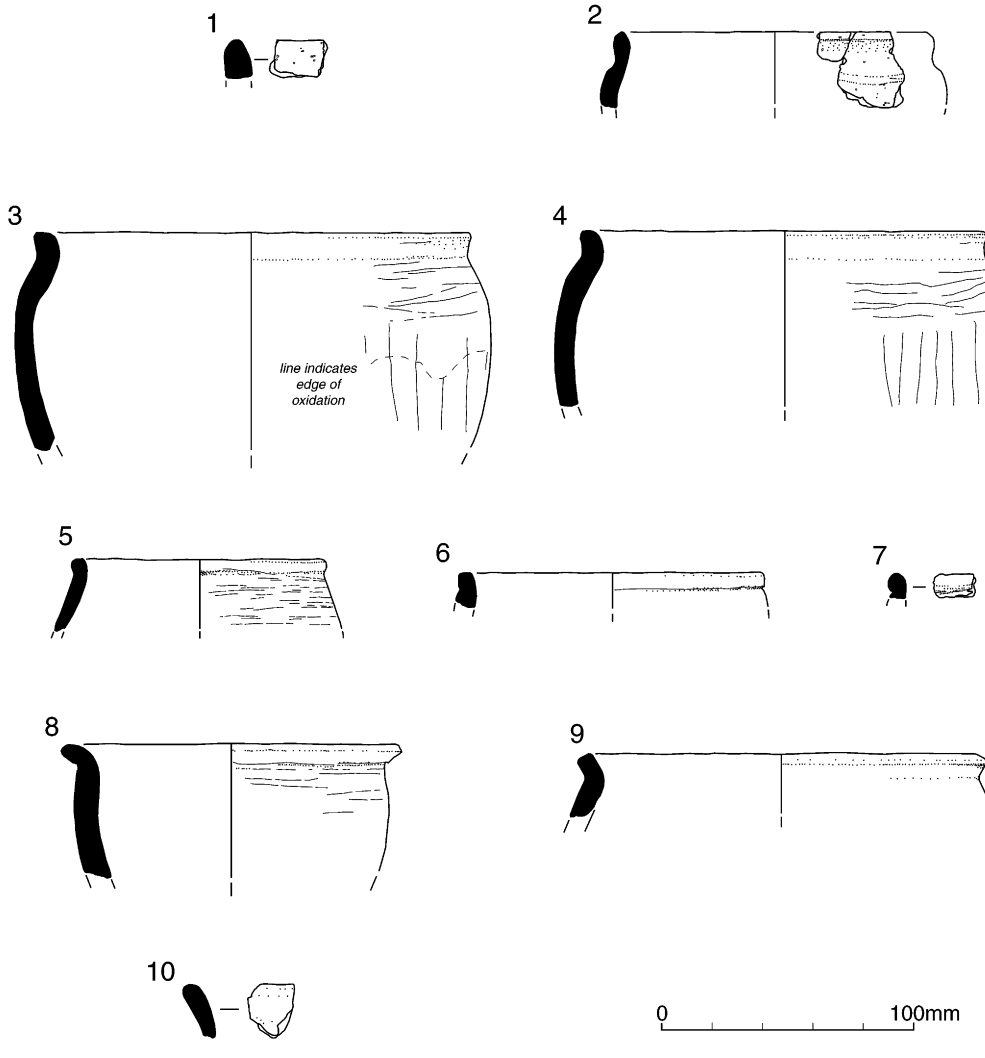

Fig. 16. Iron Age vessel rims (scale 1:3).

Subgroup C2 is characterised by frequent angular vesicles upon both the exterior and internal surfaces. On recent breaks, moderate amounts of calcite (0.1 to 3.5mm in size) were visible. The voids were created either during use (burning of surface calcite during cooking of food) or after deposition (leaching of calcite in slightly acidic soil).

Subgroup C3 is the same as C1 but with an oxidised core created by variations in firing conditions.

Geological examination

Eleven thin sections were prepared from a range of fabric subgroups C1–C3. Geological descriptions and a detailed comparison of components contained are included within the archive report. Overall, these

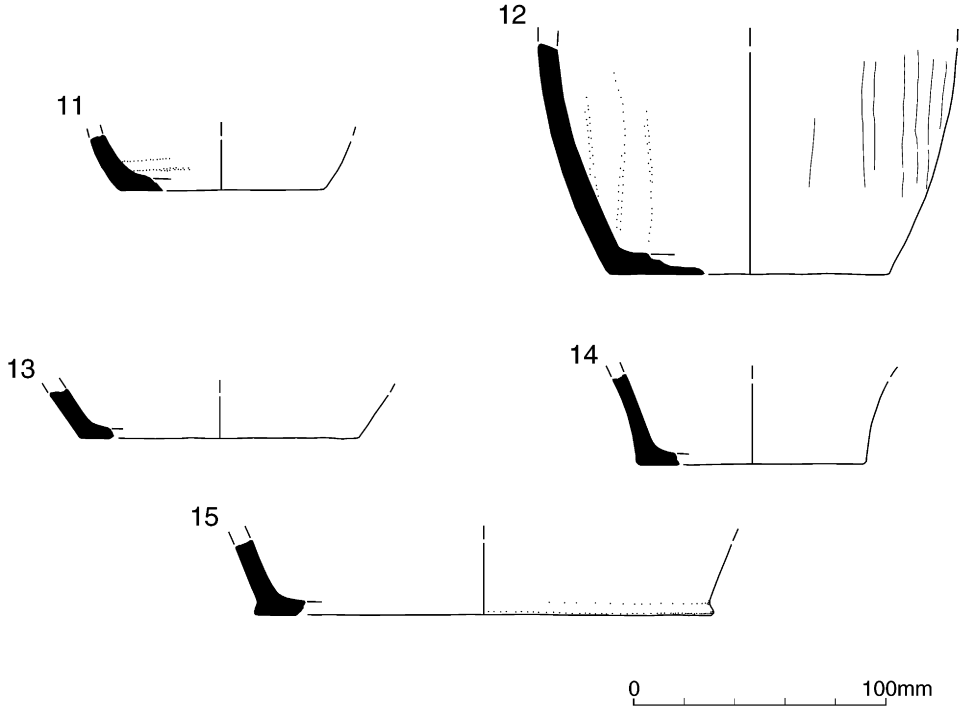

Fig. 17. Iron Age vessel bases (scale 1:3).

confirm that little significant difference exists between the ceramic fabric subgroups and that they are essentially facets of a single and remarkably homogenous tempering tradition. All indicate a major temper component of angular white to cream calcite fragments up to 2.5mm across, with smaller components of sub-rounded to rounded quartz grains, small calcite fragments, occasional rounded K-feldspar grains and occasional pellets of clay or grog up to 1mm in size. The main variation observed is in the density of large calcite to quartz inclusions and the relative abundance of clay pellets. The voids within fabric subgroup C2 are consistent with calcite inclusions, either burnt out during use or leached out after deposition.

Quantification of the assemblage

A summary of the contexts containing Iron Age pottery is shown in Table 2. Context groups are subdivided according to fabric and expressed both in terms of numbers of sherds and by weight. Associated dating evidence, in the form of radiocarbon dates and Roman pottery, is also listed.

Surface preparation and use evidence

Where surfaces survive in an un-eroded state, it is clear that the interiors of vessels were smoothed while the exteriors were burnished. On jars, it seems likely that exterior walls were first burnished vertically and then finished by burnishing horizontally the area from the neck or rim to the shoulder and that immediately above the base. This pattern is indicated on the drawings of more complete specimens. None of the sherds within this assemblage were decorated with incised, impressed or burnished designs.

Table 2: Summary of contexts containing Iron Age pottery

Period/context (contemporary with context unless stated otherwise)	Sherd count (weight in g) Fabric C1	C2	C3	Total count (weight in g)	Associated dating (contexts in brackets; * = calibrated radiocarbon date at 2 sigma; s = no. of sherds)
Period 2					
Posthole 1200 (fill 1201), gate structure	1 (1)	–	–	1 (1)	–
Ditch: primary silt 1324	6 (43.7)	–	–	6 (43.7)	(1113) 550–370 BC*
Ditch: layer over primary silts 1025	3 (28.3)	–	–	3 (28.3)	(1462) 3s 2nd/4th AD (intrusive)
Enclosure ditch (N): partial recut 1436	26 (398.2)	–	–	26 (398.2)	–
Ditch: 2nd recut, primary 1014	–	–	7 (18.4)	7 (18.4)	–
Ditch: 2nd recut, primary 1017	8 (19)	–	–	8 (19)	–
Period 2 total	44 (490.2)	–	7 (18.4)	51 (508.6)	
Period 3 Slighting of enclosure (residual/redeposited)					
1007, 1154, 1331, 1373, 1208	19 (82.5)	2 (4)	7 (25.9)	28 (112.4)	–
Period 3 total	19 (82.5)	3 (4)	8 (25.9)	29 (112.4)	
Interior features					
Two-post structure (S) 1304	19 (84.7)	–	–	19 (84.7)	–
Disuse of two-post structure (N) 1344	2 (3.4)	–	–	2 (3.4)	(1570a) AD 120–330; (1570b) AD 50–240*
Roundhouse disuse 1662	–	2 (4.7)	–	2 (4.7)	(1049a) 100 BC–AD 80; (1049b) 120BC-80 AD* (1187a) 170 BC–AD3 0*; (1187b) AD130–350*
Roundhouse disuse 1710	1 (1.6)	–	–	1 (1.6)	(1722a) AD 80–340*; (1722b) 50 BC–AD 140*
Disuse of ?roundhouse gully 1175	9 (13)	–	–	9 (13)	–
Disuse of gully 1842	1 (0.9)	–	–	1 (0.9)	(1842) 12s RB (2–4th AD)
Oven/dryer and features 1023, 1592, 1825	3 (15.6)	–	–	3 (15.6)	–
Disuse of oven/dryer and feature 1086	2 (3.9)	–	–	2 (3.9)	(1086) 2s RB (2–4th AD); (1086) 200 BC–AD 10*
Residual sherds: 1565, 1524, 1653	28 (72.7)	90 (275.2)	–	118 (347.4)	(1565) 201s RB (1st–2nd AD)
Interior features total	65 (195.8)	92 (279.9)	–	157 (477.2)	
Other					
Romano-British ditch network 1074	1 (1.9)	–	–	1 (1.9)	(1574) 80s RB (2nd AD); (1246)13s RB (2nd+ AD)
Post-medieval boundary 1266	–	5 (9)	–	5 (9)	–
Pit west of enclosure 1909	–	1 (2.4)	15 (23.7)	16 (26.1)	–
Unstratified after machining 1003	2 (4.5)	–	1 (16.1)	3 (20.6)	–
Unstratified	6 (39.7)	–	1 (5.8)	7 (45.5)	–
total	137 (814.6)	100 (285.3)	31 (89.9)	268 (1201.3)	

Unidentified carbonised food residues were observed on the interior surfaces of only four sherds from three Period 3 stratified contexts (drying oven 1, posthole fills 1086 and 1524; backfill deposit 1373 within enclosure recut 2; and on a single unstratified sherd). This provides additional evidence for the cooking of food within some of these vessels. Residue from one of these sherds (1086) has been successfully radiocarbon dated (see later discussion).

Forms

In total, this assemblage contained 24 rim sherds and 21 base sherds. The illustrated catalogue of fifteen vessels (Fig. 16) includes every diagnostic example in the assemblage (18 rim and 8 base sherds). The remainder are all small and non-diagnostic.

Simple rim

1. A slightly everted simple rim with a rounded top. The thick wall (9mm) suggests a jar of some size but the sherd is too small to ascertain the vessel diameter (<5% rim). Fabric C1. Context 1304: Period 2, two-post structure 2 within the southern part of the enclosure. Plain, slightly inverted rims like this are found at Llanmelin (Nash-Williams 1933, fig. 43, nos 31, 39 and 40), Usk (Greene 1993, fig. 29, no. 4), Magor Pill (Webster 1989, fig. 11, 1, 9 and 13) and Lodge Hill, Caerleon (Howell and Pollard 2004, fig. 6.5). A decorated version of the form is found at Lydney (Spencer 1983, fig. 1, no.17).

Slightly everted rims

2. A shouldered jar with slightly everted rim with a tapering top. The high shoulder is defined by a change of angle. The diameter of approximately 120mm (6% rim) suggests a small jar. Two conjoining sherds. Fabric C2. Context 1565: Period 2, area of wear adjacent to drying oven 1. A vessel from Sudbrook (Spencer 1983, fig. 1, no. 5; Nash-Williams 1939, fig. 5, nos 8 and 10) has the angular shoulder, but a more everted rim; an Usk vessel (Greene 1993, fig. 28, no.10) has the same angular shoulder but a different rim.
3. A squat, slack-sided ovoid jar with a slightly everted rim with flattened top and tapering outer edge. The vessel has been re-oxidised on the external lower wall, presumably through exposure to an open fire during use. Diameter 160mm (7% rim). Fabric C1. Context 1436: Period 2, deposit within enclosure recut 1, north of the gateway. See also no. 4 below. Comparable vessels come from Biglis (Webster 1988a, fig. 15, no. 125 with the same temper and a similar burnishing pattern), Magor Pill (Webster 1989, fig. 11, no. 2); Twyn-y-Gaer (unpublished, NMGW Accession number 90.110H/1), Castle Ditches, Llancarfan (Hogg 1976, fig. 9, no. 5), and Caerleon, Jenkins Field (Nash-Williams 1929, fig. 28, no. 4) which has a more pronounced shoulder.
4. A squat, slack-sided ovoid jar with a slightly everted rim with flattened top and tapering outer edge. Diameter 150mm (8%). Three conjoining fragments probably from the same vessel as no. 3. Fabric C1. Context 1436: Period 2 deposits within enclosure recut 1 ditch, north of the gateway.

Proto-bead rims

5. A jar or bowl with a flattened top and slightly everted rim. The wall is comparatively thin. Diameter 90mm (10% rim). Fabric C1. Context 1373: Period 3, deliberate infilling of the enclosure recut 2 and levelling of the rampart—west side, south of entrance (residual). Two possible examples.

6. Two joining small fragments from a jar or bowl with a flattened top and undercut rim. Diameter 110mm (5% rim). Fabric C1. Context 1565: Period 2, area of wear adjacent to drying oven 1. Nos 5 and 6 may be compared with vessels from Thornwell Farm (Woodward 1996, fig. 27, nos 30 and 31), Sudbrook (Spencer 1983, fig. 1, no. 4; Nash-Williams 1939, fig. 5, no. 11), Biglis (Webster 1988a, fig. 17, no. 195), Usk (Greene 1993, fig. 28, no. 1, while fig. 28, no. 16 is similar to no. 5 from RAF St Athan; Webster 1993, fig. 106, no. 3.1), and Whitton (Webster 1981, fig. 52, no. 130). A vessel from Lodge Hill, Caerleon (Howell and Pollard 2004, fig. 6, no. 5) is similar to no. 5, while one from Magor Europark (unpublished, GGAT held collection) is similar to no. 6.

Bead rims

7. A small fragment of rim from a jar or bowl with a rounded top and globular bead, which is more sharply defined than on nos 5–6 above. Diameter unknown (<5% rim). Fabric C2. Context 1565: Period 2, area of wear adjacent to drying oven 1. Similar vessels are found at Sudbrook (Spencer 1983, fig. 1, no. 13), Thornwell Farm (Woodward 1996, fig. 27, no. 32), and, the general form, Whitton (Webster 1981, fig. 52, no. 129).
8. The bead on this presumed jar or bowl has been formed by undercutting a tapering everted rim. Two conjoining fragments. Diameter 120mm (12.5% rim). Fabric C1. Context: unstratified. A vessel which achieves the same effect on a differently angled rim is found at Whitton (Webster 1981, fig. 55, no. 249).

Everted rims

9. An everted-rim jar or bowl with a squared top. Two conjoining sherds. Diameter 150mm (6% rim). Fabric C3. Context 1014: Period 2, rapid accumulation of primary silts within the enclosure recut 2, west side, north ditch terminal. Similar vessels are found at Usk (Spencer 1983, fig. 1, nos 25 and 26). For a more elongated rim see Usk (Webster 1993, fig. 106, no. 3.4), and Biglis (Webster 1988a, fig. 13, no. 79).
10. A jar or bowl with a slightly everted and longer rim than no. 8 and with a rounded top. The wall thickness is 6mm but the two sherds are too small to suggest a diameter (<5% rim). This is probably from a small to medium-sized jar. Fabric C2. Context 1565: Period 2, area of wear adjacent to drying oven 1. Similar vessels appear at Usk (Spencer 1983, fig.1, 24 from a fortress pit, *c*. AD 55–70). Llanmelin (Spencer 1983, fig. 1, no. 19; Nash-Williams 1933, fig. 44, no. 42) has a decorated version.

Bases

None of the rims illustrated above belong to vessels that can be completely reconstructed in profile. Three base types are illustrated to show the range present.

Base type 1 with a flat or nearly flat base and a gently curving convex wall above

11. Diameter 80mm (7% base). Fabric C2. Context 1565: Period 2, area of wear adjacent to drying oven 1. The wall is horizontally burnished immediately above the base with horizontal burnishing above that.
12. Two conjoining sherds. Diameter 110mm (20% base). Fabric C1. Context 1436: Period 2, deposit within enclosure recut 1, north of the entrance.

13. Two conjoining sherds. Diameter 110mm (17% base). Fabric C1. Context 1436: Period 2, deposit within enclosure recut 1, north of the entrance.

Base type 2: flat or nearly flat with the wall rising nearly vertically before flaring out to form a concave curve above

14. Diameter 90mm (6% base). Fabric C1. Context 1025: Period 2, accumulation of deposits over primary silts in enclosure 1 (east side).

Base type 3: flattened to give a projecting base below a wall which is almost straight at this point

15. Diameter 180mm (8% base). Fabric C3. Context 1003, found on top of the natural after machining and thus unstratified, joining a further unstratified sherd.

Vessel function

A glance at the illustrated rims shows a range of internal rim diameters from 80–160mm (one of 80–100mm, three of 100–120mm, and three of 140–160mm). One can tentatively suggest the existence of two rim size bands of 80–120mm and 140–160mm, though it is less clear whether any difference in function is implied. Of the illustrated vessels, all seem to be jars except 2 and 8. All, however, seem to be most suitable for cooking purposes and evidence of burning after manufacture on many sherds might support this view. Certainly, few vessels seem large enough or to have a thick enough wall to have acted as a storage vessel and this is therefore interpreted as predominantly a cooking assemblage. One possible exception, base 15, has a base diameter of 180mm, suggesting a large vessel size.

Formation processes: sherd fragmentation and abrasion

The site assemblage exhibits a high overall degree of fragmentation, as indicated by a low overall mean sherd weight of 4.48g and the generally small proportions of vessel rims and bases surviving. The ceramic assemblage at Thornwell Farm, Chepstow, had a comparable mean assemblage sherd weight of 4.37g (Woodward 1996, 37). Recent sherd breaks caused during and after retrieval are very common in this assemblage, which is in part a reflection of the high fragility of this handmade calcite tempered fabric.

Context type, and consequently burial pathway, appears to have exerted a strong influence upon ceramic fragmentation and abrasion in this assemblage (Fig. 18). A number of enclosure ditch fills had high mean sherd weights and exhibited a low degree of abrasion, whereas nearly all gully, pit and posthole contexts had low mean sherd weights and frequently included sherds exhibiting a high degree of abrasion. In these latter contexts, the lengthy circulation of sherds before burial, trampling and active soil erosion processes in shallow deposits are likely to have generated this pattern. A noticeable mixing of abraded and unabraded, large and small sherds in the upper fills of the enclosure ditch appears to corroborate the hypothesis of a deliberate late slighting of the enclosure, involving the scooping up and burial of old and new material and deposits. So too, the mixed fragmentation and abrasion signature from a large group of sherds from an area of wear adjacent to drying oven 1, also signals a mixed and redeposited context containing old and new material. Finally, the high frequency of groups of 2–10 sherds, probably deriving from single vessels, suggests that only around a maximum of 45 vessels were once represented in this assemblage of 268 sherds.

A fuller account of this study is placed in the archive along with a study of spatial patterning summarised in Fig. 18.

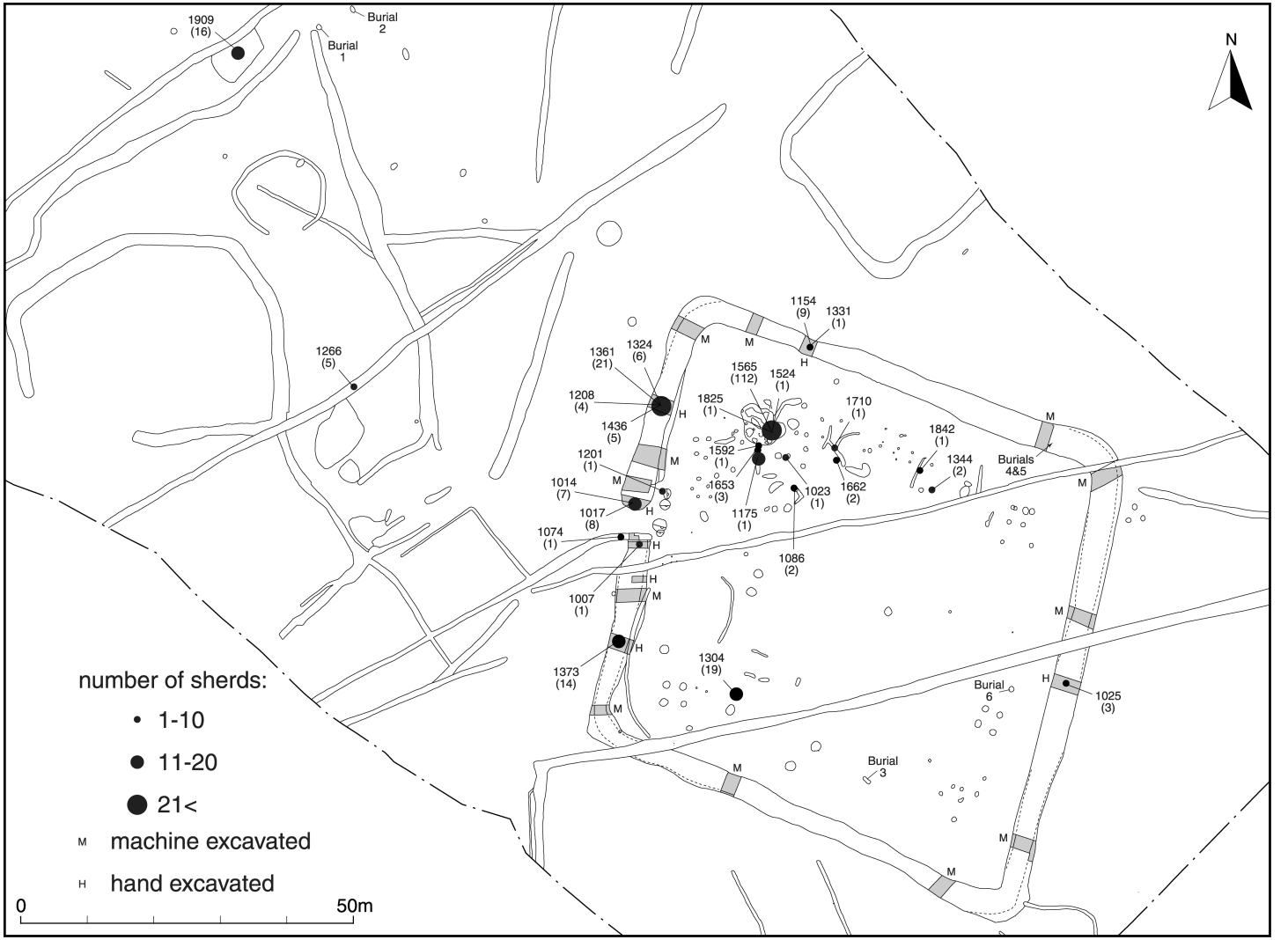

Fig. 18. Spatial distribution of contexts containing Iron Age pottery (scale 1:1,000).

Chronology and regional context of the Iron Age pottery

The distribution of calcite-gritted fabric has been observed across the Lower Severn and upper Bristol Channel area (Spencer 1983; Allen 1998). To date, all commentators have agreed that it was being produced within the Late Iron Age and Early Roman period. On some sites, which continue in occupation through the Roman period, for example Biglis (Robinson 1988) and Whitton (Jarrett and Wrathmell 1981), it occurs in association with south-western decorated ware ('Glastonbury Ware') in early phases. However, the Whitton gateway sequence (ibid., 116–7) reinforces the view that this calcite-gritted fabric was in circulation prior to the advent of Romanised wares (*c*. AD 50 at the latest). Moreover, an assemblage with no Roman components from Magor Pill (Whittle 1989, 219–21) appears to have pushed the inception of the style earlier, perhaps even into the first century BC.

It is apparent that the fabric and forms under discussion certainly continued to be made in the Early Roman period, despite their un-Roman appearance. The sites at Whitton, Biglis and Thornwell Farm (Hughes 1996) all span the Conquest period. The ware also appears at Usk among so-called 'native' ware (Greene 1993, 66–8; Webster 1993, 230–2) and in the earliest levels only at Caerleon (e.g. Nash-Williams 1929, 282–3) suggesting that manufacture ceased by *c*. AD 80. Certainly, it seems to be absent from the second fort at Gelligaer (Ward 1903, pls X–XI and unpublished material) which was under construction by the early second century AD.

The assemblages from Sudbrook (Nash-Williams 1939) and Mynydd Bychan (Savory 1954; 1955) indicate that Romanised pottery was quickly available on native sites in this region from the mid first century AD onwards. The total absence of such wares in association with much of the St Athan calcite-gritted ware suggests that it was in use before this date. The early radiocarbon dates associated with the enclosure ditches and features would not contradict this view.

A sherd from posthole fill 1201 relates to the construction of the gated first phase of enclosure 1. Primary silt (1113) from the enclosure ditch has produced a radiocarbon date of 760–370 cal. BC (Wk-15350), suggesting an Early to Middle Iron Age date (middle first millennium BC). It is possible that the first enclosure ditch was periodically cleaned over a long period, before ditch silts were allowed to accumulate. The sherds from primary silt 1324 may be somewhat later in date than this. Later still, enclosure 1 ditch fill 1025, containing three pottery sherds, probably dates to the late use or disuse phase of the gated first phase of the enclosure, probably in the Middle Iron Age or at the beginning of the Late Iron Age. A vessel base (Fig. 17, no. 14) is one of the three Iron Age sherds deriving from this context.

Confirmation of Middle Iron Age activity within the interior of the enclosure is provided by radiocarbon dates of 400–200 cal. BC (Wk-15357) and 400–200 cal. BC (Wk-15358) from contexts 1508a and b. A possible early ceramic group of nineteen sherds derives from post-packing fill 1304 (i.e. construction episode) from two-post structure 2 on the south side of the enclosure. This has not been radiocarbon dated, although a simple rim from a thick-walled vessel (Fig. 16, no. 1) within this group is paralleled with other examples in Middle and Late Iron Age assemblages.

In total, 28 sherds of Iron Age pottery, from at least ten different vessels, derive from upper ditch fills correlating with the Period 3 slighting of the enclosure bank and the deliberate late infilling of the ditch. This final infilling of the enclosure ditch occurred during the second century AD. However, it incorporated large quantities of Middle to Late Iron Age material relating to the earlier occupation of the enclosure. The observed mix of fresh and abraded sherds in these contexts supports the interpretation that the pottery was redeposited. The radiocarbon date of 160 cal. BC–cal. AD 60 (Wk-15363) associated with burials 4 and 5 provides confirmation for this view.

Later contexts within the interior of the enclosure do include Iron Age pottery. The largest ceramic group of 112 sherds derives from context 1565 the fill of the worn area adjacent to the Roman T-shaped drying oven 1 in the north-west corner of the enclosure. These were associated with a group of 53 Roman

sherds of mid to late third-century AD date. However, it is likely that these Iron Age sherds derive from earlier deposits redeposited with Roman pottery at a later date. A radiocarbon date of 200 cal. BC–cal. AD 10 (Wk-15361) from carbonised food residue adhering to an Iron Age sherd from associated context 1086 confirms this interpretation. It also provides important evidence for the manufacture and use of handmade calcite-gritted ware during the later second or early first century BC.

To conclude, the combined radiocarbon dating evidence from this excavation and wider stylistic comparisons of the pottery, are consistent with an assemblage generated upon a settlement that was occupied between 200 BC and AD 50, and probably even earlier than this.

Social considerations and wider implications of the Iron Age pottery

Careful study and petrological analysis of this ceramic assemblage has indicated a remarkably homogenous handmade tradition involving the addition of crushed calcite as temper. Local minor variations exist in the relative frequencies of the calcite inclusions in the fabric and in the firing conditions of the vessels. The angular form of the calcite inclusions in the pottery suggest mechanical crushing of large calcite crystals at the place of ceramic production. The inclusions in the St Athan sherds show little in common with those from sites on the Severn Estuary Levels described by Allen (1998). Absent from the St Athan sherds are the large limestone observed further east with volcanic, microcline dominated feldspar and sandstone components indicative of a south-western origin. A number of large crystalline calcite outcrops are known in south Wales, especially within the Carboniferous Limestone formation. It is suggested that the St Athan ceramic assemblage was locally produced using sources available no more than 20km from the settlement. One particularly good exposed outcrop is known at Taff's Well in the valley of the river Taff to the north-east. Certainly, there are no inclusions present in this pottery to suggest a link from outside this region.

Contrary to the widespread popular perception that south Wales was largely aceramic during the Iron Age, it is becoming increasingly apparent that pottery is a persistent presence in this region (Gwilt 2006). The evidence from the St Athan enclosure strengthens this observation. Historically, pre-Roman pottery in the region has tended to be dated to the early first century AD by loose association with Roman pottery found on accompanying excavations. Here, through the careful use of radiocarbon dating from a range of enclosure ditch fill contexts, internal structures and burials, it has been demonstrated that this tradition extends back into the Middle Iron Age (certainly as early as the second century BC) and continuing through the Late Iron Age (Woodward 1996; Howell and Pollard 2004; Gwilt 2006). Coupled with this, there is a distinct separation of Iron Age and Early Roman contexts yielding pottery on this site. Whilst the handmade tradition did undoubtedly continue on other settlements in the region until around AD 80, some wider reappraisal of the assumptions concerning its chronological currency elsewhere are overdue.

Jars with internal rim diameters in the range of 100–160mm form the majority of diagnostic forms within the assemblage. The size of the rims is consistent with vessel sizes appropriate for small social groups (e.g. a single family). The suggested estimate of around 45 vessels represented within the assemblage of 268 sherds, is of some interest in interpreting the frequency of pottery usage upon this settlement. Despite inevitable caveats relating to variable deposition practices, survival and retrieval biases, it would tend to point towards the restricted use of ceramics during the three centuries of Iron Age occupation on this settlement. This limited use appears to relate to cooking and perhaps the immediate handling of food before preparation. Ceramic vessels must have also been complemented by a range of metal and organic vessels, usually not surviving in the archaeological record (Britnell and Earwood 1991; Earwood 1997; Gwilt 2006).

The strong association of pottery deposition near to and in the vicinity of houses in the northern side of the enclosure interior is worthy of note (see Fig. 18) suggesting the separation of grain storage perhaps in granary structures from food preparation around the houses.

Some comment on the possible social status of this enclosure is merited, as it relates to the ceramic evidence. Given that occupation has been argued on the basis of the ceramics, certainly between 200 BC–AD 50, it is of interest to observe the complete absence of decorated vessels within this assemblage. Elsewhere in the region, south-western decorated wares (and possibly local variants of these) are reasonably frequent discoveries. Sixteen Late Iron Age assemblages from south-east Wales have now produced these decorated vessel forms, from The Knave hillfort, Rhosilli (Williams 1939) on the Gower across the Vale of Glamorgan (Llanmaes, Castle Ditches, Llancarfan, Cae Summerhouse, Biglis and Whitton; Davies 1966; 1967; Hogg 1976; Jarrett and Wrathmell 1981; Parkhouse 1988; Gwilt 2006). One reading of the St Athan assemblage is that it reflects the low status of this settlement, similar in this regard to the open and weakly-defined settlement at Thornwell Farm, Chepstow (Woodward 1996, 45). The inhabitants certainly appear to have excluded themselves (or been excluded) from the arenas of exchange and social activities surrounding the use of these decorated vessels, or at least they chose not to bury decorated vessels on the settlement. This is an interesting departure from our expectations: on settlement morphology grounds, Late Iron Age rectilinear and defended enclosures would otherwise tend to be interpreted as higher status settlements (e.g. Longley 1998). Rectilinear enclosures preceding Roman villas at Whitton (Jarrett and Wrathmell 1981) and Ely (Young 2001) tend to feed this expectation. Such observations demonstrate the emerging complexity of the Late Iron Age artefact and settlement record in south-east Wales.

ROMAN POTTERY
By E. R. McSloy

The pottery was sorted into fabrics on the basis of macroscopic examination, in some instances assisted by ×4 hand lens. Pottery codes used for locally produced ware types and traded wares are presented in Table 3. Imported continental wares and British traded types retain established codes derived from the National Roman Fabric Reference Collection (NRFRC; Tomber and Dore 1998). Full descriptions of reduced and oxidised fabrics considered to be local manufacture are retained in the archive with short descriptions sufficing here. Quantification of the pottery is by sherd and minimum vessel count, weight and by Estimated Vessel Equivalents (EVEs) based on measurement of rim and base sherds.

Pottery of Roman date amounts to 468 sherds weighing a total of 4095g. Minimum vessel count based on quantification of sherd families is 247 and total EVEs (rim and base) is 5.3. The bulk of the pottery was hand collected during the course of the excavations. A small proportion, 10 sherds weighing 44g, was retrieved from soil samples taken for recovery of environmental remains.

The condition of the local reduced or oxidised pottery fabrics is generally poor and the Samian ware has suffered surface loss to various degrees. A significant proportion of the assemblage, 81 sherds or 17% of the total, is burnt, affecting the surfaces and altering the appearance and feel of affected sherds. Average sherd weight is low at 8.8g and suggestive of a fairly well broken up group. Few sizeable context groups were recovered with the effect that precise or reliable assessment of dating was not always possible.

Fabrics

Local reduced or oxidised
LOC GW: Miscellaneous reduced type – burnt
LOC GW1: Greyware, red-brown margins
LOC GW2: Greyware, self-coloured

Table 3: Roman pottery quantification summary

Source/generic	Fabric	Count	Weight (g)	EVEs	Minimum vessel	% Minimum vessel
Local	GW	58	618	–	6	2.4
	GW1	10	131	0.28	5	2
	GW2	92	867	2.19	83	33.6
	GW3	1	32	–	1	0.4
	GW4	3	55	–	1	0.4
	GROG	1	4	–	1	0.4
	BS	35	240	0.69	22	8.9
	BSC	44	194	0.17	4	1.6
	OXID	9	75	–	5	2
Regional	DORBB	185	1,141	1.69	100	40.5
	MALREA	1	19	0.1	1	0.4
	OXFWHM	1	33	–	1	0.4
	SVWOX	7	43	–	6	2.4
Continental	BAT AM	4	522	–	2	0.8
	LEZ SA	17	121	0.18	9	3.6
total		468	4,095	5.3	247	

LOC GW3: Greyware, common iron oxide, dark grey slip
LOC GW4: Greyware, red-brown core
LOC GWG: Greyware, self-coloured with uncommon grog
LOC BS: Black sandy
LOC BSC: Coarse Black sandy—BB1 imitation?
LOC OX: Sandy oxidised fabric

Regional (traded) wares
DOR BB1: (south-east) Dorset Black-Burnished ware 1 (Tomber and Dore 1998, 127)
MAL RE A: Malvernian native type ware—'Peacock A' (Peacock 1968; Tomber and Dore 1998, 147)
SVW OX2: Severn Valley ware (Tomber and Dore 1998, 149)
OXF WH: Oxfordshire whiteware mortaria (Tomber and Dore 1998, 174)

Continental imports
LEZ SA2: Central Gaulish Samian (Tomber and Dore 1998, 32)
BAT AM: Baetican Dressel 20 type amphora fabric (Tomber and Dore 1998, 84–5)

Local wares comprise mainly reduced grey or black firing wares and a small quantity of oxidised (orange-firing) types. Kilns producing similar material have been excavated at Caldicot and Llanedeyrn (Vyner and Evans 1978, 112–8; Barnett *et al*. 1990) although the likelihood is that many more production sites were dispersed throughout the region producing a broadly similar range of vessels. Derivation from a number of sources is suggested in this instance by the minor variations in fabric and firing characteristics. Only one sherd, from Period 3, field system 2, exhibits the silvery-grey fabric and

combed decoration which is held to be the norm for South Wales greyware in the region of Usk (Webster 1993, 232).

Roman traded wares account for approximately 44% of the assemblage. In keeping with the regional pattern in the period *c*. AD 120–350, the bulk of this material consists of Dorset Black-Burnished ware products. Small quantities of Malvernian and Severn Valley type wares testify to limited trade with this region, which is indicated elsewhere after the Flavian period (Webster 1993, 285–7). A single whiteware mortaria fragment is the only example present of the Oxfordshire industries, which become significant in South Wales only in the Late Roman period. Continental imports are restricted to Central Gaulish Samian and southern Spanish (Baetican) amphora. Samian representation is broadly consistent with rural sites in Britain (Willis 1998, 86–94).

Forms and function

The forms represented at St Athan are consistent with assemblages of similar date from the region and reflect a utilitarian function for the bulk of the group which comprises mainly jars (67% by EVEs) with the remainder consisting of bowls (24% EVEs) and dishes (9%). Samian forms consist of open forms, primarily plainware types (see catalogue). Black-Burnished ware forms reflect the apparent preference for the ware as cooking vessels comprising mainly everted-rim jars (Fig. 19, no. 4) with smaller numbers of flat-rimmed (Fig. 19, no. 8) or plain-rimmed dishes (Fig. 19, no. 1). Local greyware products comprise mainly medium or wide-mouthed jars (Fig. 19, nos 2, 5, 10) and bowls following BB1 forms (Fig. 19, nos 6–7 and Fig. 20, no. 12). Aside from an indented greyware vessel, probably a beaker, there is an absence of vessel types associated with drinking or serving of liquids.

Discussion of the Roman pottery

It seems probable that the handmade, calcite-tempered pottery of Iron Age type continued in use to *c*. AD 50–80 (see above). There are few instances, however, where pottery of this type occurs in association with Romanised fabrics and none where it appears likely that this is not as the result of residuality or intrusion. Good evidence for activity between *c*. AD 50/80 and *c*. AD 120/40 from the pottery or other artefacts is not forthcoming. A single vessel (Fig. 19, no. 3) is perhaps attributable to this period on the basis of its form. The characteristic late first- to early second-century forms in local greywares which appear at the Arthur John car park site, Cowbridge (Evans *et al*. 1996, 129) are absent, as are Belgic-type wares, Durotrigian Black-Burnished ware and continental finewares which may be found on pre-Hadrianic (higher status or military) sites elsewhere in the region. Significantly, South Gaulish Samian, which can occur even on small low-status sites locally with first century AD Roman activity (Webster 1988b, 162), is entirely absent.

The bulk of recovered Roman pottery derives from deposits attributed to Period 3. Support for the ascribed date range of mid second to mid to late third century AD is provided mainly by the Samian which dates exclusively to the Hadrianic to Antonine period and mostly to the period after *c*. AD 140, and from the Black-Burnished ware which includes everted-rim jars with acute-angled burnished lattice decoration, plain-rimmed dishes with burnished lattice and flat-topped, grooved-rim bowls with intersecting arc decoration (see catalogue). The local greywares present less specific dating evidence but include forms copying BB1 types (see Fig. 19, nos 6–7) from Period 3 field system 2 which are assumed to share a broadly comparable (mid second- to early third-century AD) dating to the originals, and a greyware vessel from Period 3 field system 2 with knobbed barbotine decoration which most likely dates to the first half of the second century AD.

Late Roman pottery occurs in the form of a small number of Black-Burnished ware conical flanged bowls (Fig. 19, no. 9) and everted rim jars with obtuse-angled lattice decoration (Fig. 20, no. 11).

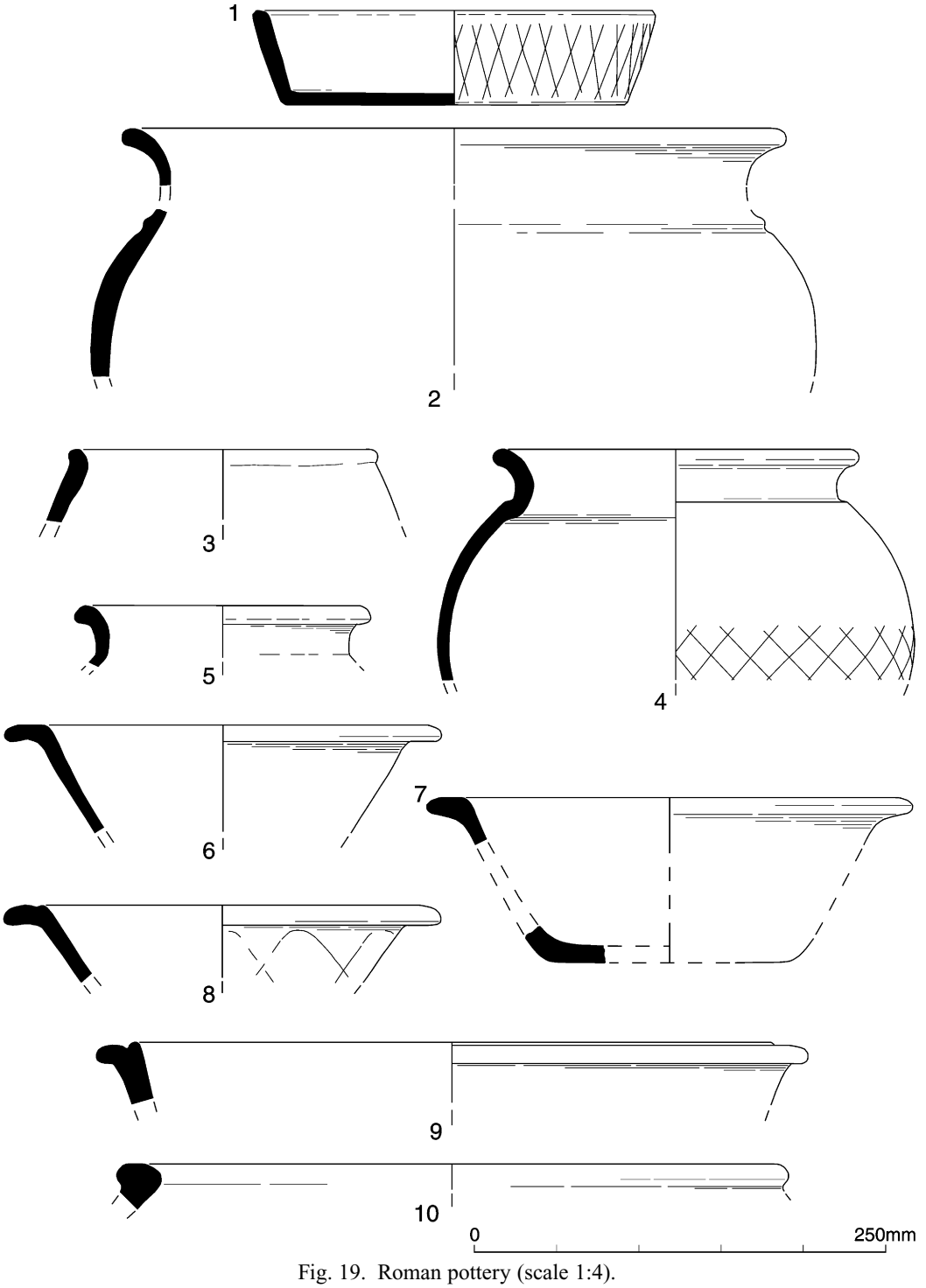

Fig. 19. Roman pottery (scale 1:4).

Absence of assuredly fourth-century AD types, which in this region might include certain Oxfordshire colour-coated products or Midlands shell-tempered wares, probably indicates that the late BB1 may date to the second half of the third century.

The St Athan pottery shares many characteristics in common with assemblages from Biglis (Webster 1988a, 33) and Llandough (Webster 1988b, 162). All three groups show no clear continuity of pottery use between those types current before *c*. AD 50/80 ('native type' calcitic wares) and Black-Burnished and local greywares which characteristically date to after *c*. AD 120/40. The main period of activity on the evidence of the pottery is from the middle of the second century AD to the early to mid third century AD. The overall paucity of continental imports or specialist wares and the dominance of kitchen/storage vessels probably reflects use by a low status, rural population.

Catalogue of illustrated Roman pottery (Figs 19–20)

1. Period 3. Field system 2, ditch fill 1037. DOR BB1 plain-rimmed dish with burnished lattice decoration.
2. Period 3. Field system 2, ditch fill 1037. LOC GW (burnt) necked jar with cordon.
3. Period 3. Pit group 2, fill 1600. LOC GW (burnt) neckless jar with bead rim.
4. Period 3. Field system 2, ditch fill 1268. DOR BB1 jar/cooking pot with acute-angled lattice decoration (Gillam 1976, no. 4).
5. Period 3. Field system 2, ditch fill 1738. LOC GW2 necked jar.
6. Period 3. Field system 2, ditch fill 1738. LOC GW2 flat-rimmed bowl.
7. Period 3. Field system 2, ditch fill 1738. LOC GW1 flat-rimmed bowl.
8. Period 3. Field system 2, ditch fill 1738. DOR BB1 flat-rim with groove bowl with intersecting arc (Gillam 1976, no. 42).
9. Period 2. Fill 1565, adjacent to drying oven 1. DOR BB1 conical flanged bowl (Gillam 1976, nos 46–9).
10. Period 2. Fill 1565, adjacent to drying oven 1. LOC BS neckless storage jar.

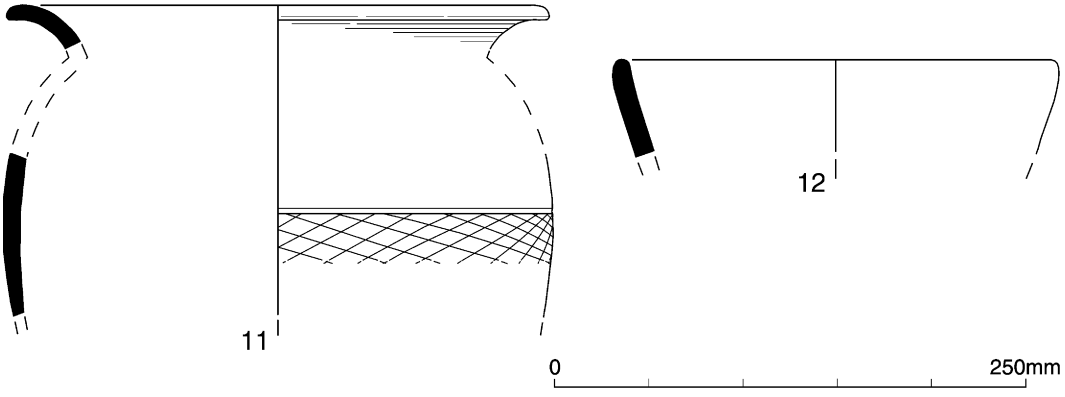

Fig. 20. Roman pottery (scale 1:4).

11. Period 3. Field system 2, ditch fill 1262. DOR BB1 jar/cooking pot with obtuse-angled lattice decoration (Gillam 1976, nos 10–2)
12. Period 3. Field system 2, ditch fill 1262. LOC GW plain, curved-sided dish/bowl.

Catalogue of Samian Ware. By P. V. Webster

Context 1037, field system 2, ditch fill
Form 37, Central Gaulish. A small fragment of bowl decorated with panels. A vertical border of small astragali (Rogers 1974, A9) survives with a small portion of a plain double-bordered festoon to the right. The festoon appears to be slightly more than a half circle giving an incurving top. Of the potters using the border, only Cinnamus appears to also use a festoon of this type; cf. Stanfield and Simpson 1958, pl. 160, 35. *c*. AD 140–70.

Context 1268, field system 2, ditch fill
Form 31, Central Gaulish. Second half of second century AD.

Context 1424, enclosure 4, ditch fill
Form 18/31, Central Gaulish, badly finished externally. *c*. AD 120–50.

Context 1574, field system 2, ditch fill
Form 18/31, Central Gaulish. *c.* AD 120–50.
Form 31R, Central Gaulish. *c*. AD160–200.
A small chip from a Central Gaulish vessel. Second century AD.

Context 1714, posthole group 2
A small chip from a Central Gaulish bowl. Second century AD.

Context 1738, field system 2, ditch fill
Form 31, or more probably 31R, Central Gaulish. Probably *c*. AD 160–200.

SMALL FINDS

The catalogues presented below represents a selection of the more diagnostic artefacts from the site. A full catalogue of registered items is contained in the archive.

Flint and stone artefacts. By E. R. McSloy
Five worked flint flakes were recovered as single residual finds within Period 2 to 4 contexts 1133, 1261, 1266, 1416 and 1608. All pieces consist of un-retouched flakes. Broad, squat proportions, and hard-hammer percussion probably indicate a Late Neolithic to Bronze Age date. The raw material is brown or dark grey flint with a thinned buff cortex, which signifies a (non-local) gravel source.

Stone artefacts comprise burnt fragments of liassic and fossiliferous limestone and quartzite cobbles weighing a total of 2134g. The bulk of this material relates to Period 2, enclosure 1, isolated features within this enclosure or Period 3 recuts to the enclosure ditch. None of the recovered stone exhibited signs of working or use other than burning. All material is likely to be locally derived.

Copper alloy. By E. R. McSloy

Fig. 21, no. 1 belongs to a class of artefact known principally from military sites in Northern Britain and sporadically elsewhere, for instance Verulamium (Waugh and Goodburn 1984, fig. 11, no. 80) and Camerton, Somerset (Jackson 1990, no. 78). Closest parallels, which are each more ornate but share characteristics of knobbed or ball terminals and silvering, are examples from Corbridge, Northumberland (Allason Jones 1988, no. 114) and Strageath, Scotland (Grew and Frere 1989, nos 42–4). Both examples occur in Antonine deposits. The method of attachment is indicated by a find from Strageath, which retains part of the leather strap (ibid.). Association with the military is strongly suggested by the distribution of objects of this type. Use as cavalry harness fittings has been suggested by Webster (1971, 116) and reaffirmed by Jackson (1990, 38).

Simple bracelets such as Fig. 21, no. 2, of cable type, formed from twisted wire, are common in the later Roman period (Crummy 1983, 38). Not illustrated are fragments of a brooch (Fill 1565 of area of wear adjacent to drying oven 1, Period 3; brooch spring, 13 coils with squared section axial bar, length 33mm, registered artefact no. 13). Characteristics of size and the presence of the axial bar extending beyond the spring ends, identifies the brooch fragment as a Colchester derivative, most likely of Polden Hill form. Such brooches are common in Western Britain from the late first to mid second centuries AD.

1. Period 4, enclosure 5, ditch fill 1735. Strap terminal with silvering to face. Strip-like with knob terminal. Underside features two prongs for attachment and stepped rebate above terminal to receive strap. Length 46mm; width 7mm.
2. Fill 1565 of area of wear adjacent to drying oven 1. Period 3. Cable form bracelet. Incomplete with both clasps missing. From three strands, each sub-circular in section and 1mm thick. Tightly twisted and hammered flat. Length 48mm.

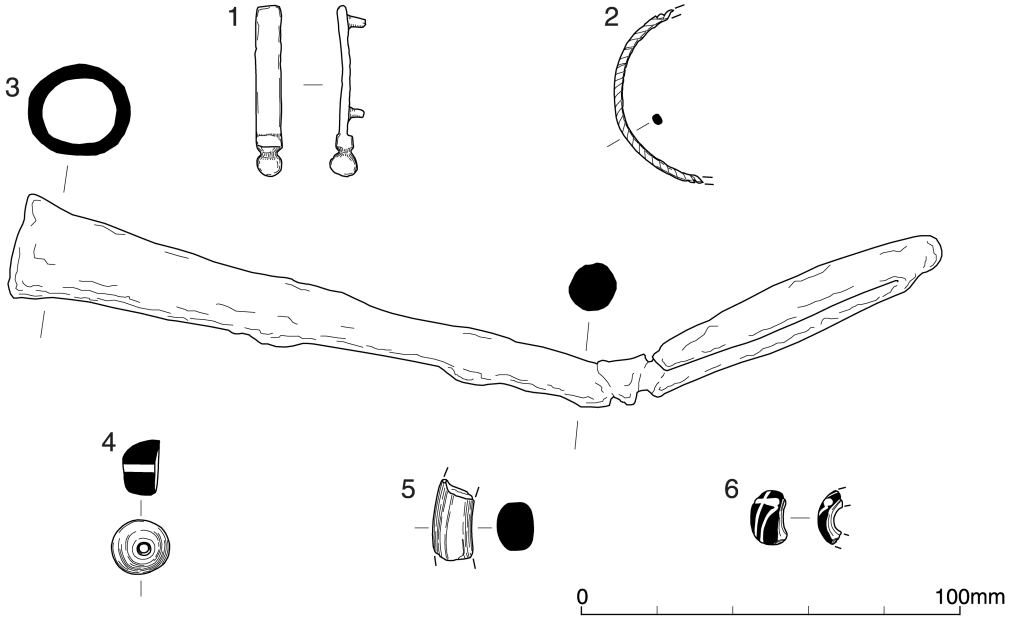

Fig. 21. Metalwork (nos 1–3), shale (nos 4–5) and glass objects (no. 6) (scale 1:2).

Ironwork. By E. R. McSloy

The context association may give a clue as to the (eventual) use of Fig. 21, no. 3 as a stoking or clearing device associated with the operation of the drying oven. In this circumstance the elongated socket may have served to shield the wooden shaft from the effects of the heat. It is unclear, but seems likely that object no. 3 was adapted for this function from another, presumably broken implement, possibly a fragmentary sickle blade, of which a number of Roman examples are known (Manning 1985, 51–3). Its length and parallel cutting edge would appear to rule out this being an example of the seemingly more common reaping hook or a knife. The possibility that this item represents an intrusive find of medieval or later date should be allowed.

Not illustrated is a portion of strongly curving blade, broken at both ends, triangular in section, blade width 30–3mm, surviving length 203mm (Period 4, field system 3, ditch fill 1542). Other ironwork not presented here comprised mainly nails and hobnails, together with miscellaneous strip and bar fragments. Hobnails occur for the most part as clusters and it is clear from the site photographic record that some of these represent discarded footwear. With a single exception, from a post-medieval dated context, iron nails appear to be Roman in date. All those identifiable to type are of Manning's class 1b (Manning 1985, 134–5). Some 13 nails were among metal objects recovered from backfill 1562 of drying oven 1 and it is possible that these derived from the use of structural timbers as fuel.

3. Fill 1565 of area of wear adjacent to drying oven. Period 3. Socketed object. Plain socket tapers to round bodied shaft. X-ray shows this to be folded back onto itself at point 80mm from ?broken end. Overall length 250mm; diameter of socket 27mm.

Shale. By E. R. McSloy

Fig. 21, nos 4 and 5 have been identified as shale, rather than jet or similar, on the basis of dark grey colouring and propensity to laminate (now arrested). The sole source of shale worked extensively in Britain from the Late Iron Age to Roman periods is that from Kimmeridge, Dorset (Lawson 1975, 242). Parallels for large, barrel-shaped bead no. 4 include an example in jet from South Shields, Tyne and Wear (Allason Jones and Miket 1984, no. 7.2) and a necklace formed from six such beads recovered from a grave of third- to fourth-century date AD from Colchester (Crummy 1983, no. 617). It should be noted that an earlier date of the mid or later second century AD is indicated for no. 4 by pottery found in association. No comparable examples which are certainly of shale are forthcoming, although spindlewhorls of essentially similar but enlarged form are known (Mills 1993, fig. 71, no. 3). Plain lathe-turned bracelets such as no. 5 are known from the Late Iron Age, although the major phase of use is in the Roman period, principally from the second to fourth centuries AD (Lawson 1976, 246–50). In the absence of association with other datable material, a Roman date is assumed here.

4. Field system 2, ditch fill 1574. Period 3. Fragment of large barrel-shaped bead, pierced longitudinally. Surviving length 10mm; diameter 15.5mm.
5. Subsoil 1123. Unstratified. Fragment from plain D-sectioned armlet. Original diameter approximately 180mm; height 13mm; thickness 10mm.

Glass bead. By Eleanor Standley

No exact parallels for the form of bead no. 6 in regard of its use of opaque black coating are forthcoming. Guido's Group 5 Dii-misc. wave decorated beads of black glass, annular form with irregular yellow scrawl are closest (Guido 1978, 64). This bead type, where the black glass body is actually of a very dark green or other colours appearing black, is listed by Guido from Segontium (Caernarfon) and Ireland

(Guido 1978, 64). Others are known from the Castle Villa, Caerleon (Lee 1862, fig. 6) and Llanharan (no details available).

The findspots indicated probably suggest a Roman or possibly later date for Guido's Group 5 Dii beads. Guido states that 'black' glass beads were not common until the fifth century AD, and their popularity at the end of the Roman period was an effect of their introduction by Germanic peoples. The coating of the St Athan bead may indicate that it was manufactured at a time when black glass was not very popular or there was insufficient available to waste on a whole bead. The use of black glass on a plain, natural glass bead may have been an attempt to increase its interest or value.

6. Period 3. Field system 2, ditch fill 1896. Bead fragment, Guido Group 5 variant, possibly Dii (Guido 1978, 64). Translucent natural glass ground, coated with opaque glass appearing black and with an opaque yellow scrawl. External diameter *c*. 17mm.

Fired clay. By E. R. McSloy

Fragments from a single fired-clay loomweight of pyramidal or triangular form with a single lateral perforation were recovered from Period 3 enclosure recut fill 1373. A Late Iron Age date is suggested by the probable form (Liversidge 1968) and in this instance through association with a group of pottery of this date. A further quantity of miscellaneous fired or burnt clay amounting to 25 fragments (183g) and consisting of amorphous pieces with a single smoothed surface was recovered. The bulk of material was recovered from Period 3 features, with only 22g from Period 2. All material is of a low fired, inclusion-free and friable fabric, which is generally pale orange throughout or with a grey core. A proportion of this material may be accidentally burnt structural daub or else represents fragmented objects or structures, such as ovens.

METALLURGICAL RESIDUES
By E. R. McSloy

Slag

A small quantity of ironworking slag (784g) was recovered, mostly in the form of a single sizeable lump weighing 739g from Period 2 posthole 1343 of two-post structure 4. A further 16g derived from Period 2, enclosure 1. Of the remainder, only 4g derived from features of certain Roman date (Period 3), with the residue from undated or post-medieval contexts. All recovered material is of broadly similar blocky form, fairly dense and largely amorphous. Similar material might be produced by either smithing or smelting activity.

Micro-residues

Micro-residues were retrieved from soil samples taken predominantly for environmental purposes. Retrieval was by means of hand sorting of ten litre sample residues (with residue collected in a 1mm sieve). The dominant type of particle present is of dark, vitreous, vesicular, non-magnetic material. Such material is generally small in particle size, mostly in the 2–5mm range. Quantities are in all cases small, with only three samples producing in excess of 20 particles. Identification is not possible by optical means and whilst a component may represent fragmented slag, such material may have formed from a variety of processes, not necessarily metallurgical. Metallurgical origin is more certain for a quantity of non-magnetic slag spheroids recovered from five samples. These typically are fairly large (generally between 2 and 4mm) and are most likely to represent slag droplets from the base of an iron smelting furnace.

Discussion of metallurgical residues

The metallurgical residues represent somewhat restricted evidence for ferrous metalworking activity, which may include iron smelting. Quantities of macroscopic and micro-residues are small, though there would appear discernable a greater tendency to Period 2 features for both classes of material. The small amounts of material, and the portable nature of the micro-residues, may indicate that such activity was at some distance from the area of excavations.

RADIOCARBON DATING

By S. Warman

The samples were processed during 2004 at the University of Waikato Radiocarbon Dating Laboratory. For details of methods see the University of Waikato Radiocarbon Dating Laboratory website <http://www.radiocarbondating.com> (accessed 17 May 2005).

The results are expressed as conventional radiocarbon ages (Stuiver and Polach 1977) and simple calibrations of the results are given below, quoted at 2 sigma (95.4%) confidence level. All have been calculated using the calibration curve of Stuiver *et al.* (1998) and the computer program OxCal 3.9 (Bronk Ramsey 2003). Ranges are derived from the probability method (Stuiver and Reimer 1993).

Wk-15350
Context: Period 2, Enclosure 1, 1113, fill of ditch 1006
Material: unidentified cereal
Radiocarbon age: 2372±40 BP
Calibrated date: 760–370 cal. BC

Wk-15351
Context: Period 2, Roundhouse 1, 1722(a), fill of gully 1721
Material: emmer
Radiocarbon age: 1814±46 BP
Calibrated date: cal. AD 80–340

Wk-15352
Context: Period 2, Roundhouse 1, 1722(b), fill of gully 1721
Material: emmer
Radiocarbon age: 1943±39 BP
Calibrated date: 50 cal. BC– cal. AD 140

Wk-15353
Context: Period 2, Roundhouse 2, 1049(a), fill of gully 1048
Material: unidentified cereal
Radiocarbon age: 2005±35 BP
Calibrated date: 100 cal. BC– cal. AD 80

Wk-15354
Context: Period 2, Roundhouse 2, 1049(b), fill of gully 1048
Material: unidentified cereal
Radiocarbon age: 2015±42 BP
Calibrated date: 160 cal. BC– cal. AD 80

Wk-15355
Context: Period 2, Roundhouse 2, 1187(a), fill of hearth 1186
Material: pulse
Radiocarbon age: 2043±35 BP
Calibrated date: 170 cal. BC– cal. AD 60

Wk-15356
Context: Period 2, Roundhouse 2, 1187(b), fill of hearth 1186
Material: pulse
Radiocarbon age: 1783±34 BP
Calibrated date: cal. AD 130–350

Wk-15357
Context: Period 2, four-post structure 4, 1508(a), fill of post-pit 1507
Material: oat
Radiocarbon age: 2272±35 BP
Calibrated date: 400–200 cal. BC

Wk-15358
Context: Period 2, four-post structure 4, 1508(b), fill of postpit 1507
Material: unidentified cereal
Radiocarbon age: 2275±36 BP
Calibrated date: 400–200 cal. BC

Wk-15359
Context: Period 2, two-post structure 5, 1570(a), fill of pit 1569
Material: wheat
Radiocarbon age: 1817±35 BP
Calibrated date: cal. AD 80–330

Wk-15360
Context: Period 2, two-post structure 5, 1570(b), fill of pit 1569
Material: wheat
Radiocarbon age: 1881±36 BP
Calibrated date: cal. AD 50–240

Wk-15361
Context: Period 3, drying oven 1, 1086, fill of posthole 1085
Material: pot residue
Radiocarbon age: 2081±36 BP
Calibrated date: 200 cal. BC– cal. AD 10

Wk-15362
Context: Period 1, burial 3, 1689
Material: human bone
Radiocarbon age: 2822±36 BP
Calibrated date: 1110–840 cal. BC

Wk-15363
Context: Period 3, burials 4 and 5, 1720
Material: human bone
Radiocarbon age: 2029±36 BP
Calibrated date: 160 cal. BC– cal. AD 60

Wk-15364
Context: Period 2, burial 6, 1135, fill of 1134
Material: human bone
Radiocarbon age: 2048±41 BP
Calibrated date: 170 cal. BC– cal. AD 60

Wk-15365
Context: Period 2, burial 1, 1486
Material: human bone
Radiocarbon age: 2263±35 BP
Calibrated date: 400–200 cal. BC

Wk-15366
Context: Period 2, burial 2, 1552
Material: human bone
Radiocarbon age: 2235±35 BP
Calibrated date: 390–200 cal. BC

ANIMAL BONE
By L. Higbee

The excavation produced a small assemblage of animal bone, the diagnostic portion amounting to only 241 fragments from all periods of occupation. The assemblage offers limited potential to address the research questions suggested by recent reviews (Evans 2003; Gwilt 2003a; Hambleton 1999) and regional research assessments (Gwilt 2003b; Marvell 2003; Caseldine 2003a). These surveys have highlighted the problem of preservation and the scarcity of information on animal bone from enclosed settlement sites. A full description of the methodology utilised in the analysis and a detailed report is contained in the archive.

Each identified bone fragment was graded on a scale of 1–5 using a modified version of Behrensmeyer's (1978) weathering stages, where 1 equates to excellent and 5 poor. Some 64.5% of identified fragments from all periods were assigned to category 1; these are fragments that have been little affected by taphonomic processes. A further 29.5% were assigned to category 2, 5% to category 3 and the remaining proportion to category 4.

The majority (96%) of identified bones were collected by hand during the normal course of excavation, the remaining small percentage retrieved from the residues of bulk soil samples processed by wet-sieving. The quantity of identified bone retrieved from samples is insufficient to adequately assess recovery bias in the hand-collected portion of the assemblage, at least with regard to the types of skeletal elements recovered.

The assemblage

The assemblage is dominated by domestic species: indeed, the bones of livestock species, cattle, sheep and pig account for 74% of all identified bones (Table 4). Other domesticates include horse, dog and chicken, and wild species include red deer (*Cervus elaphus*), wood mouse (*Apodemus sylvaticus*) and field vole (*Microtus agrestis)*. The assemblage from each of the main periods, Periods 2–4, is discussed below and the main points highlighted.

Approximately 28% of all identified bones are from various Period 2 (Later Iron Age) deposits within the enclosure 1 and recut 2 of the ditch. None of these deposits produced sufficient quantities of bone to assess spatial differences in species frequencies or skeletal elements that might provide an insight into differential disposal patterns or patterns of activity within the enclosure (see for example Wilson 1996).

Sheep is the most common species overall and at least three individuals are represented. This includes the near complete skeleton of an adult sheep aged between 4–6 years of age (mandibular wear stage G after Payne 1973) from the fill of posthole 1569 of two-post structure 5 within the northern part of the enclosure.

Cattle and pig bones are also relatively common in this small assemblage and spatially most cattle bones are from the fills of the enclosure ditch, whilst all pig bones are from the gullies of Roundhouses 1 and 2. There is little more that can be gleaned from these remains; all cattle bones and teeth are from adult individuals and one non-countable fragment of distal cattle tibia was recorded with a possible case of osteomyelitis (or non-specific bone infection).

A small range of other species was identified by one specimen, which includes a fragment of horse pelvis and non-countable chicken phalanx from the enclosure ditch and the mandible of a field vole from posthole 1635 of four-post structure 4. The field vole prefers rough grassland and young woodland as its habitat, suggesting that these types of environments existed close to the settlement.

The assemblage from Period 3 (Roman) deposits represents the largest stratified collection from the site and comprises 64% of all identified bones. A little over half of this material comes from backfilling of enclosure recut 2 and smaller quantities come from features within its interior whilst very little identified bone is from features outside the enclosure. There is little to distinguish between the assemblages from different areas of the site or different feature types and this is probably a reflection of preservation conditions.

The Period 4 (post-medieval/modern) assemblage comes from field system 3 ditch fills and modern pits. It comprises only 16 identified bones and includes the remains of cattle, sheep, pig, horse and red deer.

Summary of the animal bone evidence

There are considerable weaknesses in our understanding of animal husbandry in the South Wales region for the periods under consideration and current knowledge is skewed by assemblages from high status (e.g. hillforts) and military sites and the effects of poor preservation. With this in mind analysis of the St Athan assemblage was undertaken in order to disseminate the limited information available from this small assemblage from a rural settlement and provide a complete archive for future research.

Table 4: Animal bone from Period 1–5 contexts

Period/context	Wood Mouse	Cow	Dog	Horse	Chicken	Field Vole	Sheep/ Goat	Sheep	Pig	Red Deer	Deer sp.	Cow sized	Sheep sized	Chicken sized	total
Period 1															
Burial 3	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
Period 2															
Pit 1511	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Four-poster 4, two-poster 5	–	2	–	–	–	1	13* (4)	1*	–	–	–	–	(20)	–	17 (24)
Enclosure 1	–	4 (1)	–	1	–	–	3	–	–	–	–	(1)	–	(1)	8 (3)
Enclosure recut 2	–	1	–	–	–	–	1	–	–	–	–	–	–	–	2
Gully 2	–	1	–	–	–	–	–	–	7	–	–	–	–	–	8
Posthole group 1	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
Roundhouse 1	–	–	–	–	–	–	6	–	–	–	–	–	–	–	6
Roundhouse 2	–	4	–	–	–	–	–	–	1	–	–	–	–	–	5
Period 3															
Pit 1444	–	1	–	3 (1)	–	–	–	–	–	–	–	–	–	–	4 (1)
Enclosure recut 2	–	33 (1)	2	6 (1)	–	–	21 (1)	1	13 (1)	–	–	(7)	–	–	76 (11)
Field system 2	–	3 (1)	–	1	–	–	2	–	1	–	–	(2)	–	–	7 (3)
Gully 4	–	–	–	3	–	–	–	–	–	–	–	–	–	–	3
Drying oven 1	1	10	–	(1)	1	–	20	3	2 (1)	(1)	–	(2)	–	–	37 (5)
Drying oven 2	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
Pit group 2	–	2 (1)	–	–	–	–	–	–	–	–	(1)	–	–	–	2 (2)
Trackway 2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Period 4															
Postholes 1621, 1617	–	2 (2)	–	3	–	–	3	1	1	–	–	(1)	–	–	10 (3)
Field system 3	–	–	–	–	–	–	–	–	2	–	–	–	–	–	2
Period 5															
Posthole group 1	–	–	–	–	–	–	2	–	–	–	–	–	–	–	2
total	1	65 (6)	2	18 (3)	1	1	72 (5)	6	28 (2)	(1)	(1)	(13)	(20)	(1)	194 (52)

Number of specimens identified to species (or NISP) by period and recovery method. Figures in parenthesis are 'non-countable' bones after Davis 1992. * denotes complete skeleton from pit 1569 in four-post structure 4, two-post structure 5, which comprises 54 bones counted as one specimen

The assemblage from each main period of occupation is small, with high potential for residual material within the Period 3 assemblage, and this limits its interpretative value. Therefore, no attempt has been made to make comparisons between periods or between sites at the intra-regional level. The available age data for livestock species suggest cattle and sheep from a range of ages were selected for slaughter, whilst pigs appear to have been culled at a relatively young age. The information is of limited interpretive value. There is also limited evidence within Period 3 for the rearing of horses and the retention of deer antler as a raw material.

CHARRED PLANT REMAINS
By A. Vaughan-Williams

Following assessment eight samples were recommended for detailed analysis (Branch *et al*. 2003). These samples contained a variety of moderate to well-preserved grains and wild/weed seeds which have been preserved through charring. It was anticipated that these samples would provide valuable information on the agricultural practices that were occurring on or around the site at the time of deposition.

The plant macrofossils were recovered by flotation of bulk samples. For analysis, the flots were sorted and identifications were made under a low power zoom-stereo microscope. The residues were scanned by eye to assess both the archaeological and environmental archaeological content. Identifications were made with reference to the modern seed reference collection at Royal Holloway University London, and Berggren (1981) and Anderberg (1994). Plant nomenclature follows Stace (1997). The results are presented in Table 5.

Results and interpretation

Period 2: Middle to Late Iron Age

The evidence from Period 2 is limited. Posthole fill 1508 of four-post structure 4 has been dated to the Middle Iron Age by the radiocarbon dating of two cereal grains (*Avena* sp. and unidentified grain). The fill produced occasional grains of wheat (*Triticum* sp.), and weed seeds including grasses (Poaceae indet.), knotweed (*Polygonum* sp.) and charlock (*Sinapis arvensis*) and may indicate that these cereals were being used in domestic activities.

Roundhouse 1, drip gully fill 1722, contained two emmer wheat grains (*Triticum dicoccum*) with Early Roman radiocarbon dates. The fill produced one grain of wheat (*Triticum* sp.). Occupation of Roundhouse 1 is, however, considered likely to have ended by the mid to late first century AD and the grains recovered from Roundhouse 1 drip gully fill 1722 may thus represent contaminants derived from operation of the nearby drying oven 1 during Period 3.

Period 3: Roman

Field System 2, ditch fill 1724, contained occasional charred grains of hulled barley (*Hordeum* sp.) and wheat (*Triticum* sp.), plus occasional glumes including one of emmer/spelt (*Triticum dicoccum/spelta*.). The weeds were composed of occasional grasses and common sorrel (*Rumex acetosa*).

Other ditch fills forming part of this field system, 1173 and 1895, produced rich assemblages of charred grain, chaff and weed seeds. Ditch fill 1173 provided a chaff:grain ratio of 2.5:1, with wheat (*Triticum* sp.) the dominant cereal. The ratio between the different items can be used to ascertain the stage of crop-processing reached prior to burning (Hillman 1981; 1984; Jones 1984). Of these, occasional grains of emmer and/or spelt wheat (*Triticum dicoccum/spelta*) were identifiable. Occasional grains of

Table 5: Period 2 and 3 plant macrofossils

Period	2	2	3	3
Feature	round-house 1 gully	gully four-post structure 4	field system 2	drying oven 1
Context no.	1722	1508	1173	1563
Sample no.	45	5	1	28
Volume (ml)	2	22	30	6
Hordeum sp. (naked barley, grain)	–	–	1	3
Hordeum sp. (cf. naked barley, grain)	–	–	–	–
Hordeum sp. (hulled barley, grain)	–	–	–	–
Hordeum sp. (barley, grain)	1	–	6	–
Triticum spelta (spelt wheat, grain)	–	–	4	–
Triticum dicoccum/spelta (emmer / spelt wheat, grain)	–	–	3	–
Triticum dicoccum/*aestivum* (emmer / bread wheat, grain)	–	–	–	–
Triticum cf. *dicoccum* (emmer wheat, grain)	–	–	3	–
cf. *Triticum* sp. (wheat, grain)	–	3	173	16
Triticum sp. (free threshing wheat, grain)	–		2	–
Poaceae indet. (grain indet., grain)	–	2	43	16
Poaceae indet. (grain ends, grain)	–	–	–	–
Hordeum sp. (barley, glume)	–	–	2	–
Triticum dicoccum / spelta (emmer / spelt, glume)	–	–	118	4
Triticum spelta (spelt wheat, glume)	–	1	105	3
Triticum cf. *spelta* (spelt wheat, glume)	–	–	25	–
Triticum dicoccum (emmer, glume)	–	–	2	–
Triticum cf. *dicoccum* (cf. emmer, glume)	–	–	5	10
Triticum sp. (wheat, glume)	–	–	298	3
Poaceae indet. (indet., glume)	–	–	–	5
Poaceae indet. (embryo, chaff)	–	–	–	4
Poaceae indet. (culm node, chaff)	–	–	1	–
Poaceae indet. (broken awns, chaff)	–	–	++++	–
Poaceae indet. (root nodules, chaff)	–	–	++	–
Atriplex sp. 1 (orache, seed)	–	–	2	–
Polygonum sp. (knotweeds, seed)	–	1	–	–
Brassica / Sinapis sp. (cabbage / mustard, seed)	–	1	–	–
Rumex acetosa (common sorrel, seed)	–	–	68	–
Sinapis arvensis (charlock, seed)	–	1	9	–
Lens sp. (lentil, seed)	–	–	–	–
Vicia sp. (vetch, seed)	–	–	–	–
Vicia/Lathyrus sp. (vetch/ pea, seed)	–	–	2	1
Plantago lanceolata (ribwort plantain, seed)	–	–	3	–
Asperula sp. (woodruff, seed)	–	–	–	–
Picris achinoides (bristly oxtongue, seed)	–	–	–	–
indet. sedges (seed)	–	–	1	–
Avena cf. *sativa* gr. (oat, grain)	–	–	–	1
Bromus sp. (bromes, grain)	–	–	–	–
Poa sp. (sweet meadow, grain)	–	–	–	–
Poaceae indet. (grasses, seed)	–	–	92	4
Weed indet. (seed)	–	–	–	–
Fabaceae indet. (pea family, seed)	–	1	–	–
Cyperaceae indet. (sedges, seed)	–	1	–	–

Table 5: continued

Period	3	3	3	3
Feature	drying oven 2	drying oven 2	field system 2	field system 2
Context no.	1666	1667	1895	1725
Sample no.	29	30	38	40
Volume (ml)	8	148	182	10
Hordeum sp. (naked barley, grain)	–	–	2	–
Hordeum sp. (cf. naked barley, grain)	1	–	–	–
Hordeum sp. (hulled barley, grain)	–	–	–	2
Hordeum sp. (barley, grain)	2	–	33	2
Triticum spelta (spelt wheat, grain)	–	–	7	–
Triticum dicoccum/spelta (emmer / spelt wheat, grain)	–	–	52	1
Triticum dicoccum/aestivum (emmer / bread wheat, grain)	–	–	35	–
Triticum cf. *dicoccum* (emmer wheat, grain)	–	–	5	–
cf. *Triticum* sp. (wheat, grain)	–	1	1770	2
Triticum sp. (free threshing wheat, grain)	–	–	–	–
Poaceae indet. (grain indet., grain)	7	1	94	5
Poaceae indet. (grain ends, grain)	–	–	++++	–
Hordeum sp. (barley, glume)	–	–		–
Triticum dicoccum / spelta (emmer / spelt, glume)	–	–	317	–
Triticum spelta (spelt wheat, glume)	–	–	109	–
Triticum cf. *spelta* (spelt wheat, glume)	–	–	78	–
Triticum dicoccum (emmer, glume)	–	–	11	–
Triticum cf. *dicoccum* (cf. emmer, glume)	–	–	3	–
Triticum sp. (wheat, glume)	–	–	–	–
Poaceae indet. (indet., glume)	–	–	3	1
Poaceae indet. (embryo, chaff)	–	–	1	–
Poaceae indet. (culm node, chaff)	–	–	–	–
Poaceae indet. (broken awns, chaff)	–	–	–	–
Poaceae indet. (root nodules, chaff)	–	–	–	–
Atriplex sp. 1 (orache, seed)	–	–	9	–
Polygonum sp. (knotweeds, seed)	–	–	1	–
Brassica / Sinapis sp. (cabbage / mustard, seed)	–	–	–	–
Rumex acetosa (common sorrel, seed)	–	–	65	1
Sinapis arvensis (charlock, seed)	2	–	6	–
Lens sp. (lentil, seed)	–	–	2	–
Vicia sp. (vetch, seed)	–	–	1	–
Vicia/Lathyrus sp. (vetch/ pea, seed)	–	–	7	–
Plantago lanceolata (ribwort plantain, seed)	–	–		–
Asperula sp. (woodruff, seed)	–	–	3	–
Picris achinoides (bristly oxtongue, seed)	–	–	2	–
indet. sedges (seed)	–	–	2	–
Avena cf. *sativa* gr. (oat, grain)	–	–	5	–
Bromus sp. (bromes, grain)	–	–	89	–
Poa sp. (sweet meadow, grain)	–	–	1	–
Poaceae indet. (grasses, seed)	2	4	876	4
Weed indet. (seed)	–	–	3	1
Fabaceae indet. (pea family, seed)	–	–	–	–
Cyperaceae indet. (sedges, seed)	–	–	–	–

Key: ++++ = abundant; ++ = occasional

barley (*Hordeum* sp.) occurred, with one identified as naked barley. Glume bases of wheat (*Triticum* sp.) were abundant. Around one third of these were spelt wheat (*Triticum spelta*), with a similar quantity identified as emmer/spelt glumes (*Triticum dicoccum*/*spelta*). The remainder were too damaged for identification beyond wheat. The rest of the assemblage was composed of weed/wild seeds such as grasses (Poaceae indet.), common sorrel (*Rumex acetosa*), charlock (*Sinapis arvensis*) and peas/vetches (*Vicia/Lathyrus* sp.).

Abundant fragments of broken awns and occasional charred root nodules were also present. Field system 2 ditch fill 1895 was dominated by cereal grain, although as in fill 1173, the majority could only be identified to an indeterminate species of wheat. A moderate number of grains of emmer/spelt and emmer/free-threshing wheat were identifiable, along with occasional barley grains including two of naked barley. An abundance of tail grain (grain ends) was also present. Excluding these, the ratio between the grain:chaff:weeds was 4:1:2. The identifiable chaff can be attributed to a moderate number of spelt glumes (*Triticum spelta*) and emmer (*Triticum dicoccum*). The remainder were predominantly emmer/spelt wheat glume bases. Grasses dominated the weed seeds in abundance, and included bromes (*Bromus* sp.), meadow grass (*Poa* sp.) and possible oat (*Avena*) grains. The remainder were weeds seeds, including common sorrel, vetches, orache (*Atriplex* sp.) and charlock. Two lentil seeds were also identified. This is unequivocal evidence that, during the Roman period cereals were cultivated at the site.

The two deposits sampled from drying oven 1 (fill 1563) and drying oven 2 (fills 1345, 1666 and 1667) were not rich in charred material. Drying oven 1 was richest in grains of wheat, or barley/wheat. Both emmer (*Triticum dicoccum*) and spelt (*Triticum spelta*) wheat glumes were present. Occasional grasses, grain embryos and a single seed of vetch/pea (*Vicia/Lathyrus*) made up the remainder of the assemblage. Drying oven 2 deposits 1666 and 1667 contained only occasional barley (*Hordeum* sp.) grains and possible wheat (*Triticum* sp.) grains, and grasses (*Poaceae* indet.)

Wheat, in particular spelt wheat, appears to have been the dominant cereal consumed. The moderate number of grains from drying oven 2 suggests that the assemblage may represent the rakings of a bread oven. Previous studies have recorded instances where grains are placed on the base of the oven on which the loaf sits to prevent the underside of the bread burning (Wilson 1973).

Discussion of charred plant remains

The plant macrofossil assemblage indicates that the site was involved in food production during the Middle to Late Iron Age period and, more clearly, during the Roman period. This involved the cultivation of both wheat (spelt) and barley, and subsequent processing of the cereals to extract prime grain for domestic usage. The by-products of processing were discarded into fires, and subsequent cleaning of hearths and habitation areas resulted in the deposition of charred plant remains into convenient features such as ditches and postholes. In addition, there is evidence for accidental charring of grain, probably during cooking. It remains uncertain, however, whether emmer wheat was cultivated due to the low number of identifiable glumes, although it seems highly likely that a range of crops would have been grown, including lentils and peas (see field system 2, ditch fill 1173).

Previous studies in south and central Wales provide supporting evidence for the results from St Athan. They indicate that wheat was the dominant cereal being grown. For example, abundant bread/club wheat (*Triticum aestivo-compactum*) was recovered from Biglis (Hillman 1988), whereas emmer and spelt glumes along with wheat grain was recorded in a Roman enclosure ditch at Arddleen, Llandrino (Jones and Milles 1984), and in a well at Carmarthen (Hillman 1978). Wheat is typically the cereal crop of choice for consumption over barley, with the latter reserved for poor harvests and animal fodder (Van der Veen 1992).

CHARCOAL REMAINS
By P. Austin

Thirteen Period 2 and 3 charcoal macro-remains samples were subject to detailed analysis to provide information concerning the contribution of woody plants to the local landscape, woodland management and exploitation, and fuel-wood use associated with industrial and agricultural activities.

All the charcoal analysed was recovered through the flotation of bulk samples, and sieved to separate fractions to recover the maximum array of taxa with a minimum of 100 fragments per context (Keepax 1988). Details of the methodology used appear in the archive report. Wood anatomic descriptions in Schweingruber (1990) and modern charred reference material held at the Institute of Archaeology, University College, London, were referred to as aids to identification. Nomenclature follows Stace (1997).

Results

The full results of this analysis are presented in Table 6. A total of 248 fragments from seven Period 2 contexts and 399 fragments from eight Period 3 contexts was examined. Six taxa were represented in this assemblage: *Corylus avellana* (hazel), *Corylus/Alnus* (hazel/alder), *Fraxinus excelsior* (ash), Maloideae*: Crataegus* (hawthorn), *Sorbus* (whitebeams, rowan, wild service tree), *Malus* (apple), and *Pyrus* (pear), *Prunus* sp. (blackthorn, cherries), and *Quercus* sp. (oak).

Two of the six taxa, ash and hawthorn, were represented in Period 3 only. While Period 3 material better reflects past wood exploitation than Period 2 samples it is unlikely that the full range of taxa exploited throughout each period is represented in this analysis. Oak was the highest ranked taxon in Period 2 samples. Of the 248 fragments positively identified 222 were oak. Of these, 82 fragments were recovered from four-post structure 4 (posthole fills 1506, 1508 and 1637), and 86 fragments from Roundhouse 2 hearth deposit 1187.

In all respects blackthorn was by far the most abundant taxon in each of the Period 3 contexts in which it was present. Significantly, this includes the three samples from drying oven 2 (Table 6). No significant difference in sample composition is evident between drying ovens 1 and 2, and those from other contexts such as ditches.

Fragment condition was generally good in all contexts with the exception of material from Period 2 and 3 ditch samples, and Period 3, drying oven 2, fill 1346, and drying oven 1, fill 1563. By way of contrast, fragments from all the drying oven 2 contexts tended to be noticeably larger and well-preserved; this is reflected in the weight/fragment count ratio. It is probable that these apparent differences in average size and condition reflect the levels of attrition experienced by material in these contexts. No significant evidence was observed indicating biological degradation.

For the majority of taxa most fragments derived from round-wood. However, the majority of fragments of oak and ash derived from mature large round-wood/stem-wood. Only one fragment, identified as *Prunus* sp., from Period 3 field system 2, ditch fill 1173 was unequivocally twig-wood. One other fragment from Period 3 field system 2, ditch fill 1895 initially appeared to be twig-wood, but it is now believed that this fragment is possibly the stem of a member of the Poaceae.

Discussion of the charcoal remains

One seemingly significant aspect of this assemblage is the small range of taxa represented. Oak is the most abundant taxon in Period 2 (the only large tree represented) but this is certainly not so for Period 3. Though large tree taxa are represented in Period 3, by oak and ash, small tree/shrub taxa are more abundant throughout, with blackthorn replacing oak as the most highly ranked taxon. It appears that a change in the range and quantities of the various woods used occurred between these two periods of site

Table 6: Wood charcoal identifications

Period / context	Sample	Taxa	Count	Weight (g)	Comments (RW=round-wood; SW=stem-wood; KW=knot-wood)
Period 2					
Hearth 1187, roundhouse 2	25	*Quercus* sp.	86	2.533	All SW/mature
		Corylus avellana	5	0.077	All RW; ?mature
		Prunus sp.	6	0.106	Mostly RW
		indet.	3	0.268	1 Angiosperm (hardwood); 2 KW; 2 ?not wood
		unexamined	–	(5.383)	–
Ditch 1113	22	indet.	2	0.011	All ?Angiosperm (hardwood); thermal degradation
Pit 1498	3	*Quercus* sp.	54	1.061	All SW; mature
		indet.	1	0.109	All, thermal degradation
Posthole 1637 (residual)	23	*Quercus* sp.	9	0.082	All SW/RW; mature; tyloses
		indet.	3	0.083	2 Angiosperm (hardwood)
Post-pit 1508 (residual)	5	*Quercus* sp.	39	1.443	All SW/RW; mature; some tyloses
		Prunus sp.	1	0.034	All cf. *Prunus spinosa*
		indet.	3	0.032	All Angiosperm (hardwood); thermal degradation
Post-pit 1506	4	*Quercus* sp.	34	0.582	All SW/RW; mature; some thermal degradation
Period 2 total			248	6.421	
Period 3					
Ditch 1173 (residue)	1	*Prunus* sp.	56	1.452	Most cf. *Prunus spinosa*; RW; some KW
		Fraxinus excelsior	2	0.122	All SW/RW; mature
		Maloideae and cf. M.	4	0.533	All RW
		indet.	14	0.271	Mostly Angiosperm (hardwood); KW
Drying oven 2, 1666	29	*Prunus* sp.	78	5.786	Mostly cf. *Prunus spinosa*; RW, some SW; mature; thermal degradation
		Fraxinus excelsior	3	0.152	All RW/SW; mature
		Maloideae	16	1.855	All RW/SW; mature
		indet.	3	0.085	All Angiosperm (hardwood); RW
Drying oven 2, 1667	30	*Prunus* sp.	84	4.626	Mostly cf. *Prunus spinosa*; RW/SW; mature; some thermal degradation
		Fraxinus excelsior	1	0.032	SW; mature
		Maloideae	14	1.102	Mostly RW/SW; mature; some RW, thermal degradation
		indet.	1	0.034	All Angiosperm (hardwood)
Drying oven 2 ‘flue’, 1346	27	*Fraxinus excelsior*	8	0.282	Mostly SW/RW; mature; some RW
		Prunus sp.	74	8.395	Mostly cf. *Prunus spinosa*; RW, some SW; mature; thermal degradation
		Maloideae	14	1.328	Mostly RW, some thermal degradation
		indet.	4	0.185	All Angiosperm (hardwood)
Drying oven 1, 1563	28	*Quercus* sp.	3	0.047	All RW/SW; mature
		Fraxinus excelsior	1	0.021	All RW/SW; mature
		indet.	2	0.09	1 Angiosperm (hardood); KW; 1 ?not wood
Ditch 1895	38	*Prunus* sp.	6	0.047	All poor condition; mostly cf. *Prunus*; ?RW
		Quercus sp.	4	0.027	All poor condition; some ?mature
		Corylus/Alnus	1	0.015	All in poor condition.
		indet.	5	0.022	Mostly Angiosperm (hardwood); some thermal degradation, knot-wood
		Stem/twig	1	0.006	All possibly a grass
Period 3 total			399	26.515	

use. It is not clear if this represents a change in the local availability of particular woods, a change in the criteria applied to the collection of fuel-wood or some other factor.

The hearth and oven provide the clearest account of which woods were actually used as fuel. Of the shrub taxa both blackthorn and hawthorn possess excellent burning properties. Oak, ash, and hazel have long been regarded as among the very best fuel-woods and are present in hearth contexts here. Why blackthorn should be used in greater quantities in Period 3 than arguably better fuel-woods such as oak (the dominant fuel-wood in Period 2) and ash is intriguing. It may have been the most abundant readily available wood or the better quality fuel-woods, such as oak, was restricted in some way.

The difference in the charcoal assemblages between Periods 2 and 3 suggests a shift in the range of woods available and actually used as fuel. This interpretation is based on the analysis of limited material from only a single hearth from Period 2 and two drying ovens from Period 3 and does not fully reflect fuel wood use in either period. The greater array of taxa used as fuel in Period 3 further encourages the belief that the use of oak as fuel became restricted in some way. On a wider scale, this could reflect an increase in the control and organisation of the landscape, of which trees and other plant resources are an integral component.

MOLLUSCA
By David H. Keen

Mollusca samples were recovered from ditches assigned to Periods 2, 3 and 4 which provide evidence for the character of the environment during phases of vegetation clearance and regeneration. The samples were supplied as dried residues, which were passed through sieves to 500μm. The retained sediments were sorted under a ×10–60 binocular microscope. The molluscan counting conventions follow Sparks (1961) in which each complete shell or gastropod apex counts as a single individual. The taxonomic nomenclature used follows Kerney (1999). The fauna from the site consisted of nineteen taxa of land mollusca (see Table 7). Two assemblages can be identified, as given below.

Period 2 (sample 110, enclosure 1, ditch fill 1025)
This sample is dominated by species of grassland and herbage rather than woods or scrub (Table 7 and Kerney and Cameron 1979). If the *Vallonia* unidentified are included with the *V. excentrica* this single genus makes up *c*. 25% of the fauna alone and its habitat (short-turfed calcareous grassland) gives a good indication of the environment during the Middle to Late Iron Age Period. These same conditions are typical of those preferred by *Vertigo pygmaea* and *Pupilla muscorum*. Wetter grassland is indicated by *Cochlicopa lubrica* and *Vitrea crystallina*, although the latter species is particularly catholic in its choice of conditions being found in marsh, scrub and woodland as well as meadows. *Trichia hispida* can be a grassland species but is also found in disturbed ground such as grassland that has been trampled by stock. The only shade-demanding species present in the sample are *Carychium tridentatum* and *Discus rotundatus*, which together are represented by five individuals, perhaps indicative of woodland or scrub edge somewhere in the catchment of the ditch.

Periods 3 (sample 36, field system 2, ditch fill 1744) and Period 4 (sample 37, enclosure 5, ditch fill 1746)
Although these two samples are from different periods and thus ages, their molluscan faunas are very similar and they will be described together. In samples 36 and 37, the key members of the fauna of sample 110 in Period 2, *Vallonia* spp., *V. pygmaea* and *T. hispida*, are reduced in numbers and *P. muscorum* is entirely absent. In place of these taxa, there are high numbers of the shade-demanding species *Carychium*

Table 7: Mollusc identifications

Period	2	3	4
Feature	enclosure 1 ditch	four-post structure 2	enclosure 5 ditch
Context no.	1025	1744	1746
Sample no.	110	36	37
Volume (litres)	30	30	30
Carychium tridentatum (Müller, 1774)	1	20	8
Carychium spp.	9	–	–
Cochlicopa lubrica (Müller, 1774)	12	2	–
Cochlicopa sp.	–	7	2
Vertigo pygmaea (Draparnaud, 1801)	10	–	1
Vertigo spp.	11	–	–
Pupilla muscorum (Linné, 1758)	5	–	–
Vallonia costata (Müller, 1774)	–	–	6
Vallonia pulchella (Müller, 1774)	–	2	–
Vallonia excentrica (Sterki, 1892)	21	–	–
Vallonia spp.	82	1	4
Punctum pygmaeum (Draparnaud, 1801)	8	–	–
Discus rotundatus (Müller, 1774)	4	55	8
Vitrina pellucida (Müller, 1774)	–	1	–
Vitrea crystallina (Müller, 1774)	10	20	9
Nesovitrea hammonis (Ström, 1765)	1	2	–
Aegopinella nitidula (Draparnaud, 1801)	5	14	4
Aegopinella spp.	5	–	–
Zonitidae undet.	–	26	3
Milax spp.	2	2	1
Limax spp.	4	5	1
Cecilioides acicula (Müller, 1774)	–	6	–
Clausilia bidentata (Ström, 1765)	–	1	1
Clausilia spp.	–	–	5
Trichia hispida (Linné, 1758)	40	22	13
Cepaea spp.	24	3	1
Total (19 species)	253	187	67

tridentatum, *D. rotundatus*, *V. crystallina* and *Aegopinella nitidula*. In both samples 36 and 37 single specimens of *Clausilia bidentata* were identified and in sample 37 apices of five further specimens of *Clausilidae* were counted indicating a strong presence for this additional shade-demanding family. The high numbers of these shade species suggests that both samples 36 and 37 were formed in a woodland or scrub environment. However, the absence of species of old established stable woodland such as *Spermodea lamellata* or *Acicula fusca*, the wildwood species of Bell and Walker (1992), suggests that the woodland was open and secondary. The environment had clearly changed from the open grassland of sample 110.

Discussion of the molluscan evidence

The exact environment of deposition is not easy to interpret. None of the samples have any freshwater or even marsh species present so deposition in a flooded ditch or stream must be ruled out. The samples contain no fragments of tufa so a spring or calcareous seepage must similarly be rejected. The low number of earthworm granules in the samples suggests that if they were formed in a soil it was not a well-developed one. However, the change from the grassland assemblage of sample 110 to that of shade molluscs in samples 36 and 37, clearly points to regeneration of woodland after initial clearance of the original, Early Holocene forest, sometime during the Middle Holocene (6,000–3,000 years before present). Preece and Day (1994) at Sidlings Copse, Oxfordshire, note similar regeneration over the last 1,000 years, where the modern woodland fauna contains the mollusca of a well-developed shade habitat, including *C. tridentatum* and *D. rotundatus*, but none of the earlier Middle Holocene wildwood species, such as *S. lamellata* or *A. fusca*, which were made locally extinct by clearance in the Iron Age.

There are very few similar faunas to that of St Athan that have been recorded from south-east Wales, and none that have received a full published review (Evans 1972). Sites at Nash Point, South Glamorgan noted by Evans, have all of the species present at St Athan but appear to be dated to the Neolithic or Bronze Age rather than the Iron Age and later.

The molluscan fauna of the three samples show two contrasting environments. The oldest sample (110) is clearly indicative of short-turfed calcareous grassland resulting from clearance of the original woodland and the development of pastoral agriculture. The ditch sediments in which the sample was deposited probably formed as a result of silting during a continuation of open grassland, although shade environments, scrub or dense herbage, were still present within the catchment of the site. The fauna from the ditch of the Roman field system represented by sample 36 shows that a change in agricultural practice or even abandonment of the previous fields had taken place by Roman times. The extent of woodland regeneration is difficult to gauge, but at least scrub if not mature woods occupied the site. To judge from sample 37 from Period 4, enclosure 5 a similar environment to that during the Roman period existed at that time.

SUMMARY OF THE ENVIRONMENTAL EVIDENCE

By N. P. Branch, P. Austin, L. Higbee, D. Keen and A. Vaughan-Williams

The charred seeds and animal bones indicate that the site was involved in food production during Periods 2 and 3, which included the cultivation of wheat, barley, and possibly lentils and peas, and the husbandry of sheep, cattle and pigs, with cattle being more prolific during Period 3. Charcoal analysis revealed that during Periods 2 and 3 various trees and shrubs were growing in the local area, forming open woodland, shrubland and possibly even hedgerows. However, during the second to third centuries AD there is evidence for a change in the nature of woodland utilisation, with small trees and shrubs (e.g. blackthorn) dominating the samples from the drying ovens. The snail analysis indicates that during Period 2 the site was characterised by short-turfed calcareous grassland with scrub or woodland in the immediate vicinity; whilst during the second to third centuries AD there is evidence for regeneration of, probably secondary and open, woodland or scrub.

HUMAN SKELETAL REMAINS

By Teresa Gilmore

Six inhumations were recovered, consisting of one juvenile, two adult females, one adult male and two adults of indeterminable sex (age ranges are shown in Table 8). Details of the methodological approach adopted are in the archive.

Four burials were identified on site, and two more during analysis. All six individuals have been subject to fragmentation. Burial 1 and burial 2 were crouched individuals on a north-south orientation. Burial 1 was poorly preserved, with between 25–50% of the skeleton surviving. Burial 2 and burial 3 were both very poorly preserved, with less than 25% of the skeleton remaining and severe loss of bone integral structure and cortex. Burial 3 was an extended inhumation on a north-west/south-east orientation. Burial 4 and burial 5 displayed moderate preservation with approximately 25% of each skeleton surviving for analysis. Burial 4 and burial 5 were recovered from a section through the enclosure ditch. However, preservation varied within the human material from the enclosure ditch fill, some was well-preserved with good integral structure and cortex survival, and some was fairly poorly preserved. Burial 6 demonstrated moderate preservation of the cortex and integral structure but due to fragmentation, less than 25% of the skeletal material was recovered. Burial 6 consisted of disarticulated leg bones from a shallow pit.

Table 8: Human burial data

Burial no.	burial 1	burial 2	burial 3	burial 4	burial 5	burial 6
Period	2	2	1	3	3	2
SK no.	1486	1552	1689	1720	1720	1135
Preservation	poor	very poor	very poor	moderate	moderate	moderate
% present	25–50	10–15	5–10	5–25	5–25	0–25
Age	adult	adult, >20yrs	?adult	adult	adult	juvenile
Sex	female?	female?	?	male	?	?
Orientation	NW/SE	N–S	NW/SW	?	?	?
Burial position	crouched	crouched	extended supine	extended?	disarticulated	disarticulated
Non-metric variation	L and R arachnoid frontal granulations	–	–	R femoral plaque	–	–
Pathology	–	–	–	L radius	–	–
Dental pathology	caries 6/23 calculus 6/23	–	–	–	–	–
Radiocarbon dating	Wk-15365 400–200 cal. BC	Wk-15366 390–200 cal. BC	Wk-15362 1110–840 cal. BC	Wk-15363 160 cal. BC –cal. AD 60	Wk-15363 160 BC–cal. AD 60	Wk-15364 170 cal. BC –cal. 60 AD
Other comments	–	–	large canine centrally placed over pelvis	mixed with burial 5	mixed with burial 4	legs only

No signs of degenerative joint disease were detected on any of the six individuals. Due to the high degree of fragmentation of all individuals, stature could not be determined.

Dental pathology

Middle Iron Age burial 1 exhibited evidence of dental pathology, being the only individual with dentition present. Twenty-three teeth were present with four teeth being present *in situ*. Six of the teeth (4 molars, 2 premolars) exhibited slight to moderate dental caries below the crown on either the distal or medial surface. Six of the moderate teeth (3 incisors, 1 canine, 1 molar) had slight calculus on either the buccal or medial side. Dental caries has a prevalence rate of 3.2, and calculus of 5.4 during the Iron Age (Roberts and Cox 2003). The prevalence rate of affected teeth for both caries and calculus for burial 1 is 2.3, lower than the national average, although the dentition from one individual cannot provide the full picture, and the true prevalence rate for dental caries and calculus in the Middle to Late Iron Age population of South Wales remains unclear.

Trauma

The left radius of Period 3 adult male burial 4 exhibited a potentially traumatic lesion. The midshaft and distal epiphysis was displaced superiorly, and the bone had taken on a curved nature. The distal articular surface including the ulnar notch was covered by porotic lamellar bone, suggesting non-use of the wrist. Similar lamellar bone was noted on the left hamate, distal ends of the left metacarpals 1 and 4, 1 mid phalanx and 1 distal phalanx. It is possible that this injury would have severely affected the use of the left wrist. The remaining bones from the wrist (i.e. the ulna, the carpals, metacarpals 2, 3 and 5 and remaining phalanges) were not present, so an accurate diagnosis cannot to be made. This type of trauma has been encountered elsewhere in Britain, as at Yarnton in Oxfordshire, where the radius and ulna were affected (Roberts and Cox 2003).

Non-metric skeletal variation

Two individuals displayed traits of a non-metric nature. Adult female burial 1 displayed arachnoid granulations on both left and right sides of the frontal bone. Adult male burial 4 displayed a formation of femoral plaque below the right femoral head.

Discussion of the human skeletal remains

A sample of six inhumations is too small to be of statistical value, especially as they are of different dates. The variable preservation and completeness of the skeletal material is likely to have had an effect on the survival of pathological features, and therefore it does not provide a true representation of the health of the complete populations. Due to the scarcity of the burial record from the Late Bronze Age and Middle to Late Iron Age, comparison with local and regional burial trends is limited.

DISCUSSION

By Simon Cox

Late Bronze Age

The only excavated evidence for human activity on or near the site in this period comes from five worked flint flakes, all of which were demonstrably residual within later contexts, and burial 3, which yielded a radiocarbon date of 1110–840 cal. BC (Wk-15362). Two ploughed-out round barrows of presumed Early Bronze Age date are known 1.5km to the south-west of the site, and two Bronze Age amber beads, to the

east (Fig. 1, E, 1, 3; see Introduction), and thus the evidence from St Athan contributes in a very small way to the rather fragmentary view of human activity within this period.

Inhumation burial 3 is particularly significant, given the rarity of evidence for funerary practice in Late Bronze Age Britain (Brück 1995, 247). During the Late Bronze Age the favoured funerary rite in Wales appears to change from burial beneath barrows to less visible and discrete means of disposal such as urned cremations placed within existing barrows, or disposal of the dead in rivers, with Late Bronze Age burials significantly less well-represented in the archaeological record (Lynch *et al.,* 2000, 211–2). Where formal inhumation burials are encountered, either on settlement sites or elsewhere, they appear to be discrete flexed individuals buried in ditches or pits. The majority of burials are unaccompanied apart from a few scraps of pottery (Brück 1995). Burial 3, however, appears to represent the remains of an extended inhumation with a canine tooth, possibly from a boar, placed over the pelvis (although owing to the fragmentary nature of the remains excarnation should not, perhaps, be entirely ruled out).

Burgess (1976, 88) lists only ten possible inhumations found in association with metalwork from Wales, of which only two or three are undoubted burials, and most of which are known from 'old and vague sources'. Of these only one, found in 1926 during the construction of Elba Tinplate Works, Crymlyn Burrows, Glamorgan, appears to be an extended inhumation not associated with a barrow or cairn. The unlooped palstave found with this burial indicates a date significantly earlier than burial 3, probably around the fifteenth century BC (ibid., 85). The other burials listed by Burgess for Wales all seem likely either to be later in date or cremations, and none of the inhumations in Brück's category C—'Possible inhumation burials apparently unassociated with settlement evidence'—appear to be comparable or contemporary with burial 3 (Brück 1995, 273). Of the seven burials listed by Brück which were found in association with hoards or metalwork (Brück category F) there is sufficient uncertainty about the relationship between the finds and human bone to render any comparison with burial 3 meaningless (ibid., 275–6). Therefore, St Athan burial 3 seemingly stands alone in Wales as a securely dated example of a Late Bronze Age extended inhumation with no apparent association with a funerary monument. It highlights the need, previously identified by Gwilt (2003a, 106), for a programme of radiocarbon dating of similarly isolated burials from other archaeological sites to help develop a more complete picture of Late Bronze Age (and indeed Iron Age) funerary practice. Indeed, without a radiocarbon date this inhumation may have been wrongly assumed to belong with a later phase of Roman activity, raising the possibility that other excavated burials may have been misinterpreted in the same way in the past.

Burgess (1976, 95–100) proposes that Late Bronze Age inhumations from England and Wales represent a new rite brought in by continental settlers, most probably from western France, during a period of increasing cross-channel contact from 1200 BC, rather than continuity of earlier Bronze Age practices. This rite, whilst more common than previously thought, must have remained a minority rite in the later Bronze Age, hence it remains so difficult to detect in the archaeological record. However, until the body of evidence for Late Bronze Age inhumation burials in Wales, and indeed the rest of Britain, is sufficiently expanded by new and well-documented discoveries to form a statistically valid dataset, any discussion of the origins of this rite, and extent to which it was practiced, necessarily remains speculative.

Middle Iron Age inhumation burials

Burials 1 and 2, produced radiocarbon dates of 400–200 cal. BC and 390–200 cal. BC respectively (Wk-15365) and (Wk-15366). They were both crouched inhumations, buried next to each other approximately 85m north-west of enclosure 1. Whether these burials relate to settlement within the enclosure or to an earlier (pre-enclosure) phase is discussed below. Burial during the Early to Middle Iron Age is believed to follow the Late Bronze Age trend away from burial beneath mounds to less visible and

more diverse forms of disposal, many involving incomplete skeletons (Lynch *et al.,* 2000, 212). Disarticulated and partially articulated bones have been regularly encountered on settlement sites in pits and rubbish deposits (Cunliffe 1975). A return to more formal burial has been perceived to be a later Iron Age practice, usually reserved for the upper echelons of society (Lynch *et al*., 2000, 212–3). Therefore, these two Middle Iron Age crouched inhumations appear to represent a rather earlier return to formal burial than had previously been thought, or the continuation of a local rite not previously recognised due to the paucity of excavated examples. In this light the discovery of the Late Bronze Age inhumation burial 3, together with the earlier inhumation from Elba Tinplate works, could be seen as presaging a tradition of inhumation in Glamorgan that spanned the Late Bronze Age to Middle Iron Age.

The Middle Iron Age enclosure 1

The chronology and function of the enclosure, and its relationship to burials 1 and 2, present some difficult questions. Could the enclosure ditch really be as early as the single radiocarbon date from its primary silt, 760–370 cal. BC (Wk-15350) suggests? If the enclosure was created in the Middle Iron Age why is there so little evidence for structures or activity within it until the Late Iron Age? Could burials 1 and 2 have been inhabitants of an earlier settlement within the enclosure that has left little trace? How long did the Late Iron Age settlement within the enclosure last, and was it completely abandoned in the mid to late first century AD, or could it have continued into the second century AD until the establishment of the Period 3 field systems?

The date of construction of enclosure 1 is clearly critical to the interpretation of Middle Iron Age activity on the site and five Middle Iron Age radiocarbon dates (Wk-15350, Wk-15357–8, Wk-15365–6) provide a good indication that there was human activity here in this period. Of these dates three relate directly to the enclosure, one already mentioned above from the primary silt of the enclosure 1 ditch, and two from a single feature, four-post structure 4 (Wk-15357–8, both 400–200 cal. BC). Calcite-gritted pottery from the same sequence of primary silts suggests the enclosure ditch had certainly been established by the Late Iron Age. Webster, Gwilt and Horák (above) now suggest the origin of the calcite-gritted wares extends back to somewhere in the first millennium BC, but, as no distinction can be made between Middle and Late Iron Age forms, the date of construction of the enclosure ditch cannot be considered with any certainty to be earlier than the Late Iron Age. The possibility that the radiocarbon date from the ditch fill stems from residual material must be considered a strong one.

The consistent pair of Middle Iron Age dates from one posthole of four-post structure 4, contemporary with burials 1 and 2, might provide a slightly firmer footing for basing the origin of this enclosure in the Middle Iron Age. It is also interesting to note that unlike the other internal features within the enclosure this structure appears to exhibit some signs of longevity and maintenance in the form of two replacement postholes, possibly giving it credibility as the one recognisable surviving component of a Middle Iron Age settlement. However, there is no stratigraphic link between this feature and the enclosure ditch, and therefore it is not certain that the two were contemporary. The four-post structure could be the remnant of an earlier unenclosed phase or, as has been considered for the radiocarbon date on the enclosure ditch fill, the dated material could potentially be residual.

The majority of radiocarbon dates which can be directly related with the occupation of the enclosure (i.e. those from the roundhouses, residues on pottery sherds and human remains) fall within the range 200 cal. BC to cal. AD 80, and this seems to accord well with the ceramic evidence. Perhaps the most important of these dates come from the inhabitants themselves (burials 4/5, 160 cal. BC– cal. AD 60, and burial 6, 170 cal. BC– cal. AD 60; Wk-15363 and Wk-15364). These dates correlate well with the spread of radiocarbon dates from the roundhouses and, if their association with the creation of the internal bank of the enclosure is to be believed, would give a *terminus post quem* for the enclosure of, at the earliest,

170 cal. BC. The five sherds of pottery from the construction of the gateway structure of the first enclosure (posthole packing 1201), in similar fabric to the sherd which produced the radiocarbon date from a residue on its interior (Wk-15361), also support a date later than 200 cal. BC. The *terminus post quem* could be further refined if a lower confidence rating is accepted for these radiocarbon dates. If a probability range of 60.7% to 68%, with one date at 51.4%, is used, this gives a date range of 120 cal. BC to cal. AD 90, with the maximum overlap between 45 cal. BC and cal. AD 20.

Although Webster, Gwilt and Horák have argued (above) that the enclosure ditch may have been cleaned out and maintained over many centuries, and thus the pottery may be somewhat later than the date of construction, there is no real evidence that this was such a long-lived settlement. Other than the re-cutting of the enclosure ditch close to the area of the roundhouses, where it might perhaps be most expected due to accumulations of domestic rubbish, and replacement of the gateway, there are few signs of the replacement or intercutting structures we might expect to see in such a small space, had it been occupied for 200–300 years. In fact, the combined stratigraphic, pottery and radiocarbon dating evidence points to a settlement which came into existence during the early to mid first century BC, and lasted at least until the middle of the first century AD, perhaps with a lifespan of somewhere between 65 years and 180 years.

Whether the settlement went into decline at the end of this period, indicated by a paucity of pottery which can be dated between *c.* AD 50/80 and *c*. AD 120/140, but survived in some form until the establishment of the Period 3 Roman field system, is not altogether clear. The small amounts of second to third-century AD pottery, found together with generally abraded and small Late Iron Age sherds within the stony final infill of enclosure recut 2, suggest the internal bank was not finally pushed in to the ditch until at least the middle of the second century AD. Some sections of this recut exhibit signs of bank material partially filling the ditch and being covered by silts before the final infilling, perhaps suggesting a lack of maintenance and gradual collapse, whilst in others the recut has just a single stony fill as if it had been infilled not long after its creation.

The recut enclosure ditch, presumably effected in the late first century BC or first century AD, may have rapidly become neglected and the enclosure was perhaps abandoned, but remained a significant landscape feature until the creation of the Roman field system and siting of drying ovens here in Period 3. A hiatus or decline in activity between the late first and late second centuries AD has been suggested at the comparable farmstead site at Biglis in the Vale of Glamorgan, again based upon the paucity of finds dated from this period (Parkhouse 1988, 29).

The form of the enclosure at St Athan appears typical of rectilinear Mid to Late Iron Age settlements found mainly in lowland south-east Wales, with a proliferation from the second century BC onwards (Lynch *et al*., 2000, 170–2). Unenclosed settlement also occurred at this time, for example the earliest phase at Biglis, dated to the first century AD (Parkhouse 1988, 29), and as suggested above may explain the presence of the earlier material found at St Athan. However, most univallate rectilinear enclosures, where tested by excavation, are considered to be of Late Iron Age date, which would agree with the proposed date for the St Athan enclosure.

The size (0.3ha) and internal layout of the enclosure can be compared with the early first-century AD enclosure at Whitton, which had between one and three timber roundhouses and a strong gate tower (Jarrett and Wrathmell 1981, 82–7). Similarly, some of the ringforts of south-west Wales, which had origins in the second to first century BC, are comparable. Woodside, a gated enclosure of similar size, exhibits very similar zoning to that seen at St Athan, with roundhouses tucked in close to the bank in one area, a separate area reserved for storage of agricultural produce, and other areas presumably reserved for livestock (Williams 1988, 45). In south-east Wales many of these Late Iron Age settlements continued in use well into the Roman period in the same location, as for example at Biglis, and Whitton (Parkhouse 1988; Jarrett and Wrathmell 1981). It is interesting to note that at St Athan, whilst Roman agricultural

activity directly overlies the former enclosure, the main focus of settlement shifted to a new, but presumably not too far distant site, in the second/third centuries AD.

Evidence for structured deposition within the enclosed area has been considered above by Webster, Gwilt and Horák, and it seems highly likely that construction of the enclosure itself, and some of the structures within it, were marked with the deposition of both human and animal remains, as well as pottery. Whether the greater concentrations of pottery around the north-western area of the enclosure represent similar deliberate placement, or merely reflect this as the primary zone of human occupation within the enclosure is less clear. It may be that pottery and other waste was simply discarded in the nearest convenient receptacle, in this case the enclosure ditch, which may explain the more substantial and frequent recutting of this part of the ditch.

Defended enclosures are often seen as being of relatively high-status, an assumption reinforced by the development of some of these sites into villas in the Roman period. However, as Gwilt discusses above, the lack of imported traded wares suggests that St Athan may have been of somewhat lower status. Whilst the archaeological record for the agricultural and economic regime at St Athan in the Late Iron Age is based upon a small dataset, and beset by problems of interpretation due to the potential presence of intrusive later material, there is evidence for cereal production, animal husbandry and iron smelting (although possibly at some distance from the site). This, coupled with the lack of traded pottery vessels, suggests a low status settlement with a mixed subsistence economy and very little trade contact with the outside world.

At St Athan there appears to be no impact upon life within the settlement resulting from the Roman conquest, no appearance of 'Romanised' ceramics in association with the calcite-gritted Late Iron Age fabrics, rather the continuation of a ceramic tradition and settlement with its origins in the first or second century BC. Given the potential end date for the settlement of *c*. AD 50/80 it is of course conceivable that the settlement went out of use before Roman military occupation in the Vale of Glamorgan *c*. AD 74–8 (Arnold and Davies 2000, 13–21). If the site did carry on in occupation for a decade or so after the advent of Roman military control it was not sufficiently integrated into the new supply networks to have received even a single sherd of 'Romanised' pottery.

In this light St Athan could be seen as similar in status to the unenclosed first phase of settlement at Biglis, where a similarly self-sufficient community enjoyed a lower standard of living than other excavated settlements in South Glamorgan (Parkhouse 1988, 3). Although a slightly later (first century AD) date is suggested for Biglis, the calcite-gritted fabrics are again present, and there are few instances of Romanised styles of pottery in association with these (ibid., 33), so the two settlements may be broadly contemporary. As with Biglis and Llandough, the settlement at St Athan appears to suffer a severe economic decline, or even abandonment, between the mid to late first and mid to late second centuries AD, although unlike those sites later Roman occupation did not occur here on the same site (Parkhouse 1988; Owen-John 1988).

Roman agricultural features and drying oven

The Late Iron Age enclosure must have remained a significant feature in the landscape up until the middle of the second century AD, as several elements of the subsequent Roman agricultural use of the area appear to respect or reuse elements of it. The internal bank had, in places, already partially collapsed into the ditch, but elements of a new field system (field system 2) were deliberately designed to drain into the ditch, and no elements of the field system encroached into the enclosed area. In addition at least one drying oven was placed within the former enclosure, and a trackway led up to it, suggesting that advantage was taken of the shelter provided by remnants of the enclosure bank for crop-processing activities.

Most drying ovens are known on or adjacent to villa sites, and were previously assumed to be mainly third or fourth century AD in date, although more are now known in lesser rural settlements during the earlier Roman period (Morris 1979, 9). The T-shaped form of St Athan drying oven 1 is characteristic of the second or third centuries AD. A close parallel is the oven from Langtoft, Humberside, where the main flue was also 1.50m long, with a short cross-flue with rectangular ends (ibid., 159). T-shaped drying ovens have also been found in the Vale of Glamorgan at Cae Summerhouse and Whitton (Morris 1979, 89, 95; Jarrett and Wrathmell 1981, 50–1, 65–6).

The charred plant remains recovered from the drying ovens at St Athan are indicative of the processing of wheat, including spelt wheat, and barley. These types of oven may be seen as multi-functional; possible activities include the roasting of germinated grains for the production of malt for making beer and the parching and drying of grain in preparation for consumption (e.g. for making bread) and storage (Van Der Veen 1989).

The artefactual and ecofactual evidence, form of the Roman field system, and presence of the drying ovens, suggests a broadly mixed economy in this period, again possibly associated with a fairly low-status rural population. The orientation of the field system and direction of the associated trackways might suggest a shift of the settlement focus to a point further to the west or south-west of the Late Iron Age enclosure. Trackway 1 in particular appears to run perpendicular to the line of the putative Roman Road between Cowbridge and West Aberthaw (Fig. 1c, G). In this area the density of Roman ditches is at its greatest, and appears to represent a series of stock control features, presumably located close to an associated settlement. Judging by the dating evidence recovered from the field system this settlement seems to have reached its peak between the mid second and mid third century AD, and had severely declined or been abandoned by the late third century AD.

The presence of an item of military equipment, a copper-alloy strap terminal possibly from a cavalry harness fitting, is noteworthy despite its obvious residuality within a post-medieval context. The presence of Roman military objects on rural sites has previously been taken to indicate the presence of a detachment of Roman soldiers (e.g. at Claydon Pike, Gloucestershire; Miles 1984, 208). However, it is now clear that items of Roman military equipment turn up so regularly on civilian sites of all kinds, both urban and rural (e.g. Hingley 1989, 160, 181) that they can be considered almost as part of the standard material culture of Roman Britain. Whether such material reached a site such as St Athan through the mechanism of the recycling of scrap, and it was just an accidental loss during the no doubt regular contact between civilians and soldiers is open to question.

Later activity

The absence of finds or features that can be dated to between the late third century AD and the post-medieval period suggests settlement shifted away from the immediate site area, although evidence from recent archaeological work around the church of St Braise at Eglwys Brewis, shows that settlement was ongoing there by the twelfth to fourteenth century (Fig. 1; CA 2003a). No evidence for any post-Roman activity was found within the excavated area, and the main focus of early medieval activity lay several kilometres away to the west, at the monastery of Llantwit Major, which seems to date from the seventh century AD (Davies 1982, 145).

Conclusions

Before archaeological work associated with the new Superhanger development commenced there were no known sites at RAF St Athan. However, work over recent years has begun to show just how densely the Vale of Glamorgan was settled in the Iron Age and Roman periods (Robinson 1988). Many new sites have been recognised through aerial photography (e.g. Driver 1995) and recent fieldwork by GGAT

(Evans 2001) has picked up even more. Such sites often generate little artefactual material in the ploughsoil, and so can be hard to detect on the ground. The work at St Athan, however, demonstrates the great potential of geophysics to detect sites on the lias clay, geology often not conducive to the production of cropmarks.

The excavation has revealed remains from a number of periods, with a general background of human activity from the Late Neolithic to Bronze Age, possible unenclosed settlement from the Middle Iron Age, a main period of enclosed settlement in the Late Iron Age, and Roman agricultural activity. Rather than continuity of settlement in one place, the emerging picture is of settlements moving around within the locality. Sometimes perhaps by only a short distance, as seems likely between the Late Iron Age and Roman periods, sometimes potentially further afield, as is suggested for the early medieval period.

The main periods represented are from the Middle Iron Age onwards, with important, securely dated, evidence for burial practices of Middle Iron Age date to suggest that more formal burial may have been practised at this time than had previously been thought. The Late Iron Age enclosure is also a century or so earlier than previously excavated examples such as Biglis and Whitton, although well within the broad date range for enclosures of this form. The radiocarbon dates from St Athan suggest that calcite-gritted pottery can now be dated as early as first or even second century BC. The enclosure also had a population significantly lower in status than is often assumed for such sites, albeit that it was not unlike Biglis in this respect. There is a lack of continuity of the settlement into the Roman period, in contrast to settlements such as Whitton and Ely, which developed into high status villas.

The results of this excavation show that there is much diversity in burial practices and settlement patterns within south-east Wales, and that existing assumptions can be, and will continue to be, challenged and refined through carefully planned archaeological excavation with associated programmes of radiocarbon dating, especially where human remains are encountered.

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