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A ROMAN POTTERY PRODUCTION AND POST-MEDIEVAL OCCUPATION SITE AT 'ABBOTTS WOOD', FRITH END, HAMPSHIRE

By DAVID GRAHAM
with contributions by MALCOLM LYNE, PETER MURPHY and PATRICIA WILTSHIRE

ABSTRACT

An extended watching brief on a redevelopment site immediately south of the Alice Holt Forest revealed evidence for pottery production in the form of kiln mounds, waster dumps and associated structures, dating from the late 1st-late 4th centuries AD The area appears subsequently to have been undisturbed until a house was constructed in the 17th century. Since then, domestic occupation has been more or less continuous, with a succession of buildings occupying the site, culminating in the construction of the current house in 1998–9.

INTRODUCTION

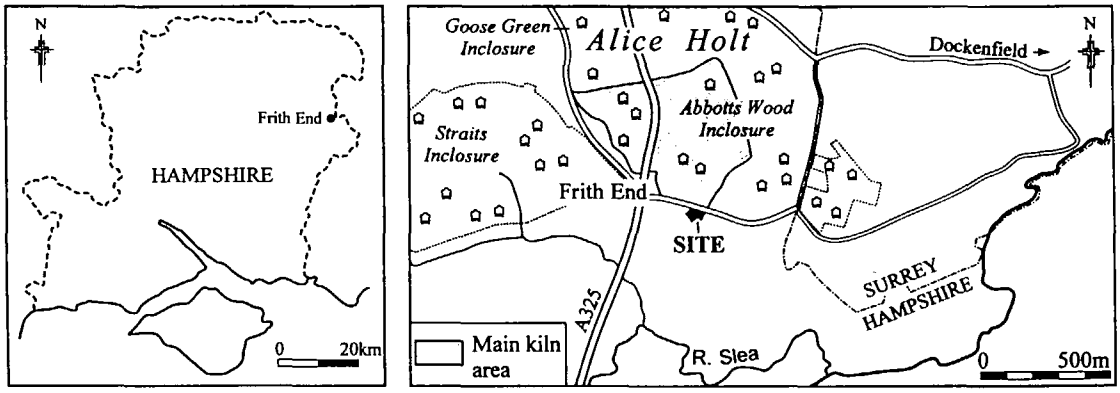
In December 1997, the author with the assistance of a group of volunteers, undertook limited trial trenching at the request of Hampshire County Council, on a redevelopment site immediately to the south of Alice Holt Forest in north-east Hampshire (Fig. 1). This work was followed by an extended watching brief, which was finally completed in July 1999. The development consisted of the demolition of an existing structure, a low 1950s bungalow, and its replacement by a larger two-storey house and separate garage block. Apart from the footing works, this involved a number of service trenches being cut across the site. These revealed evidence for the existence of three Roman kilns, one previously unrecorded, as well as a number of waster dumps, pits and in one area, an apparent sequence of structures – probably functioning as workshops servicing the kilns. Evidence in the form of a scatter of tile and masonry was also recovered, indicating the presence of a substantial Roman building somewhere in the vicinity. One coin, of *c* AD 321–4, was found within the Roman stratigraphy and provides the first numismatic dating evidence from within the main production area of the Alice Holt industry.

Environmental samples were taken from a number of the features and again provide the first evidence for ground cover during the Roman period and indeed for the types of fuel used to fire the kilns.

The next phase of direct occupation of the site is represented by a short section of wall footings, which were probably the remains of a building constructed during the 17th century and which is referred to in documentary sources (M. Lyne, pers. comm.). Evidence for use of the site is continuous thereafter, with a sequence of domestic buildings occupying the site until the present day.

SITE LOCATION, TOPOGRAPHY AND GEOLOGY

The property, now known as 'Abbotts Wood' (formerly 'Woodside Bungalows'), covers an area of 0.63ha and lies on the southern edge of the Alice Holt Forest, at Frith End (Fig. 1), in the parish of Kingsley. Alice Holt is well known for its Romano-British pottery industry and the large number of kilns that have been recorded in and around the forest include two within the current site (Lyne & Jeffries 1979). The property, which is centred at SU 8120 3970, lies at *c* 76m OD, on ground that slopes gently to the west. It is bounded to the south, east and west by open pastureland and to the north by oak forest. The land is poorly drained, as the underlying geology consists of heavy Gault Clay.



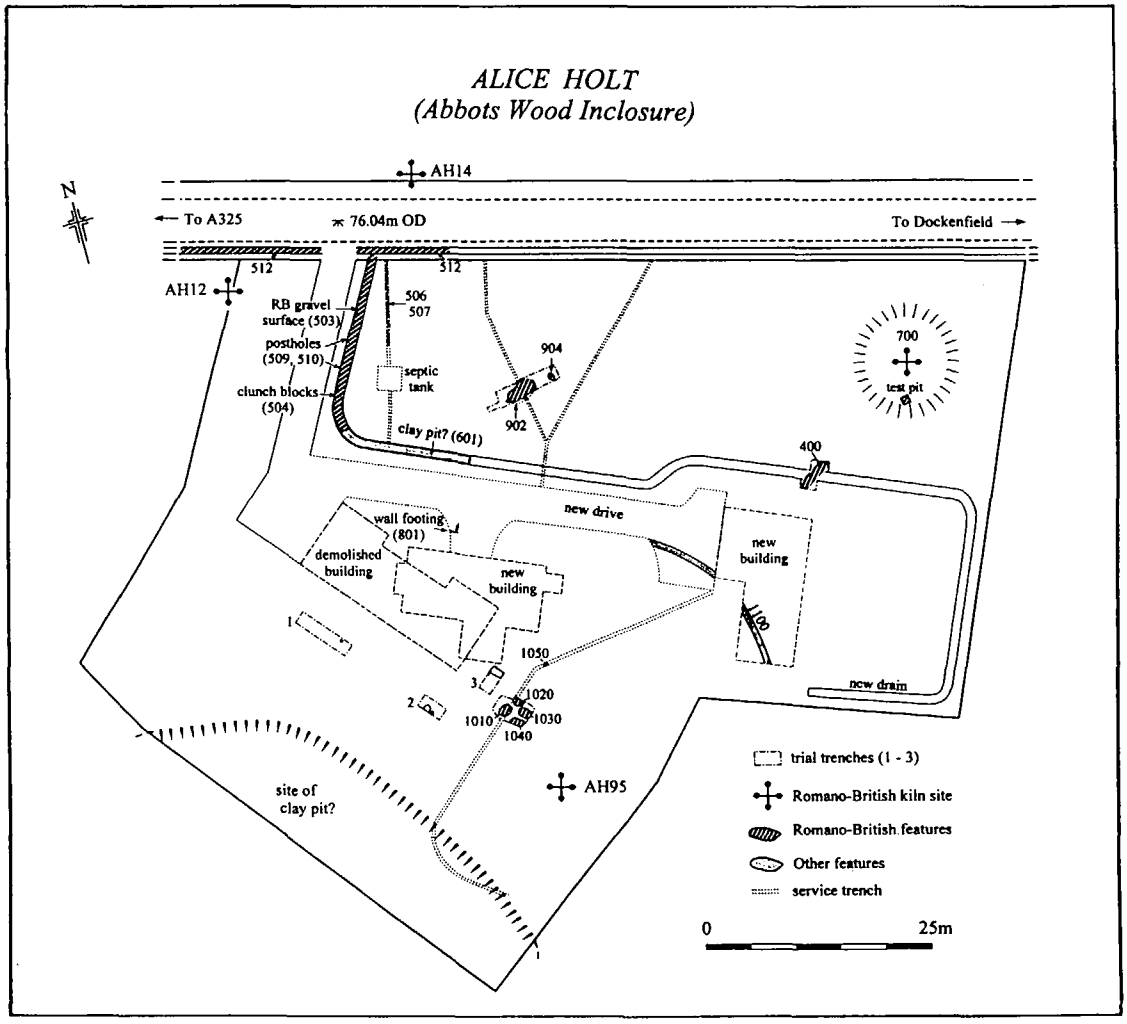


Fig. 1 Abbotts Wood, Frith End, Hampshire: location map and site plan

THE SITE

Previous evidence

The OS 1:2500 map shows two kilns – one on the boundary of the site listed as AH12 and a further one under the lawn listed as AH95 (Lyne & Jefferies 1979). In addition, the previous owner, a Mrs Renders, reported that large quantities of Romano-British pottery were found when a septic tank was constructed on the site in the 1960s. Lyne has also recorded the existence of clay pits in the immediate area, one of which partially underlies the southern edge of the garden, and has also noted a possible road and further kilns in the fields to the south of the property. As a result much of the land in the surrounding area has been scheduled as an ancient monument (no HA 244).

Trial trenching

Three small trial trenches were opened close to the site of the proposed new building (Fig. 1, 1–3) in order to test the stratigraphy prior to the commencement of building work. In the event, these revealed very little other than a sequence of discarded domestic pottery and waste commencing in the 17th century and, curiously, including a button with the Earl of Waldegrave's crest. Two possible postholes (103, 304), a stakehole (104), two truncated pits (203, 204) and a ditch (303) were also noted; all were post-medieval in date (Fig. 2; trench 1 not illustrated). However, a very light scatter of RB pottery, tegulae and a piece of shaped sandstone, possibly part of a finial, were found lying directly on the surface of the natural Gault Clay. This probably represents a trampled ground surface, rather than a feature as such, though it may be that the topsoil had been removed during the Roman period for some reason, perhaps connected with the nearby claypit. Two nearly identical sherds of pottery, cut into diamond-shapes were also recovered and may have been used as gaming pieces. Given these limited results, construction of the new building proceeded as planned.

The watching brief

Roman

During building works, in addition to the footings and driveway, a series of narrow drainage and service trenches were cut across the site (Fig. 1) and revealed a number of features, the majority of which were Roman in date. Where possible, the ground was stripped back to allow the features to be investigated and sampled. It should be said however, that in some areas and in particular around the septic tank, recording work was restricted to examining the sloping edges of very narrow and very wet machine cut trenches. These limitations may well have affected the quality and extent of the evidence recovered.

Towards the eastern end of the site, a drainage trench bisected a *c*1m wide ditch (Figs 1 & 3: 400), which, on stripping back the topsoil, was shown to become noticeably deeper as it headed northwards and conversely became shallower to the south. On close examination it appeared to be heading towards to a low, previously unnoticed, *c* 13m wide circular mound (Fig. 1, 700; now Lyne no AH94) in the overgrown north-east corner of the site (the mound has now been flattened by landscaping work). A small test pit was excavated and showed that the mound contained Roman pottery of similar date (AD 150–270) to that in the primary fill in the ditch (404). The mound is therefore almost certainly the site of a previously unrecorded kiln. Macrofossil samples taken from the ditch and mound, both showed the presence of charred cereal chaff and also revealed that a high proportion of the charcoal examined was of twiggy roundwood (Murphy below). It is therefore highly probable that the ditch actually formed the approach to the flue of the kiln itself. The pottery evidence indicates that the kiln functioned in the period AD 150–270, but seems to have gone out of use thereafter.

Close by the area of the septic tank, which had originally produced Roman pottery, a continuation of the drainage cut exposed a laid gravel surface (Figs 1 & 4: 503). This may have been associated with the possible clunch block wall footing (504) as well as with the two, insecurely dated postholes (509, 510). The gravel surface had partially slumped into an earlier gully (511),

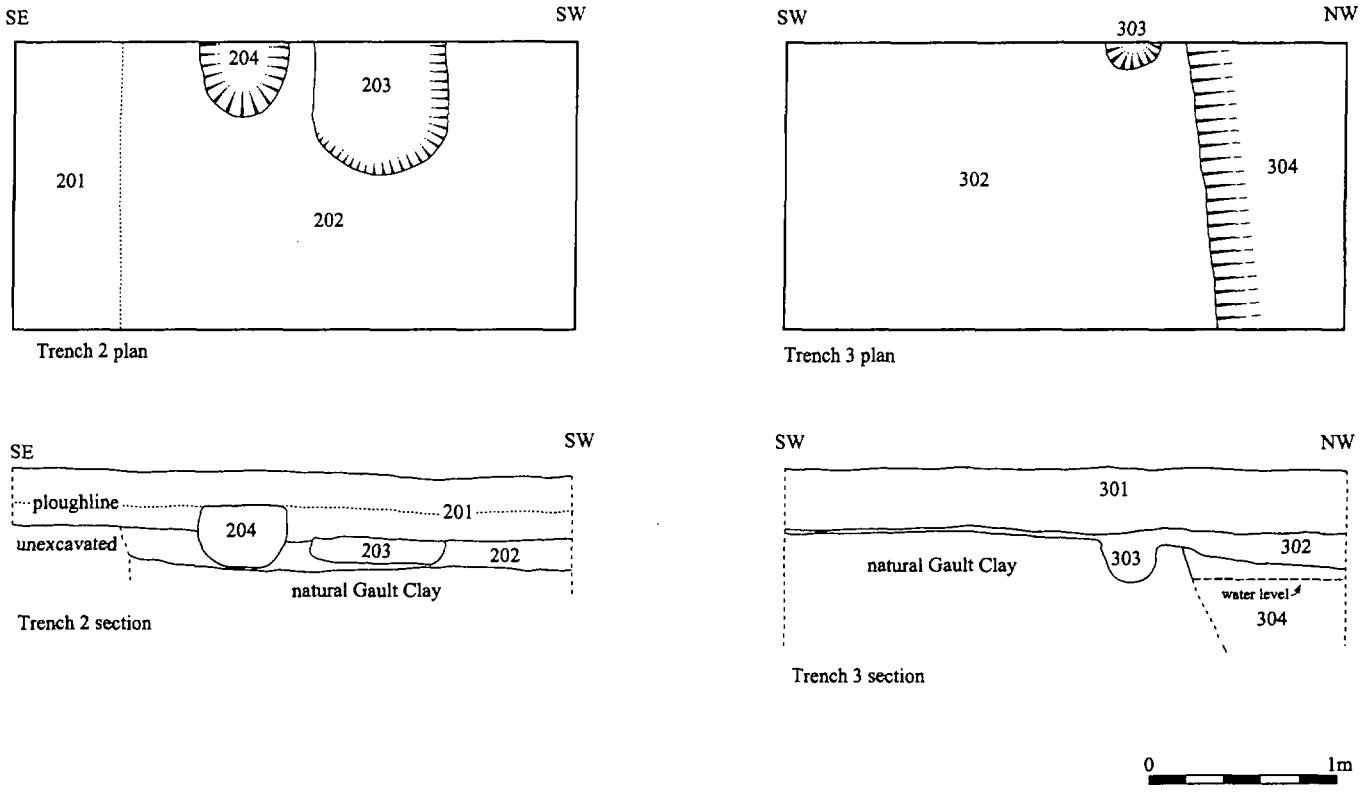


Fig. 2 Abbotts Wood, Frith End, Hampshire: plans and sections of trenches 2 and 3

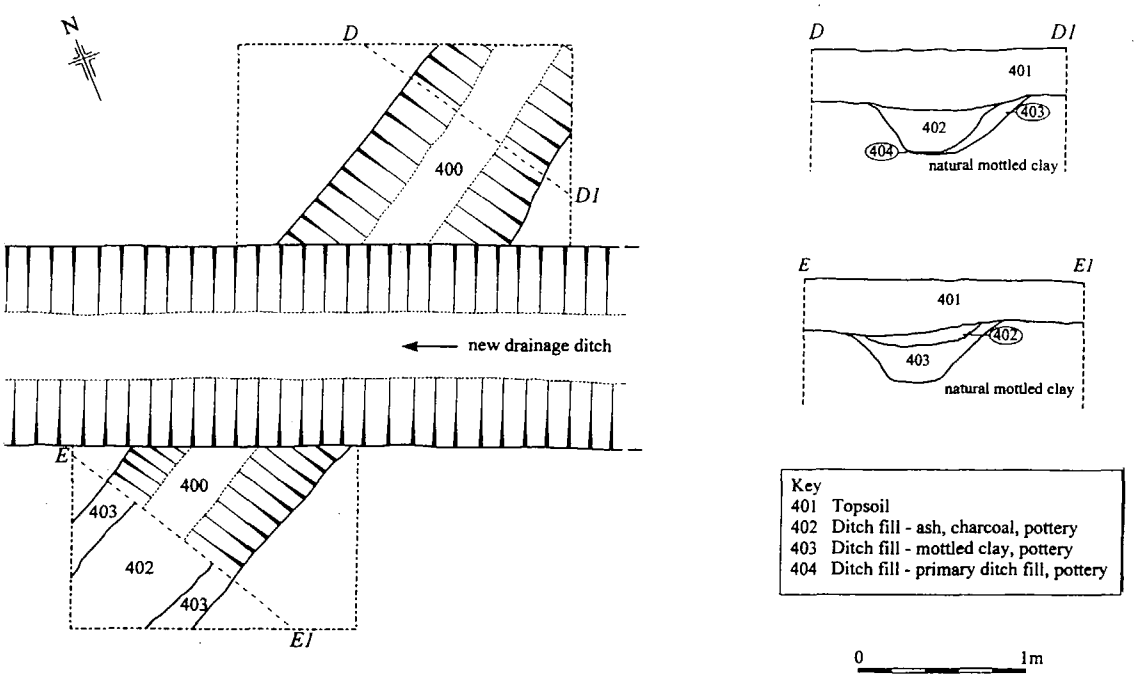


Fig. 3 Abbotts Wood, Frith End, Hampshire: trench 4: plan and sections

which, from the pottery evidence, must have cut layer 505, though this was not visible in the section. The gravel surface also overlay 505 and was in turn covered by a further ashy deposit (502). The boundary between these Roman layers was again not discernible in the section, other than where the two were divided by the gravel layer. However, pottery sampled from 505 dates to the late 2nd century, whereas material from 502 dates to the late 3rd-early 4th centuries. In addition this upper layer (502) contained bone and oyster shell, which was not present elsewhere on the site. These features may well represent one or possibly two phases of building – the first consisting of the late 2nd century posthole structure and the second, the later gravel surface and associated possible rough clunch wall (504), of which only a very small length was exposed. This building or buildings were probably lightly constructed workshops associated with the nearby kilns, but the area had been extensively disturbed by the insertion of the septic tank and, given the limits of the drainage cut, it was impossible to draw any firm conclusions. However, further work on the new septic tank outflow *c* 4m to the east (506, 507) showed that the gravel layer (503) did not extend this far and therefore gave an eastern limit to the feature. The section did, however, contain a deposit of burnt daub (507), which may have come from a fallen wall. The coin of AD 321–4 (see below) was recovered from 506, slightly above the layer of daub.

Adjacent to the possible clunch wall, was an area of disturbed Gault Clay (Fig. 1: 601), which may possibly be the remains of a filled in clay pit. While the feature was not bottomed, small fragments of Roman pottery were recovered from well below the average depth of the natural clay.

Much of the pottery from this general area and particularly that collected from a heavy (up to 30cm thick) ash and pottery scatter exposed in a roadside ditch. The extent of this is shown in figure 1 (512), and probably relates to the kiln (AH12)

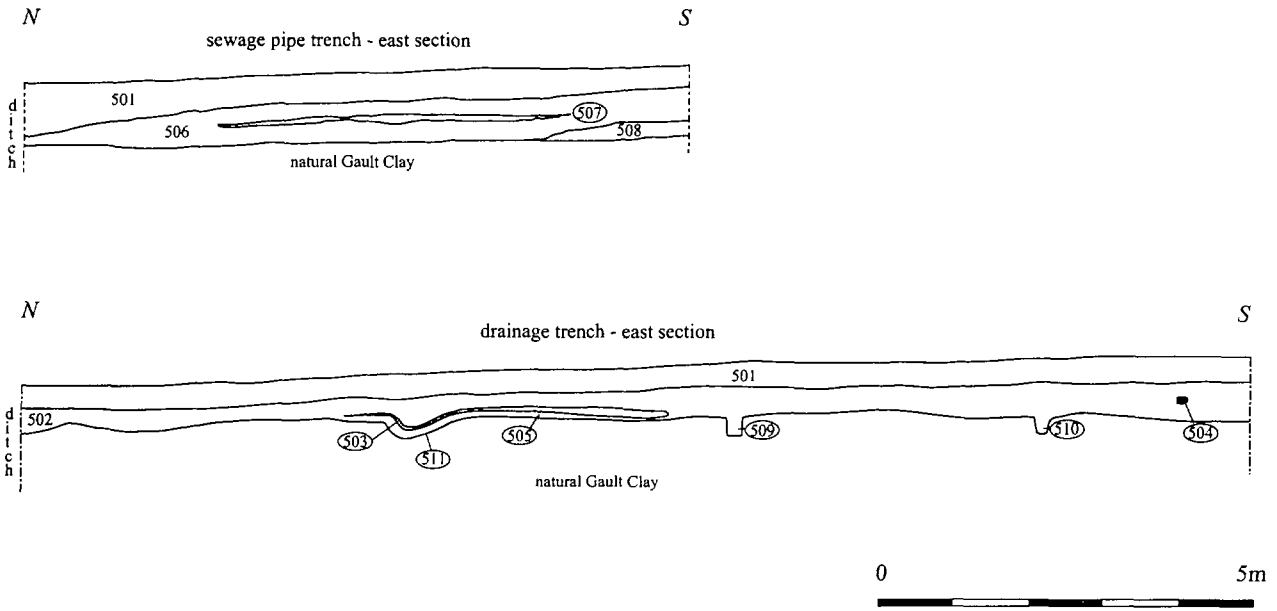


Fig. 4 Abbotts Wood, Frith End, Hampshire: sections of sewage pipe and drainage trench

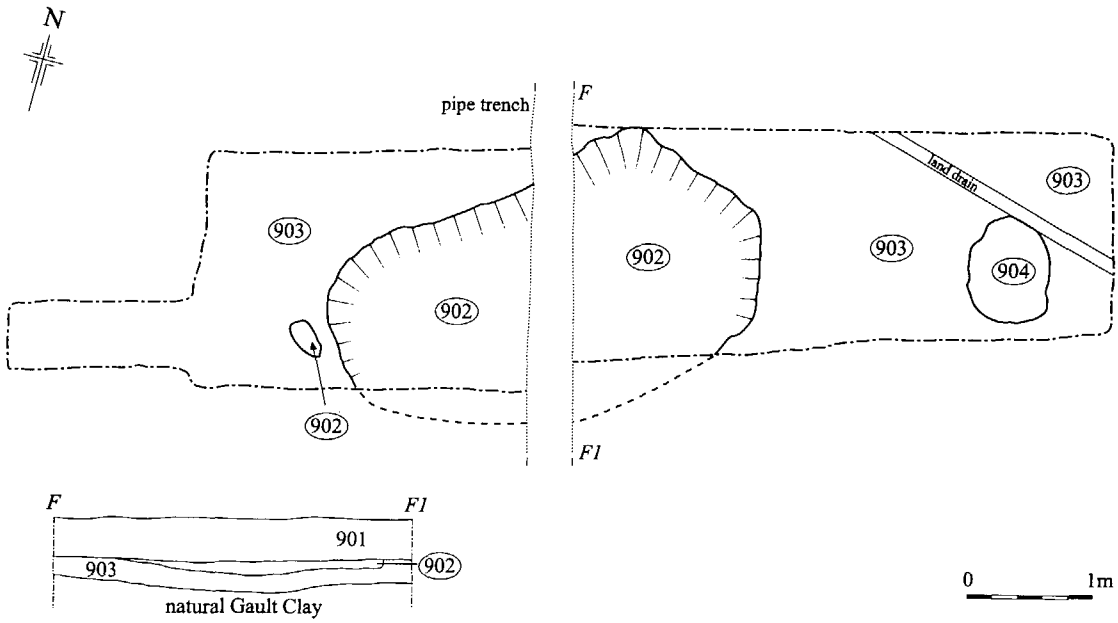


Fig. 5 Abbotts Wood, Frith End, Hampshire: plan of contexts 902 – 904 and section F–F1

which is known to lie on the western boundary of the property. While this was not disturbed by the current building works the pottery evidence would indicate that it operated in the period AD 270–330.

Elsewhere on the site, a service trench bisected a roughly oval deposit of ash and pottery (Figs 1 & 5: 902, 904), which probably represents waste from a kiln firing (or firings) and which dates to *c* AD 60–150. Further macrofossil samples were taken from this feature which showed the presence of charred cereal chaff and charcoal from hazel, heather, gorse, oak and hawthorn – all of which may have been used as fuel by the potters. While no kiln or other features of this date were found on the site, further kilns are known to exist in the Alice Holt forest immediately to the north and it may be that one these is the source of this relatively early material (Fig. 1: AH14)

Finally, yet another service trench cut a group of pits (Figs 1 & 6: 1010–1040) which contained numbers of wasters and nearly complete, but distorted, pots. While the pits resembled burials, there was no sign of any cremated bone and it therefore seems possible that each pit contains the discards from the unloading of a kiln. However, given the relatively small numbers of pots in each pit it may that these features represent some sort of ritual deposit. It should be mentioned that the cutting of the electricity cable trench removed some of the pots from pit 1010 and this is the reason why only one pot is shown *in situ*. In any event, the pits continued into the section and, in all probability, others exist in the vicinity, leaving the question of their purpose to be resolved by future work.

The pottery in these pits fall in the date range AD 270–400+ as does the majority of the pottery recovered from the nearby initial trial trenches (1–3 see above). This may well provide dating evidence for the kiln (AH95) which lies under the lawn a few metres to the south-east of the pits.

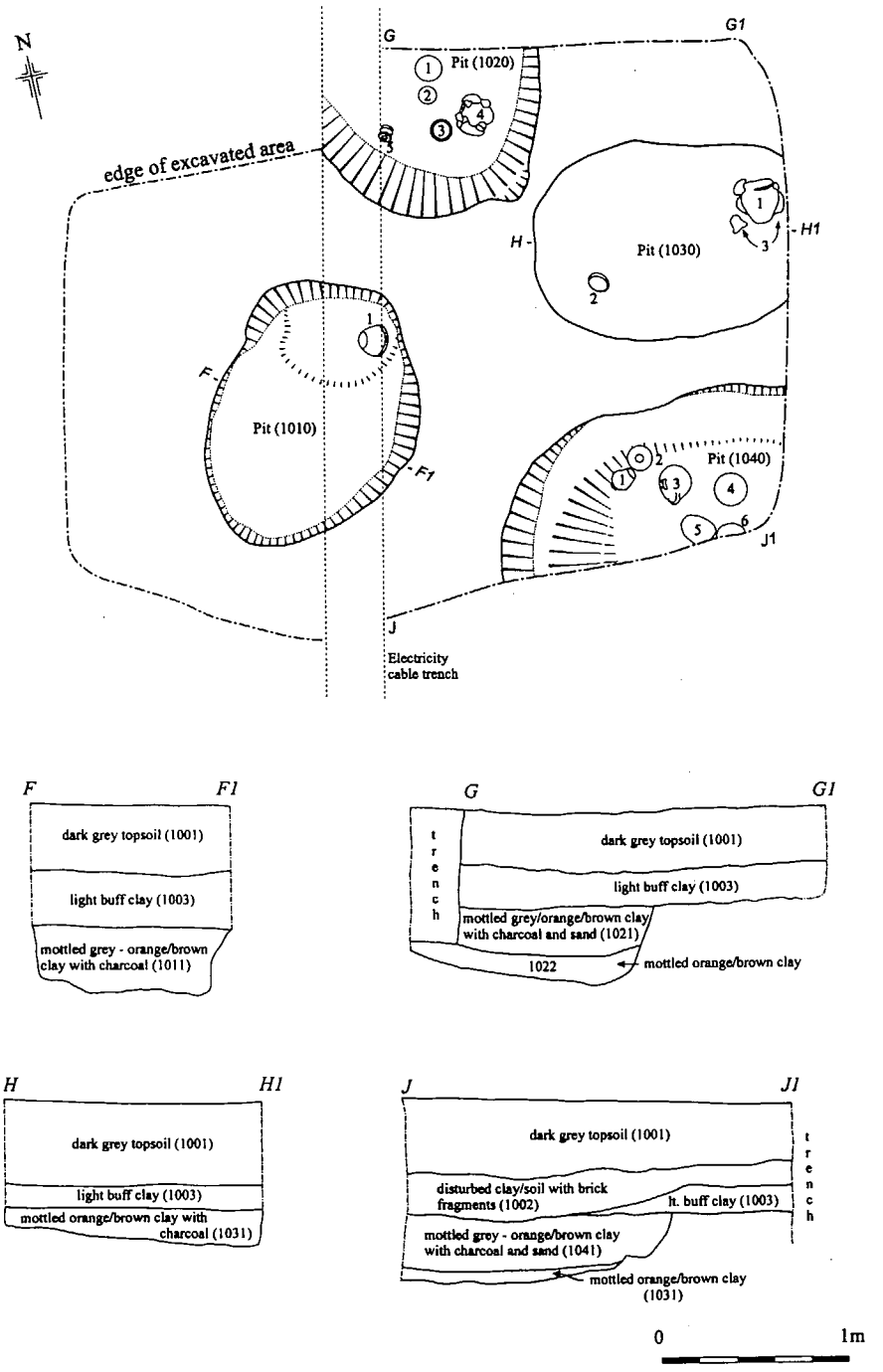


Fig. 6 Abbotts Wood, Frith End, Hampshire: plan and sections of area 10 pits

Post-medieval

The site appears to have been abandoned at the end of the Roman period and to have formed part of Alice Holt forest during medieval times. However, it was subject to assarting in the 17th century when a cottage and garden was built there (M. Lyne, pers. comm.). The corner of a mortared clunch block wall (Fig. 1: 801) was exposed during construction works on the new drive and one fragment of late green glazed pottery was recovered from its surface. This may well represent the footings of this building. Possibly also from this period is the curving ditch that runs under the garage and drive of the new house (Fig. 1: 1100). This is shown on the tithe map as a field boundary.

Elsewhere on the site, fragmentary remains of 19th century brick walls were noted (Fig. 1: 1050), but nearly all the remains of later occupation must have been removed during the construction of the 1950s bungalow. This occupied a levelled platform that had been cut into the slope at the centre of the site. In turn, this decidedly unattractive building has met its well-deserved end and has now been replaced by the current house.

THE POTTERY BY MALCOLM LYNE

Introduction

The ten trenches put down across the site produced a total of 49334gm of pottery and tile, of which 44022gm is Roman and 5312gm post-medieval in date. The Roman pottery spans virtually the entire period of Alice Holt manufacture from the late 1st to the end of the 4th century and is associated with at least three centres of pottery production within the area examined (AH12, 94 and 95). Of particular interest is a pottery assemblage from the periphery of waster dump AH12 (context 506): this is independently dated by a freshly-minted coin of AD 321–4 (see below) and contributes significantly to our understanding of the development of Alice Holt pottery forms during the early-4th century.

The post-medieval pottery is associated with the site of a cottage built on assarted land during the 17th century and spans the period between that century and the present day.

Methodology

All the pottery assemblages from the site were quantified by weight and number of sherds per fabric. These fabrics were identified with the aid of a ×8 lens with built in metric scale for determining the size and nature of inclusions. Surface treatment and firing colouration were also noted.

Two of the Roman pottery assemblages (from contexts 402 and 902/904) were large enough for quantification by the Estimated Vessel Equivalents (EVEs) method based on rim sherds (Orton 1975). The results of these two EVEs quantifications have been tabulated in a manner which gives percentages of fabrics per assemblage, of their firing treatments and the overall percentages of different types of vessel.

The Alice Holt fabrics, vessel classes and type numbers referred to below are those formulated in Lyne & Jefferies 1979.

The Roman Fabrics

The Roman pottery produced by the successive kilns on the site was all made using two basic prepared clay/filler mixes:

Fabric A. This was defined in an earlier publication (Lyne & Jefferies 1979, 18) as having up to 0.25 mm quartz-sand filler added along with the occasional pellet of grog. The upper limit on quartz grain size in Fabric A sherds on this site is 0.20 mm, with the bulk of the sand grains being of 0.10 mm size or less. The grog particles are in fact soft ferrous inclusions present in the natural clay.

Vessels in this fabric had either self-slipped or untreated surfaces until *c* AD 270 but were often decorated with areas of applied black/white firing slip after that date. What these excavations have shown is that the *c* AD 270–300 overlap between the end of large-scale production of self-slipped pots and the commencement of black/white slip decoration (Lyne & Jefferies 1979, 35) can now be extended into the first two or three decades of the fourth century at site AH12.

Fabric C. This fabric was defined in the same publication as having profuse >1.00mm added quartz

Table 1 Quantification by EVEs based on rim sherds

Fabric	*Jars*	*Bowls*	*Dishes*	*Beakers*	*Store Jars*	*Others*	*Total*	*%*
	EVE	EVE	EVE	EVE	EVE	EVE	EVE	
A Grey	2.70	0.07	0.21		0.15		3.13	60.5
Black	0.40	0.03	0.18				0.61	11.8
Oxid	0.41	0.12					0.53	10.3
Total A	3.51	0.22	0.39		0.15		4.27	82.6
C Black	0.20	0.03					0.23	4.4
Oxid	0.41				0.26		0.67	13.0
Total C	4.12	0.25	0.39		0.41		5.17	
	(79.8%)	(4.8%)	(7.5%)		(7.9%)			

filler. The definition still applies, although some vessels from the present site tend to have a slightly finer filler with an upper limit nearer 0.50 mm.

Assemblages

c AD 60–150

Assemblage 1. From ashy deposits 902 and 904.

These two contexts on the surface of the natural clay produced 3018gm (289 sherds) and 2170gm (223 sherds) of pottery respectively. The assemblages from the two features are very similar in make-up and when combined produce an assemblage large enough for quantification by EVEs based on rim sherds (Table 1).

This assemblage is a fairly mixed and comminuted one with a wide date range spanning the period between the late 1st and late 3rd centuries. The bulk of the pottery is, however, of late 1st century character and includes rim sherds from four Class 4 bead-rim jars, a Class 6 Gallo-Belgic platter imitation, a Class 3 butt-beaker rim and fragments from cordoned jar types 1–8 and 1–20. Examples of Types 3B–8, 6A–3, 6A–13, 10–1, Class 3A jars and flanged-dishes of Class 6B extend the date range of the assemblage through to beyond AD 270.

It is impossible to know whether this assemblage is an *in-situ* late-1st century assemblage with later contamination from nearby pottery firings or the result of bringing in old pottery waste from elsewhere to fill in holes. The topsoil (context 901) sealing features 902 and 904 produced a further 3670gm (333 sherds) of pottery with a similar date range.

The assemblage from contexts 902 and 904 consists overwhelmingly of jars; open forms make up a tiny minority of the wares which are present. This domination of an assemblage by closed forms is characteristic of Alice Holt and other rural potteries with Late Iron Age antecedents during the late 1st to early 2nd century. Jars made up between 76 and 95% of the six successive late 1st century assemblages from Alice Holt waster dump 52 (Lyne forthcoming A).

c AD 150–270

The main focus of potting activity during this period was centred on waster-dump AH94 in the north-east corner of the garden (Lyne forthcoming B). The fills of the ditch sectioned by Trench 4

Table 2 Quantification by EVEs based on rim sherds

Fabric	*Jars*	*Bowls*	*Dishes*	*Beakers*	*Store jars*	*Others*	*Total*	*%*
	EVE	EVE	EVE	EVE	EVE	EVE	EVE	
A Grey	3.40	0.20	0.16		0.44	Cl 5C 0.11		
						5E 0.24		
						7 0.09	4.64	72.0
Black	0.11	0.12	0.50			5C 0.07	0.80	12.4
Oxid.	0.37	0.17					0.54	8.4
Total A	3.90	0.49	0.66		0.44	0.51	5.98	92.8
C Grey		0.12					0.12	1.9
Black	0.10	0.14					0.24	3.7
Oxid	0.10						0.10	1.6
Total	4.10	0.75	0.66		0.44	0.51	6.44	
	(63.5%)	(11.6%)	(10.2%)		(6.8%)	(7.9%)		

to the south-west of this dump produced a stratified sequence of pottery assemblages.

Assemblage 2 (Fig. 7). From the primary silting of the ditch (context 404).
This context produced 59 fresh waster sherds (1172 gm.) of late 2nd century pottery including:

1. Class 3A jar in grey fabric C, fired rough buff-grey. Ext. rim diameter 160mm.
2. Another, underfired, example in similar fabric with black coring, fired rough grey-brown.
3. Everted-rim jar in polished black fabric C with brown margins. Ext. rim diameter 140 mm. Jars with everted rims as well developed as this did not appear until the last decades of the 2nd century at site AH 52 (*ibid*).
4. Deep Class 5A flanged bowl in grey Fabric C with the surface missing. Ext. rim diameter 200 mm.
5. Flanged Type 6B–1 dish variant in dirty-grey Fabric C fired polished black. Ext. rim diameter 220 mm. One of two.

Assemblage 3 (Fig. 7). From the middle silting of the ditch (context 403).
This context produced a further 188 sherds (3529 gm.) of similarly dated pottery, including:

6. Small Class 3A jar with double girth cordon, in brown fabric A fired smooth black. Ext. rim diameter 100 mm.
7. Everted-rim jar in underfired orange-brown Fabric A. Ext. rim diameter 160 mm.
8. Large Class 5A flanged bowl in grey Fabric C fired smooth black with brown margins and fine external horizontal rilling. Ext. rim diameter 260 mm. Smaller versions of this bowl type are present in *c* AD 170–200 dated assemblages from the 1977–79 excavation on waster dump AH52 (Lyne forthcoming A) and another example was present in the pottery from the 1958–61 excavation of the kiln

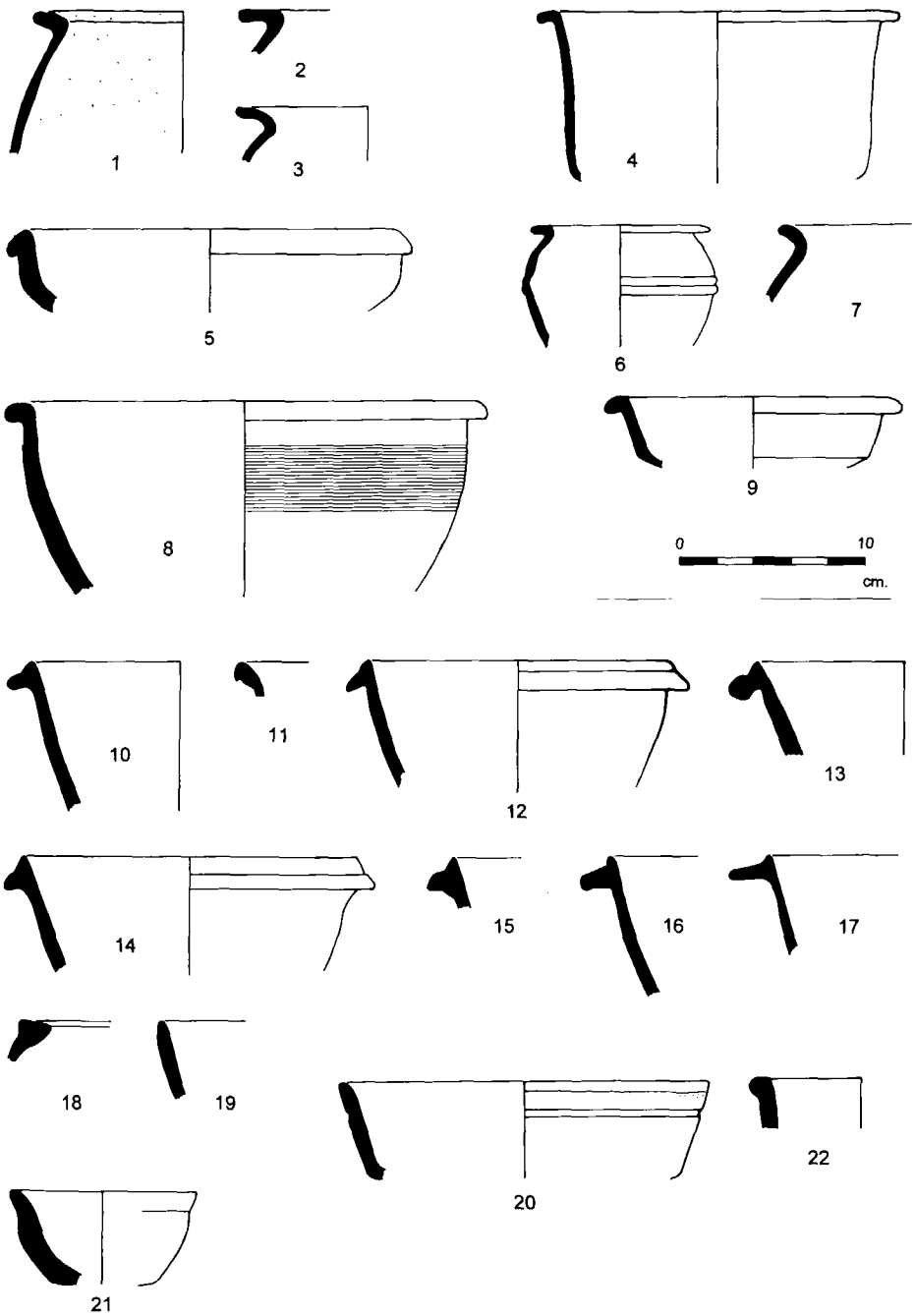


Fig. 7 Abbotts Wood, Frith End, Hampshire: pottery drawings 1–22

under waster dump AH58 (Bennett *et al* 1963, Fig. 4–32).

9. Flanged Class 6B dish with chamfered base, in grey-buff Fabric C with the surface flaked away. Ext. rim diameter 160 mm.

Assemblage 4. From the upper silting of the ditch (context 402).
This upper ditch fill produced a somewhat larger 811 sherds (6408gm) of pottery; an assemblage large enough to be quantified by EVEs based on rim sherds (Table 2):

The pottery is somewhat comminuted but is clearly later in date than the assemblages from the lower and middle fills of the ditch. The assemblage belongs to the period *c* AD 200–270 and includes examples of necked and cordoned jars of Type 1–30 (AD 200–300), everted Type 3B–9 jars (AD 200–300), Class 3C jars (AD 220–270), bowls of Types 5B–1 and 5B–2 (AD 220–270) and straight-sided dishes of Type 6A–2 (AD 180–270). An example of the large reeded-rim bowl type 5E–1 (AD 220–270), a strainer of Type 5C–1 (AD 150–270) and a bead-rim bowl of Type 5A–1 (AD 150–220) are also present. An absence of sherds with black and white slip decoration indicates that there is unlikely to be anything later than *c* AD 270.

Assemblage 5. From test pit in feature 700 (waster dump AH.94).
This test pit produced 44 sherds of pottery, all of which can be dated to the period *c* AD 180–270 and are therefore contemporary with the range of assemblages from Trench 4. None of the fragments justify illustration but include examples of Types 1–25 (AD 150–200), 1B–1 (AD 200–270), 3B–9 (AD 200–300) and 5B–1 (AD 220–270).

c AD 270–350

Potting activity of this period was concentrated around Area 5 just north of the house and associated with waster dump AH12. Once again a stratified sequence of assemblages was obtained.

Assemblage 6. From the occupation layer sealed beneath the gravel floor 503 (context 505).
This thin layer produced a mere 116gm (12 sherds) of pottery of 2nd-century character. There are only three rim sherds, but these include a fragment from a cordoned jar of Type 1–28 (AD 150–180) and another rim sherd from a coarse vessel of Class 3A. All of this indicates a 2nd-century date for the assemblage.
Assemblage 7 (Fig. 7). From the fill of the gully sealed beneath gravel floor 503 (context 511).
The four sherds from this context include two large, fresh fragments from the following vessel:

10. Developed beaded and flanged bowl of Type 5B–4 in polished black Fabric A without applied black/white slip. Ext. rim diameter 160mm. This bowl type with well-developed flange and applied slip was formerly dated to *c* AD 270–350 but is now thought to have a somewhat shorter date-range of *c* AD 270–330. The form without applied slip has, on the evidence of the pottery assemblage and coin from context 506, a similar date range. The four sherds also include a rim fragment from a Type 1–31 jar.

Assemblage 8. From the fill of posthole 509.
This feature also produced four potsherds, including a 2nd-century rim fragment from a Type 1–28 cordoned jar. The small amount of pottery is insufficient for precise dating of the feature and could all be residual.

Assemblage 9 (Fig. 7). From the grey, ashy soil of waster dump AH12 (context 506).
This is perhaps the most significant pottery assemblage from the site, in that it is independently dated by a coin of Constantine I dated *c* AD 321–4 and in almost mint condition (see below). The dumped waste produced 103 fresh sherds (3410gm) of pottery of late 3rd to early 4th century character. Amounts of pottery are too small for quantification by EVEs but the assemblage includes large fragments from the following pots:

11. Rim sherd from Class 3C jar in grey Fabric A. Another example in coarse Fabric C is also present, as are two everted-rim fragments from cooking-pots of Type 3B–10.

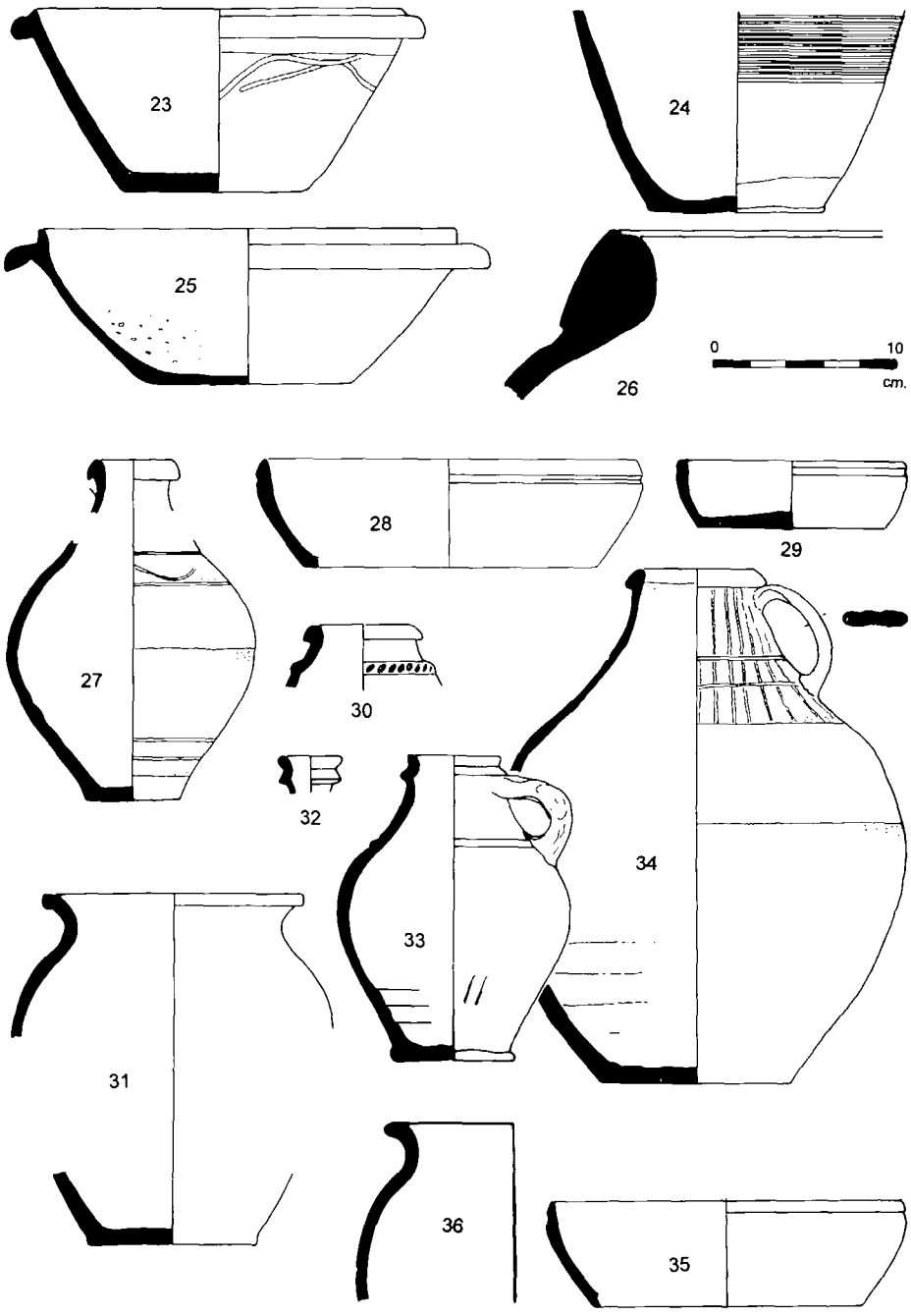


Fig. 8 Abbotts Wood, Frith End, Hampshire: pottery drawings 23–36

12. Developed Class 5B beaded and flanged bowl with drooping flange, in black Fabric A. Ext. rim diameter 160 mm.
13. Type 5B–5 bowl variant in grey Fabric A fired black. Ext. rim diameter 160 mm.
14. Type 5B–8 bowl variant in rough-grey Fabric C. Ext. rim diameter 180 mm.
15. Type 5B–6 bowl with applied internal black slip extending over its rim. Another example without applied slip was also present.
16. Class 5B bowl with broad flange and weak bead, in black Fabric C. Ext. rim diameter 180 mm.
17. Another Class 5B bowl variant with a broad flange, in grey Fabric C. ?Ext. rim diameter.
18. Rim from ?Class 5C bowl in grey Fabric A. Ext. rim diameter 160 mm.
19. Rim from straight-sided dish of Type 6A–3 in black Fabric C.
20. Rim from straight-sided dish of Type 6A–13 with internal black slip. Ext. rim diameter 200 mm. *c* AD 270–400+.
21. Small, thick-walled bowl with out-turned rim, in grey Fabric A. Ext. rim diameter 100mm. No exact parallels are known for this rather crude vessel and it may have been intended for the potters' own use.
22. Bead-rimmed bowl rim in oxidized fine-sanded fabric with occasional >1.00mm black and red ferrous inclusions and polished surfaces. Ext. rim diameter 120 mm.

The main significance of this pot group is that it shows continued manufacture of self-slipped vessels alongside black/white slip-decorated versions well into the first decades of the fourth-century. Of the twelve developed beaded-and-flanged bowls present in the assemblage, only one (Fig. 7, no 15) has applied black/white slip; six of the self-slipped bowls are of the AD 270–330 dated 5B–4/5 type with well-developed flange.

Assemblage 10. The pottery from the surface of the gravel floor 503.
Twenty-four sherds of pottery came from the surface of the gravel floor. Most of the few identifiable rim fragments are of the same *c* AD 270–330 date as Assemblages 7 and 9 and include both self and white-slipped versions of bowl type 5B–4. The presence of a black-slipped storage jar rim of Class 1C and of a form transitional between Types 1C–5 and 6 does, however, suggest that occupation within the gravel-floored structure continued well into the second quarter of the 4th century.

Assemblage 11. From the roadside ditch in front of the property (context 512).
The scouring of this ditch exposed a section through the northern edge of waster dump AH12. Seven sherds from forms dating to the period *c* AD 270–350 and including a beaded-and-flanged bowl with well-developed flange came from the western section of the drain and 20 sherds of 2nd to early 3rd century character from the eastern section.

c AD 350–400+

Late 4th century potting activity seems to have been largely confined to the southern part of the area, adjacent to the postulated Roman clay pit and possibly connected with waster dump AH95 (Lyne forthcoming B). Most of the pottery takes the form of complete and nearly complete wasters from the four pits in Trench 10 but further sherds of this date came from post-medieval contexts in Trenches 1, 2 and 3.

Assemblage 12 (Fig. 8). From pit 1010.
This feature produced 72 sherds (2600gm), most of which came from the following four vessels:

23. Developed beaded-and-flanged bowl in grey-brown Fabric A variant with occasional >2.00mm soft grey-brown ferrous inclusions, mica and black carbonised organic matter. There is random wavy-line burnishing on the exterior surface below the flange. Ext. rim diameter 200mm. (Fig. 6, pit 1010, no 1)
24. Lower part of horizontally-rilled Class 3C jar in rough grey Fabric C.
25. Mortarium of Young's Type C100 (1977) in sand-free reddish-brown fabric with a tendency to laminate and lacking its surface. Ext. rim diameter 220mm. It is possible that this vessel represents an attempt by the Alice Holt potters to imitate an Oxfordshire Red Colour-Coat product but the multi-coloured quartz trituration grits are macroscopically indistin-

guishable from those used in the mortaria produced by that industry. *c* AD 300–400+

26. Rim from large storage-jar of Type 1C–6 in fabric similar to that used for the bowl from this pit (Fig. 7, no 20). Ext. rim diameter 360mm. *c* AD 350–400+

Assemblage 13 (Fig. 8). From pit 1020.
This feature produced 138 sherds (1476gm) of pottery, most of which comes from four wasters:

27. Flagon of Type 8–14 in grey Fabric A with white-slip band and burnished decoration and minus its handle. Cheese-wiring whorls on the underside of its base have been largely wiped away. Ext. rim diameter 40mm. *c* AD 270–400+. (Fig. 6, pit 1020, no 4)
28. Convex-sided dish of Type 6A–9 in medium-grey Fabric A. Ext. rim diameter 200mm. *c* AD 330–400+. (Fig. 6, pit 1020, no 1)
29. Similar but smaller dish in underfired biscuity brown Fabric A with internal white slip. Ext. rim diameter 120mm. (Fig. 6, pit 1020, no 3) Two further complete dish bases in grey Fabric A are also present (Fig. 8).
30. Rim from flask of Type 1B–6 in brown Fabric A fired rough-grey with stabbed neck cordon. Ext. rim diameter 60mm. *c* AD 330–400+. (Fig. 6, pit 1020, no 5)

The pit also contained a fragment from a storage-jar of either Class 1C or 4.

Assemblage 14 (Fig. 8). From pit 1030.
A total of 141 sherds (1744gm) came from this feature and in particular from two complete jars and a flagon:

31. Hook-rimmed jar of Class 3C without body rilling in grey Fabric A. Ext. rim diameter 140mm. (Fig. 6, pit 1030, no 3)

A similar but heavily distorted waster jar in vitrified blue-grey Fabric C and with horizontal rilling over the upper two-thirds of its body was also present in the pit. (Fig. 6, pit 1030, no 1)

32. Part of a flagon of Type 8–13 in grey Fabric A with triple-reeded handle. Ext. rim diameter 35 mm. *c* AD 270–420.

Rim fragments from a small everted-rim jar and the base of another were also present. (Fig. 6, pit 1030, no 2)

Assemblage 15
(Fig. 8). From pit 1040.
This pit yielded 231 sherds (3188gm) largely derived from the following vessels:

33. Small flagon of Type 8–13 in brown Fabric A fired patchy black/grey/brown. Ext. rim diameter 50mm. This vessel is a little unusual in having an ill-defined neck and more of a tankard profile. It does not seem to have ever had applied black/white slip. (Fig. 6, pit 1040, no 1)
34. Large flagon of Type 8–14 in grey Fabric A with white slip and burnished decoration. Ext. rim diameter 80mm. *c* AD 270–400+. (Fig. 6, pit 1040, no 3)

The lower part of another, underfired, flagon was also present. (Fig. 6, pit 1040, no 5)

35. Convex-sided dish of Type 6A–10 in grey Fabric A with the surface flaked away. Ext. rim diameter 190mm. *c* AD 330–400+. (Fig. 6, pit 1040, no 4)
36. Upper part of jar of Type 3B–13 in grey Fabric A. Ext. rim diameter 140mm. *c* AD 270–400+. (Fig. 6, pit 1040, no 6)

The residual Roman pottery from trenches 1, 2 and 3

All three trenches yielded Roman pottery assemblages from contexts which also produced post-medieval sherds.

The thirteen abraded Roman sherds from the topsoil in trench 1 and the 163 sherds from context 102 immediately below and above the natural clay consist very largely of 3rd to 4th century material, although a calcined-flint tempered Iron Age to AD 60 sherd and 1st to 2nd century fragments are also present. Most of the Roman pottery is of local origin but the assemblage also includes a fragment from a Dressel 20 olive oil amphora.

The topsoil in trench 2 and layers 202 and 203 beneath produced a further 34 abraded Roman sherds of 4th-century date and largely made up of storage-jar fragments.

The ten sherds from trench 3 are also all of 4th century date and include a rim fragment and two body sherds from a large Type 1C–6 storage jar, a flagon rim of Type 8–14 and a horizontally-rilled body-sherd from a Class 3C jar.

The post-medieval pottery

All the post-medieval pottery, apart from a couple of 19th century or later sherds, came from trenches 1, 2 and 3 on the south side of the site, within the area covered by the original 17th century assart from the edge of Alice Holt forest and the garden of the cottage built thereon. Most of the pottery is datable to the 18th and 19th centuries; few parallels for the earthenwares which make up much of this material could be found because of the lack of published post–17th century wares from local sites.

The largest post-medieval assemblage comes from trench 2 (contexts 201–204) and includes part of the base of a salt-glazed tankard of 18th/19th century form, a porcelain saucer without well (*c* AD 1800–1820) and a Westerwald tankard fragment. The Border Ware whitewares include an example of Pearce's wide bowl Type 72 (1992) with internal apple-green glaze and probable late-17th century date, and a flanged dish of late-16th to mid-17th century Type 13, also with internal apple-green glaze.

Red Border Wares include examples of handled bowl Type 95 and a tripod pipkin. Much of the red earthenware is, however, from other sources and includes a handled bowl similar to a mid-18th century example from Reigate (Williams 1982, Fig. 16–287), large pans and other forms.

Other Finds

The Roman Coin by Malcolm Lyne

The following nummus of Constantine I came from a seam of fired clay fragments within context 506:

OBV. CONSTAN TINVSAVG RIC 168
Bust undraped and laureate right
REV. DNCONSTANTINIMAXAVG
around VOT/XX in two lines within laurel wreath
MINT MARK. ASIS followed by arc with rays. Siscia

The coin is dated AD 321–4 and is in virtually mint condition with full silver wash. If one excludes the possibility that the coin had been hoarded for some time after minting, then it must have been lost during the early to mid 320s.

This is the first coin to be recorded from the Alice Holt potteries and, being stratified with an appreciable assemblage of otherwise *c* AD 270–330 dated pottery, is of key importance in the dating of early 4th century wares from the site.

ENVIRONMENTAL RESULTS

Macrofossil report by Peter Murphy: Introduction

Samples received for assessment were from: (402), the basal clayey fill of a ditch including wasters and charred plant material; (702), a similar but darker brown, apparently more humic, clayey deposit, exposed in a test pit, and interpreted as a kiln dump; and 902 (three samples: a-c), from the fill of a roughly oval shallow deposit with a greyish-brown clay loam matrix including fired and unfired clay, pottery and charcoal. Information on fuel sources for the pottery industry was required.

Methods

The samples were air-dried, then immersed in hot water overnight to disaggregate. Charred plant remains were subsequently separated by manual flotation/washover, using a 0.5mm collecting mesh. The non-floating residues were wet-sieved on the same mesh. The dried flots were scanned under a binocular microscope at low power. The flots were composed largely of charred plant material, though fibrous roots, leaf fragments and uncharred fruits/seeds (of Chenopodiaceae, *Euphorbia helioscopia*, Poaceae and *Ranunculus acris/repens/bulbosus*) were also present. These are all assumed to be modern contaminants.

Table 3 Charred plant remains: samples

Context no.	*402*	*702*	*902 (a)*	*902 (b)*	*902 (c)*
Cereals					
Avena sp (awn fragments)			xxx	xx	xx
Hordeum sp (caryopses)			x	x	
Triticum sp (caryopses)	x	xx	x	xx	x
Triticum sp (glume bases)	x	xx	xxxx	xxxx	xxxx
Triticum sp (rachis internodes)			xx	xx	xx
Triticum sp (spikelet bases)			xxx	xx	xx
Triticum *dicoccum* Schubl. (glume bases)			xxxx	xxx	xxx
Triticum dicoccum Schubl. (spikelet forks)			xx	xx	xx
Triticum spelta L (glume bases)	xx	xxx	xxxx	xxxx	xxxx
Triticum spelta L (spikelet forks)			xx	xx	
Triticum spelta L (rachis internodes)		x	xx	xx	xx
Cerealia indet (caryopses)	x	x	xx	xx	xx
Cerealia/Poaceae (culm fragments)	x				
Cerealia/Poaceae (culm nodes)			x		
Herbs (grassland/weeds)					
Arrhenatherum elatius (L) Beauv. ex J and C Presl. (swollen basal internodes)	xx		x		
Asteraceae indet.				x	
Avena sp		x			
Bromus mollis/secalinus			x		
Carex sp		x			
Euphorbia helioscopia L	x				
Galium aparine L		x			
Medicago-type			x		
Montia fontana subsp chondrosperma					x
Poaceae indet		x	x	x	
Persicaria sp			x		
Ranunculus acris/repens/bulbosus					x
Rumex sp		xx	x		x
Tripleurospermum inodorum (L) Schultz-Bip.				x	
Vicia/Lathyrus sp	x				

Table 3 (cont.) Charred plant remains: samples

Context no.	*402*	*702*	*902 (a)*	*902 (b)*	*902 (c)*
Trees/shrubs					
Prunus spinosa L (fruitstone fragment)		x			
Quercus sp (terminal buds on twig)	x				
Other vegetative material					
Root fragments	x	x	x	x	x
Rhizome fragments	x	x	x	x	x
Charcoal (a)					
Corylus sp (roundwood)	1				
Ericaceae indet.				1	
Pomoideae indet	1		2	1	
Pomoideae indet (roundwood)			1		
Prunus sp (roundwood)		2			
Quercus sp (roundwood)	2	3			
Quercus sp (mature wood)	9	4	1	3	5
Quercus sp (root?)		2			
Quercus/Castanea sp (roundwood)	2	2			
Ulex/Cytisus (roundwood)				3	
Bark		1	1	3	
Indeterminate		1	6	7	4
Sample weight (kg)	3.7	6.3	3	3.6	3.5
Flot volume (ml: approx)	60	150	50	60	40
% flot scanned	100	50	50	50	50

Note: 902 (a–c) samples taken from three separate area within the feature

From samples 402 and 702, 15 charcoal fragments >6mm were identified, whilst all charcoal >6mm was identified from samples 902 a–c. Fruits, seeds and cereal remains were identified by comparison with modern reference material, and Schweingruber (1978) was followed for charcoal identification. A few young twig fragments did not show clearly developed rays, and could be of either oak or chestnut (*Quercus/Castanea*), but only oak was positively identified. Nomenclature follows Stace (1991).

Results

Charred plant remains from the samples are listed in Table 3. The samples included abundant charred cereal chaff (mainly of spelt wheat, *Triticum spelta* with, (in 902), emmer wheat,

Table 4 Pollen analysis: samples

Abbotts Wood		*F 700/702*		*Layer*
Depth (cm)	0	2	5	505
Trees/Shrubs				
Betula	+	+		
Corylus-type		+	+	+
Fraxinus	+			
Quercus	+	++	+	+
Crop plants				
Cereal-type		+	+	+
Herbs				
Apiaceae (indet.)		+	+	+
Aster-type	+	+		
Chenopodiaceae		+		
Lactuceae		+	+	+
Lamium-type			+	
Plantago lanceolata	+		+	
Poaceae	+	+	+	+
Ranunculus-type			+	+
Rumex indet.				+
Ferns				
Polypodium			+	+
Pteridium		+	+	+
Microscopic charcoal	+	+	+	+

"++" - More abundant than other taxa

Triticum dicoccum). They also contained some cereal grains, mainly of wheat (*Triticum* sp) but with some barley (*Hordeum* sp), awn fragments of wild or cultivated oats (*Avena* sp), and cereal or large grass culm fragments. Fruits and seeds of crop weeds and grassland plants, swollen basal internodes of the onion couch grass (*Arrhenatherum elatius*), and root and rhizome fragments, were present but rare. Charcoal included *Corylus* sp (hazel), Ericaceae (heathers), Pomoideae (hawthorn group), *Prunus spinosa* (sloe), *Quercus* sp (oak), and *Ulex/Cytisus* sp (gorse/broom). A high proportion of the charcoal examined was of twiggy roundwood; stem diameters could not generally be determined, though 4mm and 10mm twigs of oak were noted.

Discussion

Plainly, assessment of five small samples from one site is not likely to yield data of general application to fuel supplies to the Alice Holt potteries, but it is possible to make some preliminary comments about this site.

It is not unusual to find charred cereal processing waste in contexts associated with Roman industrial activity. There are grounds for thinking that the dense straw and chaff of spelt and other cereals was widely used as fuel in the parching and drying of crops (Van der Veen, in press) and in industrial processes, and that crop-processing by-products were not merely regarded as waste, but were an actively-traded resource. Examples from Eastern England include saltern sites on the east coast (Wilkinson & Murphy 1995; Murphy, forthcoming) and a pottery kiln at Pakenham, Suffolk (Murphy 1989).

It also seems likely that such a long-lived and extensive pottery industry would have had an associated infrastructure of managed woodlands supplying fuel, in the form of wood and/or charcoal. Some felling of primary woodland may well have taken place, but it seems likely that a sustainable fuel supply could have been ensured only by managing local woodlands, by coppicing or pollarding, and using roundwood as the main fuel. In fact, the charcoal from these samples included mature oak wood, but also produced a rather high proportion of roundwood, of hazel, ?hawthorn, sloe and oak, which might hint at the use of some coppice wood. The presence of charcoal of Ericaceae (heather) and *Ulex/Cytisus* sp (gorse/broom) in 902b also implies exploitation of heathland fuel sources.

The abundance of charred basal internodes of the onion couch grass in 702, together with other root and rhizome material, is less readily explicable, though it is possible that these macrofossils represent material that became charred *in situ*, in the ground, due to the locally intense heat produced from the kilns.

Future work

Full analysis and quantification of the present samples might enlarge the species list somewhat, but is unlikely to add any significant information, nor fundamentally change the interpretation of the samples. They are plainly composed of cereal processing by-products with charcoal from trees and heathland vegetation.

More important, for future reference, is that project briefs and specifications for excavations of other kilns in the area should include reference to large-scale sampling for retrieval of charred plant material, with the aim of investigating fuel supply much more extensively. In particular, detailed quantitative study of charcoal is needed, so as to supply information on the management of woodland and heathland resources.

Pollen analysis by Patricia Wiltshire: Introduction

Soils and sediments from features thought to be associated with Romano-British pottery works were assessed for palynological potential. It was hoped that some information could be provided on the landscape around the site immediately before the kiln dump was deposited.

A test pit cut into Feature 700 revealed the putative late 2nd/3rd century ground surface which lay beneath mixed material (702) interpreted as kiln dump. A Kubiena box sample was taken at the junction of the old ground surface and the overlying sediment. Spot samples were also taken from the layer beneath a Romano-British gravel surface (503). It was assumed that this layer (505) represented the remains of a 1st/2nd century soil overlying the basal Gault Clay.

If the buried soils were polleniferous, a picture of the local vegetation prevailing from 1st–3rd centuries might be gained.

Methods

Three samples were assessed from layer 702, one slightly above the dark palaeosol (0 cm) and two (at 2 cm and 5 cm) from the dark palaeosol itself. Three spot samples from below the gravel surface (503) were prepared but scanning results were combined.

Standard methods were used for concentrating palynomorphs from the soils and sediments (Dimbleby, 1985). Samples were lightly stained with 0.5% safranine and mounted in glycerol jelly.

Preparations were examined with a Zeiss phase-contrast microscope at ×400 and ×1000 magnification where necessary. Every pollen/spore taxon occurring in 10 traverses of each slide was noted. No attempt was made to count palynomorphs.

Nomenclature follows that of Bennett *et al* (1994), Moore *et al* (1991), and Stace (1991). Cereal-type pollen refers to all grains >40.0 mμ with annulus diameters >8.0 mμ (Andersen 1979; Edwards 1989).

Results and Discussion

The results are shown in Table 4. Palynomorphs were relatively sparse in all samples but especially so in the dump material (at 0 cm) in Feature 700. This sample was taken from the base of layer 702. It must be stressed that with so few data, every caveat must be taken in interpretation, but sufficient palynomorphs were found to give a broad picture of the local environment.

Microscopic charcoal was found in all samples but, considering the dark nature of layer 702, it was not as abundant as was first expected. It would seem that the dark colour of layer 702 was largely due to soil humic residues rather than to charred material.

The palynomorph assemblages from both layers 702 and 505 were broadly similar, and no conclusions could be made as to their contemporaneity. The results show that the site itself was open, with weedy grassland and possibly bare, disturbed ground in the immediate vicinity. However, tree pollen was frequent, with *Quercus* (oak) being the most commonly recorded woody taxon and *Corylus*-type (hazel also being relatively abundant. *Betula* (birch) and *Fraxinus* (ash) were also found but at very low level.

Cereal-type pollen was in both layers 702 and 505, and this is not surprising since so much cereal-processing waste was found in the macrofossil assemblage (Murphy 1998). As Murphy points out, there is considerable evidence for cereal straw and chaff being used as fuel in antiquity and, indeed, it has been found associated with a Roman pottery kiln in Suffolk. Residual cereal pollen adheres to both the grain and processing waste and could easily have become secondarily deposited in soils surrounding the area of industrial activity.

Murphy also showed that oak and hazel were used as fuel at the site, as well as *Ericaceae* (eg heathers), *Prunus* (eg sloe), Pomoideae (eg hawthorn) and *Ulex* (gorse). Heathers and gorse would have been readily available on nearby Greensand soils and both provide excellent kindling. Furthermore, gorse burns with a particularly intense heat and, in Surrey and other counties, was traditionally managed as a fuel source for ovens (Grieve 1992). Gorse and members of the Rosaceae family (eg sloe and hawthorn) are insect-pollinated and very poorly dispersed so it is not surprising that they were not represented in the pollen record at Frith End.

Because only young twigs were present, Murphy found it difficult to distinguish the wood of oak from that of *Castanea sativa* (sweet chestnut), but the pollen grains of these taxa are easily separated. Sweet chestnut pollen is moderately well dispersed and might be expected to have been represented if it had been growing in the catchment. Furthermore, since the first records of this tree are from Romano-British and Roman sites, and may have been derived from imported timber (Godwin 1975), it is less likely to have been abundant enough to provide substantial amounts of fuel. The relative abundance of oak pollen indicates a close proximity of the tree to the site. Other indicators of woodland might be *Polypodium* (polypody fern) and *Pteridium* (bracken) since both are associated with acid woodland. However, bracken may also have also been used as fuel along with heather and gorse, or its spores might have been secondarily deposited from other plants brought from areas of heathland vegetation.

Hazel is a highly prolific pollen producer with excellent dispersal, and its lower frequency than oak at Frith End might suggest that either it was growing some distance from the site, or that its flowering was compromised by coppicing. This would agree with Murphy's findings and conclusions.

Conclusion

Combining the palynological results with Murphy's findings it is possible to say that oak,

hazel, rosaceous shrubs, heather, gorse, cereal-processing waste, and possibly bracken were used as fuel for the pottery kilns. The good representation for oak and poorer record for hazel suggests that the former was growing close to the site, but that the latter was either growing some distance away, or was being coppiced, as is suggested by the macrofossil record. Active management of stands of trees and shrubs was probably supplemented by collection of gorse and heather from heathland areas in the vicinity. The immediate site appears to have been open and supported weedy grassland.

Further Work

The palynomorph concentration was low in all the samples. However, when combined with macrofossil data, even sparse palynological results can enhance information about ancient industry. It is important, therefore, that palynological analysis be considered when such archaeological sites are excavated.

GENERAL DISCUSSION

The work at 'Abbotts Wood' has confirmed the use of the area by potters throughout the Roman period. There is also evidence for the existence of a substantial Roman building somewhere in the vicinity, which, of course, may or may not be connected directly with the pottery industry itself. The presence of a Roman road and clay pits in the field immediately to the south only adds to the picture of heavy exploitation of the area at this period.

Equally interesting is the fact that, although each kiln on the site appears to have remained in use for a considerable number of years, there seems to have been little, if any, overlap in their periods of operation. This has resulted in a sequence of kilns, which cover virtually the whole of the Roman period. The probability is that at any one time, only a single kiln was in use, at least in this particular area. For a substantial part of the Roman period, the operation of the kilns also appears to have been associated with an area of light workshops. There was no sign of direct domestic occupation and the scatter of bone and oyster shell associated with the later gravel floor probably represents the remains of meals consumed by the potters. In general, however, it should be borne in mind that the area examined was relatively small and the results need to be fitted into a larger overview of the Alice Holt industry before any definite conclusions can be drawn from the data.

The same comment can perhaps be applied to the environmental results, which nonetheless provide the first indications of the fuels used to fire the kilns and indeed for the nature of the local environment during the Roman period. The use of charred cereal waste and the high proportion of small roundwood found associated with the kilns, hints at the presence of arable fields and coppiced woodland, with gorse and heather being brought in as additional fuel from the heathland, which today, lies just over 1km to the south. The site itself appears to have been open weedy grassland with oak wood growing nearby, which was again used as a source of fuel.

The find of a well-preserved coin of Constantine I within the stratified deposits provides the first independent numismatic dating evidence for the pottery sequence within the Alice Holt. It is a tribute to the work of Lyne, that the coin confirms the accuracy of the dating model put forward in his seminal work on the industry.

The find of several pits containing small numbers of complete, or nearly complete, distorted pots, may well represent some form of ritual deposit. Indeed it is hard to think what other motive there could be for such features, as they certainly do not represent the usual ashy waste from kiln firings, such as was found elsewhere on the site.

During the medieval period the Alice Holt forest appears to have extended slightly further south than it does today. Certainly all known medieval kilns lie several hundred metres to the south and the site of 'Abbotts Wood' appears to have suffered no further disturbance after the end of the Roman period, until a house was built on the site in the 17th century. As previously mentioned, little evidence remained of this structure, as terracing work for the construction of 'Woodside Bungalows' appears to have removed all earlier stratigraphy in

the centre of the site. Most of the surviving evidence came in the form of a general scatter of pottery from the 17th century onwards. Though the find of a single livery button with the crest of the Earl of Waldegrave is indeed intriguing – one wonders under what circumstances it was lost.

Further investigation needs to be carried out, particularly in the fields to the south of the site, in order to understand the nature of Roman occupation in this part of the Alice Holt. In the meantime, the results from 'Abbotts Wood' should be seen as forming one piece of the 'Roman' jigsaw puzzle that is being assembled by the work of Lyne and others.

The majority of the finds have been deposited with Hampshire County Museums Service under accession no A1999.48; the landowners have, however, retained the coin and the following pots – from pit 1010: Fig. 8 nos 23 and 25; pit 1020: Fig. 8 no 27; pit 1030: Fig. 8 nos 31 and 32; from pit 1040: Fig. 8 nos 33–35.

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Author: David Graham Stannard's View, Frith End, Bordon, Hants, GU35 0QR