

EXCAVATIONS AT PARNELL ROAD AND APPIAN ROAD, OLD FORD, E.3.

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with a description of the pottery from Appian Road by M. J. HAMMERSON

I. INTRODUCTION

The work done at Lefevre Road during 1969-70 had produced evidence of a major Roman highway crossing the site, and shown that a settlement had existed alongside it there during the later phases of the Roman period.¹

Early in 1971 two areas which formed part of the Lefevre Road Development project (in Parnell Road and in Appian Road) became available for examination. A grant by the Department of the Environment to the London Museum made it possible to undertake two months' work on these sites. The results are described below.

II. THE PARNELL ROAD SITE

A. PRELIMINARY WORK (OCTOBER 1970)

Late in 1970 an area measuring some 18 metres east-west by 17 metres north-south was mechanically excavated to a depth of about 1.20 metres for the construction of a children's playground. The southern side of this cut lay less than 50 metres north of the line of the Roman road, and its south-western corner lay about 10 metres north of an inhumation burial found during construction work in April 1969.² (See Fig. 1; Location Plan.)

During the course of this machining a pit was noticed in the southern face of the excavated area (Pit 1).³ It was approximately 1.50 metres wide and its bottom 60 cms survived under a deposit of earth containing *c.* nineteenth-century or later material. (See Fig. 3.)

On the floor of the pit, at the west, lay a skull with the top of the head to the north. East of the skull were two vessels probably deliberately placed in the grave as part of the burial. The pit had been back-filled with a light brown sandy soil and contained a few sherds of Roman pottery, including a worn flanged bowl rim. Four nails near to the skull could have represented the remains of a coffin. (Fig. 1, no. 9.)

It was possible to remove the skull and in so doing more of the body was seen extending into the pit. It is probable that the burial was orientated with the head to the north and feet to the south. Under the bones was a thin whitish layer which, on analysis, was shown to be calcium carbonate.⁴

The skull was examined by Dr. T. E. Dussek of the Anatomy Department, Guy's Hospital Medical School. He reported that "most of the left side of the skull is complete, although in fragments. The left maxilla is present and also a small part of the first cervical vertebra. The skull is probably of a male but the markings are rather indeterminate. The age is between 25 and 40 years. The teeth are particularly interesting in that there is little wear and considerable caries".

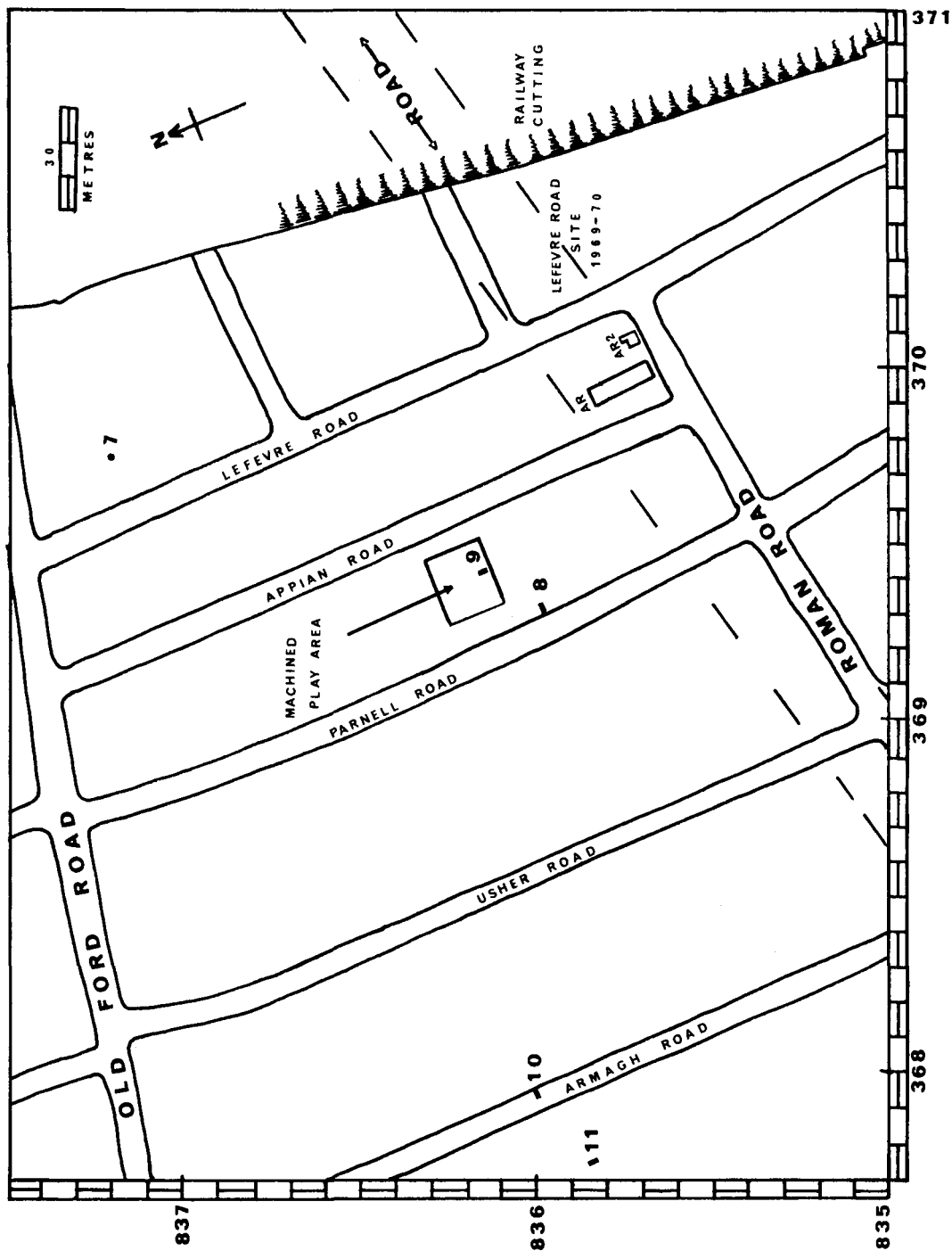


Fig. 1
Location plan (7 - 11: Roman burials — see text)

The two vessels accompanying the burial are illustrated in Figure 2.

- FIGURE 2, No. 1. Bulbous Flagon. Coarse sandy fabric, pinkish in section, but reduced or smoked to grey inside the mouth and over the external surface. Low cordon at the base of the neck.⁵
 No. 2. Dish. Coarse sandy fabric, pink in section with finer (slipped) grey-black surfaces.

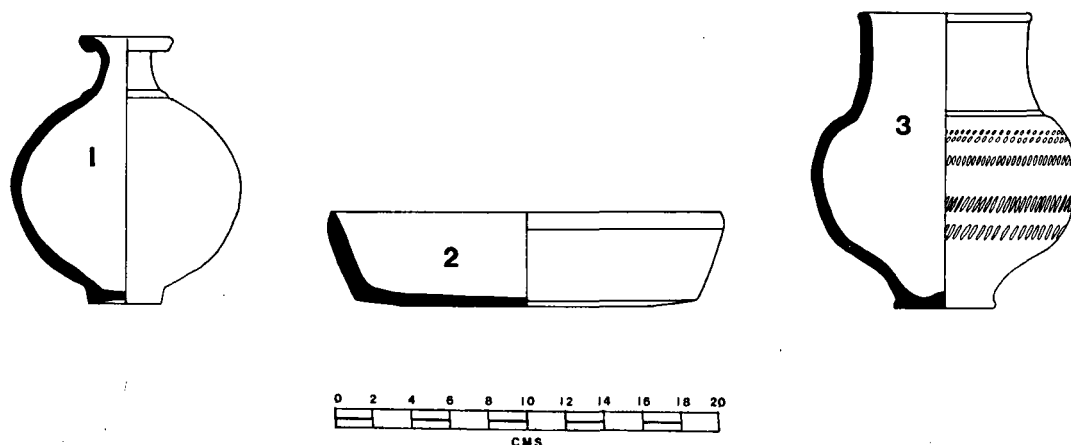


Fig. 2
Pottery from Pit 1 and Pit 5

Two features flanking Pit 1 were observed in this southern section: one started 1.20 metres west of the western edge of Pit 1; the other 90 cms east of its eastern edge. In common with Pit 1 they were each about 1.50 metres wide and they could also have been dug to contain burials. Cleaning down the exposed faces produced a few sherds of Romano-British pottery, including, from the westerly one, the rim of a colour-coated beaker. Unfortunately it was not possible to excavate either of them or the rest of Pit 1 before they were taken out by machining.

B. LATER WORK (FEBRUARY 1971)

1. INVESTIGATION OF THE PLAYGROUND SECTIONS

According to the development plan the playground was to form part of an open area, enclosed to the north, south and east by the three blocks of flats known as Lefevre Walk, and bounded to the west by Parnell Road.⁶ By this time the ground level east of the playground had been substantially raised for landscaping, and turfed over. To the north the excavated area ran almost up to the service road for the northern block of flats. Consequently only to the south⁷ was there much room for archaeological work.

An examination of the sections left after the completion of the playground excavation revealed a number of features cut into the natural sandy-gravel. Three were visible in the eastern side, two in the southern, and one in the north. Clearly all had been partially destroyed by the machining.

Their investigation, which is described below, showed that in all probability three were related to late Roman burials (Pits 3, 5 and 8), and that one was a late Roman ditch running north-south (Ditch 1). (See Fig. 3.)

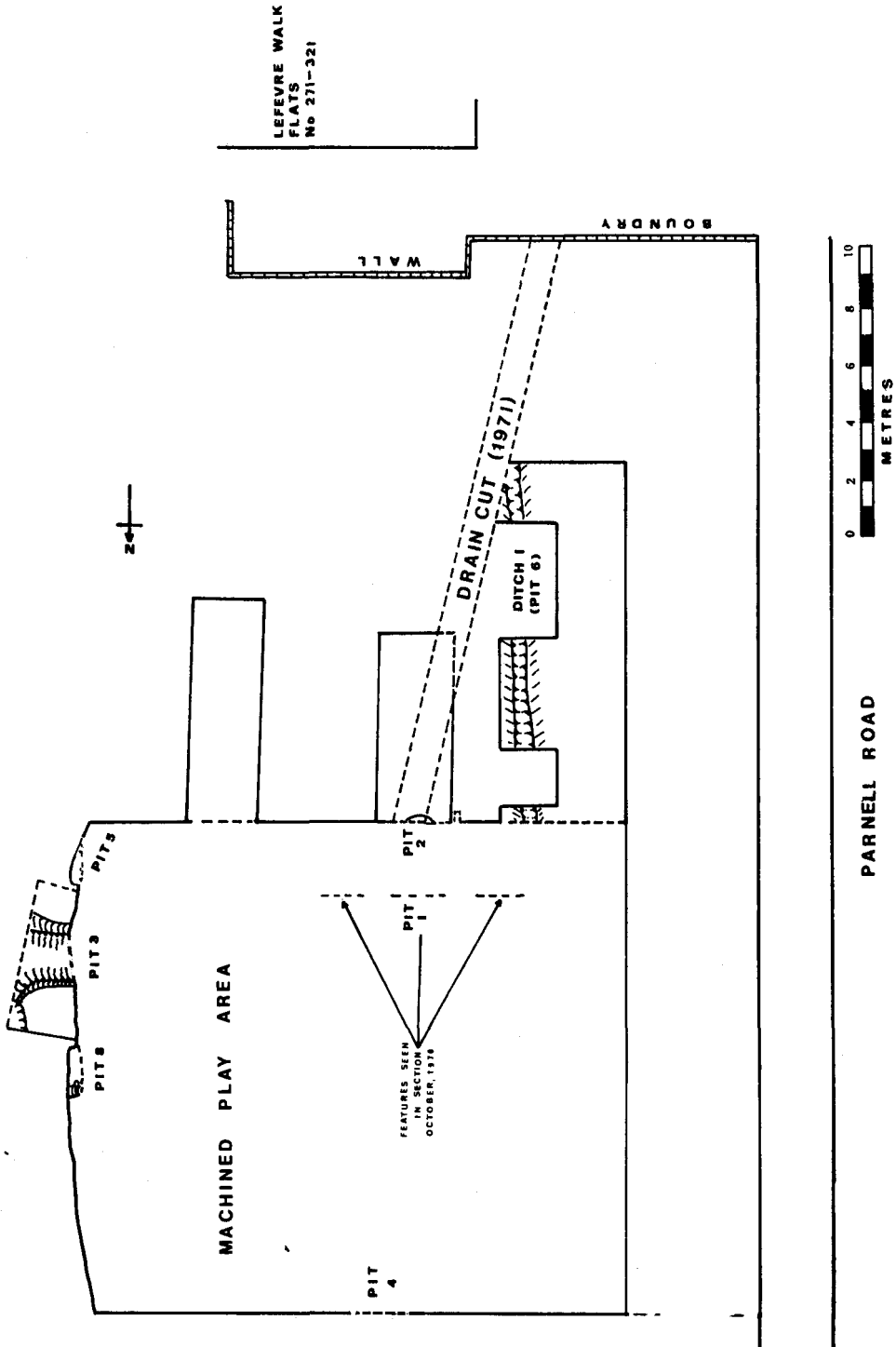


Fig. 3
Parnell Road Site Plan

(i) PLAYGROUND SECTION—NORTHERN FACE

PIT 4. This lay about half way along the northern face and was filled with sandy brown earth, including some gravel. Although similar in shape and fill to the known Roman pits there was nothing definite to prove that it belonged to that period. Two post-medieval sherds were found at the very top of the fill although these could be the intrusive results of animal activity or ploughing. Due to its proximity to the service road the feature was not excavated. (See Fig. 4a.)

(ii) PLAYGROUND SECTION—EASTERN FACE

Three features lay close together here.

PIT 8:

This was the most northerly, with a length of at least 1.40 metre and a depth of 50 cms. Part of a human skull was seen in section at the north of the pit, but no other parts of the body were found. The top of the skull and the northern edge of the pit had been earlier removed by a drain trench. The body seems to have been orientated north-south.

PIT 5:

This pit was the most southerly of the group, with a length of 1 metre and a depth of 40 cms. In cutting back the section a beaker was found resting on the sand at the north of the pit. Burnt flints were found near to the beaker, and small flakes of charcoal were incorporated in the sandy brown earth fill. The vessel is illustrated in Fig. 2.

FIG. 2, No. 3

Beaker: external surface black, burnished. Cordon at base of the shoulder. Body decorated with four rows of impressed dots. Fabric is light grey in section. Internal surface has a rough sandy feel; sand particles visible. The form is similar to the types made at Crambeck where the production is dated to between 350-400 A.D.⁸

PIT 3:

The pit, which lay between Pit 5 and Pit 8, was 2.2 metres wide in section and 75 cms deep. It was investigated in greater detail than the other two, by cutting back eastward to the edge of the turfed area. Excavation showed that the Pit ran to the east before turning sharply to the north (3b) where it seemed to cut a shallower gully (3a). Pit 3 was filled by fine sandy brown earth containing pebbles and a few sherds of pottery. Fragments of bone were recovered including a human vertebra. One coin, dating from the late third century was also found in the pit. (See Appendix 1, No. 19.) See Fig. 4b, for sections of Pit 3 (left) and Pit 5 (right).

There seems little doubt that these three pits represent burials dating from the late Roman period. Fortunately an extensive area to the east of the playground has survived destruction in the redevelopment and should be available for future archaeologists. Investigation here should show something of the density of the burials.

2. EXCAVATION TO THE SOUTH OF THE PLAYGROUND

Three trenches were opened south of the playground in order to excavate the features showing in the southern section, and to examine the undisturbed area in more detail.

PIT 2:

Only a small amount of this pit was left to the south of the section: the fill contained darkish brown soil with sandy patches and a little charcoal. It is possible that Pit 2 represented the back of the Burial Pit 1. No further features were seen in the trench excavated south from the pit, nor in the strip dug some 4 metres to the east.

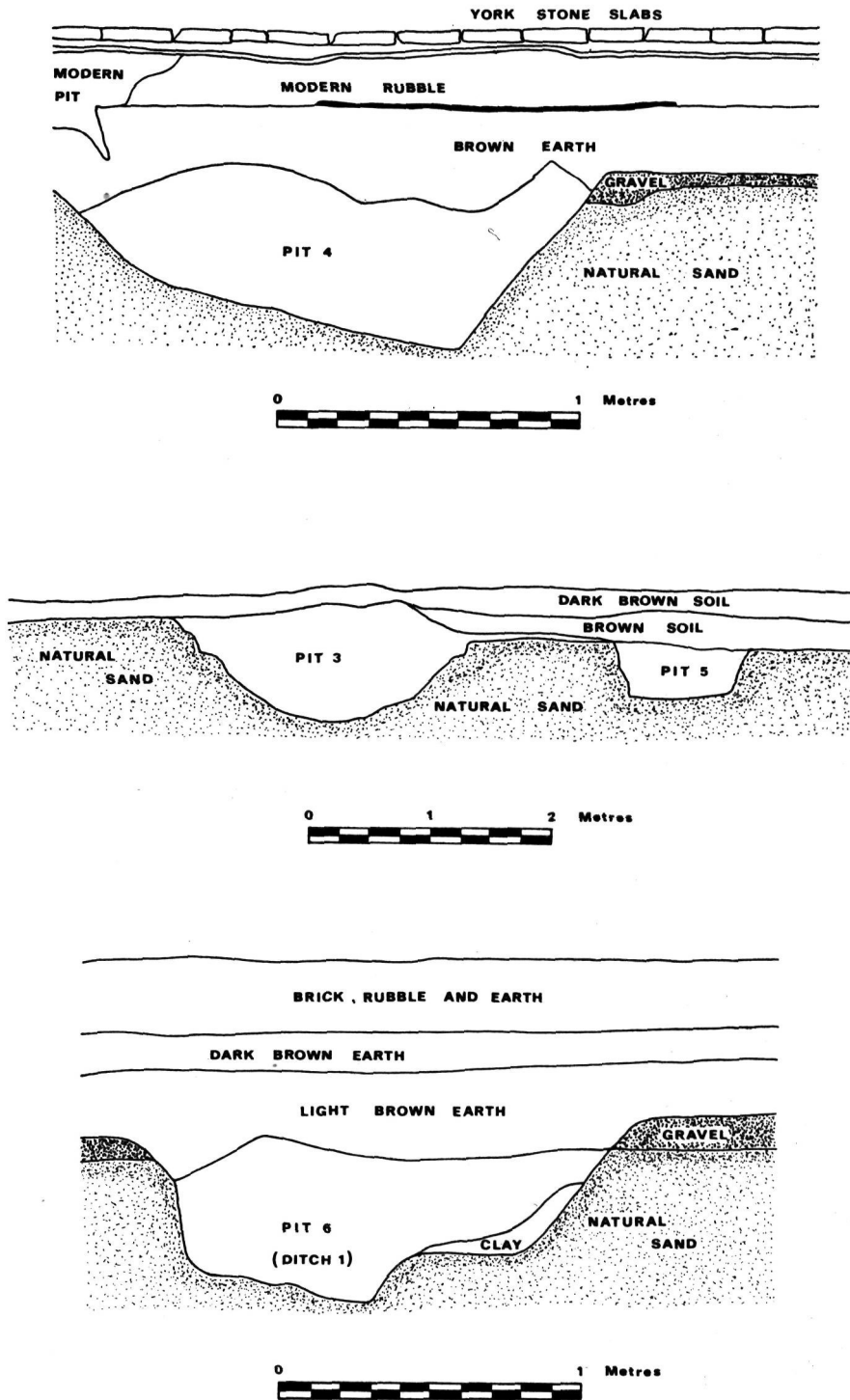


Fig. 4 Parnell Road Sections (top) 4a Pit 4 looking North
 (middle) 4b Pit 3 and Pit 5 looking East
 (bottom) 4c Pit 6 (Ditch 1) looking South

PIT 6:

In excavation this feature showed as a ditch (Ditch 1), not a pit. It ran south from the section towards the Roman road, and was about 1.60 metres wide and 55 cms deep. Two fills were distinguished: the earliest fill was of sandy clayey soil, and the top layer of dark silty brown earth. This level contained pottery, building material and animal bone, including most of the skeleton of a horse. Some slag, probably indicating smithing, was also found (see Appendix 3). The pottery which included flanged bowls and colour-coated sherds, suggests that the ditch was filled in during the fourth century. See Fig. 4c, for section.

Apart from the ditch fill it was noticeable that this area, although only some 40 metres north of the road, contained none of the concentration of debris resulting from late Roman activity seen south of the road both at Lefevre Road (some 100 metres away) and at Appian Road (70 metres away). Above the natural gravel and clayey sand was a 10 cms to 15 cms layer of fine brown soil containing pebbles with a light scatter of usually abraded Roman sherds dating from at least the second century onwards. The incorporation of a few post-Medieval sherds as well as a Medieval jeton (see Appendix 1) might indicate that this was a level affected by ploughing, and that this activity had destroyed the Roman ground surface. Even so, the relatively thin scatter of material and the presence of the burials suggests that it is away from the late Roman living areas.

III. THE APPIAN ROAD SITE

This site, which extended across the old Appian Road from Parnell Road to Lefevre Road (see Location Plan) was to be developed as another play area. Two trenches were dug here. One (AR) was cut across the supposed course of the road and the second one (AR2) was laid out slightly further east. The aim of the work was firstly to examine the structure of the road, and secondly, to see whether the roadside occupation extended this far west.

Trench AR succeeded in locating all but the northern side of the road, which lay outside the site. In the south of AR and throughout AR2 further evidence relating to late Roman settlement was obtained. (See Fig. 5.)

A. THE ROAD

The road in trench AR had survived substantially intact. Its top lay only about 50–60 cms below the modern ground level⁹ and it was overlaid by a 20–30 cms level of brown soil. In broad respect the excavation confirmed the 1969–70 Lefevre Road findings showing again that the highway was originally of a three-track design with the southern side later being raised to the level of the centre. But the evidence differed in two important respects. Firstly, the substructure was unsubstantiated; there was no core of cemented gravel forming the agger, as in the railway cutting section some 70 metres to the east. Secondly, only two main structural phases could be clearly distinguished as compared to three at Lefevre Road.

I. FIRST STRUCTURAL PHASE (A)

The section cut at the west of trench AR (see Fig. 6) showed that the road in its first phase was accompanied by a pebble capped shoulder some 2.90 metres wide. Calculation of the width of the southern flat track and the rise to the centre of the road was complicated by a gravelled area laid astride the two, which may have been a localised repair. It is probable that the flat track was originally some 3 metres wide and the rising part some 2.20 metres.

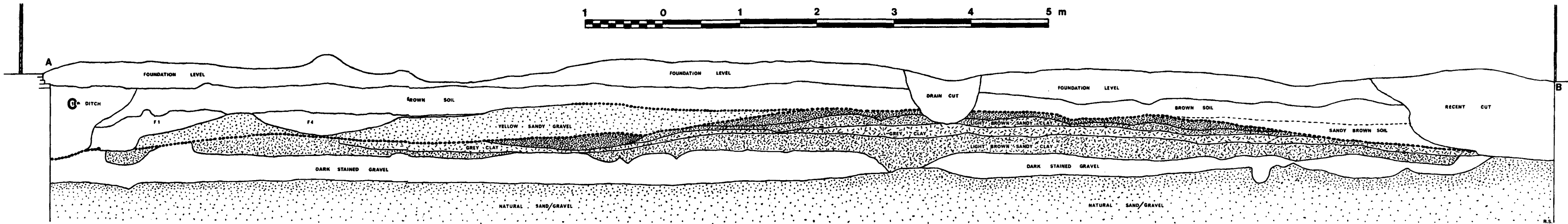


Fig. 6 The Road on the Appian Road Site (facing West)

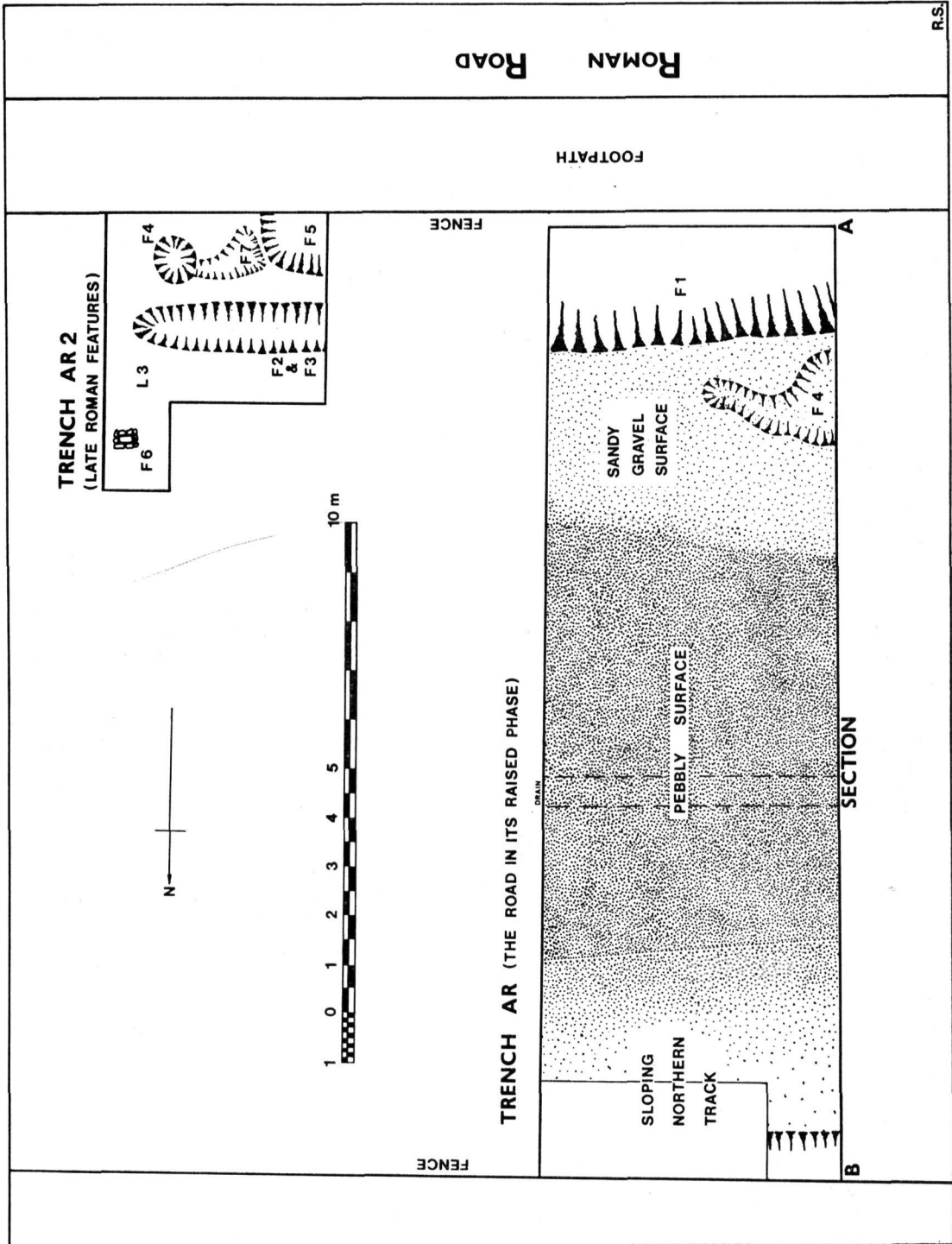


Fig. 5
Appian Road Site Plan

The accompanying high centre track was clearer with a width of 4.60 metres. North of this the road sloped down again for a further 3.60 metres. It seemed to be just straightening again for the northern flat track at a point where it was cut away by a modern pit.

In construction the central and southern site for the road appears to have been cleared down more or less to a flat depth below the top of the naturally curving layers of sand and gravel. (See the northern part of Fig. 6.) Into this hollow a foundation bed of very pebbly gravel was laid; this varied in thickness but was on average some 20–30 cms deep. The higher part of the substructure consisted of clay, mainly sandy and light brown in colour, but paler and harder towards the top. The southern edge of the clay was found, and it continued for 16.60 metres before being cut by the modern disturbance at the north of the trench.

The clay was fashioned to accommodate the intended shape of the road. For example, under the central track it was sometimes more than 40 cms thick; under the southern track less than 15 cms.

It appears that on top of the clay the road's substructure was deliberately strengthened by a capping of pebbles under the centre track and the higher parts of the rising sides. This capping was on average some 10 cms thick. The surfaces on the side tracks were of single pebble thickness—as at Lefevre Road. The centre track surface was probably also of single stone thickness—but interpretation was complicated by the pebble capping of the substructure and this could not therefore be definitely ascertained.

There was no new evidence as to the construction date and the conclusion that the highway was laid out in the immediate post-Conquest period still stands.

2. SECOND STRUCTURAL PHASE (B)

In this second phase the southern track of the road was raised to the level of the centre. A bank of gravelly sand 9 metres wide was laid over the southern track. The only dating evidence incorporated in the sand was a samian sherd of the late first or early second century. (Appendix, 4, No. 1.) In the sand, near to its top, was a bronze bar which could have been a broken arm from the cross of a surveying instrument. (Appendix 3, No. 10.) It is probable that the pebbles surfacing the sand did not stretch over the whole length of the road; they were absent from the southern part of trench AR in plan. In this case the road would have had one central pebble surface of about 8.00 metres with a level sanded track to the south of about 4.50 metres.

It was possibly at this stage that the northern track went out of use. As at Lefevre Road it was not raised to the level of the central one. Some patches of sand could have indicated a second surface, but at not much above the original level. Although there were some Roman sherds in the brown sandy earth overlying the track, there was no dense scatter of material as at the south of the road.

Lying alongside the southern edge of the sandy gravel was a hard pebble capped surface, sloping down to the south. It seemed to relate to this later phase of the road, and was traced for about 1 metre before it reached the edge of the site. No dating evidence was recovered here, but a very similar spread in trench AR2 contained, in its make-up, a coin minted between 218–222 A.D. (See Appendix 1, detailed coin list No. 3.) If this gravel capping was contemporary with the raising of the road, then an early third century date could be suggested for the change in design.¹⁰

Coin evidence indicated that the road was in use until the end of the Roman period. One, found on the pebble surface, was minted between 383–395 (Appendix I, No. 113); another was produced between 388–395 (Appendix I, No. 127). Overlying the sandy gravel part of the road was a thin layer of grey-brown earth (AR layer 3). This contained a number of coins dating from the later third century onwards, as well as one minted between 388–395 (Appendix I, No. 134) and another struck between 378–408 (Appendix I, No. 145).

3. A COMPARISON WITH THE LEFEVRE ROAD EVIDENCE

The evidence from Appian Road concerning the highway was generally complementary to that from Lefevre Road. But a number of questions are raised by apparent differences in substructure, phases and width. Firstly, why was there no cemented gravel agger on the western site? Secondly, why are only two major phases of the highway apparent at Appian Road, compared with three at Lefevre Road? Thirdly, why was the central track of the road in both phases at Appian Road slightly wider than at Lefevre Road? (In the first phase at Lefevre Road it was judged to be 3.80 metres compared to 4.60 at Appian Road. In the second and third phases at Lefevre Road some 10.80 metres compared to 12.50 metres at Appian Road.)

Possibly the answer to these questions relates to the proximity of the Ford. In general the road runs along level ground north-eastwards from the city until reaching the edge of the Lea Valley. From there the land level drops some 8 metres over about one quarter of a mile to the Ford. Perhaps the highway at Lefevre Road incorporates specifications more suitable to crossing a valley. Consequently the road-builders might have judged that from the approach to the Lea down to the Ford the road's foundations would need to be more solid to counteract the pressure of traffic moving up and down hill. This might also account for the seemingly additional surface at Lefevre Road. Perhaps, also, the road would be narrowed down as it approached the fording place.

B. SETTLEMENT EVIDENCE

I. FEATURES AND LAYERS

Alongside the south of the road in trench AR was a deposit of fine dark brown soil¹¹ which overlay a gravel surface.¹² This surface, which may possibly have been a hardstanding area, was sloping down to the south. On it lay animal bone and pottery not dissimilar from that found in the overlying earth. The latter, which at its maximum was about 50 cms deep, contained a quantity of pottery, animal bones, building tiles, burnt clay and metal pieces. As there was no obviously distinguishable layering in the soil the material derived from it has been treated as one deposit (AR, Feature 1). Eighteen coins were recovered from the feature and they ranged in date from the later third century to the later fourth century A.D.

North of Feature 1, and cutting into the southern part of the road, was what seemed to be a pit, filled with grey soil, starting in trench AR and widening as it ran out to the west. There was no direct evidence as to its stratigraphic relationship to Feature 1, but the probability is that it was the result of later activity. Feature 1 appeared to accumulate alongside the road edge, whilst Feature 4 intruded into the actual road structure. Also, although the fill material was comparatively sparse, one of the four coins found there could have been issued as late as 408 A.D. (See Appendix I, No. 140.)

Similar occupation evidence was found in trench AR2. The top surviving Roman layer (which comprises L(1), L(2) and L(4) in the pottery report) was a spread of dark brown earth. It was similar in texture to AR Feature 1 and contained the familiar mixture of pottery fragments, animal bone, building debris and metal. The coin evidence suggests a late date for the deposit; of the 59 coins recovered, six could have been minted as late as 402 A.D., and one 408 A.D. These layers rested in a spread of grey sandy earth (Layer 3) which sloped down to the south. This was sparse in finds containing only a few abraded sherds, small pieces of bone and four coins dating to the later part of the third century A.D. Running south under L(3) was a greener-coloured gravelly layer (5) which again contained some bone, tile and pottery. Four coins were found here; two were worn first to second-century types, and two belonged to the later third century. Fragments of at least seven late Samian vessels dating to the late second and third centuries were also found in this layer. (See Appendix 4.)

Layer (5) overlay a hard gravel surface with bone and tile lying on it. This was in appearance very similar to the gravel underlying Feature 1 in trench AR which related to the raised phase (B) of the road. In the make-up for this gravel was a coin, only slightly worn, minted between 218–222 A.D. (See Appendix 1, No. 3.)

A number of features were seen cutting down into Layer (3). One was a round-ended gulley which ran out of the trench to the west (Features 2 and 3). This was at least four metres long and its top width was about one metre. Its total depth was about 90 cms, including a narrow round-bottomed base channel some 40 cms wide and 40 cms deep. The feature was cut down below the gravel surface under L(5) and could possibly have been dug to contain a beam. The only evidence to support this was the finding of three nails¹³ in the fill which also included a quantity of pottery, tile and burnt clay. Perhaps a more likely explanation is that it was dug for drainage; the bottom sloped slightly downhill to the west. Coin evidence suggests that the feature was not filled up until the early part of the fifth century A.D.

Approximately two metres north of the round end of this gulley was a small rectangle of chalk blocks and bedded tiles lying on end. This enclosed an area some 15 cms by 25 cms wide and 30 cms deep, which was filled with sandy earth, but devoid of any material debris. The tile and chalk could conceivably have served as packing round a post.

To the south of the gulley, also cutting through Layer (3) were three areas identified on the surface by the darker colour of the soil. All three features (No. 4, 5 and 7) contained some pottery, a small amount of tile (including tegulae in F4 and F7) and animal bone. Feature 5 contained the skulls of two oxen. Feature 7 was of half-moon shape and seemed to be only some 10 cms in depth. It was apparently cut by the circular pit, Feature 4, which was about one metre in diameter and 30 cms deep. On the limited coin evidence Features 4 and 7 would be assigned to the later third century, and Feature 5 to the later third or fourth centuries.

2. THE POTTERY (by M. J. HAMMERSON)

The pottery from trenches AR and AR2 is described under headings for the individual features and layers. A short note for the dating of each deposit on the basis of coin evidence, is given under the respective headings.

AR/FI (Fig. 7: 1-35; Fig. 8: 1-48; Fig. 9: 1-17).

DATING FROM COIN EVIDENCE

Emphasis of coin dating is on period Gallienus-Carausius (6) and the House of Constantine (8) 317-c. 355. However, the House of Valentinian is represented by two coins.

BOWLS

Flanged Bowls

- 1 Rounded flange. Hard sandy dark grey fabric, rough fracture. Covered with black burnished slip. Burnished arcaded decoration on body exterior.
- 2 Uncertain diameter. Flanged bowl or dish. Smooth sandy light grey self-coloured fabric.
- 3 Bowl with angular flange. Hard sandy fabric, rough in fracture. Dull grey-brown colour, slightly greyer at core. Coated with dull black slip.
- 4 Bowl with thick, short flange. Hard sandy fabric with slightly soapy feel, dirty light grey in colour. Interior face (except for a band at the base), exterior lip, and two thirds of flange covered with burnished grey-black slip.
- 5 Bowl with thick flange. Smooth sandy grey-buff fabric. Surface layers fired brown-buff. Covered with polished black slip. Lip and inner face heavily worn.
- 6 Bowl with thick rounded flange. Hard sandy grey fabric, slightly coarse at fracture. Surface layers (c. 1 mm) fired dull brown. Interior face, lip and top half of flange coated with polished grey slip, lighter on interior parts of vessel, burned darker on exterior.
- 7 Hard sandy grey-buff fabric, with a little large grit. Coated with lightly polished black slip.
- 8 Smooth grey-buff fabric, covered with polished black slip. Broad shallow external groove directly below flange.
- 9 Hard sandy dirty-grey fabric, core more steely-grey. Interior face, and rim to half-way down flange, coated with burnished light grey slip.
- 10 Bowl with slightly hooked flange. Hard sandy light grey fabric, rough at fracture. Upper half of flange, lip, and interior face (with the exception of a narrow band above the base), covered with a blue-grey slip, slightly abraded at lip. The interior of the base is self-coloured and lightly smoothed.
- 11 Bowl with rounded flange; hard sandy light grey fabric; exterior of body smoked blue-grey; interior of body, and lip to half-way down flange, coated with burnished dark grey slip.
- 12 Bowl or dish with tapered flange. Very hard fine sandy fabric, light steel-grey colour; thin dull brown layer sandwiching core, c. 1 mm below surface, seen in fracture. Surfaces incompletely smoothed in horizontal bands.
- 13 Hard sandy fabric, coarse fracture. Dark dirty-grey colour. Coated with polished dark grey slip, very abraded on interior face.

Not illustrated:

Rims: (i) four worn fragments, smooth hard sandy buff-grey fabric, with pink-brown surface layers. Coated with smoothed black slip. Dia. c. 10½ in.

(ii) four various rims, grey fabrics, all worn, mostly with smoothed black slip.

(iii) two fragments, worn, sandy grey fabric, one very hard and sandy. Self-coloured.

Other fragments of bowls or dishes in similar wares:

Mostly grey or grey-brown, fabrics, hard and sandy or smooth and powdery, with black or dark grey slips:

twenty-two fragments of bases, one with a burnished straight line across the interior face, relative to the diameter of the dish as a chord of an arc to a circle.

nineteen other sherds.

BOWLS

In "Dorchester" Wares

- 14 Flanged bowl in hard gritty pink fabric, imitating Samian Form 38. Sherd burnt.
- 15 Flanged bowl, in smooth, fairly hard salmon-pink fabric, imitating Samian Form 38. Traces of matt red colour coat. Sherd very worn and burned.

Not illustrated:

Very similar type to above, worn but not burned; and three flange fragments of B₃ bowls. Fragments of B₁ and B₅ bowls, and an M₁ mortarium in imitation of Drag. Form 45.

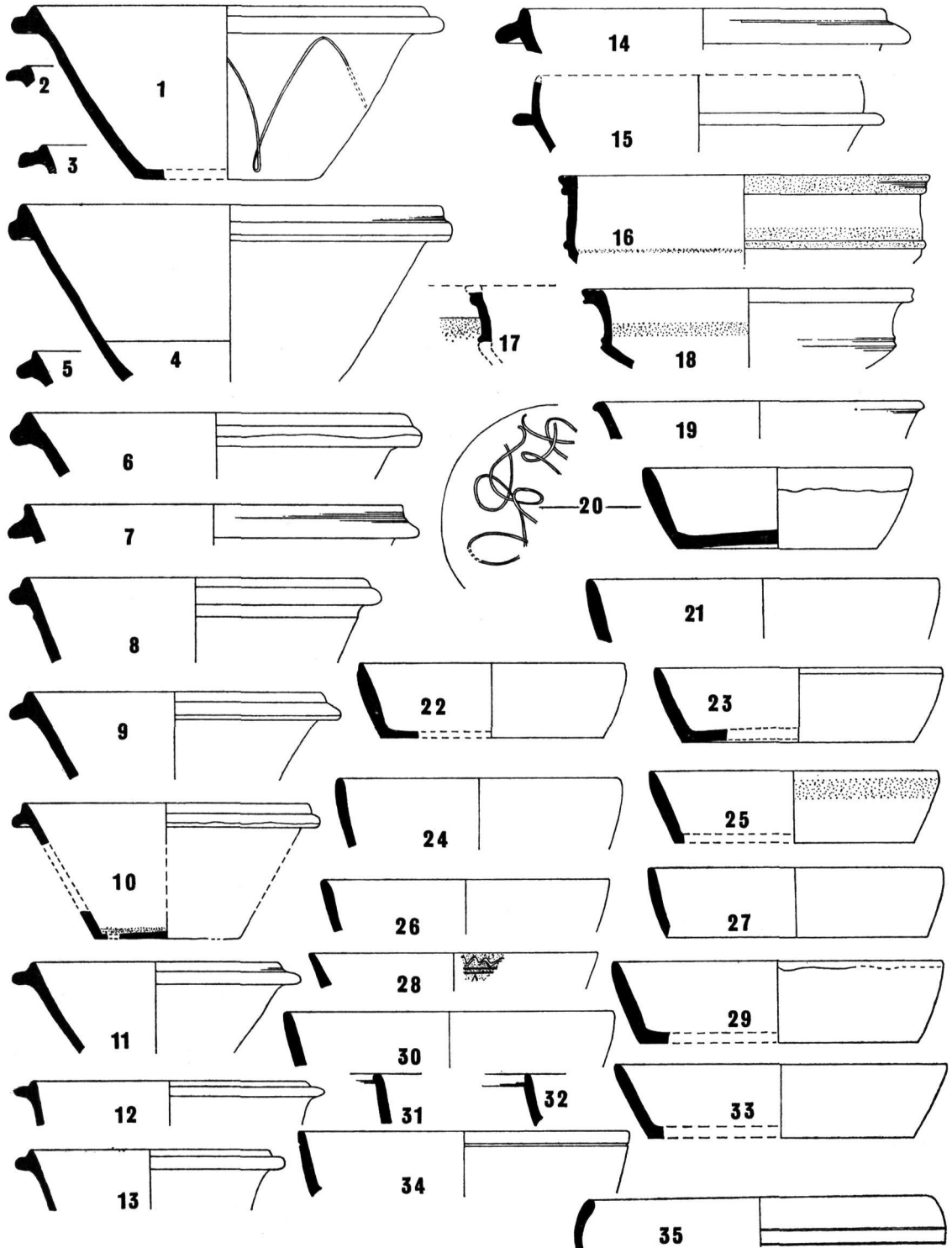


Fig. 7
Pottery from Appian Road ($\frac{1}{4}$)

- 16 Carinated bowl in "parchment-coloured" ware. Hard smooth dull pink fabric, surface layers (c. 1 mm thickness) fired creamy-white. Orange-buff painted decoration in horizontal bands, shown on drawing by stippling; also on top of rim.
- 17 Bowl, similar fabric to above, though off-white throughout. Dark chocolate-coloured horizontal band painted on exterior of body above "keel", shown in drawing by stippling.
- 18 Similar to 16 in fabric and form. Dull ochreous-brown horizontal bands painted on top of rim, and on interior of body (shown by stippling in illustration). Weathered appearance.

Not illustrated:

Small sherd of similar fabric, traces of ochreous-red band painted on exterior.

Other:

- 19 Slightly everted lip. Soft smooth dull-grey brown fabric, "smoked" darker grey-brown on surface. Interior surface smoothed.

DISHES

- 20 Hard sandy light grey fabric with slight brownish tinge. Inner surface and upper part of outer face coated with burnished grey slip. Tooled scrawl decoration on underside of base.
- 21 Hard dark grey fabric, heavily gritted with sand and small stones. Surfaces "smoked" darker grey. Lightly smoothed.
- 22 Slightly tapering lip. Hard, smooth, slightly sandy, light grey fabric. Smoothed dark grey slip on inner surface, roughly applied with a brush-like instrument, the strokes being plainly visible.
- 23 Fairly soft, sandy, light grey fabric. Dark polished blue-grey slip on inner face and base, and overlapping top and outside face of lip.
- 24 Hard smooth buff-grey fabric, coated on both surfaces with smoothed black slip.
- 25 Hard sandy grey fabric, coated with black slip, polished on inner face, but matt on outer face, which has a rough zone c. 15 mm wide just below lip (*q.v.* Old Ford, 1971, Fig. 7:8)
- 26 Hard grey-black sandy fabric, self-coloured, smoothed on surface.
- 27 Hard dark grey fabric, heavily gritted with sand; coated with dark grey matt slip, applied in horizontal brush strokes, visible plainly on outside face. Two rim frags., one body sherd, four base sherds found.
- 28 Hard sandy black fabric, coated with black slip, burnished on inner face. Indistinct horizontal pattern on exterior below lip, probably a zig-zag of inverted V's, incised or stamped in fabric; two rough horizontal lines directly beneath.
- 29 Hard smooth sandy light grey fabric. Dark grey burnished slip on inside face and top of lip.
- 30 Soft smooth dirty-buff fabric, coated with matt black slip.
- 31 Diameter uncertain. Slightly beaded rim. Hard smooth blue-grey fabric, surface layers oxidised dull brown. Coated with matt grey slip.
- 32 Diameter uncertain. Hard, slightly sandy, light grey fabric, surfaces "smoked" darker grey. Inner face and top of lip coated with polished creamy-grey slip. Shallow horizontal groove on outer face below lip.
- 33 Hard grey sandy fabric. Inner face and top of lip coated with smoothed grey slip of similar colour to fabric. Outer surface self-coloured, lightly smoothed, smoked darker grey.
- 34 Hard grey sandy fabric, surfaces oxidised grey-brown and coated with black slip, matt on outside surface, smoothed on inside surface. Horizontal external groove below lip.
- 35 Dish with rounded inturned rim. Hard sandy grey fabric, reduced almost to white on outer 1mm of surface, and coated with matt whitish-grey slip. Two shallow horizontal grooves on exterior, on and just below point of maximum diameter.

Not illustrated:

Five rims in dark grey fabric, hard and sandy, with black slip (two sherds from same vessel).

Five rims, smooth grey-buff wares: one with black slip, three with traces of cream or grey slip, one self-coloured.

Fig. 8

JARS

- 1 Jar, plain everted rim. Hard, smooth, slightly sandy grey-buff fabric. Most of rim and upper part of body coated with polished grey-black slip, as far down as a shallow tooled horizontal groove at about the point of maximum body girth. Below groove, a lightly-tooled obtuse-angle lattice decoration. Areas without slip are stippled in drawing. Fifteen sherds of vessel found.

- 2 Plain everted jar, lip slightly squared. Hard smooth dirty light grey fabric. Self-coloured, but a thin chestnut-brown layer *c.* 1 mm below the surface sandwiches the core. Surface is matt.
- 3 Similar to 2; surface lightly smoothed, and has a slightly buff hue.
- 4 Wide-necked everted jar; hard dirty-grey-white fabric, tempered with crushed flint; has a "corky" appearance in section. Surface smoothed, self-coloured, has a soapy feel.
- 5 Jar, everted rounded rim, slightly cut-off on underside. Hard dull grey fabric, tempered with crushed flint (but of a "finer" grain, in section, than 4). Surface smoothed, self-coloured.
- 6 "Cavetto-rim" jar. Hard sandy dark-grey-brown fabric, surface (except for lowest part of inner surface) smoked dark-grey. Matt finish.
- 7 "Cavetto-rim" jar, hard smooth light grey fabric, covered with lightly smoothed light-blue-grey slip. Two fragments.
- 8 "Cavetto-rim" jar, hard sandy dull-brown fabric burned (as earlier) black at one point of fracture. Surface reduced grey-black, coated with black slip, lightly smoothed on top of lip and inner face.
- 9 Everted plain-rim jar. Smooth sandy dull chestnut fabric, coated with matt dark grey slip.
- 10 Everted jar, triangular-section rim. Hard sandy smoky-grey fabric, self-coloured, surface lightly smoothed.
- 11 Everted jar, rounded rim. Hard smooth light grey fabric. Exterior surface, and interior of lip, to lowest level of everted section, coated with smoothed creamy-grey slip.
- 12 Jar, everted rounded rim. Hard smooth light-grey-buff fabric, surface layer fired darker grey-brown; surface self-coloured. Lightly tooled burnished horizontal line around point of narrowest neck diameter; below this, a double wavy horizontal line pattern, rather irregular.
- 13 Everted jar, hard, very sandy, smoky-grey fabric. Core of rim fired dull brown. Self-coloured. Horizontal combed grooves on shoulder.
- 14 Jar, everted rounded rim. Dull light grey self-coloured fabric, core fired dull red-brown. Hard, slightly sandy. Surface lightly smoothed.
- 15 Plain everted jar, hard off-white fabric, tempered with finely crushed flint, thus giving section a very rough appearance and feel. Surface lightly smoothed. Probably hand-made.
- 16 Everted jar, slightly cut-off rim. Hard, sandy, light grey self-coloured fabric.
- 17 Everted jar, undercut rim, almost identical fabric to 18, but surface only smoothed, and slightly sooty.
- 18 Everted jar, undercut rim. Hard, slightly sandy, dirty grey self-coloured fabric. Lightly polished on outer surface and top of inner lip. Two sherds.
- 19 Everted jar, undercut rim. Hard sandy dull buff fabric, self-coloured. Cordon around narrowest point of neck.
- 20 Everted jar, hard sandy blue-grey fabric, surface layers a more smoky grey. Self-coloured.
- 21 Everted jar, slightly undercut rim. Hard gritty dark grey fabric, self-coloured.
- 22 Jar, rounded rim, cut off underneath. Hard sandy gritty fabric, dull steely-grey surface and core, sandwiching a dull dirty-grey-brown layer. Self-coloured, lightly smoothed.
- 23 Everted jar, hooked rim. Fabric similar to 25. Colour grey-black at fracture, surface fired dull brown-buff, but rim and upper part of neck burned blackish. Probably hand-made.
- 24 Plain everted jar; hard, sandy grey-buff fabric, surface smooth and soapy and fired red-buff in parts. Tempered with shell-fragments. Probably hand-made.
- 25 Everted jar, rounded rim, hard shell-gritted fabric with smooth "soapy" surface. Fabric dirty grey, surface layer fired dull pink-brown. Slightly burned around rim. Probably hand-made.
- 26 Very similar fabric to 25, though surface mostly burned grey. Possibly part of the same vessel.
- 27 Jar, rounded rim. Hard sandy fabric, mottled grey and rusty brown. Coated with matt black slip.
- 28 Cornice-rim jar. Hard sandy fabric, the rim fired grey-black throughout, the neck and shoulder fired dull brown with a smoked-grey-black surface.
- 29 Cornice-rim jar. Hard, slightly sandy fabric, grey surface layers and core sandwiching a dull-red-brown layer (grey core absent from neck). Surface dirty dark grey, self-coloured.
- 30 Cornice-rim jar; smooth, hard, slightly sandy, light grey fabric, self-coloured.
- 31 Cornice-rim jar. Hard smooth fabric, rim burnt black throughout. Neck has grey-black core, sandwiched by dull brown surface layers. *c.* 1 mm thick; top of these surface layers smoked dark grey.
- 32 Cornice-rim jar. Fabric very similar to 33.
- 33 Cornice-rim jar. Hard, smooth, slightly sandy grey fabric, self-coloured; surface smoked dark grey.
- 34 Cornice-rim jar. Hard sandy steel-grey fabric, self-coloured, surface lightly smoothed.
- 35 Cornice-rim jar. Hard, smooth, sandy, orange-buff fabric, self-coloured, smoked orange-grey on outer surface. Outer layers of rim burnt greyish.

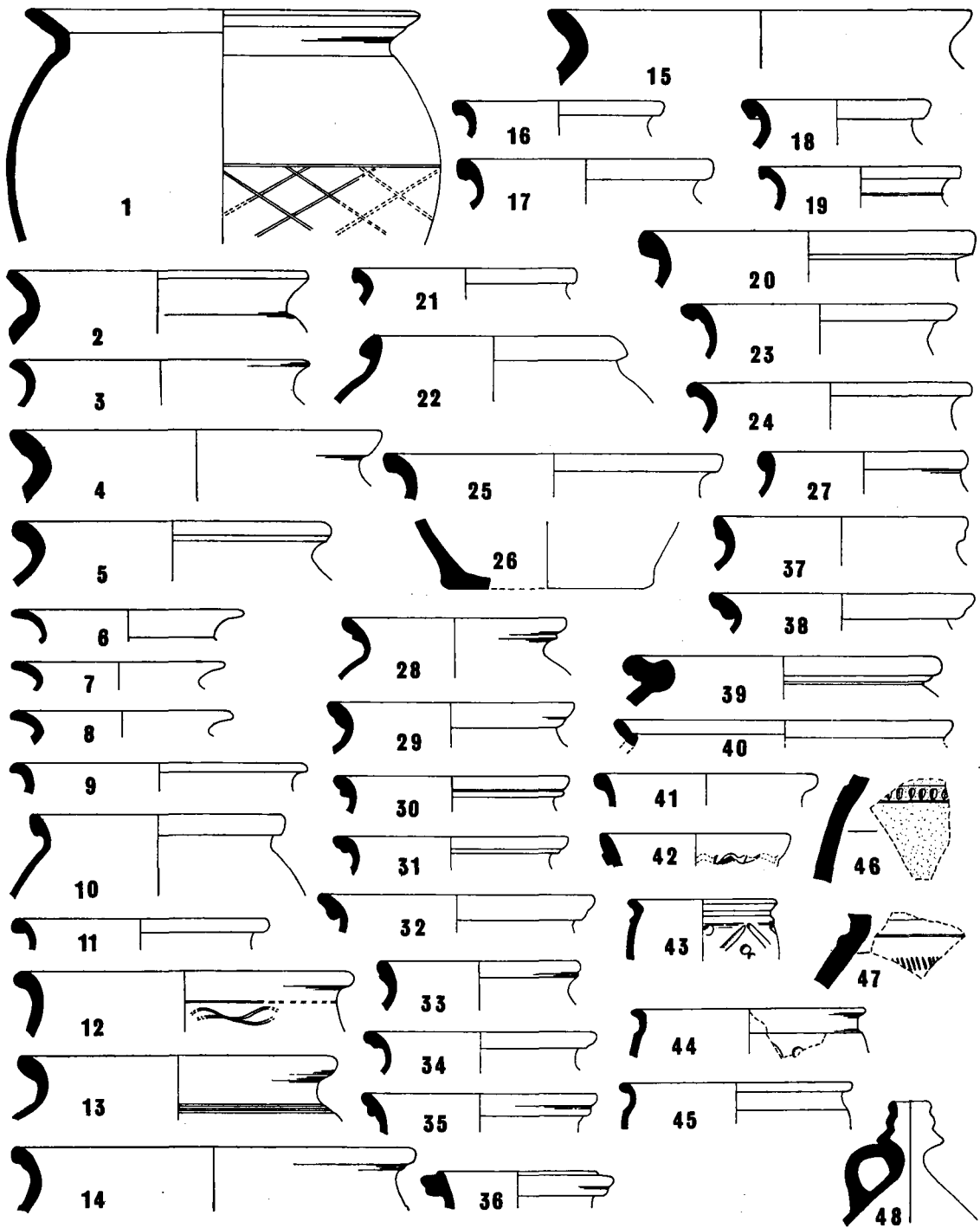


Fig. 8
Pottery from Appian Road ($\frac{1}{4}$)

- 36 Everted jar rim with flange, having a cornice-type design. Smooth, fairly hard, dull grey fabric, with surface layers (c. 2 mm thick) fired dull grey-brown. Exterior surface probably coated with grey slip.
- 37 Cornice-rim jar. Hard, smooth fabric, core fired dull grey, outer layers fired dull red-brown. Coated with matt black slip.
- 38 Cornice-rim jar. Hard, smooth, slightly sandy dull brown-grey fabric, surface layers (c. 1 mm thickness) fired dull steel-grey. Surface self-coloured.
- 39 Everted neckless jar with sunken internal lid-groove. Hard creamy-grey fabric densely tempered with crushed flint.
- 40 Everted jar. Hard smooth dull-grey ware core fired dull grey-brown; surface lightly polished. Jar has internal seating for lid.
- 41 Everted jar rounded rim. Hard slightly sandy fabric grey core becoming pinkish towards surface. Surface layers (top 1 mm) orange. Matt self-coloured.
- 42 Everted narrow-necked jar, possibly with internal lid seating. Hard sandy orange fabric, with grey core. Surface matt, self-coloured. Frilling applied round neck by pinching clay between thumb and forefinger (*q.v.* Old Ford, 1971, Fig. 9:7).
- 43 Lipped everted beaker-like jar. Smooth, hard, light-grey fabric. Self-coloured, lightly smoothed on exterior face and top of lip. Decoration of stamped lines, forming (?)zig-zag pattern, and stamped circular indentations. Also similar sherd, 6½ ins. diameter, *not illustrated*.
- 44 Lipped everted jar. Smooth, fine grey-buff fabric coated with black slip, lightly smoothed on exterior and lip. Traces of two (?)circular stamped decorations.
- 45 Everted rounded-rim jar, dirty dark-brown-buff fabric, surfaces fired dull red-brown. Coated with dark chocolate slip, polished lightly on shoulder.
- 46 Shoulder fragment of large jar, found with six plain sherds and two base sherds of same vessel. Hard sandy fabric, with some grit tempering, dirty red-grey colour, surfaces smoked black. Fabric has a very rough appearance, though it feels soapy and only slightly rough. Diameter of base c. 8 ins. Shoulder has single band of stabbed decoration, made with a broad pointed instrument, above a roughly incised horizontal line and below a shallow shoulder groove.
- 47 Shoulder and neck of large jar, in hard rough sandy fabric, dirty-grey-buff in colour. Surface smoothed, dull grey. Some shell temper. Band of diagonal slashed decoration on shoulder, below a shoulder cordon.
- Jars not illustrated:*
Six rims of "cavetto"-type. Hard grey wares, two sandy, four smooth; the former with black polished slip on inside face of rim diameters 7 ins. and 8 ins.; the latter, two self-coloured, two blue-grey polished slip, diameters 7 ins., 5¼ ins., 6½ ins., uncertain.
Ten fragmentary rim sherds, plain everted jars. One, brown-buff ware with white slip, the rest grey self-coloured, or black with polished black slip.
Six sherds, jars with rounded everted rims; various self-coloured grey fabrics; five hard and smooth, one hard and sandy. Also one similar sherd, reddish-buff fabric; soft, sandy, traces of black slip.
Everted hooked or undercut rims: four in various grey wares; one grey-brown and one chestnut-brown, each with matt black slip. Two rims and four body sherds in grey-buff shell-tempered fabrics. One rim in smooth hard pink-buff fabric.
One everted narrow-necked jar with rounded rim (8½ ins.); one rounded rim (8 ins.+), one folded-over rim (8 ins.+), smooth grey fabrics; worn.
Seven other various rims in buff to whitish wares.

Flagons

- 48 Single-handled flagon. Hard smooth light grey ware, self-coloured, exterior lightly polished.

Fig. 9

- 1 Flagon neck only, (?)one handle. Hard, slightly sandy, self-coloured off-white fabric, tending to yellowish. Two horizontal incised shoulder grooves, and a neck cordon c. ½ ins. above point of narrowest diameter split by a central groove.
- 2 Flagon in hard, smooth, cream-buff fabric, core slightly pinkish. Lip has interior overhang, and is considerably twisted out of horizontal in firing.

Not illustrated:

Very worn fragment of large flagon handle in grey-buff fabric with traces of polished dark grey slip.
Weathered fragment of flagon handle in orange-pink fabric with grey core, coated with chocolate-coloured slip.

Large handle, soft smooth pink fabric, with two "ribs". Very worn.

- 3 Amphora, hard smooth fabric, with grey-buff core, pink-buff surface layer, sandwiching thin dull red layer. Traces of creamy slip on exterior. Heavily worn. And a small sherd of similar fabric.

Mortaria

- 4 Hard, quite smooth, light parchment-buff fabric. Grits brown to pink, a few whitish. Folded-over flange.
5 Shallow horizontal groove on flange. Hard smooth white fabric. Black grits. Two worn fragments.
6 Hard white sandy fabric, slightly pinker at core. Grits grey, pink. Spout formed by roughly pushing lip forward onto flange.

Not illustrated:

Seven sherds buff wares, with pink grits; some worn.

One sherd red fabric, grey core, soft smooth ware, pink and grey grit. Very worn.

One flange fragment, diameter c. 14 ins., hard smooth off-white fabric.

Beakers

- 7 Neck of large beaker. Hard smooth dull grey-brown fabric, core tending to greyish. Surface coated with matt black slip, interior and exterior.
8 Neck and base of indented beaker (a few side sherds also found). Hard smooth light brown-buff fabric, fading to dirty light grey on exterior. Surface smoothed, self-coloured.
9 Miniature beaker, smooth hard pink-orange fabric; pedestal base with false foot-ring. Coated with matt chocolatey-red slip, now almost entirely worn away. Traces, mostly around girth, of tooled scroll pattern, burnished into slip.
10 Slightly undercut beaded rim. Smooth, fairly hard, dull grey-buff fabric, covered with dark grey slip, polished on exterior.
11 Beaker base. Hard, smooth, pink fabric, with grey-fired exterior surface layer. Upper part coated with matt chocolate slip; lower part and underside of base coated with metallic brown colour coat.
12 Shoulder sherd of beaker in hard, smooth, dirty pink ware, with three bands of rouletted decoration—two on neck and one just below shoulder, with traces of a circular stamped decoration below this band. Remains of ochreous slip over indentations of rouletting and at junction of neck and shoulder, elsewhere worn away. Also, a body sherd showing further remains of circular stamped decoration, and a band of rouletting identical to that below the shoulder, though slanting in opposite direction. Connection in drawing is inferred.
13 Another sherd from same vessel as 12, considerably worn. Traces of rouletted band, and a double arc-shaped line of indentations, mostly half-moon shaped.
14 Shoulder sherd of beaker in hard, smooth salmon-pink fabric. Faint horizontal rouletted line immediately above shoulder, and stronger horizontal rouletted line below shoulder. Sherd coated on both surfaces with ochreous slip. Body shows remains of scroll decoration in creamy-pink slip, applied over ochreous slip. And (*not illustrated*) a further shoulder-herd with slight traces of creamy-pink slip decoration.
15 Body sherd from same vessel as 14, with decoration of similar character. Also (*not illustrated*), two sherds from same vessel, one with two parallel lines in slip decoration, aligned approx. north-east-south-west relative to design; and one plain, from lower part of vessel.
16 Beaker sherd, hard, white sandy fabric, coated on both surfaces with matt black slip. Decorated with six roughly circular blobs of white slip.
17 Beaker sherd in hard, sandy pink-white fabric, surface fired pink and coated with dark chocolate slip. Decoration in thickly-applied cream slip, forming design of uncertain type.

Beaker and other colour-coated sherds, not illustrated:

Three beaker sherds in hard, smooth, pinkish fabrics, coated with dark chocolate slips, and bearing traces of applied line decoration in white or cream slip.

Beaker sherd, grey-pink fabric, hard and smooth, with chocolate slip on both surfaces.

Beaker sherd, hard, slightly sandy off-white fabric, coated with matt chocolate slip.

Eight beaker sherds in dirty pinkish fabric, with single rouletted band below shoulder. Thin, smooth hard ware, traces of dark chocolate slip.

Excavations at Parnell Road and Appian Road, Old Ford, E.3

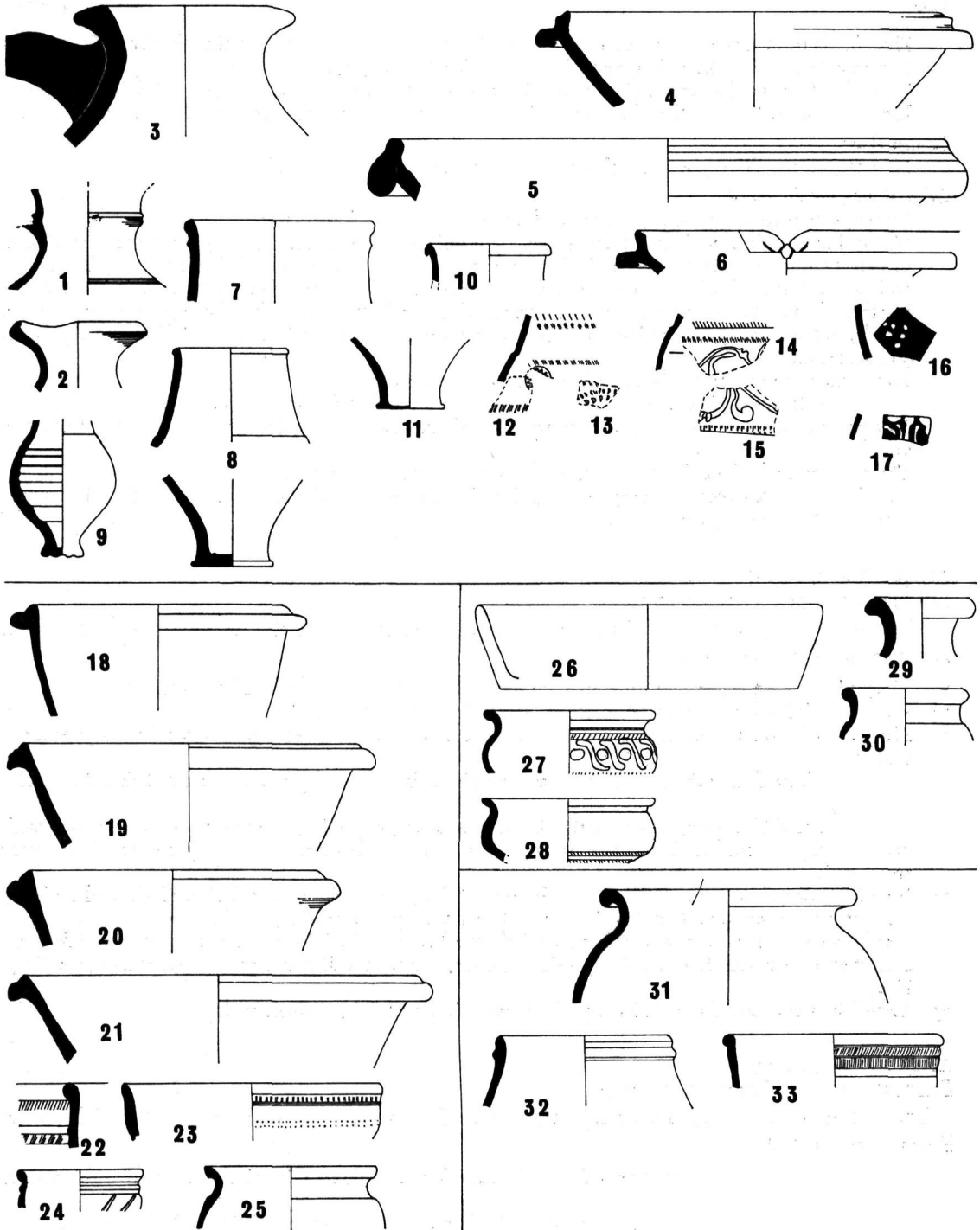


Fig. 9
Pottery from Appian Road (1/4)

Five sherds from lower part of beaker, in dull salmon-pink fabric, with dark chocolate slip. Traces of at least two bands of rouletted horizontal line decoration below girth.

Three sherds of shoulder and neck of beaker in hard, smooth, fine pink ware, coated with thin dark chocolate-colour coat. Narrow faint band of rouletted decoration at base of neck, and also below shoulder.

Samian Ware

Nine fragments, all very worn, including two mortaria sherds.

Other Wares, not illustrated:

Seventy-one sherds of various plain white, buff or parchment-coloured wares.

Ninety-four sherds in various red wares, including imitation Samian forms, Dorchester wares, etc. These include 11 fragments of a large jar in hard, smooth self-coloured orange fabric with a grey-black core, with at least three horizontal grooves below the shoulder (fragments burned in some cases, but not weathered); and 20 very worn sherds of a vessel of uncertain type, possibly a large jar with at least one handle, in hard, sandy, dirty pink ware. Also two fragments of a bowl in North African red slip ware. (See Appendix 4.)

Five hundred and fourteen plain sherds, mostly in grey wares.

Sixteen sherds, self-coloured grey wares, with horizontal combed decoration on shoulder.

Twenty-four sherds, self-coloured grey wares, with lightly-tooled lattice decoration (seven from one vessel).

Three sherds, self-coloured grey wares, with horizontal wavy line pattern.

One jar sherd, self-coloured grey ware, polished on shoulder, with extremely faint tooled diagonal (north-west-south-east) decoration.

AR2/L1 (Fig. 9, 18-25)

DATING FROM COIN EVIDENCE

Sixteen of the 34 coins are of the House of Theodosius, with dating in six cases as late as 402 and, in one case, 408 (126).

- 18 *Flanged bowl*: hard sandy dark grey ware, smoothed on both surfaces. (Appendix 5, No. 8.)
- 19 *Flanged bowl*: hard sandy grey self-coloured fabric. (Appendix 5, No. 9.)
- 20 *Flanged bowl*: hard smooth grey fabric, coated with smoothed light grey slip on inner face. (Appendix 5, No. 10.)
- 21 *Flanged bowl*: hard smooth grey fabric, coated with black burnished slip on inner face and rim. (Appendix 5, No. 7.)
- 22 *Bowl* in Oxfordshire ware. Soft smooth salmon-pink fabric, becoming darker pink to grey at core, with dark red slip on surface. Horizontal rouletted bands below bead rim and body cordon. Sherd very weathered.
- 23 *Bowl* in Oxfordshire ware. Smooth pink-brown fabric, plain, slightly everted rim. Horizontal rouletted band below lip, and double dotted line decoration on body. (Appendix 5, No. 4.)
- 24 *Small bowl* with everted rim, and horizontal groove below neck. Hard smooth dirty-orange-pink ware, smoothed on exterior face. On body below groove, traces of a diagonal groove pattern. (Appendix 5, No. 5.)
- 25 *Everted jar* with cut-off rim, in hard sandy dirty-pink-grey fabric, self-coloured.

AR2/L2 (Fig. 9, 26-30)

DATING FROM COIN EVIDENCE

Two coins of later third century, and two "Barbarous" issues of the type "Fel Temp Reparatio" (350's).

- 26 *Dish*: hard, slightly sandy, light grey fabric. Exterior face self-coloured, interior face coated with polished steel-grey slip.
- 27 *Small bowl* in Oxfordshire ware. Form B-8. Hard smooth salmon-pink fabric, with light-polished slip of slightly darker colour on surface. Horizontal band of rouletted decoration below neck, and two further bands just above lowest surviving portion of sherd. Body decoration in creamy-white applied slip, of a horizontal band of reverse S-shapes, alternating with roughly circular blobs. (Appendix 5, No. 1.)

- 28 *Small bowl* of Oxfordshire ware. Form B-8. Similar to 2, but rouletting band only at "keel". Very slight traces of what may be a wavy line decoration in cream slip. Core of body is fired grey. (Appendix 5, No. 2.)
- 29 *Flagon*: hard, sandy pink-brown fabric, fired pink-grey in parts. Coated with slip, fired creamy-brown around rim, cream-coloured on shoulder.
- 30 *Everted rounded-rim jar* in hard sandy pink-brown fabric, self-coloured. Neck slightly offset.

AR₂/L₄ (Fig. 9, 31-33)

DATING FROM COIN EVIDENCE

Three coins of later third century, and one of Arcadius (388-95).

- 31 *Jar*: everted hooked rim. Hard, slightly sandy light grey self-coloured fabric.
- 32 *Beaker*: cornice-rim. Hard, very sandy, dull grey fabric, lightly smoothed on exterior face.
- 33 *Bowl* of Oxfordshire ware, salmon-pink fabric, core slightly greyish. Two bands of rouletting below rim. Sherd weathered.

AR₂/L₅ (Fig. 10, 1-10)

DATING FROM COIN EVIDENCE

Two worn coins of first-second century date, and two of period 270-3.

- 1 *Flanged bowl*: hard gritty smoky grey fabric, with polished darker grey slip on surface. Lightly tooled arcaded decoration on exterior of body.
- 2 *Flanged bowl*: hard smooth grey fabric, coated with polished black slip.
- 3 *Flanged bowl*: hard sandy light grey fabric, lightly smoothed on surface.
- 4 *Flanged bowl*: hard smooth white fabric, coated with dark chocolate polished slip.
Not illustrated:
Flanged bowl in Oxfordshire ware. Form B-3. Hard smooth salmon-pink fabric with chocolate-red slip. (Appendix 5, No. 6.)
- 5 *Dish*: hard sandy dirty grey fabric, with two horizontal external grooves below lip. Coated with matt black slip. Faintly tooled decoration on exterior.
- 6 *Jar*: cornice rim, smooth dull grey fabric, surface smoked dark grey.
- 7 *Jar* with plain everted rim, in hard, very sandy grey-brown fabric, with smoothed steel-grey slip on inner face, down to narrowest point.
- 8 *Jar* with internally lid-seated rim, in smooth, fairly hard buff-grey fabric, coated with matt dark grey slip. Neck cordon.
- 9 *Everted neckless jar* in hard, smooth, dull grey fabric, coated with smoothed blue-grey slip.
- 10 *Bowl* with "incipient flange". Fairly hard smooth grey fabric, surface smoothed.

AR₂/F₂ (Fig. 10, 11)

DATING FROM COIN EVIDENCE

One "Barbarous" radiate (late third century), one Constans (341-6), and one other unidentifiable third-fourth century.

- 11 *Dish*: hard sandy grey fabric, exterior face self-coloured; interior face has lightly smoothed grey slip.

AR₂/F₄ (Fig. 10, 12-13)

DATING FROM COIN EVIDENCE

One coin of Tetricus I (270-3).

- 12 *Mortarium*: flanged, hard smooth fabric; surface layers white, core fired through pink to dirty grey at centre. Pink grits.
- 13 *Small bowl* in hard smooth white fabric, with ochreous-red slip decoration, shown on illustration by stippling.

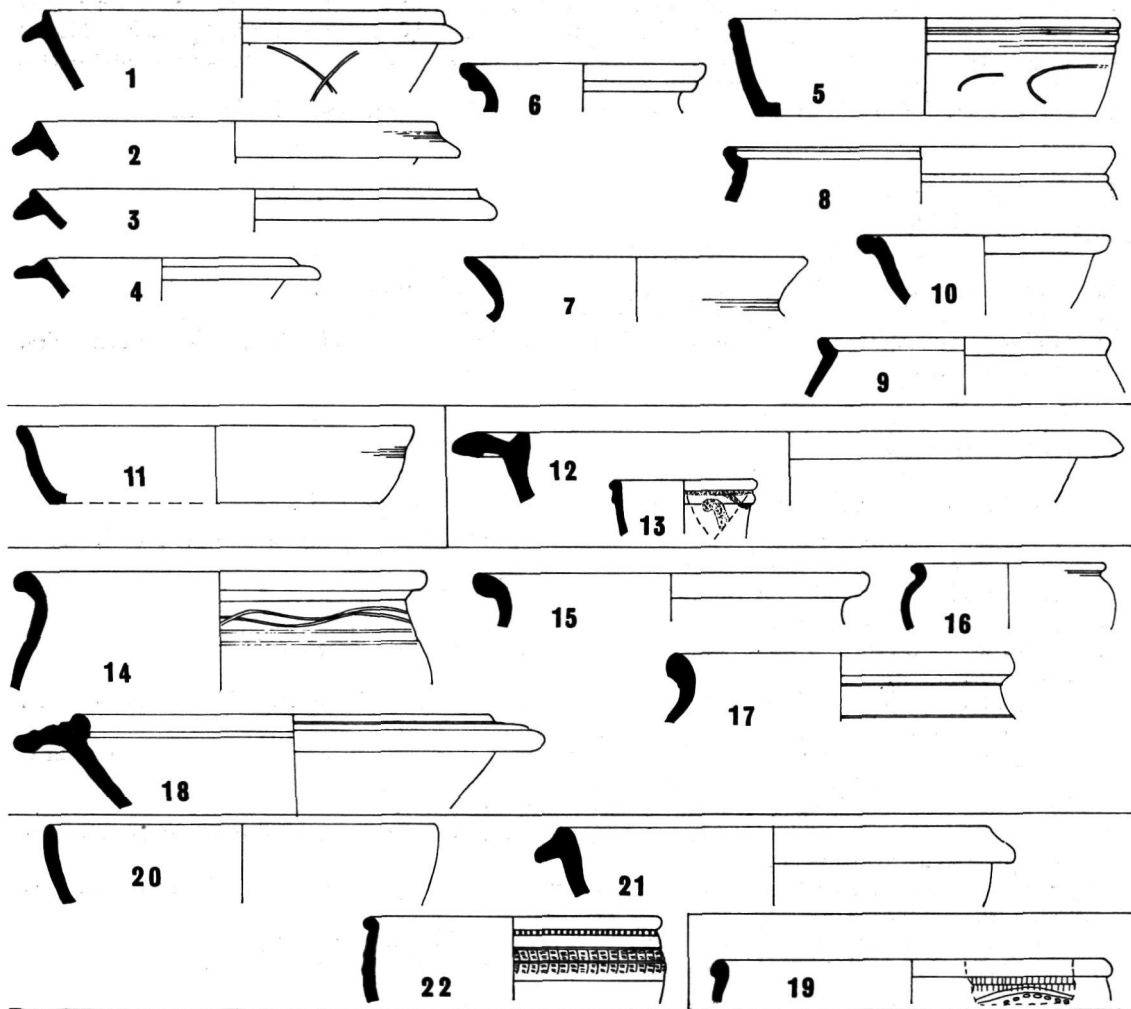


Fig. 10
Pottery from Appian Road ($\frac{1}{4}$)

AR₂/F₅ (Fig. 10, 14-18)

DATING FROM COIN EVIDENCE

One coin of Tetricus I (270-3), one of Constantine I (317-20), and one "Barbarous" minim of late third or fourth century date.

- 14 *Jar*: everted rounded rim jar, hard slightly sandy dark grey fabric, lightly polished on exterior surface, except for band which has double wavy line decoration. Almost identical to 12 and 14. Fig. 8 (AR₁/F₁), and probably from the same vessel as the latter.
- 15 *Everted jar* in hard, gritty, shell-tempered fabric, dirty-grey-brown in colour. Possibly hand-finished.
- 16 *Small everted jar* in hard sandy fabric. Surface layers fired grey-brown, core greyish.
- 17 *Everted jar* with rounded rim. Hard sandy dirty-grey-brown fabric, lightly polished on exterior surface.
- 18 *Flanged mortarium* with horizontal grooves on flange, in hard sandy parchment-coloured fabric. Large black grits, worn down to surface of vessel.

AR2/F7 (Fig. 10, 19)

DATING FROM COIN EVIDENCE

One coin of Tetricus I (270-3).

- 19 *Bowl* in Oxfordshire ware. Hard smooth salmon-pink fabric, core fired greyish-pink. Coated with darker coloured smoothed slip. External decoration of line and dots, in applied creamy white slip. (Appendix 5, No. 3.)

AR1/F4 (Fig. 10, 20-22)

DATING FROM COIN EVIDENCE

One "Barbarous" radiate, one coin of Valentinian II, and two coins of House of Theodosius (388-408).

- 20 *Dish* in hard gritty dirty grey fabric, coated on surface with slip of similar colour, smoothed on inside face.
- 21 *Flanged bowl* in hard, soapy-feeling, heavily shell-tempered dark grey fabric. (*q.v.* Old Ford, 1969-70, Fig. 7:36.) (Appendix 5, No. 11.)
- 22 *Bowl* in Oxfordshire ware. Hard smooth pink fabric, with darker coloured slip on surface, lightly smoothed. Horizontal rouletted band below rim. Horizontal body band of stamped quarter-rossette decoration, split by an incised groove through the centre of the band.

AR2/F3 (Fig. 11, 1-32)

DATING FROM COIN EVIDENCE

Eleven of the 22 coins from the layer are of the House of Theodosius, with possible dating as late as 408 (No. 140).

Bowls: "Flanged"

- 1 *Bowl* with short rounded flange, $6\frac{1}{2}$ ins. diameter. Fine sandy light grey ware; external surface smoothed lightly and smoked slightly darker grey. Exterior of rim, from c. half-way down flange, to lip, and interior face, coated with dark grey burnished slip. Narrow band on interior face matt and decorated with a crude burnished criss-cross pattern. On interior of base, a burnished, crudely executed, spiral decoration, roughly in the shape of a figure "9". (*N.B.* the internal criss-cross pattern may have extended over more of the face than is now apparent, but sherd too worn to ascertain.)
- 2 *Bowl* with short down-turned flange, diameter $7\frac{3}{4}$ ins. Fabric and surface treatment similar to 1, but exterior of body burnished, and criss-cross burnished line pattern covers whole of interior face. Four horizontal burnished bands are superimposed on the interior pattern.
- 3 *Bowl* with upward-turned flange, diameter $7\frac{3}{4}$ ins. Slightly gritty light grey fabric. Considerable quartz or mica content, especially apparent on surface of body, which is only lightly smoothed. Upper part of flange and inside face of bowl have darker grey slip, unpolished, also with micaceous content. Small patch of same slip on surface of body; uncertain whether part of a pattern or accidental.

Flanged bowls not illustrated:

- (i) Smooth light grey fabric. Slightly downbent flange. Upper part of flange and inner face coated with smoky grey slip, lightly polished.
- (ii) Smooth, light-brownish-grey fabric. Small rounded flange and stubby rounded lip. Covered with creamy polished slip, burnt grey in parts.
- (iii) Orange-brown fabric, burnt grey-brown externally. Traces of black micaceous slip on flange and exterior face, polished. Considerably worn.

Bowls: other

- 4 Diameter $7\frac{1}{2}$ ins. Cornice-rim bowl of hard fine orange-pink fabric, with dull red slip on both surfaces. Two single horizontal rouletted lines around "keel" of vessel. Traces of decoration in thick white slip, at broken edge of sherd, possibly of a crude scroll form, together with a faint patch nearby (*not illustrated*), probably accidental smudge. Body above "keel" very worn, and lower parts, both internal and external, burned. Oxfordshire ware. Form B-7.

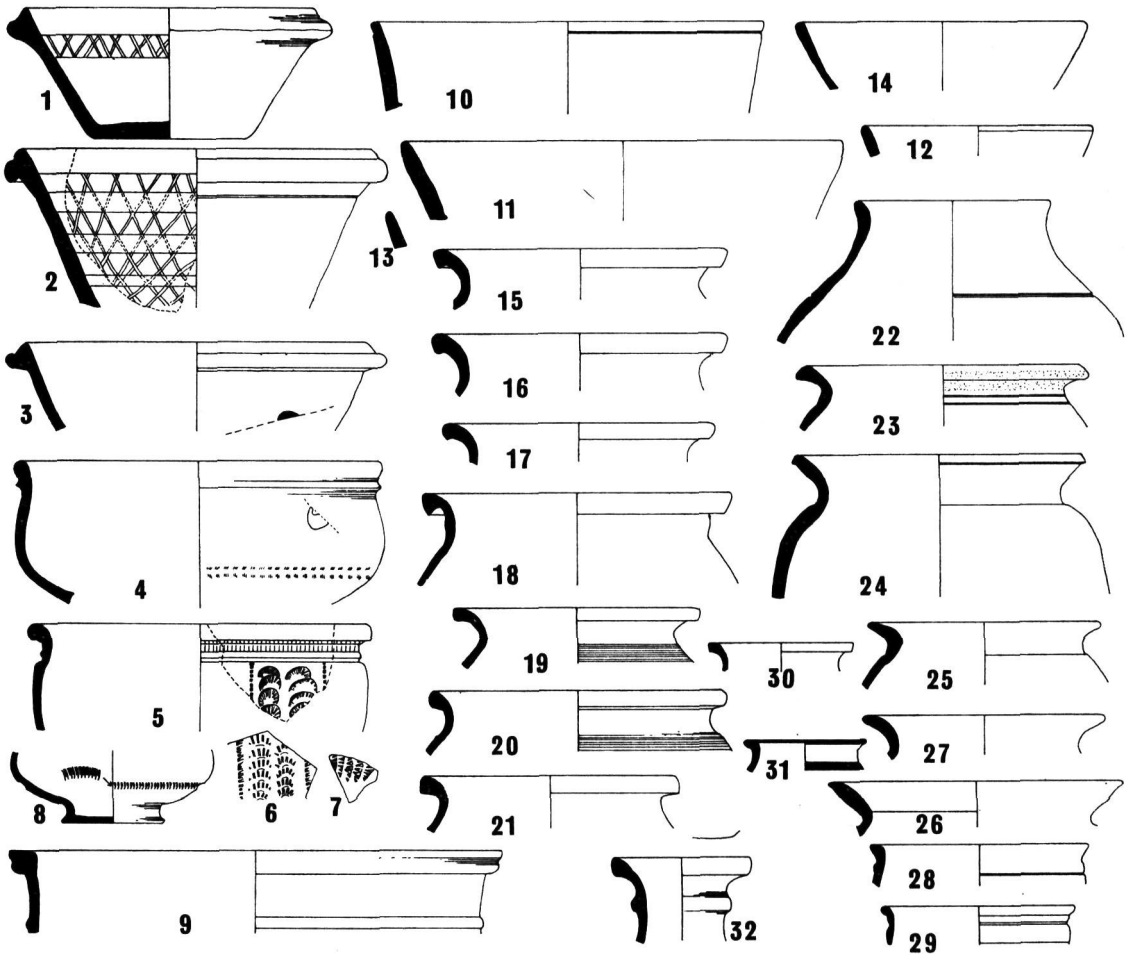


Fig. 11
Pottery from Appian Road ($\frac{1}{4}$)

- 5 Diameter 7 ins. Bowl of similar style to 4 with rounded everted rim. Hard smooth orange-red fabric with grey core, covered with orange-red slip. Narrow rouletted bands of single vertical lines on exterior, beneath lip and on neck. Body pattern of panels each consisting of two vertical rows of stamped rosettes; each rosette c. 13 mm in diameter, and the lower overlapping the one above; the two rows bordered on either side by single vertical rows of small square depressions. The rosettes are more deeply indented on their left side than on their right. The stamping shows through the fabric as raised areas on the interior surface. Sherd worn on rim exterior. Oxfordshire ware.
- 6 Wall and "keel" of vessel of same type as 5. Grey core sharply defined and sandwiched by thin layers of red fabric. Stamped "paw-mark" pattern, variant of that on 5. Lower part of vessel, below "keel" has two horizontal lines of single rouletted pattern. Slightly worn around "keel". Oxfordshire ware. Form B-8.
- 7 Another variant of 5. Small sherd only, very worn. Oxfordshire ware. Form B-5 to 8.
- 8 Base with foot-ring $2\frac{1}{2}$ ins. diameter. Similar fabric to above red-ware bowls, but red throughout. Small patches of thick white slip, at edge of sherd (*not illustrated*), possibly parts of a pattern (nature indeterminate). Also shown is vertical view of rouletting at "keel"; the smaller vertical lines between each set of larger vertical lines are in fact much closer to the larger line lying to their immediate right than can be accurately illustrated at $\frac{1}{4}$ -scale. Oxfordshire ware. Form B-5 to 8.

Similar red wares, not illustrated:

- (i) Plain everted-rim sherd, dull pink fabric, similar neck rouletting to 5. Slip of similar colour with considerable mica content. Oxfordshire ware. Form B-6.
 - (ii) "Keel" sherd, fabric similar to 5. Slip polished externally. Trace of scroll pattern, in white slip, on side wall. Small vessel. Oxfordshire ware. Form B-5 to 8.
 - (iii) Base sherd, similar to (ii), but of larger vessel. Single horizontal rouletted line on interior. Slip polished on both faces. Oxfordshire ware. Form B-1 (probably).
 - (iv) "Keel" sherd, similar to 6. Trace of horizontal rouletting. Oxfordshire ware. Form B.5 to 8.
 - (v) Flake of rim sherd, small everted lip, similar fabric to above. Probably of a small bowl.
 - (vi) Eight other sherds in Oxfordshire red ware, including a B-3 bowl fragment and a beaker sherd.
- 9 Oxfordshire "parchment ware" bowl, diameter 10 ins. Hard sandy off-white fabric, with brown slip on top and exterior face of rim and on side cordon. Sherd considerably abraded.

Other, not illustrated:

Rim fragment, beaded-rim bowl, hard sandy dirty-dark-grey fabric with lightly polished black slip.

Dishes and Platters

- 10 Diameter 8 ins. Dirty grey sandy fabric, surface layer beneath exterior face burnt dark grey. External horizontal groove 5 mm beneath lip. Surface coated with dark grey slip, polished on lip and internal face.
- 11 Diameter 9 ins. Smooth, light grey, lightly sandy fabric. Patchy smoothing on exterior face. Top of lip and interior face covered with "blotchy" blue-grey slip, roughly burnished.
- 12 Diameter $4\frac{3}{4}$ ins. Light grey sandy fabric. Rim and inner face covered with lightly burnished cream slip (fired blue-grey on rim).
- 13 Diameter uncertain. Gritty, grey-brown fabric, surface covered with lightly smoothed black slip.
- 14 Diameter c. 6 ins. Sandy fabric; smokey grey core, sandwiched by outer layer of red-brown colour, c. 1 mm thick. Surface of vessel fired same colour as core.

Other dish/platter sherds, not illustrated:

- (i) Side-fragment, large vessel. Gritty grey-brown fabric, outer layers fired grey. Exterior surface smokey-grey colour. Interior surface covered with lightly smoothed black slip.
- (ii) Side fragment, small vessel. Light grey sandy fabric. Exterior surface dirty grey. Interior surface partly covered with matt dark grey slip; there is a band with no slip below this.
- (iii) Side fragment, gritty grey fabric. Burnished blue-grey slip on interior face.
- (iv) Base fragment. Smooth light grey fabric with internal light grey polished slip.
- (v) Similar, but exterior surface smoked dark grey.
- (vi) Base fragment, hard sandy grey-brown fabric. Exterior fired grey-black. Interior with dark grey slip.

Jars

- 15 Everted jar, undercut rim. Diameter 6 ins. Hard sandy fabric. Orange-grey core, outer layers smoked darker and greyer. Surface smoothed, but still rough to feel.
- 16 Everted jar, 6 ins. diameter. Similar in fabric and appearance to J-1, but core smokey grey throughout. Six body sherds found in association, possibly from same vessel, with horizontal rilling on shoulder. Eight further similar body sherds with creamy slip on interior surface. Exteriors of most show some burning or cooking.
One further sherd, similar fabric and treatment, but dull salmon colour, and slip only on exterior.
One base, similar fabric, well "cooked" on exterior, dull smokey grey. Core dull pinkish brown. "Cheese-wire" marks on underside.
- 17 Everted jar, similar type to J-1 and J-2. Core dirty pink; surface layers dirty cream colour, covered with slip of similar colour.
- 18 Everted jar, hooked lip, diameter $6\frac{1}{4}$ ins. Hard shell-gritted fabric, dirty grey-brown in colour. Surface smooth and soapy to feel. Probably wheel-turned with hand-finished rim.
- 19 Everted jar, rounded rim. Diameter 5 ins. Hard, smooth, soapy-feeling fabric, dirty brown colour. Shell-gritted. Faint horizontal rilling on shoulder. Rim probably hand-finished.

Not illustrated:

- Nine body and three base sherds of similar shell-gritted material, some possibly from vessels J-3, 4, 5.
- 20 Everted jar, diameter 5 ins. Smooth dirty grey fabric. Rim possibly hand-finished. Faint horizontal rilling on shoulder.

- 21 Everted jar, diameter $5\frac{1}{4}$ ins. Very hard smooth grey ware.
- 22 Jar with narrow neck and slightly everted rim, diameter 4 ins. Hard smooth light grey core and surface layers, sandwiching a layer of dull chestnut-brown fabric. Surface smoothed. Shallow horizontal shoulder groove.
- 23 Everted jar, slight thickening at lip. Diameter 6 ins. Hard dirty grey fabric with a small amount of shell or calcite tempering. Shallow horizontal groove at base of neck. The exterior surface below groove, and two bands above groove, are burnished; also top of lip, and interior of rim to point of smallest diameter.
Not illustrated:
Three everted undercut jar rims, two everted jar rims with beaded lips, all in grey self-coloured wares.
- 24 Offset-neck jar, diameter 6 ins. Light grey fabric, thin layer below surfaces fired brown. Hard smooth fabric, surface smoked dirty grey.
- 25 Offset-neck jar. Hard sandy dirty-grey fabric. Light steel-grey burnished slip on body, from shoulder offset downwards, and on top and lip of rim, extending inwards to point of narrowest rim diameter.
- 26 "Cavetto"-rim jar, diameter $6\frac{1}{2}$ ins. Hard sandy dirty-grey fabric. Exterior surface self-coloured. Interior surface of rim, down to point of narrowest diameter, has steely-glue-grey slip, unpolished. Patchy application of slip to exterior underside of rim.
- 27 Everted jar, diameter c. 5 ins. Dark grey self-coloured fabric, with sand and large grit temper. Leached-out shell temper gives "corky" appearance. Quite crude appearance, possibly hand-made.
Other offset- or "cavetto"-rim jars, not illustrated:
(a) Light grey, hard smooth fabric. Steely blue-grey slip on shoulder and exterior underside of lip.
(b) Hard light grey sandy fabric. Polished dark blue-grey slip on inner rim face, and lower half of outer rim face.
(c) Hard black sandy fabric, with black burnished slip on shoulder and interior of rim (similar to Lefevre Road 1969 dishes).
(d) Hard, very sandy, dull brown fabric, reduced grey on surfaces. Thin silver-grey slip on lower half of outer lip, and inside face of rim.
(e) Hard sandy self-coloured dirty brown fabric; thin grey slip on interior rim face.
- 28 Triangular-section rim jar, diameter $4\frac{1}{2}$ ins. Smooth hard dirty grey fabric. Shallow groove below neck. Top of rim and external surface of vessel burnished.
- 29 Beaker-like jar, diameter c. 4 ins. Rounded rim, Constricted neck. Groove at base of shoulder. Smooth, fine, fairly hard, light grey fabric.
- 30 Everted jar or beaker. Diameter c. 3 ins. Dirty off-white fabric; hard, slightly rough fracture. Exterior of vessel and top of lip has thin, worn chocolate slip. Oxfordshire ware.
- 31 Small everted jar or bowl, diameter c. $2\frac{1}{2}$ ins. Hard, smooth, chestnut-brown fabric. Underside of lip and c. 7 mm of neck coated with band of cream slip; below this, body is coated (over the cream slip?) with a red-brown band of slip. Top of lip self-coloured, but remainder of inside face coated with thin cream slip. Imitation Oxfordshire parchment ware.

Beakers and Flagons

- 32 Flagon neck, diameter $2\frac{7}{8}$ ins. Hard smooth white fabric, slightly sandy. Everted rim. Cordon around narrowest part of neck. Coated with light chocolate-colour coat; this has run down the interior of the neck, and below the point of narrowest diameter, has fired a rusty colour.
Also: two body sherds from the same vessel; one having three single horizontal rouletted lines; the first and second 5 mm apart, the second and third 21 mm apart; the other sherd has two rouletted lines, c. 1 mm apart. None of the rouletting on the two sherds appears to be from the same horizontal line of decoration; the vessel this has at least five horizontal bands of rouletted decoration.

Other colour-coated sherds, not illustrated:

Three fragments of beaker bases, all salmon-pink fabric; with dark brown colour coat. One has a dull colour coat, on exterior only; two have colour coats on both surfaces, the exterior slightly polished. One fragment of a base, possibly from No. 32, but colour coat fired rusty brown on both surfaces. Also, one plain body sherd of similar fabric; both worn.

Sherds with rouletted decoration:

Two sherds; thick hard smooth white fabric; outer surface layer fired pinkish. Shallow rouletting applied with wide-toothed tool. Outer surface has orange-brown slip; inner surface, slip fired chocolate-grey. One sherd, similar; slip on inner surface orange-brown.

One sherd, hard dirty pink-white fabric, possibly Castor ware. Fine rouletted pattern, dark chocolate colour coat on both surfaces. Fine ware.

Two sherds, hard fine smooth fabric, brown core sandwiched by blue-grey surfaces, coated with dirty dark-chocolate colour coat. Fine, shallow rouletting.

Undecorated sherds:

Small sherd, very fine hard smokey-grey fabric, with well-burnished grey-black slip. Possibly Castor ware.

Shoulder or "keel" sherd, hard smooth dirty off-pink fabric, polished black colour coat on both surfaces. Medium thickness.

Shoulder/neck sherd; quite thick, dirty light brown fabric; hard, smooth; outer half of fabric (in section) fired greyish. Matt dark brown colour coat on outer surface.

Other:

Small worn sherd of "rough-cast" type beaker; smooth hard fabric, dark chocolate colour coat on both surfaces.

Other pottery, not illustrated:

Storage vessel sherds in blue-grey fabric:

- (i) Herring-bone decoration, in combed band 37 mm wide, between two horizontal bands of blue-grey polished slip.
- (ii) Decoration of horizontal combed band, at least 30 mm wide, bordered by at least one band of polished grey slip.

Jars, bands of white or grey slip and burnished lattice decoration:

- (i) Six sherds, hard sandy dirty grey "smoked" fabric; lattice lines form acute angles. Pattern displays "lean" to the left.
- (ii) One sherd, similar fabric, but lighter grey.
Sherd of large jar, grey sandy ware, with trace of burnished horizontal wavy line decoration.

IV. SOME TENTATIVE CONCLUSIONS

The work at Appian Road has therefore produced evidence similar to that from Lefevre Road, indicating late Roman settlement along the London-Colchester highway. The occupation revealed by this excavation bordered the southern side of the road after that side had been raised to the level of the centre track. The earliest layer containing pottery, tile, animal bone and coin and therefore indicative of habitation probably results from settlement in the later third century (AR₂, L₅). Much of the material, however, appears to represent a community active certainly in the fourth century, and possibly in the early fifth century.¹⁴

The building material, which included pegged, curved and flat tiles as well as baked clay, suggests that structures of some size stood in the immediate vicinity south of the road. Most of the iron objects recovered were nails: these as well as the staple and hook could be associated with building construction (See Appendix 3.). Evidence for iron smithing came from the ditch in Parnell Road, as well as from Appian Road, and there was possible indication that bronze articles of adornment were being made locally. These could, presumably, have been intended for local use, taken for sale elsewhere, or purchased by travellers on the road. (See Appendix 3.)

The information available from Old Ford so far points to the structural aspects of the settlement at least occurring along the line of the highway. The excavations at Lefevre Road showed that the main debris deposit of pottery, bone, tile, and building material extended some 13 metres to the south. Observation of the constructors sections immediately north of the road again showed later Roman features, though these could not be adequately recorded. The trenches dug at Parnell Road some 30-40 metres north of the highway revealed a thin scatter of worn and abraded sherds in a plough-soil which could have been

post-Roman. Only the material in the late Roman ditch was clearly *in situ* and relatively substantial. This area in any case was used for burials.

With these findings must be set the results of observation of a Water Board trench cut along Armagh Road in February 1972. This produced a late Roman burial enclosed in a stone coffin some 115 metres north of the road (see Location Plan No. 10),¹⁵ but little else until close up to the northern edge of the road. Here the now familiar mixture of late Roman pottery as well as tile with some animal bone and coins, was thrown up by the construction gang. It is probably a fair assumption that the roadside occupation extended at least between Armagh Road and the Lefevre Road railway cutting, a distance of some 230 metres.

Clearly if the settlement is laid out along the length of the road, then an integral relationship between the two might be expected. Presumably a major usage of the road would be to transport food and other products from the Essex countryside into London. A centre some two miles from the city could serve as a market or trading area, especially if the commodities included bulky livestock requiring space and pasture.

Two substantial aspects of the finds, the coins and the animal bones, may well help in interpretation. Over 350 coins were found on the sites at Lefevre Road and Appian Road; the great majority of these were associated with the late Roman deposits. Even if their loss is indicative of carelessness or a final decline of usage, they may well represent exchanges from considerable trading.

The animal bones are dominated by cattle. It is possible that a minimum of 150 individuals (see Appendix 2) were represented from the finds at Lefevre Road and Appian Road. There is strong evidence of butchering and it is probable, but not certain, that the cattle were killed for local consumption. The animals need not, however, be locally reared livestock.

Is it possible that the road was used for driving herds of cattle from farms in East Anglia and Essex into London? If so, then the cattle, after crossing the marshy ground east of the Lea, and the ford itself, could have been stopped on the higher ground to the west. Here they could have been rested before making the final journey to the city, only some two miles away. They may have been traded to London merchants, or even slaughtered off for the city. There are later parallels for all three activities.

In 1806, in a reference to herds coming down from the north,¹⁶ it was noted that "the cattle, sheep, etc., after resting at Islington and its neighbourhood on Thursday, are driven to Smithfield . . .". Presumably the resting would have the dual function of allowing the beasts to feed up, and to wait for a proper time of entry to the meat market. Old Ford would lie in a similarly convenient position, representing about one hour's driving time from the Roman city.¹⁷ It could have been here that the cattle changed hands. The post-Medieval custom for East Anglian herds may provide a useful parallel.¹⁸ "After Stratford the drovers crossed a bridge over the River Lea and entered the village of Bow. By now they were almost at the journey's end, for they were only a short distance from Mile End where the cattle were met and taken over by salesmen, who took them on to Whitechapel and through the City's crowded streets to Smithfield". The amount of coinage could suggest the sale of cattle at Old Ford in the late Roman period.

It would seem unlikely that the cattle slaughtered at Old Ford were intended for city consumption, but other considerations may have been taken into account. In later periods

there were complaints about the stench, filth and disease associated with city butchering habits. During the reign of Edward III as a protective anti-plague measure "it was ordained that no animals be slaughtered nearer to the city eastward than Stratford . . .".¹⁹

Clearly we have evidence from Old Ford of settlement alongside the road in the late Roman period. Associated with this we have a quantity of coinage and slaughtered cattle. Equally clearly claims as to relationships between the coins with the cattle, and indeed the use of the road for cattle droving must as yet be treated as hypothetical.

APPENDIX I
COINS FROM THE EXCAVATION
BY M. J. HAMMERSON

The excavation produced 187 Roman coins; this figure excludes five further fragments which may or may not be clippings from coins. As in the excavation at the adjacent Lefevre Road site (L.M.A.S. 23, Pt. I, p. 66), practically all these date from the Gallic Empire to the end of the Roman occupation in Britain. A summary follows:

			TOTAL
Sestertii, first-second century	..	-	2
Julia Maesa	..	-	1
Gallienus	..	-	3
Salonina	..	-	1
Claudius II	..	Official	2
		Barbarous	2
Tetrici	..	Official	7
		Barbarous	4
Other Gallic Empire	..	Official	1
		Barbarous	13
Carausius	..	Official	5
		Barbarous	4
Allectus	..	-	2
Constantine I	..	-	9
Constantinopolis	..	Official	1
		Barbarous	2
Urbs Roma	..	-	1
Crispus	..	-	2
Helena	..	-	1
Theodora	..	-	1
Constans	..	-	4
Constantine II	..	Official	3
		Barbarous	1
Constantius II	..	Official	3
		Barbarous	8
Other House of Constantine	..	Official	7
		Barbarous	1
Magnentius	..	-	1
House of Valentinian	..	-	12
Magnus Maximus	..	-	1
Theodosius I	..	Official	6
		Barbarous	1
Arcadius	..	-	11
Honorius	..	-	3
Other House of Theodosius	..	Official	20
		Barbarous	1

Other fourth century, otherwise unidentifiable ..	-	2
"Minimi" ..	-	8
Other third-fourth century, otherwise unidentifiable ..	-	30
Medieval ..	-	1
Modern ..	-	2

DETAILED COIN LIST

- Notes:* 1. Left-hand column shows coin numbers as referred to elsewhere in report.
 2. All coins bronze unless stated otherwise.
 3. Numbers in right-hand column are small-find numbers allotted to coins.
 4. Dates refer, where possible, to period during which coin was minted; otherwise, to reigns.
 5. Probable condition at time of deposit indicated by letters in right-hand column: A=little or no wear. B=light wear only. C=average wear. D=fairly heavy wear. E=very heavy wear. Where two letters are given, condition is somewhere between the two grades. "Condition" here means probable condition at time of deposit, not at time of excavation; thus, corrosion effects are, as far as possible, ignored. The categories are the writer's opinion alone, but will, it is hoped, give a relative guide to the length of time a coin might have been in circulation.
 6. "Barbarous" imitations of official coins. While no dates are given in the list, current opinion favours their being contemporary with the coins they imitate, and they are thus classified accordingly here.

Abbreviations: RIC: "Roman Imperial Coinage"

K: J. P. C. Kent, "The pattern of bronze coinage under Constantine I", *Numismatic Chronicle*, 1957


LRB I/II: R. A. G. Carson, P. V. Hill and J. P. C. Kent, "Late Roman Bronze Coinage", Spink and Son, 1965

A. G. Askew, "The Coinage of Roman Britain", Seaby, 1957

	<i>Date</i>		
1. Faustina Jr. RIC(Marcus Aurelius) 1663 ..	d.175	D	303
2. Sest., unidentifiable emperor ..	1st/2nd C.	E	298
3. Julia Maesa AR. RIC(Élagabalus) 271 ..	218-222	B	310
4. Gallienus. RIC 230 (Sole reign) ..	260-8	D	243
5. Gallienus. Ant., Fig. std. L. ..	260-8	C	285
6. Gallienus. Ant. ..	260-8	?	97
7. Salonina. Ant., silver-washed ..	d.268	D	262
8. Claudius II. Ant. Fig. L with cornucopiae ..	270-2	D	55
9. Claudius II. Ant. Fig. L with ?spear ..	270-2	C	308
10. Barbarous, AE 15 mm, Claudius II. Elliptical flan. Std. fig. with ?spear ..		C/D	a
11. Barbarous, AE 7 mm, Claudius II. Type CONSECRATIO (Altar) ..		A	68
12. Tetricus I. Ant. Spes. or Laetitia L., with wreath ..	270-3	C	247
13. Tetricus I. PAX AVG ..	270-3	C	266
14, 15. Tetricus I. Ant'i. Fig. L ..	270-3	C, B	85,305
16. Tetricus I. Ant. Fig. L. Coin clipped ..	270-3	C	22
17, 18. Tetricus I. Ant'i. Fig. std. ..	270-3	C	117,302
19. Barbarous, AE 17 mm, Tetricus I, Type Virtus L. with spear. Oval flan ..		A/B	PR. 3
20. Barbarous, AE 12 mm. Tetricus I ..		C	142
21. Barbarous, AE 17 mm, Tetricus I ..		B/C	252
22. Barbarous AE 12 mm, Tetricus I or II. Fig. L, with transverse spear or palm ..		D	216
23. AE Ant., unidentifiable Gallic usurper ..	259-73	C/D	235
24-36 "Barbarous Radiates"			

24. AE 19 mm	..		C	198
25. AE 18 mm. Providentia L, with sceptre and cornucopiae	..		B/C	178
26. AE 17 mm. Draped fig. L. with olive branch and sceptre	..		C	139
27. AE 15 mm. Draped fig. L, with palm and cornucopiae. Flan almost square, corners rounded	..		B	191
28. AE 14 mm. Arm visible, holding wreath L, type LAETITIA	..		A/B	156
29. AE 14 mm. Pietas type (sacrificial implements)	..		C/D	35
30, 31. AE 14 mm. Fig. L, with spear and sceptre	..		C	264,288
32. AE 11 mm. Spindly fig. advancing L. Flan. almost diamond-shaped	..		C/D	166
33. AE 10 mm. Fig. std. L. Almost triangular flan.	..		D	113
34. AE 10 mm. Struck on fragment of official coin	..		D	161
35. AE 17 mm. Fig. std. with spear	..		B	79
36. AE 5 mm	..		C/D	31
37, 38. Carausius. RIC 118 (London)	..	287-93	C, A	25,134
39. Carausius. RIC 121 (London)	..	287-93	A	294
40. Carausius. RIC 98-117 (London)	..	287-93	C/D	115
41. Carausius. Ant., type PAX AVG. Clipped into triangular shape with rounded corners and concave sides	..	287-83	B	263
42. Barbarous AE 20 mm, Carausius. Overstruck on Tetrican Ant. Reverse, fig. std. L, with two spears or standards; inscription I II I II II II II II	..		B	246
43. Barbarous AE 21 mm, Carausius. Type PAX AVG, olive branch and vertical sceptre	..		C	177
44. Similar, AE 20 mm	..		B/C	118
45. Similar, AE 18 mm	..		B/C	7
46. 47. Allectus. RIC 124 (Colchester)	..	293-6	A	185, 26
48. Constantine I. K-188 (Trier)	..	317-20	B	271
49. Constantine I. K-378 (Arles)	..	317-20	B	67
50. Constantine I. VIRTUS EXERCITI VOT XX. Mint mark TSE	..	317-20	A	290
51. Constantine I. K-207 (Trier)	..	320-4	A	100
52. Constantine I. K-212 (Trier)	..	320-4	A	124
53-55. Constantine I. K-215 (Trier)	..	320-4	A	105, 132, 217
56. Constantine I. K-312 (Lyons)	..	320-4	C	295
57. Constantinopolis	..	330-7	C	188
58. Barbarous, AE 17 mm, Constantinopolis. Imit. mint of Siscia	..		A	5
59. Barbarous, AE 10 mm, Constantinopolis	..		B	279
60. Urbs Roma	..	330-41	C/D	196
61. Crispus. K-216 (Trier). Flan cracked in striking	..	320-4	A	60
62. Crispus. Either K-86, 89 (London), 209, 213 (Trier), 313 or 316 (Lyons)	..	320-4	B	119
63. Helena. Probable LRB I-135 (Trier)	..	337-41	D	187
64. Theodora. LRB I-113, 120 or 129 (Trier)	..	337-41	C	54
65. Constans. LRB I-140 (Trier)	..	341-6	B	237
66. Constans. LRB I-155 (Trier)	..	341-6	C	28
67. Constans. LRB I-156/7 (Trier)	..	341-6	B/C	200
68. Constans. LRB I-449 (Arles)	..	341-6	B/C	213
69. Constantine II. A-867 (London)	..	324-6	A/B	258
70. Constantine II. LRB I-193 (Trier)	..	335-7	A	244
71. Constantine II. VICTORIAE DD AVGGQ NN. Western area mint	..	341-6	C/D	162
72. Barbarous AE 18 mm, Constantine II, type VIRTUS AVGG, imitating LRB I-306 (Arles); mint mark M.V. L. Very good copy	..		A	272

73. Constantius II. LRB I-40 or 46 (Trier)	..	324-30	A	208
74. Constantius II. LRB I-135 (Trier)	..	337-41	C	186
75. Constantius II. FEL TEMP REPARATIO (horseman), clipped to AE4 size	..	346-60	C	233
76-83: <i>Barbarous imitations of FEL TEMP REPARATIO (Fallen horseman)</i>				
76. AE 15 mm	..		D	b
77. AE 15 mm	..		A/B	201
78. AE 15 mm	..		C	204
79. AE 13 mm	..		A/B	203
80. AE 12 mm	..		A/B	81
81. AE 11 mm	..		D	190
82. AE 10 mm	..		D	207
83. AE 9 mm	..		A/B	239
84-90: <i>Other House of Constantine (official), emperors uncertain</i>				
84. Crispus or Constantine II. AE Follis. K-216 or 217 (Trier)	..	320-4	B/C	65
85, 86. AE4, GLORIA EXERCITUS (2 standards)	..	330-5	E	168, 1
87. AE 4, GLORIA EXERCITVS (2 standards), Trier	..	330-5	C	PR. 1
88. 89. Constans or Constantius II. AE4, VICTORIAE DD AVGGQ NN. Western mint	..	341-6	?,D/E	2, 12
90. Constans or Constantius II. Clipped fragment of AE4 GLORIA EXERCITVS. Fragment contains right-hand soldier and small part of exergue	..	341-6	?	128
91. Barbarous AE 13 mm, type GLORIA EXERCITVS (1 standard), imit. Arles mint	..		B/C	171a
92. Magnentius. AE3, VICTORIAE DD AVGG ET CAES VOT V MULT X (Western mint)	..	351-3	B/C	171b
93. Valens. LRB II-97, 104 or 120 (Trier)	..	364-75	A	311
94. Valens. LRB II-319 (Lyons)	..	367-75	C	197
95. Valens. AE3 SECVRITAS REIPVBLICAE. Half coin only	..	364-75	C/D	280
96. Valens. Sliver of bronze, cut off edge of AE3 type GLORIA ROMANORUM, with only VALE and GLORI on it	..	364-78	?,C	180
97. Valens or Valentinian I. AE3, GLORIA ROMANORVM (Trier)	..	365-75	B/C	3
98. Valens or Valentinian I. AE3, type SECVRITAS REIPVBLICAE. Half coin only	..	364-78	C	227
99. Uncertain AE3 SECVRITAS REIPVBLICAE. Half coin only	..	364-78	C/D	172
100. Gratian. AE3 SECVRITAS REIPVBLICAE (Siscia or Thessalonica)	..	367-75	C	241
101. Gratian. AE3, type uncertain	..	367-75	A	64
102. Magnus Maximus. LRB II-795 (Rome)	..	387-8	C	29
103, 104. Valentinian II. LRB II-1105 (Aquileia)	..	388-92	C	222, 291
105. Valentinian II. AE4 SALVS REIPVBLICAE, Eastern area mint	..	388-92	C	122
106. Theodosius I. AE 4, VICTORIA AVGGG. Western area mint	..	383-95	B/C	167
107. Theodosius I. LRB II-169 (Trier)	..	388-92	C/D	293
108, 109. Theodosius I. LRB II-565 or 568 (Arles)	..	388-95	B	116, 228
110. Theodosius I. LRB II-1106 or 1109 (Aquileia)	..	368-95	C	20
111. Theodosius I. LRB II-2577 (Cyzicus)	..	393-5	A	184
112. Barbarous AE4, Theodosius, type VICTORIA AVGGG. Good copy, but poor, irregular lettering, and large nose on obverse portrait	..		B	234

113. Arcadius. Clipped fragment (c. quarter coin) of AE2, GLORIA ROMANORUM ..	383-95	B/C	52
114. Arcadius. LRB II-566, 569 or 571 (Arles) ..	388-95	C	269
115. Arcadius. LRB II-566 or 569 (Arles) ..	388-95	C	287
116. Arcadius. LRB II-392 (Lyons) ..	388-92	B	277
117. Arcadius. AE4, VICTORIA AVGGG. Gallic, Roman or Adriatic mint ..	383-92	C/D	259
118, 119, 120. Arcadius. AE4 VICTORIA AVGGG. Gallic, Roman or Adriatic mint ..	383-95	C/D	206, 218, 240
121. Arcadius. LRB II-801 or 805 (Rome) ..	388-95	B/C	211
122, 123. Arcadius. AE4, type SALVS REIPVBLICAE ..	388-402	B	69, 179
124. Honorius. LRB II-806 or 809 (Rome) ..	394-402	C/D	209
125. Honorius. LRB II-810 (Rome) ..	395-402	C/D	254
126. Honorius. LRB II-811 (Rome) ..	402-8	C/D	224
127-146. Other House of Theodosius, Emperors unidentifiable			
127-137: Type VICTORIA AVGGG.			
138-146: Type SALVS REIPVBLICAE.			
127. LRB II-386-96 (Lyons) ..	388-95	D	62
128. LRB II-562-72 (Arles) ..	388-95	C/D	273
129. AE4. Western area mint, possibly Rome. Clipped ..	378-402	C	299
130, 131, 132. AE4, Western area mint ..	388-95	C,C,A	15, 176, 260
133, 134, 135, 136. AE4 ..	388-95	D-E	16, 129, 245, 289
137. AE4, probably VICTORIA AVGGG ..	383-402	C/D	195
138. LRB II-806-9 (Rome) ..	394-402	D	275
139. AE4, Rome or Eastern area mint ..	399-402	C/D	183
140. AE4, ?Rome ..	388-408	C	251
141, 142, 143. AE4, rev. types uncertain ..	388-402	?	24, 214, 225
144. AE4. Only one-third of coin remaining ..	383-95	?	137
145. AE4, detail lost. High lead content suggests mint of Rome ..	378-408	?	114
146. AE4, rev. type uncertain ..	378-408	?C	227
147. Barbarous House of Theodosius, AE 11 mm, type VICTORIA AVGG. A short knife-incision has been made, cutting into the edge ..		A	221
148. AE4, fourth century, uncertain type. Obv. Diad. head R. . .		?	160
149. AE 8 mm, fourth century, diad. head R ..		B/C	192
150-157. Barbarous "Minimi", third and/or fourth century. All have good round flans except 155. No detail visible unless stated			
150, 151, 152. AE 8 mm ..			17, 210, 212
153, 154. AE 7 mm ..			169, 248
155. AE 6 mm. Probably clipped from larger coin ..			18
156. AE 6 mm, ?std. fig. on reverse ..			155
157. AE 5 mm ..			256
158-185. Other third/fourth century coins. All detail lost; Numbers in brackets are, first, small find number; and second, diameter in millimetres			
158 (53-18); 159 (61-14); 160 (26-13); 161 (120-13); 162 (11-12); 163 (78-12); 164 (143-12); 165 (205-12); 166 (32-12); 167 (23-11); 168 (71-11); 169 (166-11); 170 (215-11); 171 (238-11); 172 (PR2-10); 173 (56-10); 174 (157-c.10 mm. Only half coin remaining; possibly clipped); 175 (144-9); 176 (151-8); 177 (63-7).			
178. AE 13 mm. One quarter of coin has been cut off, thus: 			220
179-185 (6, 21, 126, 145, 146, 159, 193). All small clipped fragments of coins			
186. Barbarous AE 11 mm. third/fourth century ..			181

187. Barbarous AE 10 mm, third-fourth century. Obv. Head R (portion with diadem or radiate crown broken off); rev. fig. L	..	B	236
188-192 (19, 133, 163, 202, 261). Small bronze fragments, possibly from coins	..	B	PR. 4
193. French Jeton	..	E	30
194. George III, 1d.	..	A	36
195. Edward VII. ¼d.	..		

Analysis of Identifiable Fourth-Century Mint Marks

DATE	"WESTERN AREA"					"EASTERN AREA"					TOTAL
	London	Trier	Arles	Lyons	Other	Rome	Aquileia	Siscia/ Thessalonica	Cyzicus	Other	
317-24	1	6	1	1	1						10
326-41		6									6
341-60		3	1		4						8
364-78		2		1			2	1		1	7
378-95		1	5	2	5	2	1		1		17
378-402					4	1					5
395-408						5				1	6
TOTAL	1	18	7	4	13	8	3	1	1	2	

Coins from the sites, as a percentage of each period of occupation (total number in brackets)

Period	..	Lefevre Rd.	Appian Rd.	Average
		1969/70	1971	
First-second century	..	5 (9)	1 (2)	3%
Third century	..	27(46)	25(45)	26%
House of Constantine	..	24(41)	25(45)	24.5%
House of Valentinian	..	14(31)	5(12)	9.5%
House of Theodosius	..	12(21)	23(43)	17.5%
Other third/fourth century (unidentifiable)	..	14(24)	21(40)	17.5%

Proportion of Barbarous imitations to official issues

	..	Lefevre Rd.	Appian Rd.
		1969/70	1971
To mid-third century	..	—	—
Gallienus - Claudius II	..	2 out of 8	2 out of 8
Gallic Empire	..	7 out of 29	17 out of 25
House of Constantine	..	9 out of 41	12 out of 45
House of Valentinian	..	1 out of 31	Nil out of 12
House of Theodosius	..	4 out of 21	2 out of 42

The 1971 percentage table shows continuing emphasis of activity at the site down to the latest period of the Roman occupation, especially toward the latest phase of the period; activity prior to the mid-third century continues to appear almost non-existent.

A regrettable factor is the large number of unidentifiable coins. However, if the average total of 17.5% is allotted proportionately between the third century, Constantinian and Valentinianic/Theodosian coins from the two years' excavations the allocation to each category would be approximately equal, *i.e.* c. 6%, and any conclusions reached need not be altered.

The table of Barbarous imitations shows the predominance of irregular coin production to have occurred under the Gallic Empire; there is a marginal increase in the number of Constantinian imitations, but a considerable decrease of imitations amongst later issues. Clipping or other defacement was noted among the coins classified as unidentifiable, and these cannot be attributed to any of the above periods.

Slight evidence may be inferred for the production of irregular coinage at the site, or nearby, from the clipped coins found (List Nos. 16, 27, 34, 41, 75, 90, 95, 96, 98, 129, 144, 155, 179-85, and bronze fragments 188-92). These appear to cover the entire period of occupation on the site. Of greater interest in this connection is No. 147, a barbarous Theodosian coin which has a short cut through the flan; and 178, unfortunately unidentifiable, from which a quarter of the coin has been cut. No inference can be made regarding the origin of the Carausian overstrike No. 42.

SUMMARY OF COIN FINDS FROM THE EXCAVATION

listed according to archaeological strata where discovered (Numbers refer to list numbers given in detailed coin list). (For dating, see detailed list)

APPIAN ROAD: Trench 1

Clearing Layer: 162, 194, 195

Layer 1

10, 16, 29, 35, 36, 37, 45 (Claudius II-Carausius); 58, 64, 66, 75, 76, 84, 88, 89 (Constantinian); 101, 102 (Valentinianic); 110, 122, 125, 130, 133, 141, 144 (Theodosian); 150, 155, 158, 159, 160, 163, 164, 166, 167, 168, 179, 180 (other third/fourth century).

Layer 2: 156 ("Minim").

Layer 3: 17, 40, 44 (Tetrici-Carausius); 90 (Constantinian); 134, 145 (Theodosian); 181, 189 (other third/fourth century).

Road Surface "A":

8 (Claudius II).

Road Gravel (top):

175, 176, 182, 183 (other third/fourth century, unidentifiable), 127 (Theodosian, 388-95).

Road Surface under L1:

113 (Arcadius).

Brown earth above sand B:

56 (Constantinian).

Top of Sand B nr. F.1:

39 (Carausius).

Feature 1:

6, 11, 14, 20, 26, 38 (Gallienus-Carausius); 49, 51, 52, 53, 59, 61, 62, 80 (Constantinian); 93, 95 (Valentinianic); 173, 177 (other third/fourth century).

Feature 4:

33 (Barbarous radiate); 105 (Valentinian I); 108 (Theodosius I); 146 (Theodosian).

APPIAN ROAD: Trench 2:

Top of Roman strata:

34 (Barbarous radiate); 71 (Constantinian); 148 (Theodosian); 174, 184 (other third/fourth century).

Layer 1:

5, 22, 24, 27, 32 (Gallic Empire); 54, 55, 57, 67, 68, 73, 74, 78, 79, 82, 85, 91, 92 (Constantinian); 94, 96, 98, 99, 102 (Valentinianic); 106, 109, 111, 118, 119, 121, 123, 124, 126, 131, 137, 139, 142, 143, 147, 149 (Theodosian); 151, 152, 153, 165, 169, 170, 178, 185, 186, 190, 191 (other third/fourth century).

Layer 2:

25, 43 (later third century); 77, 81 (Barbarous Fel. Temp. Reparatio).

Layer 3:

12, 23, 31, 42 (Gallic Empire-Carausius); 112 (edge of F2), 116 (edge of F3) (Theodosian); 192 (probably not a coin) (AE Fragment).

Layer 4:

30, 41, 47 (Gallic Empire-Allectus); 114 (Arcadius).

Layer 5:

1, 2 (first-second century); 9, 15 (270-3).

Sand below L.5:

3 (218-222).

Feature 1:

60, 63, 86 (Constantinian).

Feature 2:

28 (Barbarous Radiate); 65 (Constantinian); 187 (other third/fourth century).

Feature 3:

4, 7 (Gallienus); 50, 69, 70, 72, 83 (Constantinian); 100, 104 (Valentinianic); 107, 115, 117, 120, 128, 129, 132, 135, 136, 138, 140 (Theodosian); 154, 171 (other third/fourth century).

Feature 4:

13 (Tetricus I).

Feature 5:

21 (Tetricus I); 48 (Constantine I, 317-20); 157 ("Minim").

Feature 7:

18 (Tetricus I).

APPIAN ROAD: Area of modern disturbance at the east of the site:

All strata in this trench were disturbed by modern work: 46 (Allectus); 172 (other third/fourth century).

PARNELL ROAD:*PR.1, L.1:*

87 (Constantinian), 330-5.

P.3 in T.4:

19 (Barbarous Radiate).

PRT.4:

193 (Medieval).

T.3, L.1:

172 (third/fourth century).

APPENDIX 2
ANIMAL BONES
BY DERRICK RIXSON

INTRODUCTION

The animal bone was, on the whole, fragmentary but in a good condition. The only whole bones were as follows:

<i>Cattle</i>	1st Phalanx	34
	2nd Phalanx	19
	3rd Phalanx	12
	Radius	1
	Metatarsus	1
	Metacarpus	1
	Astragalus	1
	Patella	1
<i>Horse</i>	2nd Phalanx	1
	3rd Phalanx	1
	Radius	2
	Metatarsus	1
<i>Dog</i>	Metacarpus	1
	Cervical Vertebrae	4

Much of the cattle bone bore signs of chopping which probably occurred during the butchering of these animals and could have been a major contributory factor to the fragmentary nature of this bone.

The few horse bones were mainly whole. The dog bones were found together in one feature.

The total bone, although considerably less than that obtained from the 1969-70 excavation, was very similar in condition and the ratio of species represented; the main bulk being of cattle bone.

METHOD

The bones of each trench and layer were sorted and recorded separately. They were sorted into specie and then into skeletal order. The details recorded under each specie were:

Number of bones or fragments of each bone.

Minimum number of animals in each specie (Table 1).

Any evidence of fusion or non-fusion of the epiphyses or tuberosities.

Age category based on the fusion state of bones and dental state (Table 2).

Number of animals represented by bones of different parts of the body (Table 3).

Measurement of the length, proximal width, mid shaft width and distal width of bones (Table 4).

The minimum number of individuals were recorded for each bone; this means that six distal right humerus and two distal left humerus would equal a minimum number of six individuals. The total of individuals for each trench-layer would be the highest number of individuals recorded against any single bone; likewise, the totals for each age category. The totals of individuals for the site are the sum of the totals of each trench-layer.

The fragments of skull, maxilla, premaxilla, horn core and mandible were listed separately. The teeth, including loose teeth, were sorted into incisors, canines, upper and lower premolars and upper and lower molars and, where possible, the numbers of the teeth, e.g. third molar, third temporary molar. The age categories are as follows:

		Cattle	Sheep	Pigs
A	..	Less than 1 year	Less than 1 year	Less than 1 year
B	..	1 - 2½ years	1 - 2 years	1 - 2 years
C	..	2½ - 4 years	2 - 3½ years	2 - 3½ years
D	..	4 years and over	3½ years and over	3½ years and over
E	..	Aged	Aged	Aged

These figures are approximate and there will be some degree of overlap of the categories. The individual animals were placed into these age categories according to bone fusion and tooth eruption. The categories B/C and C/D include those individuals which belong to one or other of the two categories, but could not with certainty be placed in either of them. The evidence for placing individuals into Category E was based solely on excessive wear of the third molars and incisors of cattle and sheep, particularly the corner incisors.

Some of the bone material was adequate to define a separate individual, but was not that part of the bone that would show evidence of age; therefore, the total number of individuals exceeds the sum of the totals of the separate age categories.

The division of bones for the different parts of the body was as follows:

Forequarter	..	Radius, ulna, humerus, scapula, cervical and thoracic vertebrae.
Hindquarter	..	Tibia, femur, patella, pelvic, lumbar and sacral vertebrae.
Feet	..	Carpals, tarsals, metatarsals, metacarpals, phalanges.
Head and Teeth	..	Skull, mandible, horn core, teeth.

The division of bones into these categories can aid conclusions relating to social and economic significance of the bone material.

FINDINGS

Cattle (*Bos Taurus*). There were a minimum number of 37 animals represented by the bone material. The bones were fairly evenly representative of all parts of the animal's body (Table 1). This, coupled with the evidence of chopping, would indicate that the animals had been slaughtered for local consumption. The evidence showed that there were approximately half as many immature (A-C categories - Table 2) cattle as there were mature animals (D and E categories - Table 2). In the previous report this ratio had been about equal. The aged animals were obviously breeding stock, milk cows or draught animals which had been slaughtered at the end of their servicable life. Those animals falling into the D category (Table 2) may have been originally used as breeding stock, milk cows or draught animals but this category could equally include cattle that had been reared specifically for beef as it was quite common in the past for beef cattle to reach 4-5 years of age before slaughter.

Category D (Table 2) probably includes some animals that were aged, as the extreme wear of the third molars was the only criteria for placing the individuals shown under Category E; very few incisor teeth were found. Some of the individuals placed in Category D would certainly have been young, fully mature cattle.

Those animals in the B and C categories could have been cattle reared specifically for beef. Alternatively they were possibly reared for breeding stock, milk or draught and then slaughtered off because of a change of circumstances. They may have been casualty or diseased animals.

The animals in the A category were most likely casualty or diseased animals or those animals slaughtered off because there were too many for the winter keep available.

Among the bovine remains there was the part of one mandible having only two premolars (there was no alveolus for the second premolar). Meek and Grey, reporting on excavations at Corstopitum¹ recorded finding the mandibles from thirteen animals similarly possessing only two premolars.

The bovine teeth included the third lower molars from two animals having only two cusps (Plate 4) and the third lower molar from one animal having only a rudimentary third column (Plate 1). (One two-cusped third lower molar was mentioned in the previous report and, as stated then, this is probably a genetic feature that has been reported in Iron Age and Saxon cattle remains as well as Romano-British).

One third upper molar which was worn down to the small central column on the lingual surface of the tooth showed peculiar wear of the posterior cusp in that on the posterior side of the tooth, it was almost as long as the tooth had been on eruption (Plate 3). The worn surface of the posterior cusp was in a straight line from the posterior surface of the tooth to the centre of the tooth. This resulted in the posterior cusp being much longer than the anterior cusp. Such wear of an upper third molar would be consistent with a two-cusped third lower molar and may have ultimately resulted in gum troubles due to the posterior cusp of the upper molar cutting into the lower gum.

The top half of a bovine metatarsal was found which appeared to have two distinct layers of bone growth (Plate 2); an inner and an outer layer. The outer layer broke away from the inner layer at the shaft cleanly, leaving a very smooth surface to the inner layer similar to the periosteal surface of the shaft of a normal bone. The double layers extended right into the proximal extremity.

Sheep (*Ovis aries*). There was a small amount of bone from sheep representing a minimum of six animals; two being 2-3½ years old and one 1-2 years old (Table 2). There was the same evidence of chopping indicating butchery.

Pigs (*Sus scrofa*). The bone remains of pigs was equally small, representing a minimum of six animals; three of which were less than 3½ years old (Table 2). These bones also showed evidence of butchery.

Horses (*Equus caballus*). The bone remains of horses included a high proportion of whole bone compared with the rest of the material. This, coupled with the fact that there were no signs of chopping, would support a conclusion that these animals were not butchered. There was a minimum of five horses represented by the material; two of them being young animals under 3½ years old (Table 2). The largest of these would have been about 14½ hands and two about 13½ hands.

Dogs (*Canis familiaris*). There were the remains of two dogs found in one feature. Both would have been of medium size (about 35 cm high).

The reason for this habitation to have existed at this particular spot gives scope for hypothesising. If it had been a site for the slaughter of animals to supply meat to the City of London, one would expect to find bones of the feet and head representing large numbers of individuals, with only small numbers of the main carcase bones (*i.e.* those of the hindquarter and forequarter). If cattle had been slaughtered here to supply the city, then the carcasses after slaughter and evisceration must have been taken to the city complete with head and feet.

It is possible that cattle being driven in from Essex to supply the city, were held at this point, after fording the River Lea, until they were ready to be received at the slaughter points in the city. If cattle were being driven in from Essex, it would have taken a number of days for the journey and they would have been unlikely to arrive at the time they were required, therefore a holding point would have been necessary. In any event, it would have been most advisable at this time in history, to get the cattle across the ford and hold them on the city side of the River Lea. The bones found at the site may be the remains of animals slaughtered to feed the drovers and others residing at this site. The relatively small amount of sheep and pig remains, compared with cattle, is difficult to explain. Essex was an area more suited to cattle and pigs than sheep rearing, which could help to explain the lack of sheep numbers.

TABLE I—MINIMUM NUMBER OF ANIMALS IN EACH SPECIE

<i>Cattle</i>	<i>Sheep</i>	<i>Pig</i>	<i>Horse</i>	<i>Dog</i>
37	6	6	5	2

Metatarsals	Prox.W.	47
	M.S.W.	30
	Dist.W.	50
	T.L.	272

Note: Prox.W.—Maximum width (medial to lateral) of the proximal extremity.

Dist.W.—Maximum width (medial to lateral) of the distal extremity.

M.S.W.—Mid shaft width (medial to lateral).

T.L.—Total overall length.

The last three bovine third molars were those with only two cusps.

NOTES

1 *Arch. Ael.*; 3rd ser., v. ii.

APPENDIX 3

METAL OBJECTS AND METALLURGICAL WASTE PRODUCTS

BY R. TRIBBICK

I. METAL OBJECTS

A. Non-Ferrous metal

This is confined to base metals.

1. Pin, Bronze, 9 cms long but not complete at point.
Head of two annular raised rings integral with shank and not attached thereto by soldering. Tin content 4%. Illustrated. AR.F.1.
2. Penannular brooch, Bronze, 2.1 cms diameter. No pin and no evidence of wear from pin. One terminal of flattened spiral-rolled type, neatly formed, the other not completed, as it split during forming the flattened end. Illustrated. Fowler¹ Type C and Camulodunum² Type A. AR.2.L1.
3. Ring, Bronze, 2.3 cms diameter inside, D section. No decoration. Weight 2.7 grms. Illustrated. AR.2.L5.
4. Ring, Bronze, 1.8 cms diameter inside. Flattened round section. Weight 2.2 grms. This seems too small for wear and it is possibly an intermediate stage of production. Illustrated. AR.2.L1.
5. Bracelet, Bronze, part only, about 6 cms diameter when complete. Formed from three wires, two yellow and one red bronze in that order, spirally twisted, reduced to two at the end which was slightly pointed by hammering and originally soft soldered into a tubular terminal decorated with two annular raised rings, reminiscent of the pin-head 1. Illustrated. AR.2.L5.
6. Mirror fragment, Speculum Bronze, 2 mm thick. One face highly polished, other smooth. Both faces only slightly discoloured. Heavy corrosion where contaminated with foreign material.
Curvature of bevelled edge suggests original diameter of about 15 cms. Original fractured edges indicate very brittle alloy. Fresh fracture brittle and white in colour. Tin content 24.7%. Illustrated. AR.2.L5.
7. Pin Head, Bronze, pyramidal. Illustrated. AR.Fr.
8. Ornamental Strip, Bronze, 4 cms long, 4.5 mms wide, decorated with repeated patterns composed of square dots arranged in S form. The spacing between the dots appears regular but the spacing between the groups is slightly irregular which suggests the use of a multiple punch such as that illustrated. Depression of the spaces between the dots seems to support this. AR.2.F3.
9. Strip, Bronze, 2.7 cms long, 3.5 mms wide, crude irregular markings. Illustrated. AR.2.L1.
10. Shaped Bronze bar, 26 cms long, 455 grams weight. Tin content 4.9%. Lead 5.7%. One end hammered to plano-concave shape 6 cms diameter with central hole 1.1 cms diameter. Two filed ears at junction with shank. Hole at opposite end 1.1 cms diameter. Bend of arm and distortion of fractured concave end suggests horizontal mounting. Illustrated half size. AR. Top of Sand B.
This object was incorporated in the top of the sand used to raise the level of the southern side of the road. It could be one of the arms forming the horizontal cross-post of the Roman surveying instrument known as a "groma".
"The Roman Land Surveyors" by O. A. W. Dilke (David and Charles, 1971) includes an illustration of the dismantled "groma" from a first century A.D. North-Italian tombstone, p. 50.
11. Tube, Bronze, 6.7 cms long, 5 mms diameter outside. Formed from sheet. Seam apparently dry (not soldered). AR.2.F3.

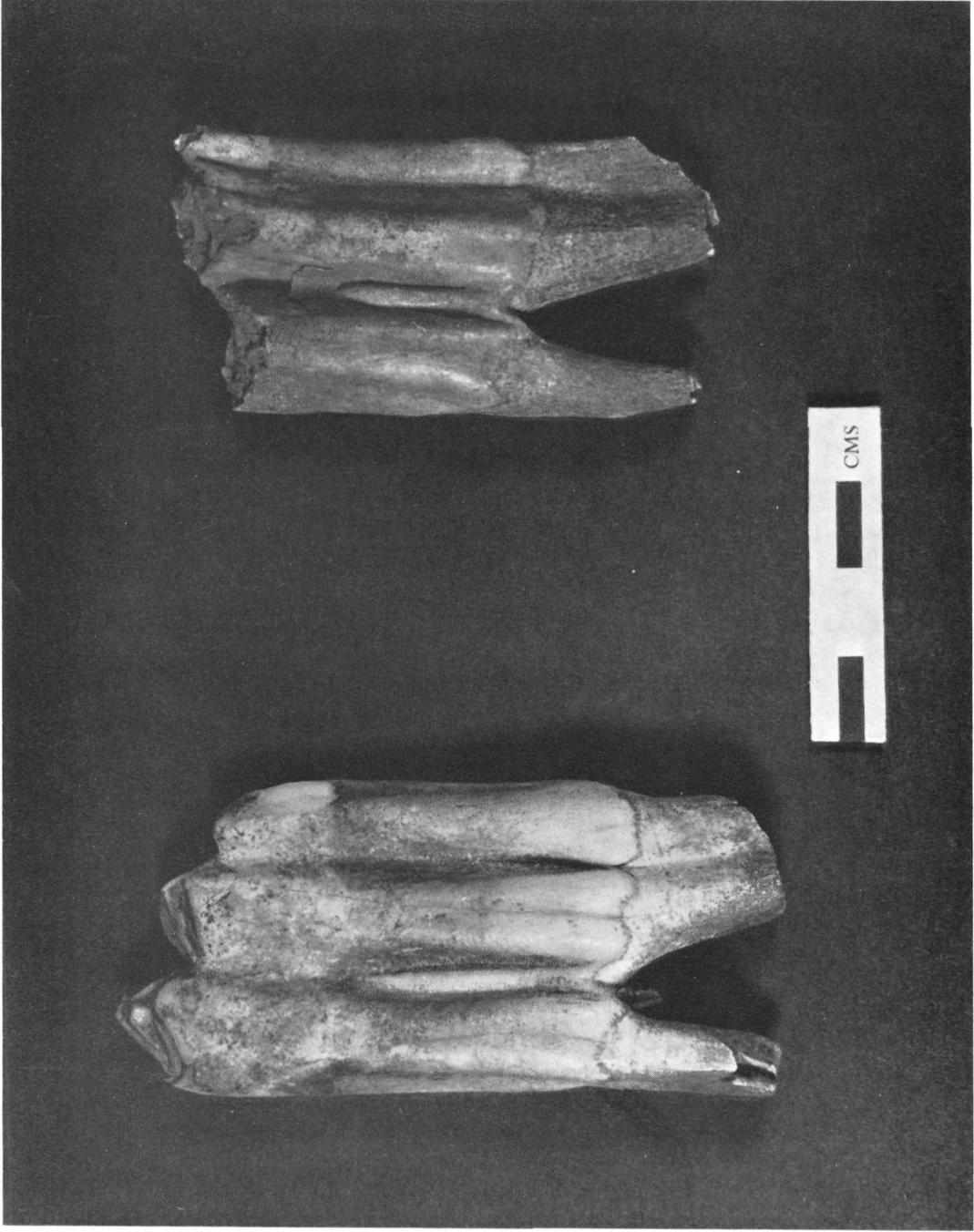


PLATE I. Bovine third lower molar having a rudimentary third column is shown on the right.
A normal bovine third lower molar is shown on the left.



PLATE 2. Two aspects of a bovine metatarsal showing distinct separate layers of bone. Above can be seen the very smooth outer surface of the inner layer. The picture below shows the two layers running together to the top of the bone.

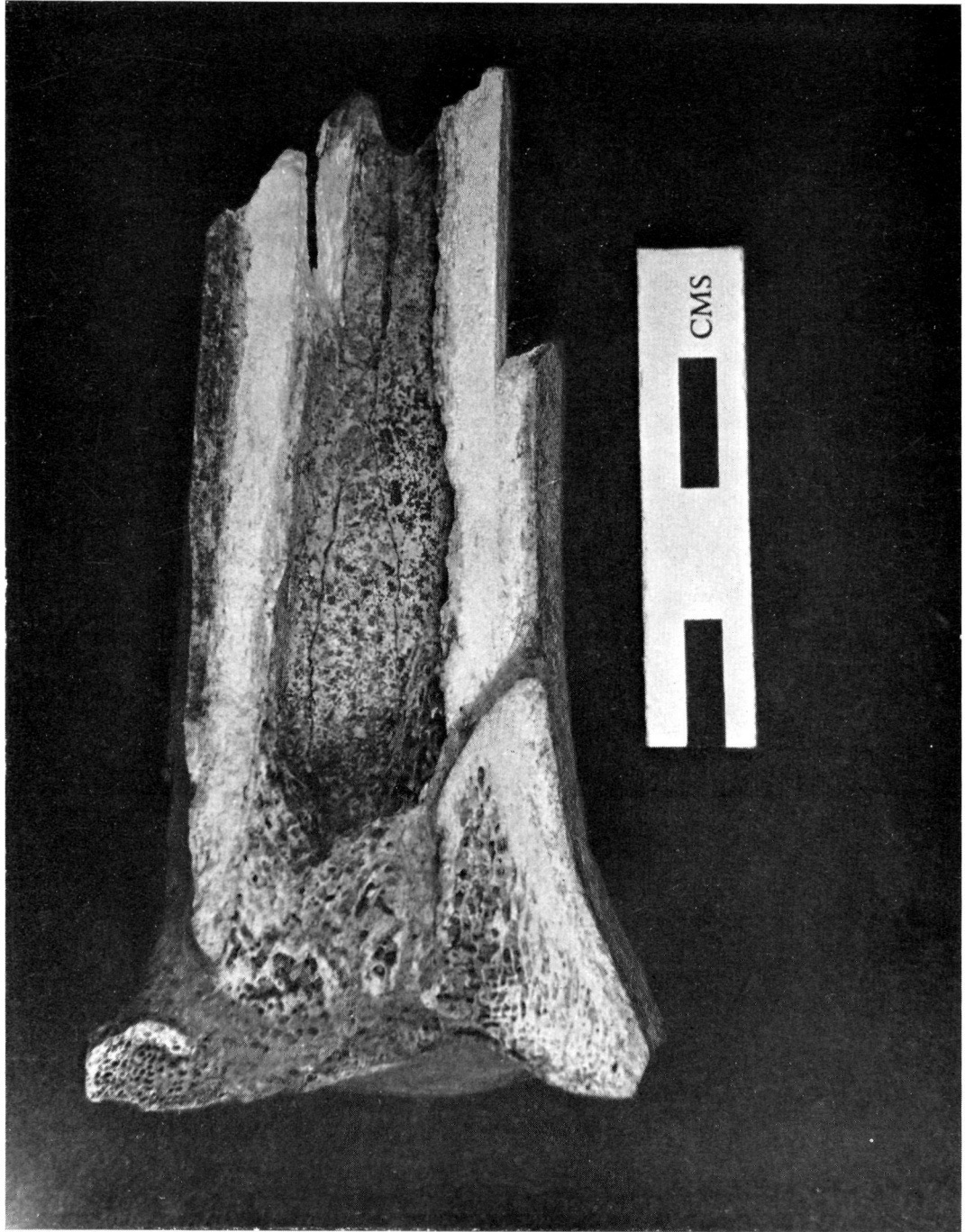




PLATE 3. Bovine third upper molar showing normal wear of the anterior cusp, but lack of wear of the posterior part of the posterior cusp.

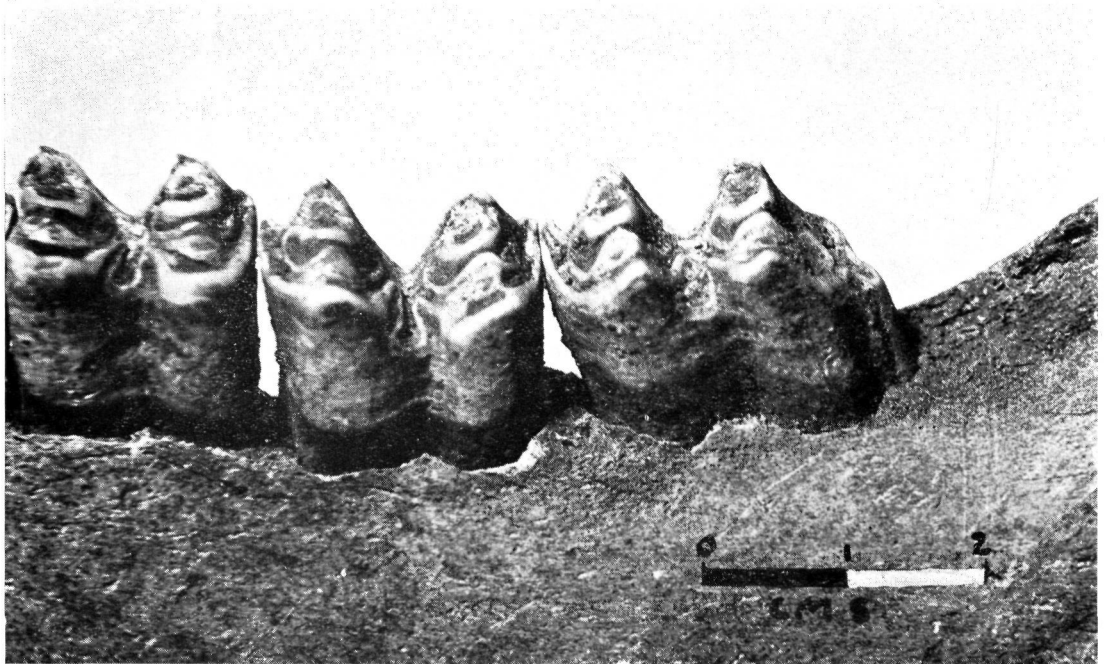


PLATE 4. Mandible of a bovine having a third molar with only two cusps.

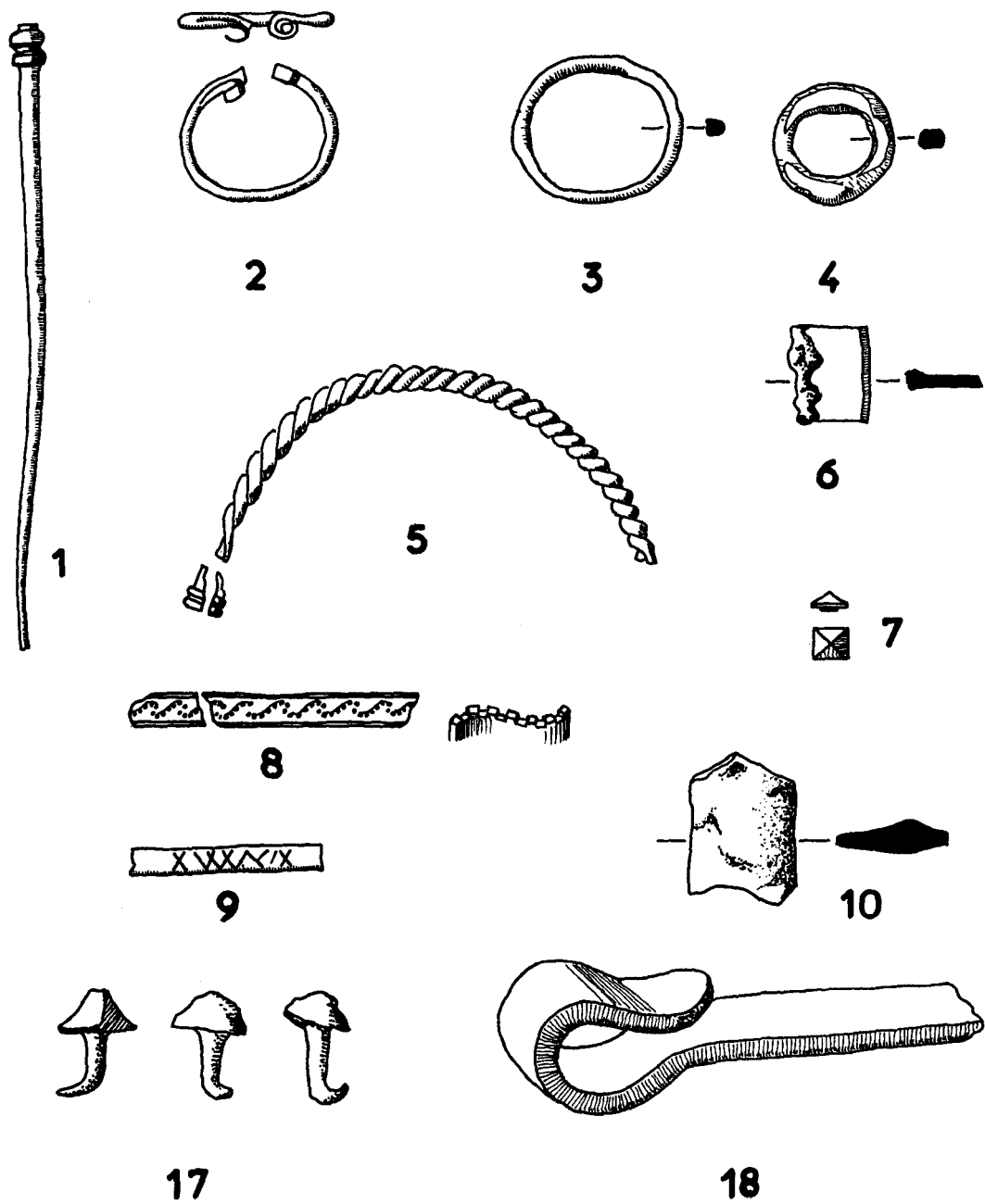
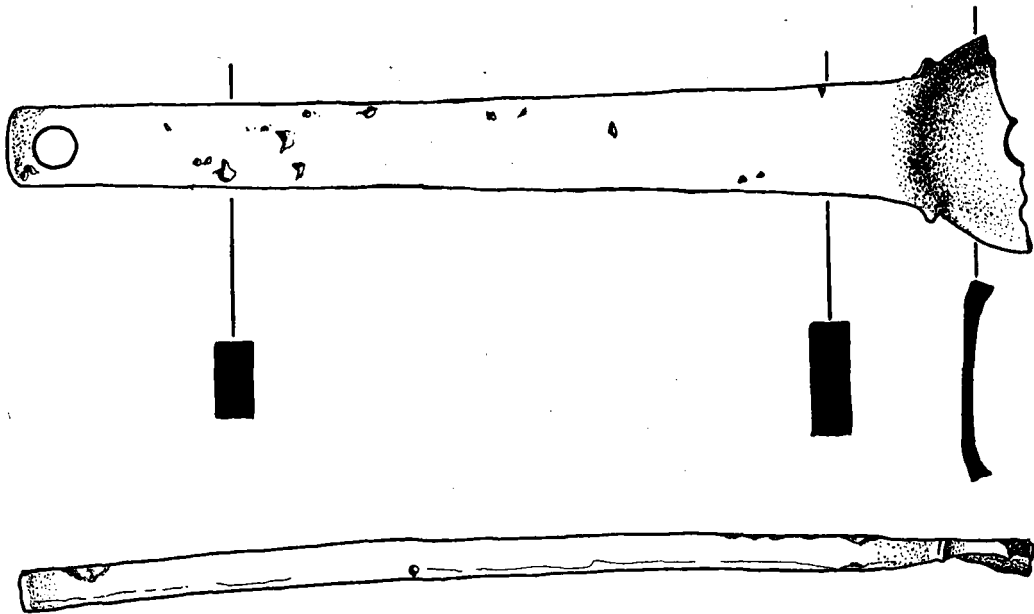


Fig. 12
Metal objects (actual size)



10

Fig. 13
The shaped bronze bar (half actual size)

12. Tube, Bronze, 1 cm long, 1.5 mms diameter outside, .75 mms bore. Apparently used as wire in a spirally-wound object such as Bracelet 5. Seam spiral to axis. AR2.L1.
 13. Curled fragment, Lead. Sheet material 2 mms thick. Result of trimming the rough edge of a sheet with shears or with a chisel using a shearing action. AR2.L1.
 14. Fused fragments, Lead. AR2.L1.
 15. Shaped piece. Lead with cut point. Possibly raw material from which pieces have been cut. (The bronze objects are of leaded bronze). Illustrated. AR.L1.
B. Ferrous Metal
 16. Nails, general purpose. Quantity 63. Three of these clinched-over (object about 2 cms thick). Various locations—see distribution table.
 17. Nails. Hob-nail proportions. Quantity 26. Three cleaned examples illustrated. AR.F1 and AR2.L2.
 18. Hook shaped strip, incomplete at straight end. Illustrated. AR.F1.
 19. Strip 8 cms long, 2.5 cms wide. AR.F1.
 20. Chisel 8 cms long, 5.5 cms across blade edge. AR.F1.
 21. Staple 2.5 cms long. AR2.L2.
 22. Nail, 2.5 cms long, in clean sharply-defined condition, uncharacteristic of this excavation. Soft dark-red pigment under head. Iron oxide chemically, but not a corrosion product. State of preservation of the nail suggests the production of a stable oxide skin by burning of the object which contained it. AR.L1.
- All iron, with the exception of 22, was severely distorted by local soil concretion and the items above represent the recognisable items. About an equal weight of unrecognisable material was submitted (Item 23).

AR1.F1. and PR.T5.F1.

II. METALLURGICAL WASTE PRODUCTS

24. Smithing residue. Sand/Iron silicate mixture loosely fritted. Six pieces up to 2 cms on major axis. External colour varied over surface from blue-black to pale straw, vitreous texture. Examination of fracture surfaces showed that all consisted of white sand-grains cemented by varying amounts of a darker fused material. The sand grains predominated. Iron was detected (chemically) and all pieces showed slight magnetic attraction. Under high-power magnification a prepared section showed the darker, linking material as a slag-like duplex material of dendrites in a darker matrix. Such material results from fusion of sand and iron-scale at temperatures in excess of 1000°C as in a smithing operation. AR2.L1.
25. Smithing residue. Iron rich mixture of sand and iron oxide completely fused to iron silicate slag. Five pieces, up to 5 cms on major axis. Charcoal impressions and actual charcoal present on some fracture surfaces. Fractures blue-black with considerable porosity. All showed positive magnetic attraction. A prepared micro-section was of a heterogeneous character, containing a three-phased structure of light dendrites in a light and dark mixed matrix typical of an iron-silicate slag, together with featureless blue-black areas of magnetite. PR.T5.F1.

In view of the heterogeneous nature of these pieces and those of 24, analysis was not carried out.

DISCUSSION

There are strong indications of a smithing operation in the vicinity, probably both ferrous and non-ferrous as shown by the unfinished (?) penannular ring 2, the unfinished (?) small ring 4, the lead shearing 13, and the iron silicate slag 24 and 25. There is a notable lack of strictly domestic, household pieces among the non-ferrous items submitted. The small actual weight of evidence might suggest an itinerant smith rather than a resident, but it could equally mean that the actual site of the operations has not been uncovered. A smith supplying a road-side stall is a possibility which might explain the bias towards adornment and away from domestic appliances.

The brooch 2 and the fine "tube" 12 illustrate the method of producing wire by twisting a narrow strip and then rolling it. In some cases this resulted in a tube as in 12, in other cases a wire with a longitudinal defect which in the brooch 2 gave difficulties in the terminal forming operation and probably caused it to be abandoned. It would not be saleable in this form.

The iron-work is unremarkable, being chiefly fasteners—nails, staple, hook, etc., associated with building construction. The chisel 20 is the only tool identifiable. The slag is typical of a smithing product where sand was used to clean the heated iron for welding and where magnetite (iron-oxide) fell into the hearth and combined with the furnace lining. This produced an iron-silicate slag, at temperatures exceeding 1000°C, with varying amounts of free magnetite and/or silica (sand).

During excavations at the nearby Lefevre Road a mass of about 8 ins. cube was found, in a scatter of fourth century debris. It consisted of an agglomeration of pebbles and sand, identified as shrave, a natural iron-oxide cemented gravel, geologically feasible in this area.³ Its presence is of interest in view of the analysis (see below).

Analysis:

		Fe	SiO ₂	Al ₂ O ₃	Mn
Shrave	..	28.7	43.0	13.7	0.32

Although the iron-silica ratio (29-43) is unsuitable for iron-smelting by the primitive direct process, where the silica is fluxed by the iron, material of a more favourable composition could well have been available at this site as it is a variable mixture. However, as shrave does not normally persist laterally as strata,⁴ it cannot be considered as a significant source of iron.

DISTRIBUTION OF METAL AND METALLURGICAL WASTE PRODUCTS

Location	ITEMS, NUMBER OF PIECES IN BRACKETS			
	Bronze	Lead	Iron	Slag
AR.F1.	1, 7	14	16(24), 17(25), 18, 19, 20	
AR2.F2			16(3)	
AR.F3			16(1)	
AR2.F3	8, 11			
AR.F4		14		
AR.L1		15	16(12), 22	
AR2.L1	2, 4, 9, 12	13, 14	16(4)	24
AR2.L2			16(9), 17(1) 21	
AR2.L3			16(2)	
AR2.L4			16(2)	
AR2.L5	3, 5, 6			
PR.T5.F1.			16(7), 23	25
Sand B	10			

NOTES

- 1 E. Fowler. "Origins and Development of the Penannular brooch in Europe"; *Proc. Prehist. Soc.* xxvi (1960); p. 151.
- 2 Hawkes and Hull; "Camulodunum"; *Soc. of Ant. of Lon. Report* xiv, 1947; p. 327; Fig. 59, No. 1.
- 3 and 4 Institute of Geological Sciences; private communication.

APPENDIX 4

SAMIAN AND NORTH-AFRICAN RED WARE

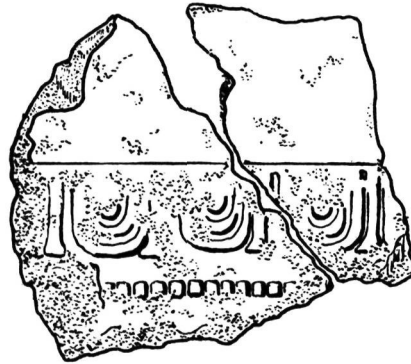
BY JOANNA MORRIS

SAMIAN

- AR.Sand B Sherd, South Gaulish, Flavian–Trajanic.
 AR2.L5 Base, Dr 31, Central or East Gaul, later second–third century.
 Rim, Dr 45, Central Gaul, Antonine.
 Rim, Dr 31, East Gaul, later second–mid-third century.
 Rim, Dr 38, East Gaul, later second–third century.
 Dr 33, probably Central Gaul, Antonine.
 Dr 33, East Gaul, later second–third century.
 Dr 31, Central Gaul, mid-later second century.
 Dr 31, Central Gaul, mid-later second century.
 Lug Tg, Rheinzabern, later second–third century.
 Dr 37, Lezoux. The ovolo is damaged but is probably that used, with a similar square beadrow, by Doeccus (S. and S. pl. 149, 28).¹ Date: c. 160/170–200 A.D. (Fig. 14, 1)
 Two Central Gaulish fragments, later second century.
 Three East Gaulish fragments, later second–third century.

Fig. 14
 Samian and
 North-African
 Red Slip Ware
 (actual size)

1



2



NORTH-AFRICAN RED SLIP WARE

- AR.F1 ²Hayes form 52B with applique animal on the rim; slipped on top of the rim but not underneath. Probably one of the later versions of this form. (Fig. 14, 2)
 Date: mid-fourth–early fifth century.

NOTES

- 1 S. and S.: J. Stanfield and G. Simpson; *Central Gaulish Pottery*; (London 1958).
 2 Hayes: J. W. Hayes, *Late Roman Pottery* (London 1972).

APPENDIX 5
REPORT ON THIN SECTIONS NOS. 1-11
BY S. A. MACKENNA

1. The clay mineral matrix is anisotropic,¹ the inclusions are well sorted² and consist of angular³ to sub-angular grains averaging from 0.06 to 0.03 mm in size. Quartz predominates with occasional grains of plagioclase feldspar, fine crystals of mica up to 0.1 mm in size are common, chert and microcline are scarce. The slip is very fine, dense and has an average thickness of 0.02 mm.
2. The matrix is anisotropic and its inclusions generally resemble 1 with slightly more chert present. There is a very fine dense slip 0.02 mm thick.
3. The matrix is isotropic, the inclusions resembling those of 1 and 2. The dense slip is very fine and averages 0.02 mm in thickness.
4. The matrix is isotropic. The inclusions are not well sorted, ranging up to 0.07 mm in size with the majority of grains between 0.015 to 0.030 mm, angular to sub-angular. Quartz predominates and there are occasional crystals of mica. The fine slip has an average thickness of 0.03 mm.
5. The slightly anisotropic matrix contains very well sorted inclusions, average size 0.08 mm. The inclusions are predominantly quartz, angular to sub-angular. The chert, which is abundant, is mostly sub-angular. No slip is present.
6. The slightly anisotropic matrix contains badly sorted inclusions. The grains are up to 0.2 mm in size, most of the smaller grains are angular to sub-angular, but some well-rounded grains of chert and microcline are present—size 0.06 to 0.1 mm. There is a dense, fine slip with an average thickness of 0.03 mm. Quartz predominates.
7. The anisotropic matrix contains very badly sorted inclusions. Grains are up to 0.5 mm in size with the majority of grains present being in the range of 0.03 to 0.05 mm. The smaller grains are angular to sub-angular, the larger grains sub-angular to sub-rounded. Occasional grains of chert, mica and feldspar are also present. Traces of an anisotropic slip are present 0.04 mm in thickness. Quartz predominates.
8. The isotropic matrix contains very well sorted inclusions, the majority of grains being between 0.04 to 0.02 mm in size, but the odd grain of up to 0.1 mm is also found. Quartz predominates, chert is common with occasional grains of mica and feldspar. The grains are angular to sub-angular. There are definite indications of some form of surface treatment, but no evidence of slip.
9. The isotropic matrix contains well-sorted inclusions, 0.015 to 0.03 mm in size, angular to sub-angular. Odd grains, 0.4 to 0.9 mm in size, are rounded to sub-rounded. Predominantly quartz, with rare grains of feldspar, chert, chalcedony and mica. Traces of an anisotropic slip are present, 0.03 mm in thickness.
10. The anisotropic matrix contains badly sorted grains up to 1 mm in size. The larger grains are sub-angular to sub-rounded, the smaller grains are angular to sub-angular. Quartz predominates, with occasional grains of chert, a few crystals of mica up to .03 mm in size are present. An anisotropic slip is present with an average thickness of 0.09 mm.
11. The isotropic matrix contains shell fragments up to 3 mm in size (about 25% of the section area consists of shell. Fragments of marine micro-organisms are also present. No slip is evident.

SUMMARY

Thin sections 1 to 6 have been identified as products of the Oxfordshire kilns. The analysis indicates the presence of four separate groups, one formed by Nos. 1, 2 and 3, all of which show a marked similarity indicating a probable common source. Nos. 4, 5 and 6 show quite marked dissimilarities, indicating different sources.

There are no marked resemblances between members of the group of grey wares (Nos. 7-11), except that some are well sorted and some badly sorted, so forming two very general groups, whose members are easily differentiated from one another.

No. 11 is interesting in that alongside the shell tempering are the remains of marine micro-organisms, indicating the likelihood that the tempering material was derived either from a shell beach or from a fossil limestone.

A study based on such a small group is of limited value; however, it does indicate the need for a thorough survey of both kiln and occupation site material. This is not only necessary for the correlation of production site material with that found on occupation sites, but also for the investigation of the technological methods in use at kiln sites themselves.

NOTES

- 1 The terms isotropic and anisotropic refer to the appearance of the material when viewed between crossed polars. Anisotropic clay minerals break down at about 850°C and form new isotropic minerals.
- 2 Sorting is a measure of the "spread" of the grains over different size classes, *i.e.*, a well sorted deposit is one whose grains are of approximately uniform size, a badly sorted one has grains of various different sizes.
- 3 The roundness or angularity of a grain is a measure of the curvature of its corners and edges.

REFERENCES

- 1 Lamas Transactions Vol. 23, part 1, 1971; "Excavations at Lefevre Road, Old Ford, E.3."
- 2 TQ 3693.8360; Stone coffin with head to west, orientated east-west. Opposite 85 Parnell Road; 16th April 1969. See Location Plan No. 8.
- 3 TQ 3694.8361; observed by Peter Daniels, 25th October 1970. Location Plan No. 9.
- 4 Examined by S. A. Mackenna; usually the white substance in which the bone is laid or encased is referred to as "gypsum" (calcium sulphate), or "lime".
- 5 The Roman potters' kilns of Colchester; M. R. Hull; Research Report XXI, Soc. of Antiq., 1963. See forms 281 (to 350 A.D.) and 282 (250-350 A.D.).
- 6 Appian Road no longer exists. Part of it is incorporated in the open area.
- 7 Where turfing had not yet taken place.
- 8 A pair of fourth-century R.B. pottery kilns near Crambeck; Philip Corder; *Ant. J.*, xvii, p. 404; Fig. 4; No. 12.
- 9 The modern ground level here was just under 41 feet OD.
- 10 And not Antonine (see Lefevre Road Report, p. 47).
- 11 A distance of about 1-50 cms survived south of the road; there it had been cut out by a ditch containing eighteenth-century pottery.
- 12 At the extreme east of the trench the gravel surface was laid at a level lower by about 20 cms. The significance of this was not clear—but might be elucidated by further excavation.
- 13 But a quantity of these were distributed in the late Roman deposits on the site.
- 14 As this site, incorporating the part of Roman road which lies immediately to the south, will be kept as an open play area within the Lefevre Road development, the rest of the site should be available for future investigation.
- 15 Further Roman burials were found during building work in May 1972 some 25 metres west of the Armagh Road burial (Location Plan No. 11).
- 16 *The Drovers*; K. J. Bonser; Macmillan, 1970; p. 220.
- 17 *The Drovers*; *ibid.*, p. 45. It was estimated that the eighteenth-early nineteenth century herds of cattle travelled about 2 miles per hour.
- 18 *The Drovers*; *ibid.*, p. 222.
- 19 *The Drovers*; *ibid.*, p. 218.

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The site plans and sections included above were drawn for publication by Robert Symberlist and John Earp. Mike Hammerson undertook work on the pottery from Appian Road and was assisted by John Earp, Bernard Johnson and Win Exley. Richard Locke and Eddie Jefferys also contributed pottery drawings. C. T. Young identified pottery from the Oxfordshire region.

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The report was typed by Win Exley.