EXCAVATION OF THREE ROMANO-BRITISH POTTERY KILNS IN AMBERWOOD INCLOSURE, NEAR FRITHAM, NEW FOREST

By M. G. FULFORD

INTRODUCTION

THE three kilns were situated on the slopes of a slight, marshy valley (now marked by a modern Forestry Commission drain) which runs south through the Amberwood Inclosure to the Latchmore Brook (fig. 1). The subsoil consists of the clay and sandy gravel deposits of the Bracklesham beds. Kilns 1 (SU 20541369) and 2 are at the head of this shallow valley at about 275 feet O.D. on a south-east facing slope,

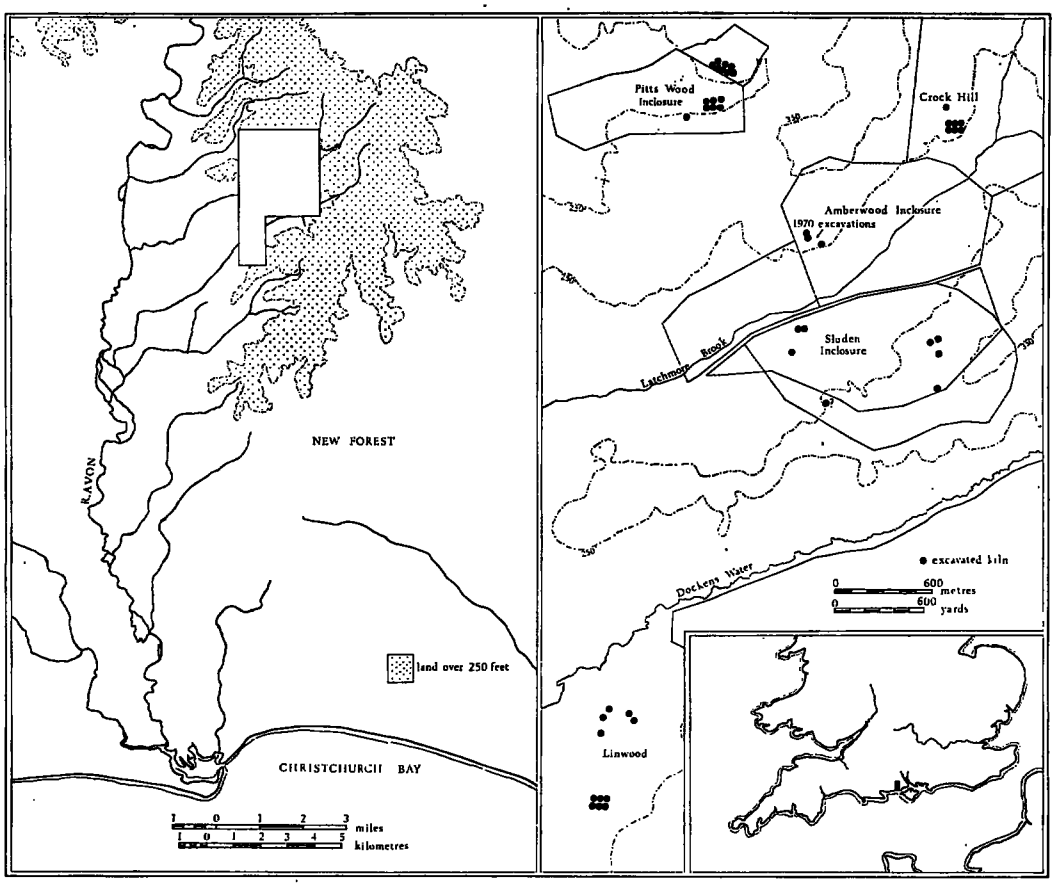

Fig. 1. Location maps to show the Amberwood and other Romano-British kilns in the New Forest.

while kiln 3 (at SU 20631360) is some 100 metres to the south on the eastern side of the valley at 250 feet O.D.

Previous work in the New Forest does not record any kiln in the Amberwood Inclosure. A hoard of coins was found (Akerman, 1853) in this area, but only two of the coins are recorded; one of Julian (355–363) and one of Valens (364–78). Sumner (1927) records finding a quern-stone and pottery at about SU 20701383, and Pasmore (1967) lists a series of possible sites within the Inclosure. Other find spots on the map in Sumner (1927, facing p. 85) suggest he may have been the first to find the waste heaps of kiln 1, but kiln 3 was only traced by Mr. A. Pasmore after the withdrawal of timber following the felling of hardwood in 1969–70. Notification that the Forestry Commission intended to plant this compartment of the Inclosure led to a general scanning of the area by Mr. A. J. Clark of the Department of the Environment with the automatic fluxgate gradiometer which pinpointed two major magnetic anomalies in the likely areas and a third unsuspected large reading (kiln 2). A more detailed survey around one of these (kiln 1) produced further magnetic indications suggesting probable gullies parallel to the main anomaly. Nothing comparable was detected in the general neighbourhood of the other kilns. It is probable that all magnetic anomalies were detected in the general survey of the felled area extending about 100 to 150 metres east and west of the valley bottom.

It was also hoped that possible traces of occupation might have been detected outside the immediate environs of the kilns, but investigation of anomalies and systematic trial trenching on higher ground east and west of the valley bottom proved negative.

In view of the replanting, excavation of the three supposed kilns was carried out by kind permission of the Forestry Commission and completed in September 1970,

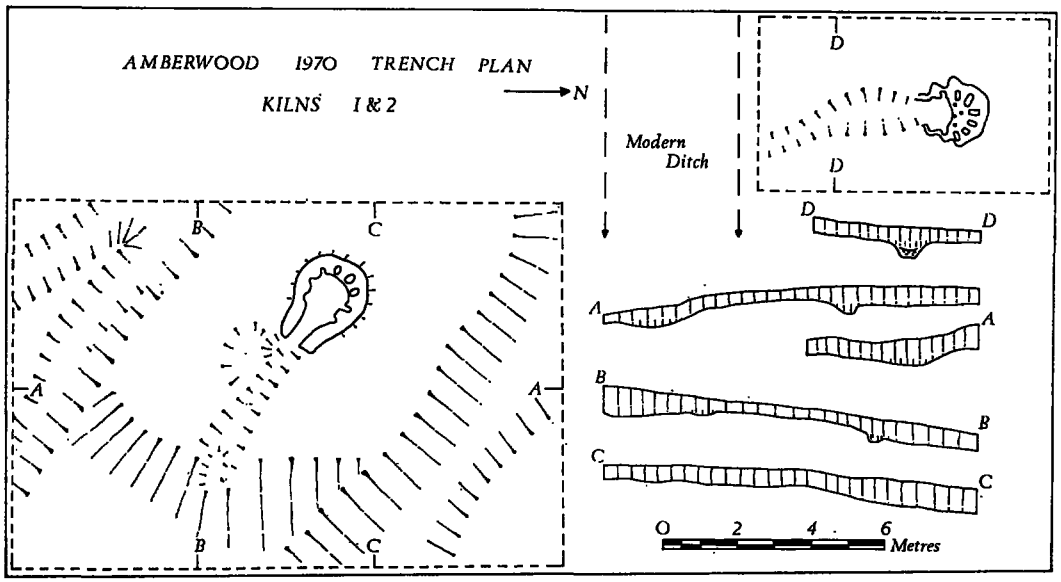

Fig. 2.

with the aid of a grant from the Department of the Environment. The success of the excavation was due in particular to the help of Miss S. Andrews, Mr. C. Gould and Mr. B. Yule. The University of Southampton generously provided equipment and Mr. R. Pryor very kindly lent a calfdozer. I am particularly indebted to Miss J. Holdsworth who drew the greater part of the pottery.

Description of Kilns

Kiln 1

A total area of 150 square metres was excavated around this kiln (fig. 2) to examine all the magnetic anomalies and to provide as large a sample of the products of the kiln as possible. Excavation confirmed the gradiometer survey results by revealing a pair of parallel shallow gullies (0·5–1·5 m. wide, averaging 30 cm. deep), running on the same alignment as the kiln and flanking it. Apart from the top layer (about 5 cm. thick) of leaf mould, the soil over and around the kilns was brown and sandy in texture, and was full of small sherds of pottery. Towards the natural subsoil the density of pottery increased and in the gullies there was practically nothing but small abraded sherds.

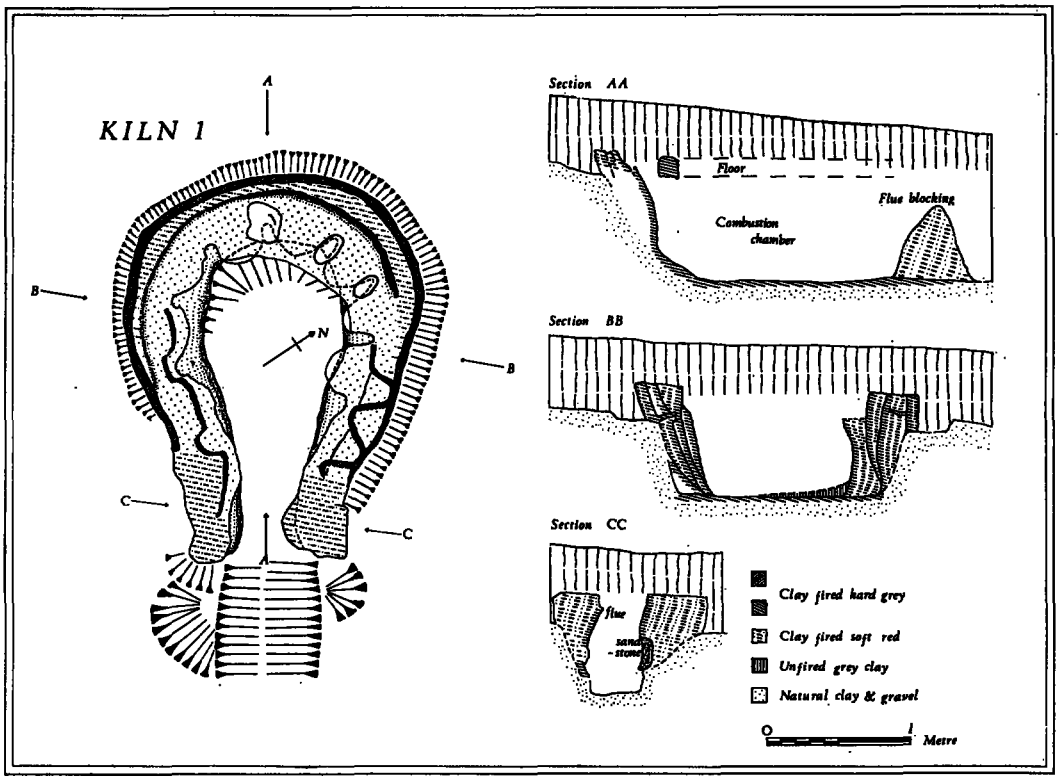

Fig. 3. Romano-British pottery kiln, Amberwood, New Forest.

The kiln (fig. 3) was orientated north-west – south-east and consisted of a combustion chamber with floor above, originally at ground level. The former had been made by digging a hole about 2·6 m. by 1·7 m. and 0·65 m. deep and lining it with clay. The sides were moulded inwards at regular intervals as 'pilasters' to provide support for the floor, with gaps between each to act as vents. Then the first floor (little of which has survived – see section fig. 3) was fired into place. It, too, was made of clay, presumably around a wattle frame, traces of which were found in the broken fragments of the floor.

During its life the kiln was altered or repaired on several occasions: the combustion chamber was patched by working lumps of clay on to the wall surfaces, so that the volume of the chamber was apparently much reduced; the oven floor seems to have been replaced after an interval, during which waster material had accumulated around the kiln to a depth of about 15 cm. Enough of this floor had survived to show an outer set of sub-rectangular vents, alternating with the pilasters, and an inner series of small circular holes. The dimensions of the kiln in its final state were 2·4 m. by 2·0 m. at floor level. All the inside surfaces of the kiln had been reduced to a dark grey colour by firing.

The kiln was filled mainly with the collapsed remains of the last floor and contained very little pottery. The jug (fig. 8, no. 17.4) was found intact, wedged upside-down in one of the outer vents. The filling was consistent throughout except at the bottom where there was a considerable amount of ash. Judging by the small quantity of pottery and its generally abraded nature, the products of the last firing must have been retrieved largely intact. The abandonment of the kiln will then not necessarily have been due to the collapse of the floor during firing. The evidence of previous alteration suggests that this kiln was already old and its further maintenance may not have been thought worthwhile. The flue was lined with heath stone and filled with a mass of soft, red-fired clay and pottery sherds, which seem to have acted as a simple form of blocking to control the draught, and thus the temperature, during firing. This was a feature of all three kilns. There were also signs of wear at the bottom of the flue (see fig. 3, section CC). A narrow stokehole, 4·4 m. long, led away from the flue. Its function seems to have been to drain, as much as to facilitate the working of the kiln. It was filled with a mass of tightly packed sherds, small lumps of yellow clay, and earth.

Kiln 2

This kiln (fig. 4) was sited about 13 metres to the north of kiln 1 (see fig. 2 for relationship). Its orientation was north to south with the stokehole (4·2 m. long) leading out to the south and curving away slightly to the south-east to take advantage of the slope. A layer of brown, sticky clay, with lumps of reddish clay covered the oven floor and surrounding natural to a depth of 10–15 cms. only. The structure was very similar to that of kiln 1 and had also undergone alterations. The dimensions of the combustion chamber were 1·7 m. by 1·3 m. and 0·75 m. deep. The walls and roof, i.e. the underside of the floor, had been fired to a hard grey finish, while the upper surface of the floor was fired to an orange-red colour and was relatively soft. The appearance of this clay was very close to that of the surrounding natural material. As with kiln 1 there were pilasters alternating with vent-holes in the oven floor. A new floor was subsequently

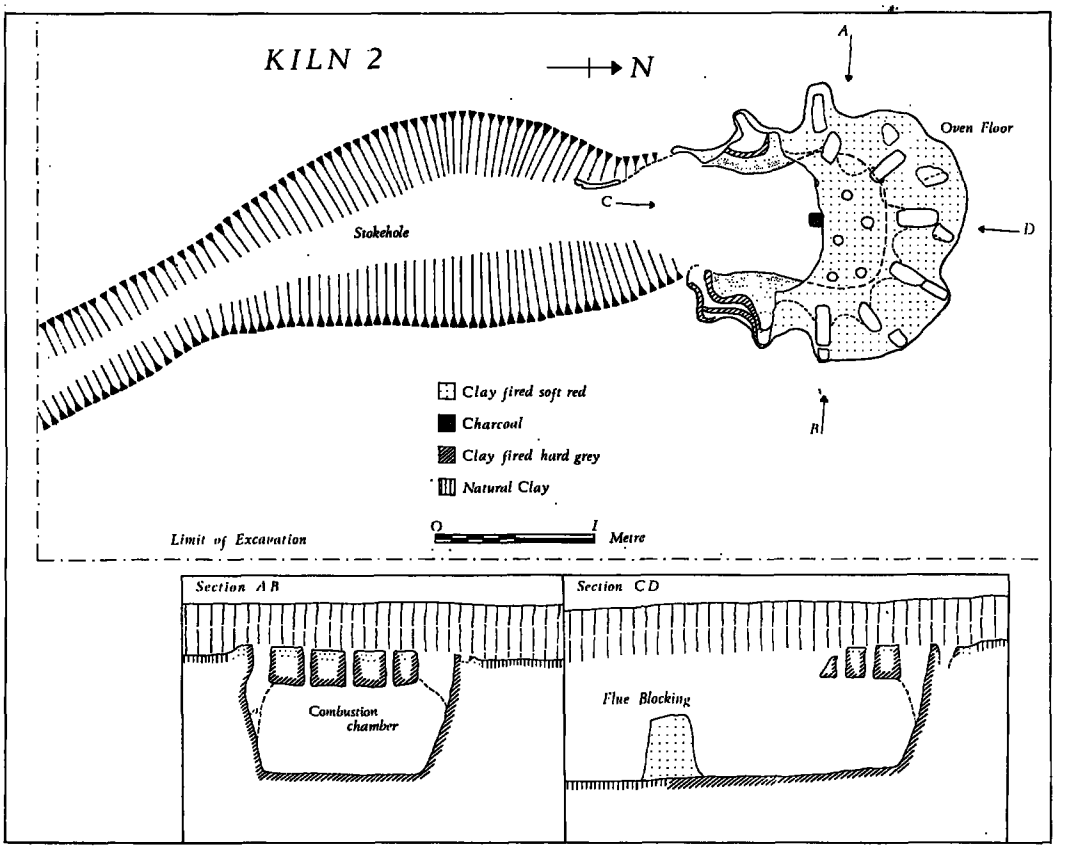

Fig. 4. Romano-British pottery kiln, Amberwood, New Forest.

added by blocking up the outermost ring of vents and using them as pilasters, while a new set of subrectangular vents was made inside them. These were 17 cm. by 6 cm. and surrounded a series of circular vents, 5 cm. in diameter. In the middle of the combustion chamber floor was a charred timber, 8 cm. square in plan, which may have supported the oven floor in its pre-fired stage. The flue, like kiln 1, was lined with heath stone and blocked with lumps of soft, red-fired clay and wasters, interleaved with spills of ash.

The kiln was filled with a silty grey-brown clay and occasional lumps of orange-red, burnt clay, in the 35 cm. below the oven floor. Presumably this material had been washed in by the small stream running through the valley. Below this, to a depth of 47 cm., was a very similar layer but with more fragments of broken floor and lumps up to 10 cm. in diameter of soft, orange clay. The bottom 8–10 cm. were filled with ash and wasters. The stokehole filling resembled that of the combustion chamber, except for the bottom 10–15 cm., which were full of ash, charcoal and half-fired wasters. Two metres from the flue the ash died away and the fill was largely silty clay and wasters.

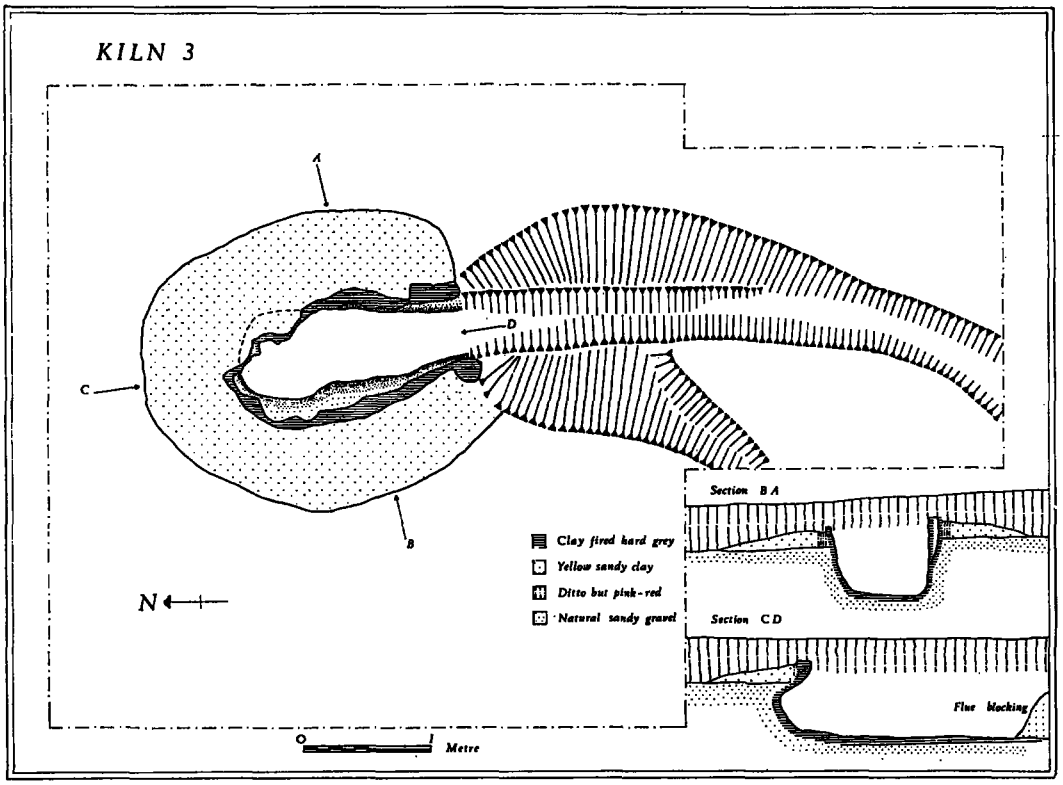

Fig. 5. Romano-British pottery kiln, Amberwood, New Forest.

Kiln 3

The third kiln (fig. 5) lay about 100 m. to the south of kiln 1 on the eastern slope of the valley with its stokehole (4·2 m. long) pointing at first to the south and then following the line of the slope to the west. The structure lay under about 30 cm. of soft loamy brown soil full of broken wasters. Three nearly complete beakers (fig. 6, nos. 4, 2–3) were found in this layer. The brown soil lay on a bed of yellow-grey sand, about 20 cm. deep, which covered a zone a metre wide around the kiln, but beyond this the soil lay directly on the natural subsoil of sandy clay and gravel. It is difficult to understand the purpose of this sand around the kiln, but it may have acted as either insulation or support for it.

The kiln itself was 2 m. long by 0·8 m. broad, lying in a pit dug 55 cm. into the natural. Whereas kilns 1 and 2 had been almost pear-shaped, in this structure the sides were almost parallel with a rounded end. The floor, though found as broken fragments in the fill of the combustion chamber, had been supported as in the other kilns. The structure had been fired to a hard, grey, sandy finish throughout.

The combustion chamber had filled with the debris from the floor, some large sherds and lumps of soft-fired red clay. The flue, as in the other kilns, was lined with heath stone and had been blocked with clay, which had fired a reddish colour, sherds

and a sandwiched 3–5 cm. layer of ash and charcoal. These trailed nearly two metres out of the flue. A black, charcoal-rich soil filled the rest of the stokehole.

A further trench, 5 m. by 4 m., was dug lower down the slope to investigate possible features suggested by the gradiometer, but it only produced large quantities of waste material in a soft, dark soil to a depth of 20–30 cm. It lay parallel to the main trench, half a metre to the west and three metres south from the latter's north end.

The Pottery

The pottery from the three kilns has for convenience been treated as one group, although the waste heaps of each were clearly separate. It was hoped that large scale excavation of kiln waste (particularly around kiln 1) might show differences in production over time, but there were no visually distinguishable layers although towards the natural ground surface the sherds tended to become more closely packed. Nevertheless the pottery was recorded by artificially determined 20 cm. levels in a five metre grid. Analysis of the different types after excavation showed that no distributional trends could be detected in the waste heaps, either horizontally or vertically. Consequently it is not felt necessary to list separately the pottery from features such as stokeholes and gullies since this merely represents material washed down from the surrounding heaps.

Altogether 150 square metres around kiln 1, about 40 around kiln 2 and about 50 around kiln 3 were excavated. This probably represents at least one third of the waste of each kiln. Kiln 2 was disappointing in the amount of material recovered, but it has been argued above that the kiln was abandoned after very little use.

Fabrics

There were two basic fabrics from the three kilns:

(*a*) A fine-grained, smooth paste, frequently characterised by inclusions of haematite or limonite, varying from a medium-hard yellow-red or grey to a grey stone-ware. This is the distinctive fine fabric of Amberwood (and of the New Forest generally) which was used for most colour-coated types.

(*b*) A medium-hard, sandy fabric, grey or light-brown, according to whether reduced or oxidised. This fabric is typical of that used for the coarse ware types of the Forest.

A more detailed description of the fabric follows with the type series, where a Munsell Soil Color Chart has been used to describe colours.

Petrology

Heavy mineral analysis (Peacock 1967) was carried out to characterise the clays more objectively and to see how consistent the material used from all three kilns might be and how different the two main fabric types were. The results (Table 1), appear fairly consistent for both kilns and fabric. The high rutile content seems distinctive and may be characteristic of certain New Forest materials, and hence of use to future researchers in the pottery of the region. More work, however, needs to be done on the various kiln groups in the Forest to see how the fabrics relate to one another and to the differing geological beds. (I am indebted to Dr. Peacock for his help with the analyses.)

TABLE 1

Kiln	1	1	1	2	2	3	3
Type no.	28	28	20	11	14	4	28
Zircon	1·8	83·3	64·2	74·2	60·2	63·7	75·4
Tourmaline	0·5	0·8	0·8	—	3·7	—	1·0
Rutile	—	8·0	21·1	8·4	18·3	23·8	14·0
Garnet	—	1·4	2·7	2·0	0·7	6·5	0·5
Kyanite	—	1·4	4·0	4·5	3·2	1·1	2·3
Andalusite	0·5	2·6	1·7	2·0	2·6	1·0	2·8
Epidote	—	—	1·7	2·0	2·6	—	1·0
Anatase	—	1·0	2·2	1·3	0·7	—	0·5
Apatite	—	0·8	0·8	1·3	—	2·8	1·3
Collophane	97·2	—	0·8	3·9	8·0	—	—
				(Percentages)			
Total No. of grains counted	283	498	402	155	465	463	398

DESCRIPTION OF THE TYPES

(1) The 'Colour Coated Wares' (figs. 6 and 7).

Type 1: Jugs – Variants include single, double and triple beaded rims (1.1, 1.2, 1.5), internally cupped rims (1.8), collared rims (1.9) and plain rims with horizontally scored grooves (1.10).

The fabric (A) ranges from a light brown, through a pale yellow to grey (7.5YR5. 5/6; 2.5Y7. 5/4; 2.5Y6; 5/0). The colour coat ranges from a yellow-red to a dusky red and black (2.5YR3. 5/2; 2.5YR5. 5/8; 2.5Y2/0). Hardness varies from medium-hard to a stone-ware finish.

Type 2: Bottles – Variants include either an open (2.3), or a closed nozzle mouth (2.1); single or double handles (2.1, 2.2); or no handle (2.3). Fabric and colour-coat as for type 1.

Type 3: Cup – Fabric as type 1.

Body sherds of types 1–3; decoration of white painted scrolls and spots on a dark brown to black colour-coat. Sherds of this type were rare at kilns 2 and 3 and lacking at kiln 1.

Type 4: Beaker – Variants include indentations on a straight-sided body (4.1), or on a bulbous body with a narrow mouth (4.3), or a bulbous body without indentations. Fabric and colour-coat as for type 1.

Type 5: Flanged Bowl – This type seems to imitate the samian form Drag. 38. The finish of the flange is very variable.

The fabric (A) ranges from a light brown to a pale or reddish yellow (7.5YR5. 5/4; 7.5YR5. 5/6; 2.5Y7. 5/4; very rarely 2.5Y6. 5/0). A stone ware finish is seldom achieved. The colour-coat varies from a reddish yellow to a reddish brown or black (5YR3. 5/3; 2.5YR5. 5/8; 2.5YR2. 5/0).

Type 6: Bowl – Variants include an unbroken profile (6.1) or a slight shoulder below the rim (6.3). Fabric and colour-coat as type 5.

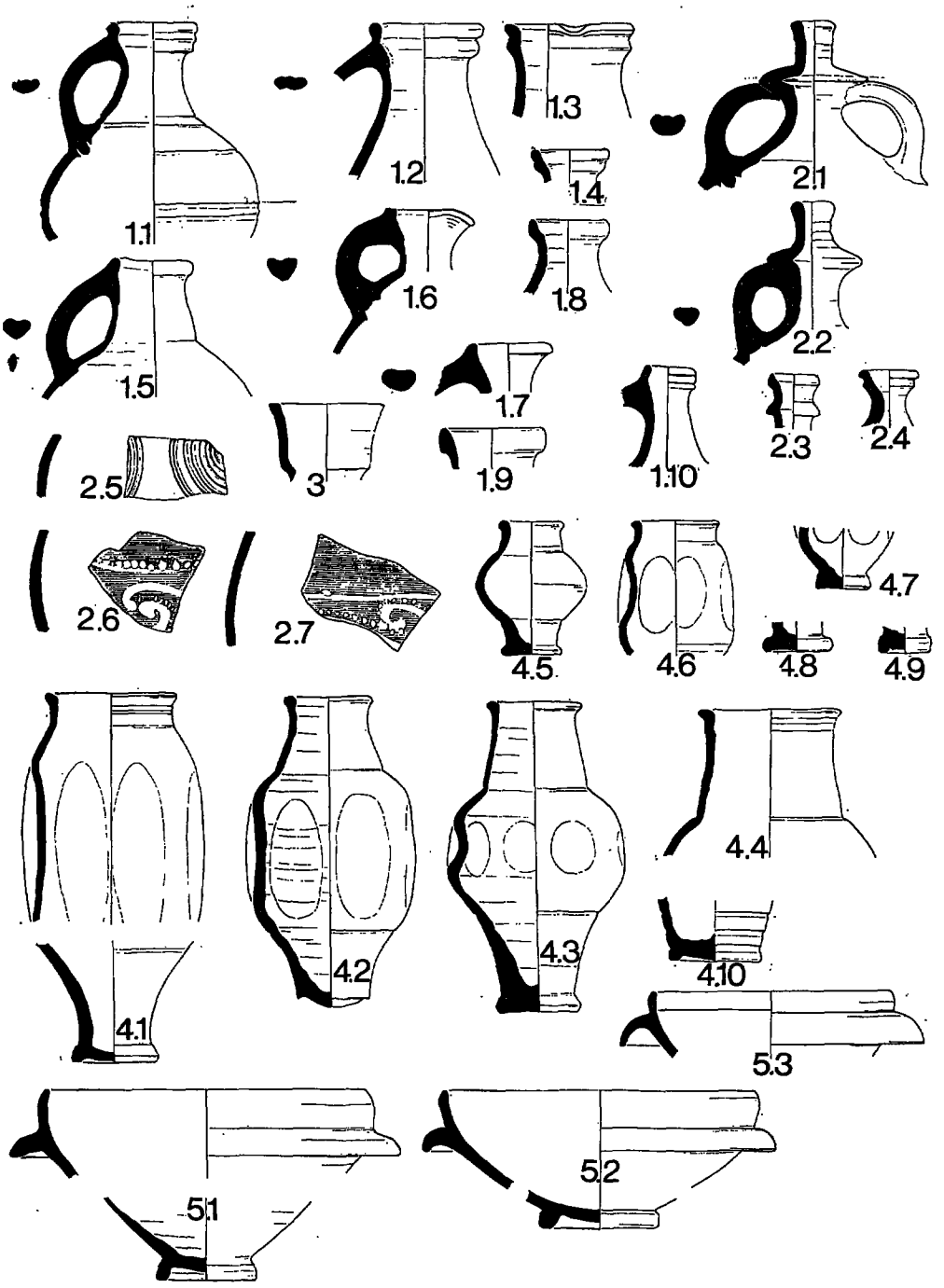

Fig. 6. Romano-British pottery, Amberwood. (Scale ¼)

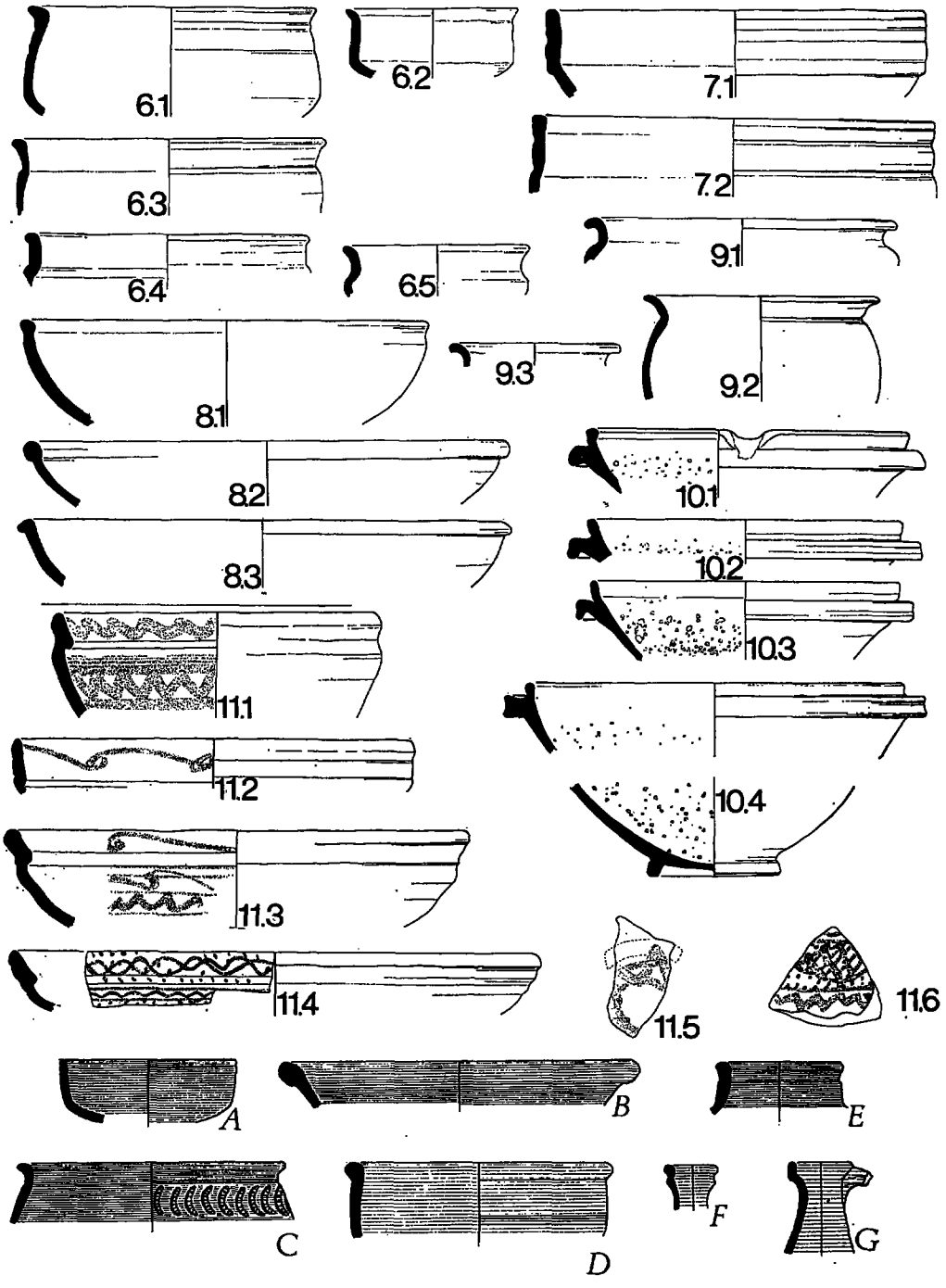

Fig. 7. Romano-British pottery, Amberwood. (Scale ½)

Type 7: Bowl – This type merges into type 6, but there tends to be a sharp carination below a near vertical wall profile with rilled decoration. Fabric and colour-coat as type 5.

Type 8: Bowl – This wide-mouthed bowl is reminiscent of Drag. 31. Fabric and colour-coat as type 5.

Type 9: Jar – Fabric and colour-coat as type 5.

Type 10: Mortarium – The finish of the flange is very variable. Fabric and colour-coat as type 5.

Type 11: Bowl – The stipple represents brown painted patterns inside. The fabric is basically 'A', but perhaps slightly more sanded. The colour ranges from light brown to a pale yellow (10YR4. 5/2 to 7.5YR5. 5/6). Sometimes a white slip is used. The brown paint varies from 10YR3. 5/4 to 5YR. 4/6.

Usually in the Forest this type occurs in a white, very sandy fabric and the Amberwood fabric for this type is not otherwise documented. Presumably the use of the white slip is to reproduce the appearance of the commoner examples, using iron-free clay.

The following sherds were found in the waste heaps of kiln 1, stratified at all levels. Clearly they are strays from other kiln sites in the Forest (except, perhaps, F and G, which could have come from kilns 2 or 3). Their presence suggests that kiln 1 was in operation producing only 'grey wares' at the same time as other kilns were producing colour-coated types. This evidence contradicts the hypothesis of Sumner and Hawkes that the production of 'coarse wares' was an early feature of the New Forest industry. Both sorts of production could have continued together, and, indeed, they did so at the same kiln in Amberwood.

A: *Cup* or small bowl. Fabric 'A' 7.5YR5. 5/4; colour coat reddish yellow 5YR3. 5/3.
B: *Bowl*, imitation Drag. 31. The fabric is hard grey-brown and micaceous and the slip is deep red. This vessel is a product of the Oxfordshire kilns.
C: *Bowl*, similar to 6.1, but with demi-rosette impressions. Probably a product of the Ashley Rails and Pitts Wood kilns.
D: *Bowl*. Fabric 'A', but colour coat black.
E: *Beaker*. Fabric 'A'; slip 2.5YR5.5/8. This type is not the same as the Amberwood beakers.
F: *Bottle, cf.* 2.4. Stoneware fabric.
G: *Jug*, cf. 1.8. Stoneware fabric.

(2) 'The Grey Wares' (figs. 8–13).

The fabric (B) ranges in colour from grey to brown (10YR 3.5/4; 5YR 4.5/1; 5Y 5.5/1). A detailed description for each type is unnecessary.

Type 12: Jar with neck – The rim has been folded out and rilled. Sometimes there is finger nail impression on the rim and an external white slip.

Type 13: Tall jar or 'churn' – With straight, or perhaps slightly rounded walls. The rim is thickened and bent out, sometimes with finger nail impressions below. A white slip also occurs externally.

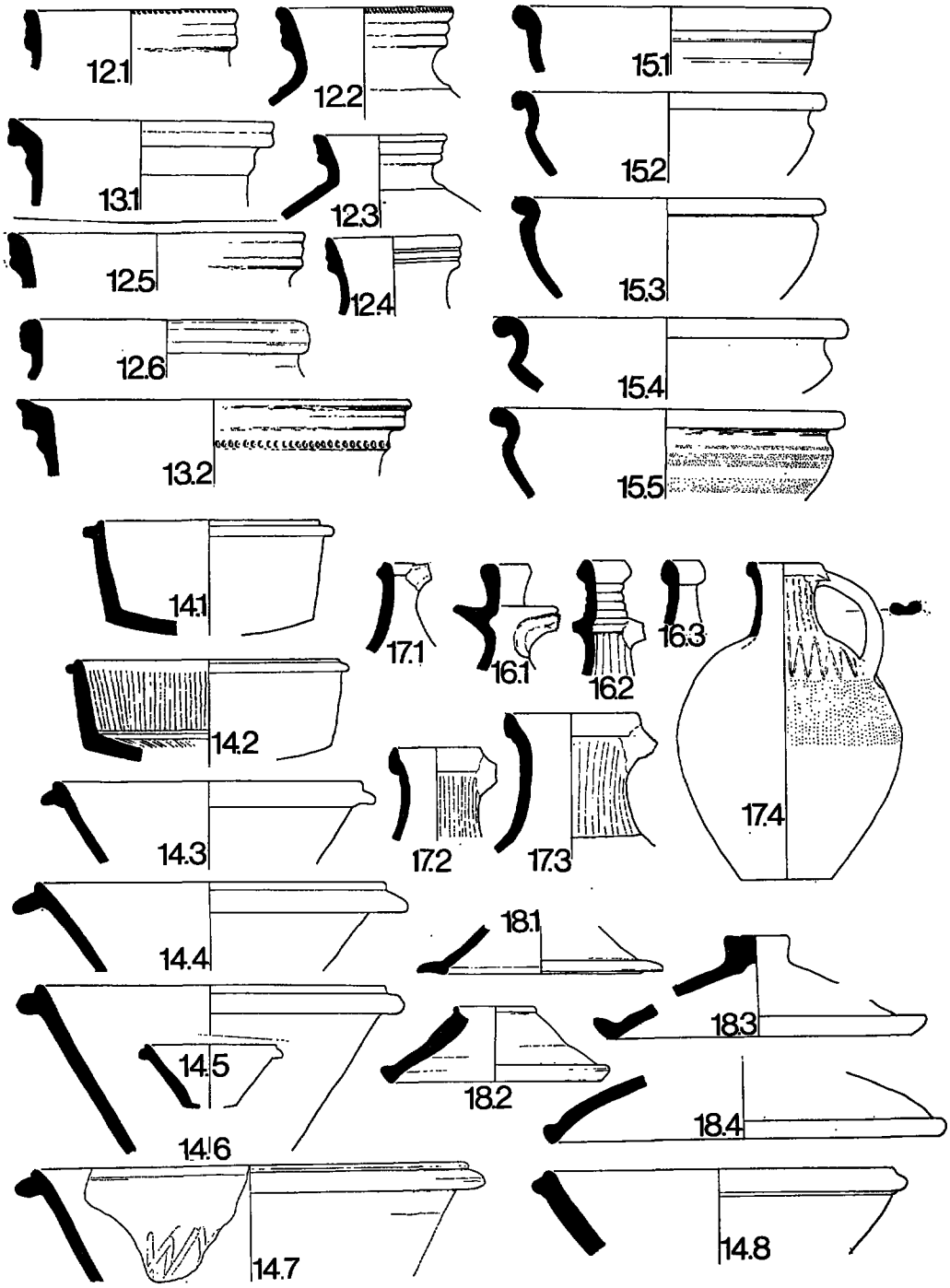

Fig. 8. Romano-British pottery, Amberwood. (Scale ¼)

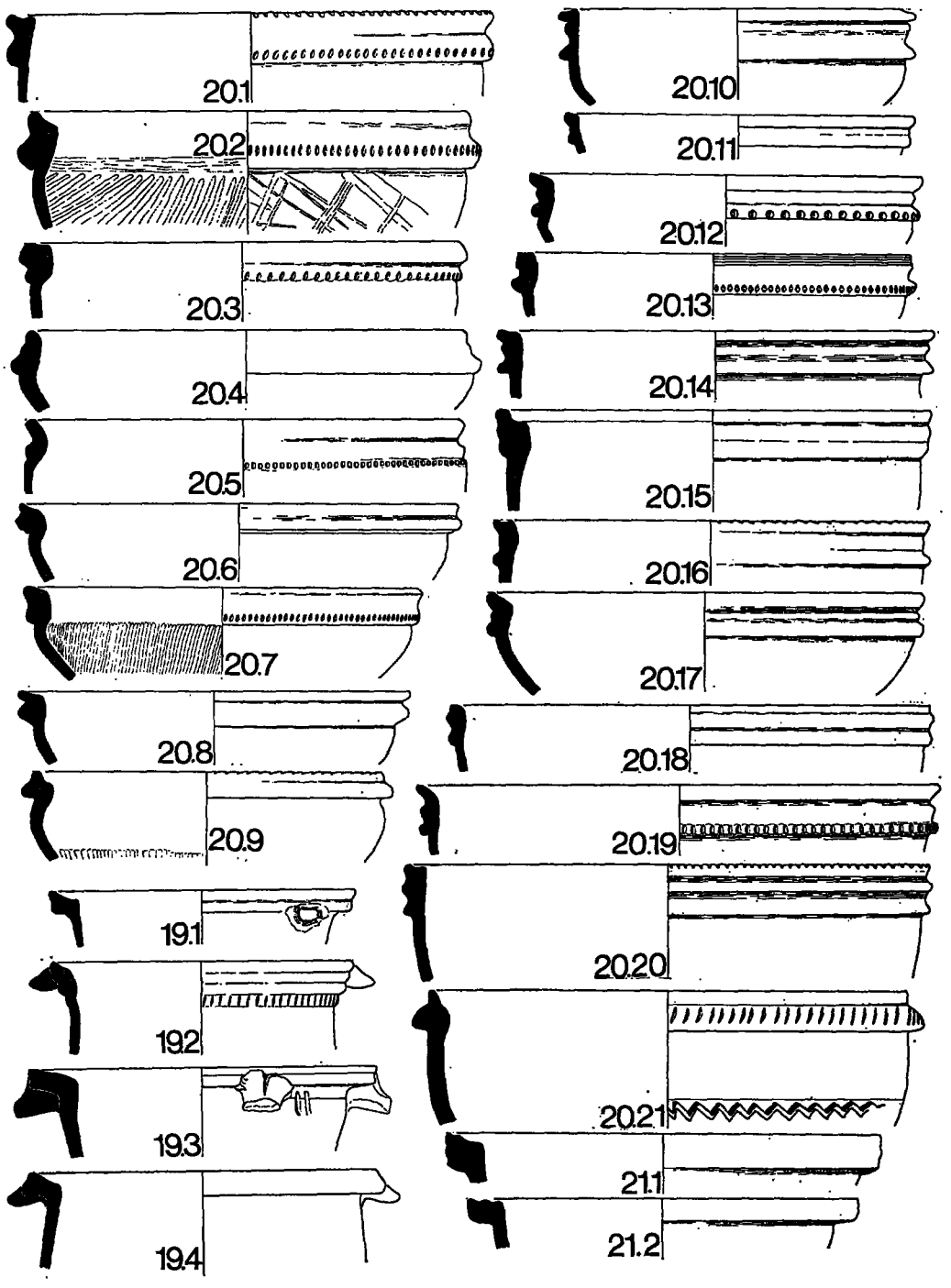

Fig. 9. Romano-British pottery, Amberwood. (Scale ½)

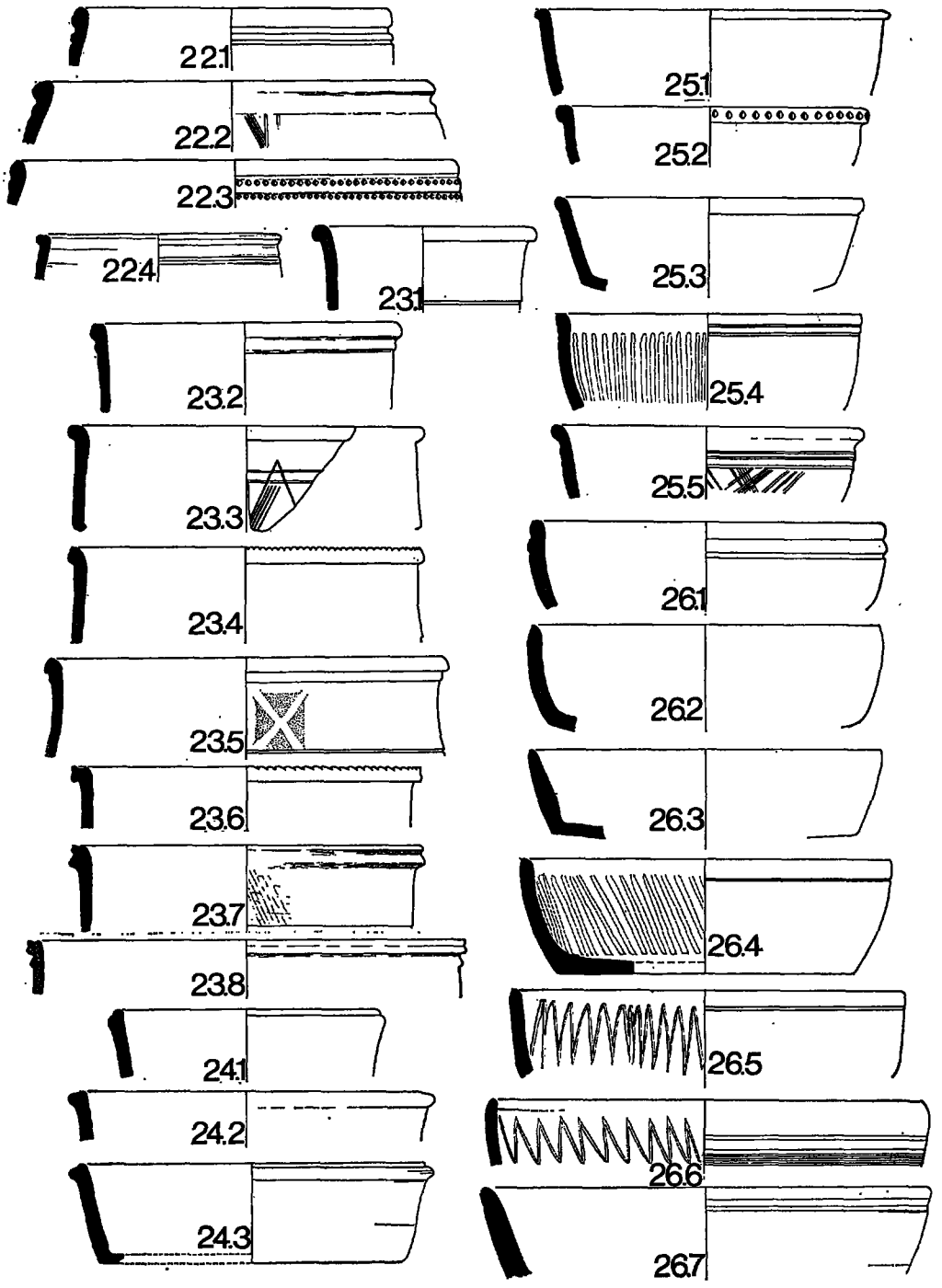

Fig. 10. Romano-British pottery, Amberwood. (Scale ½)

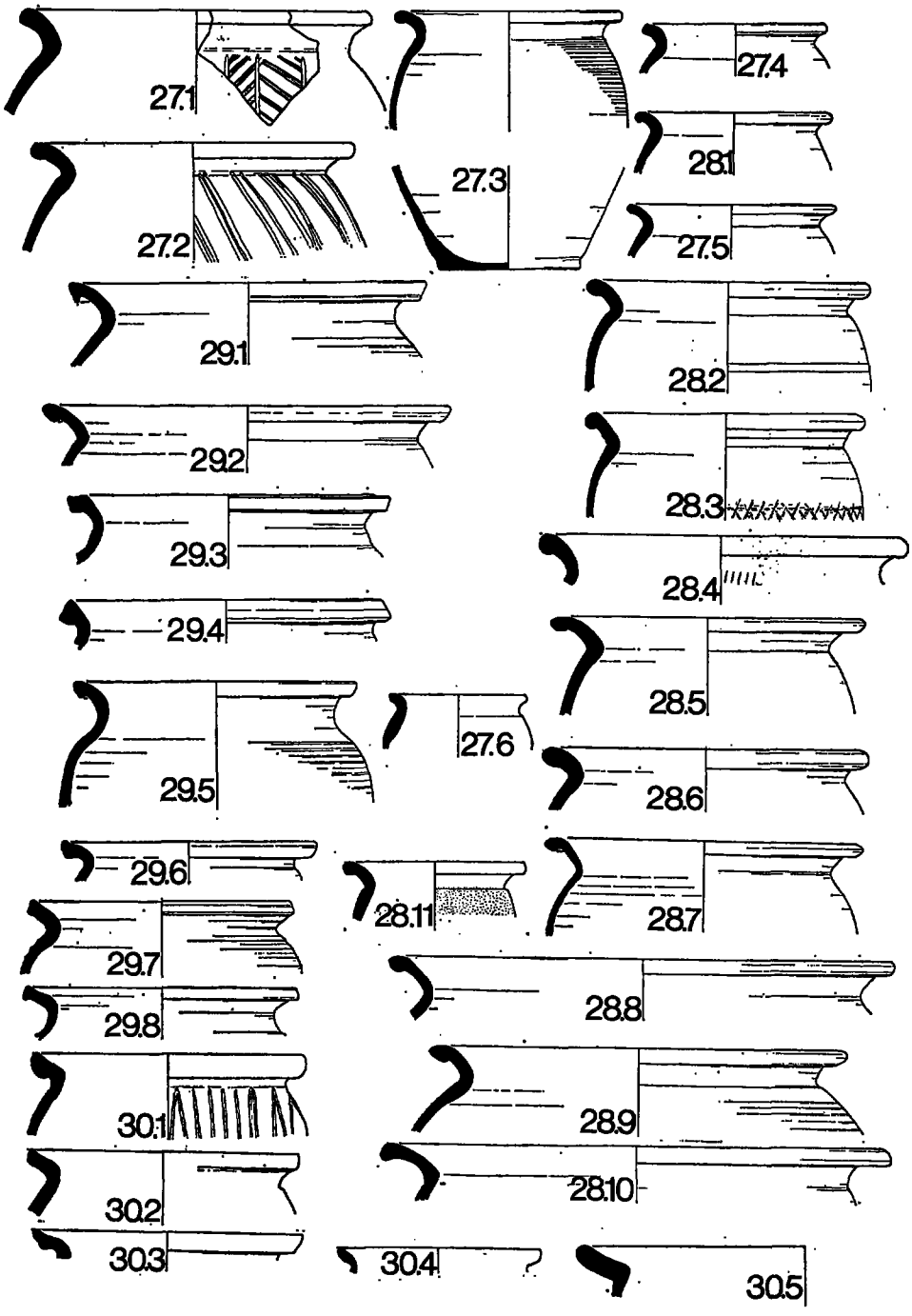

Fig. 11. Romano-British pottery, Amberwood. (Scale ½)

Type 14: Bowl – With flared out walls and flanged rim. Decoration can consist of a white or black slip scored with burnishing strokes (14.2; 14.7). 14.8: Grog tempered, hand-made, not New Forest (Cunliffe 1970, 67–8).

Type 15: Bowl – With reverse 'S' profile, often sharply carinated. White or black all over slips are common, and horizontal stroke burnishing occurs also.

Type 16: Bottle – This type can have either one or two handles, attached to the body, and a flange on the neck. White slip with vertical burnishing occurs.

Type 17: Jug – This type has one handle and a collared rim. The neck and upper half of the body may be decorated with a white or black slip with vertical or zig-zag stroke burnishing on the neck and immediately adjacent part of the body, and a broad band of burnishing between the lower attachment of the handle and the widest girth of the jug (represented by stipple on 17.4).

Type 18: Lid.

Type 19: Tall jar or 'churn' (*cf.* Type 13) – With knobbed rim and slightly baggy profile. External white slip occurs with finger nail impression. Possible batch marks on 19.3, but no other instances.

Type 20: Bowl – With a thick folded out and moulded rim, sometimes cupped for a rim (20.15).

Inside surfaces and the upper half outside are usually covered with a white or black slip, often burnished inside or scratched through outside (20.2). Finger nail impressions on the rim are common and incised wave decoration occurs outside on the body (20.21).

Type 21: Bowl – Form difficult to determine. The rim is outbent and reeded on the horizontal.

Type 22: Bowl – With narrowing mouth. The rim is beaded and decoration occurs below, either rilling, finger nail impressions, or stroke burnishing on a white or black slip.

Type 23: Bowl – With near vertical walls, and probably a sharp carination. The rims are usually plain, but may be decorated with finger nail impression. White or black slips are characteristic, sometimes with linear marks scratched through (22.3), or, as 22.5, where the stipple represents the absence of white slip. Also included in this type are 23.6–23.8 which have a slightly more elaborate rim.

Type 24: Dishes – With lightly flanged rim.

Type 25: Dish or shallow bowl – With flaring out sides and a beaded or pointed rim. A white slip all over is common with burnished or scratched decoration (25.4 or 25.5).

Type 26: Dish – With flared out walls and slightly convex profile. Rounded or pointed rims occur. As on 26.4–6, the inside is often burnished.

Types 27–30: Jars – These everted rim jars have been divided into four main groups according to variation in the finish of the rim. Type 27 has a rim bent over and rounded off; in type 28 the rim is thickened at the end; in type 29 the rim is sharply undercut and nearly triangular in profile; while in type 30 the rim is slightly cupped. No chronological significance should be attached to these variations since all occurred at random in the waste heaps. Most jars appear to have been plain, either with a white slip or a black one and further ornament is rare. Scored lines through a white slip, as on 27.1–2, 30.1, and on fig. 12 A, B and C. The stipple on 28.11 represents burnishing on the black slip. On some vessels, particularly type 29, without slip, the body is decorated by rilling.

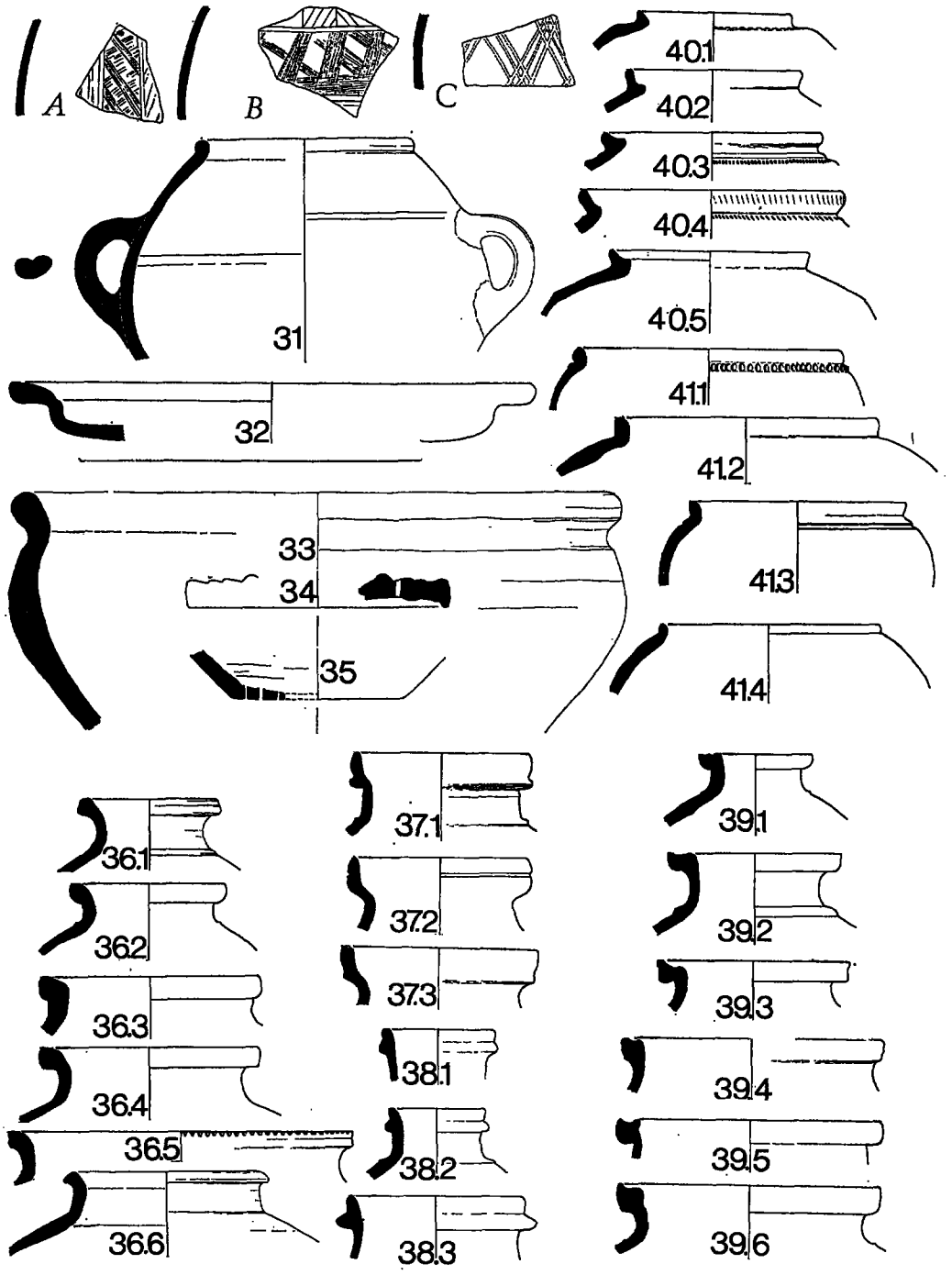

Fig. 12. Romano-British pottery, Amberwood. (Scale ½)

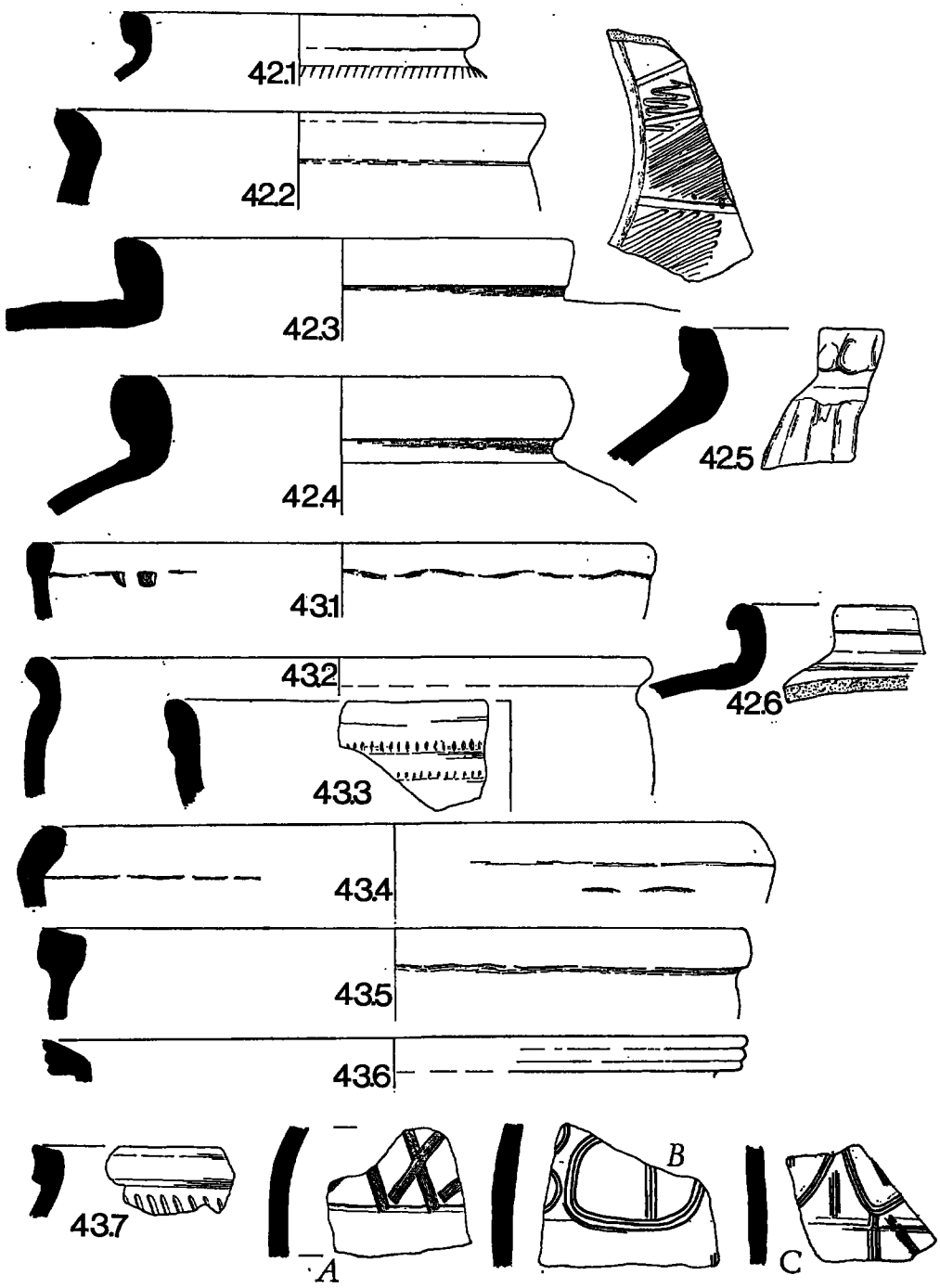

Fig. 13. Romano-British pottery, Amberwood. (Scale ½)

Type 31: Two handled jar – External white slip on upper half, extends only just over the rim.

Type 32: Platter – Internal white slip.

Type 33: Large bowl – With curving profile.

Type 34: Cheese-press.

Type 35: Base of jar – With perforations.

Type 36: Jar with neck – Rim has a squared profile with a white slip on outside and just over rim. 36.5 is unusual, not only in its decoration, but also in its large diameter. Possibly a waster.

Type 37: Jar with neck – Rim slightly cupped, external flange. White or black slips on outside and over the rim.

Type 38: Jar with neck – Flanged rim. White or black slips on outside or over rim.

Type 39: Jar with neck – Rim slightly cupped, white slip over rim.

Type 40: Jar with narrow mouth – In 40.2–5, rim is cupped for a lid, white slip over rim and outside, finger-nail impressions occur.

Type 41: Jar with narrow mouth – Black or white external slips occur and finger-nail impressions below the rim.

Type 42: Large storage jar – Finger nail impressions often on rim, body seems to be either plain, or sometimes covered in a white slip, scored through with horizontal or diagonal strokes.

Type 43: Large bowls – With a variety of rims – outbent, square, or inbent. 43.6 may be of this type or possibly a warped form of 21. Finger nail impressions occur on 43.4, while scored lines through a white slip occur on 43.7.

A, B, C: These body sherds probably belong to type 42, comb decoration on a plain surface.

The quantities of each type follow in Table 2. It is clear that a small number only are responsible for most of the wastage. Among the colour-coats it seems that types 1, 4, 5, 10 and 11 are the most important. It is unfortunate that such a small sample was recovered from kiln 2, but the percentages compare well with those from kiln 3. The size of the sample and the evidence of the structure itself suggest that the kiln was not in use for long. The percentage of colour-coated wares in these two kilns was 64·4 per cent in kiln 3 and 45·1 per cent in kiln 2. Of the coarse wares the main types were the jars (types 27–30), especially in kilns 1 and 2, the moulded rim bowl (type 20) and the flanged bowl (type 14), which were produced in all three kilns. Also important, but only made in kiln 1, was the jug (type 17).

How significant are the wasters? Do their relative quantities reflect the differing amounts produced of each type, or are certain types more liable to distortion and breakage than others? For the grey wares there seems to be a weak correlation between the wasters and the amounts of each type found on occupation sites, but the colour-coat figures suggest the opposite. Types 11 and 10 are comparatively rare on settlements, while type 4 is very common, yet the figures from the kilns suggest the opposite. On the other hand the amounts may reflect a passing market trend, with an emphasis on particular types of which other kilns could not produce enough. One thing is certain, we cannot use the amount of waste as an indication of the life of the kilns, when we know neither how they were loaded, nor how frequently they were fired.

The tabulated quantity of each type is based on the ratio between the total rim length for the type and its average diameter.

TABLE 2

TYPE NO.	KILN 1 No.	KILN 1 %	KILN 2 No.	KILN 2 %	KILN 3 No.	KILN 3 %
1			16	11·1	46	12·2
2			3	2·1	13	3·5
3					1	·3
4			8 (bases only)	5·6	36	9·6
5			6	4·2	20	5·3
6			3	2·1	10	2·7
7					10	2·7
8			4	2·8	5	1·3
9			3	2·1	3	·8
10			8	5·6	47	12·5
11			15	10·4	52	13·8
12	10	2·2				
13	4	·9				
14	33	7·3	9	6·3	26	6·9
14·8	2	·4			3	·8
15	12	2·6	2	1·4	6	1·0
16	6	1·3				
17	47	10·3				
18	19	4·2	3	2·1	8	2·1
19	6	1·3				
20	66	14·5	9	6·3	21	5·6
21	4	·9				
22	5	1·0			1	·3
23	10	2·2				
24	6	1·3			3	·8
25	8	1·8			3	2·2
26	5	3·3	8	5·6	10	2·7
27/28	128	28·1	24	16·7	18	4·8
29	8	1·8	19	13·2	15	4·0
30	10	2·2	2	1·4	6	1·6
27/30	146	32·1	45	31·3	39	10·3
31					1	·8
32	1	·2				
33			1	·7		
34	1	·2				
35	2	·4			1	·3
36	8	1·8			3	2·2
37	4	·9				
38	4	·9				
39	9	2·0				
40	6	1·3				
41	4	·9				
42	12	2·6	2	1·4	6	1·6
43	5	1·1			3	·8
TOTAL	A minimum of 455 vessels and 30 types		79 vessels and 20 types		134 vessels and 28 types	

Discussion

Three kilns in remarkably fine condition were recovered. One and two were very similar, though it was clear that the first had been longer in use. The alterations and additions to the structure, the wear in the flue and the quantities of waste material suggest a considerable period of activity. Kiln 2, on the other hand, although radically altered once, did not produce anything like the same quantity of waste. The upper surface of the floor was still soft and the stokehole did not show much sign of wear.

There is no evidence to show the relationship between kilns 1 and 2, but the latter did produce 'colour-coats', as well as coarse wares. This need not, however, imply a sequence (see also p. 15), as has been suggested (Sumner 1927, 81–2; Hawkes 1938, 124–8), from 1 to 2, whereby the potters, as they became more skilled at their work, produced finer wares. Why was kiln 2 abandoned so soon, as the evidence suggests? In comparison with kiln 3 which made fine wares and stone wares, it is much larger, and it may be that sufficiently high temperatures could not be reached. In this respect the reduction in size of the oven floor and also the combustion chamber may represent an attempt to remedy this. The amount of half-fired pottery in the stokehole suggests inadequate temperatures.

In general the plans of kilns 1 and 2 resemble those found at Crock Hill (Cunliffe 1965, 32, fig. 2) and Linwood (Swan 1971, 71, fig. 2). The Amberwood kilns add to the evidence that Sumner's interpretations of kilns with chimneys and platforms are not accurate and that his plans cannot be relied upon (Swann 1971, 45–8). Kiln 3 is more difficult to parallel in the Forest, but Sumner may have found something like it at Ashley Rails (Sumner 1927, 18, pl. 2), and the kiln recently excavated at Sloden seems comparable in size (Wilson 1967, 212).

The absence of flue arches, generally found in Romano-British kilns, and the absence of any central support or pedestal (Corder's Type A1) (Corder 1957, 15–16), are worth comment. Presumably this allowed the draught to pass evenly and unimpeded through the oven floor. Parallels can be found at Crambeck (Corder 1928, fig. 16) in Yorkshire where the kilns appear to date from *c.* A.D. 367.

Finally, some details of firing technique are worth commenting on. Firstly the flue blockings, which, with their spills of ash and charcoal, must represent the gradual clamping down of the kilns when the peak temperature had been reached in the firing. Secondly, a marked absence of half-fired clay, which might have acted as dome material, suggests that turf or other material not preserved was used. The little clay that was found could equally have belonged to old flue-blockings.

Dating

As there was no evidence besides pottery from the excavations to suggest dates for the kilns and their products, it is necessary to rely on stratified material from nearby occupation sites to compare with the Amberwood groups. Sequences from Dorchester, Fishbourne, Portchester and Winchester imply a general starting date for the New Forest industry of A.D. 260–270 – at least for the colour-coated types, which are the easiest to recognise in an assemblage. The grey wares are very difficult to date, as there is apparently very little change in type throughout the fourth century and similar forms were produced at the same time in the Overwey kilns in Alice Holt forest (Clark 1950).

The groups from Crock Hill and Linwood (Cunliffe 1965) compare well with those from Amberwood and, like kiln 1, they only contain grey wares.

Among the colour-coated types, it is interesting to note that the painted bottle and flagon types made at Crock Hill (Akerman 1853, Bartlett 1873), rosette stamped bowls made at Ashley Rails and Pitts Wood (Sumner 1927, 22–30), and true 'parchment' ware mortaria and bowls with very sandy fabrics, as made at Ashley Rails, Crock Hill and Islands Thorn (Sumner 1927, 35–38; 110–115) are absent from kilns 2 and 3. Nevertheless, the stamped sherd from the waste heaps of kiln 1 (fig. 7, C) suggests that production was contemporary with the Ashley Rails and Pitts Wood kilns.

Research on the Roman pottery from Portchester Castle, Hampshire (report forthcoming) has produced a possible date range for the colour-coats of kilns 2 and, in particular, of 3. It appears that at Portchester types 1.1–3 and types 6, 7, 9 and 10 do not occur in contexts before 340–50 at the earliest. It is also noticeable that types 4.2–4 are more common in groups later than 340–50, and that beaker rims, like 4.1, which are slightly concave or thickened at the extremity (Portchester types 22.6–8) are later than 340–50. It is also likely that grey ware jugs, as types 17, become rare after *c.* 370–80, perhaps because they are replaced by colour-coats as type 1. This may explain why grey ware flagons are not present in the groups from kilns 2 and 3.

In addition, at Lankhills cemetery, outside Winchester (report forthcoming) types 1.1–3 occur in graves dated either to the last decades of the fourth century or the early fifth century. Painted, stamped or incised New Forest colour-coats are very rare in graves dated to the last third of the fourth century or later. It is reasonable to suppose that kiln 3 and, possibly, kiln 2 date to the second half of the fourth century. Whether the lack of rosette stamped (also dated after 340–50 at Portchester) and other decorated New Forest colour-coats implies that kiln 3, and its distinctly plain products, lie even later in the century, as the Lankhills sequence suggests, remains to be confirmed when more groups later than 360–70 are available. If it is accepted that kiln 1 is the earliest of the Amberwood group, then it is reasonable to believe that kilns 2 and 3 are either partly contemporary with, or, perhaps, later than the Ashley Rails and Pitts Wood kilns. This would strengthen the case for the Amberwood kilns 2 and 3 dating late, perhaps to the last third of the fourth century.

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