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# THE ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD. EXCAVATION OF THE BAKERY, SITE A

By W. S. PENN, B.Sc.

## INTRODUCTION

THE settlement is situated on the north boundary of Southfleet, Kent, where the railway to Gravesend crosses the modern Watling Street (A.2), the area being referred to locally as Springhead (Kent 6-in. sheet X S.W., National Grid Reference No. 617,725, Fig. 1). The Ordnance Map referred to identifies the site with Roman Vagniacae, although the only evidence for this is a reference to Iter. II in the Itinerary of Antonine to the fact that Vagniacae is IX Roman miles from Durobrivae (Rochester) and that substantial remains have been found in the vicinity.

The site was re-discovered by members of the Gravesend Historical Society and has been excavated by them since 1951. Preliminary work indicated the importance and extensive nature of the site so that it has now been scheduled as an Ancient Monument and is being excavated on behalf of the Ministry of Works by the Gravesend Historical Society. In this work we are most fortunate in having the valuable advice of Mr. Sheppard Frere, M.A., F.S.A., who has most kindly agreed to act as consultant to the Society.

The present report is concerned with Site A which was excavated in 1951-2 when the *bakery* was discovered. The other sites will be reported in due course and, therefore, until much more data have been presented it has been thought wise to defer a general discussion on the topography of the site, its identity and other features. This report is thus mainly devoted to a factual record of the excavation of Site A, although a brief general account has already been given in *Archæologia Cantiana* (1).

## PREVIOUS WORK

The site has been the subject of much digging since about 1775 but, although many finds have been reported, they can hardly be said to have been recorded. However, the earliest important references are in Hasted (2), although the most important document is Memoranda of Springhead, by A. J. Dunkin, 1848. Philip (3) describes the Northfleet Villa and the *Victoria County History* (4) contains a useful summary.

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of the findings. Many volumes of *Archæologia Cantiana* contain references to Springhead.

The most important finds were an alleged milestone (c. 1750) (5), various tombs (1799 onwards) (6, 7), baths (1814) (8), flint footings (1844) (9), a tiled platform (1845) (10), *part of a building* (1864) (11), a tiled arch (1921) (12), the Roman road (1921) (12), and a smother

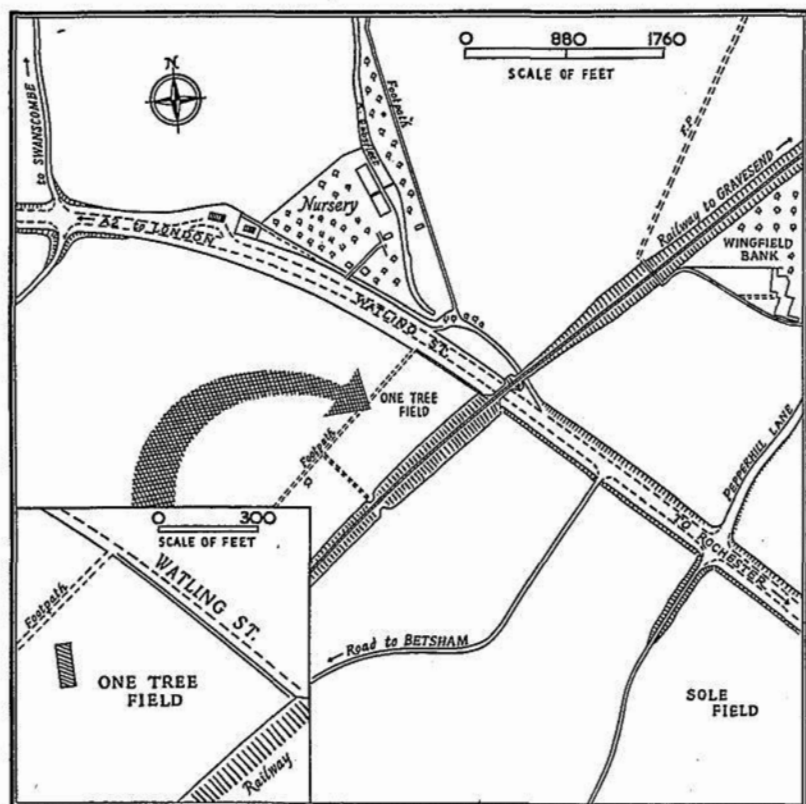


Fig. 1.

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kiln (1921) (13). The most interesting of these finds was the *walled cemetery* (6) consisting of a buttressed enclosure wall, 58 ft. by 55½ ft. and containing a stone tomb with two lead coffins. These contained the remains of two young children, one with a gold chain set with pearls, two gold bracelets and a pair of leather sandals (all in the British Museum).

The main importance of all these isolated finds is that they do indicate that a substantial settlement existed in the area.

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## SUMMARY OF WORK, 1951-2

The excavations on Site A (Fig. 2) have indicated four well-defined superimposed phases of occupation. Phase I extended from about A.D. 43-90 and is represented by a pit and the chalk floor of a wooden building; Phase II extended from A.D. 90 to about A.D. 120 and is represented by a well-defined walled structure tentatively identified as a bakery; Phase III extended from about A.D. 130 until the early

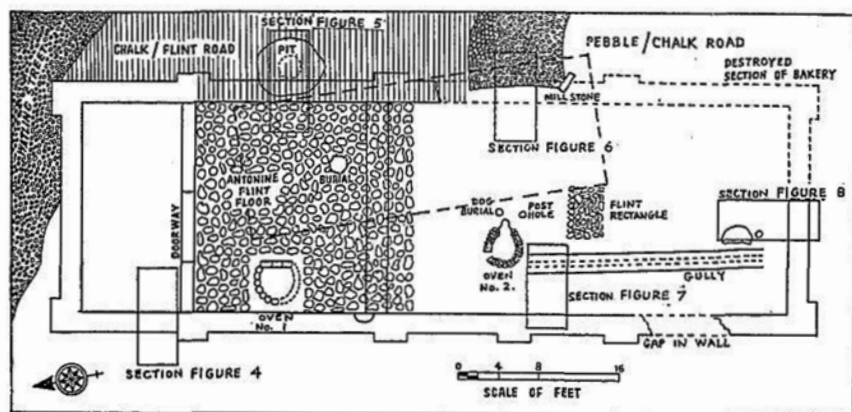


FIG. 2.

third century (although the principal occupation was during the Antonine Period) and is represented by wooden buildings with flint or cement floors and an extensive rubbish dump; and there is a hint of Phase IV of late third-early fourth centuries occupation but no well-defined remains.

The first three phases are readily related, since the foundations of the bakery (Phase II) cut into the pit and chalk floor of Phase I and the Antonine flint floor (Phase III) overlies the footings of the bakery. To simplify interpretation of strata, a series of Key Deposits (K.D.) has been used throughout, the evidence for the dating of these being given in Table I (see also Fig. 3).

It may be noted that the underlying rock is chalk, but it is everywhere covered with 10-20 feet of clay, which is thus the original base of the Roman settlement. The N.O.D. of this base is approximately 31 feet.

## PHASE I

The first phase of occupation (c. A.D. 43-90) is represented by a chalk floor, a rubbish pit and gully (see Plate I and Fig. 7). The chalk

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floor 35 feet by 13 feet is that of a wooden building (a few post holes were found), possibly with a tiled roof. The only evidence for the latter was a few fragments of (well sealed) tiles in the associated rubbish pit at the side of the chalk floor. The gully was probably used for drainage in the very damp clay subsoil (K.D. XII) and a very similar type has been noted at Canterbury (14). It was very well made indeed, the sides being lined with green sand and the end farthest away from the building being filled with lime. This might suggest its subsequent use for the disposal of sewage. Apart from the finds in the pit (see Fig. 5), there was little sign of intensive occupation at this time. A dog burial was found near the chalk floor.

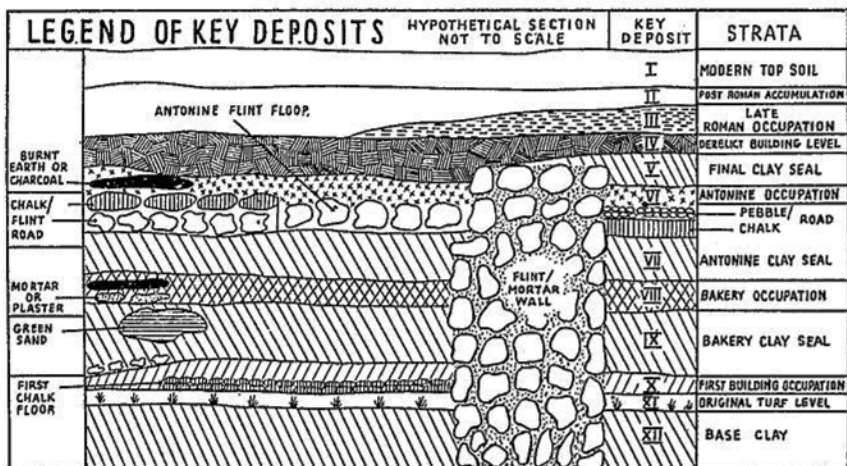


FIG. 3.

## PHASE II

The next phase (c. A.D. 90-120) is represented by the substantial flint building approximately 72 feet long and 23 feet wide. On the east side, the foundations for this building cut through the chalk floor and into the pit of Phase I, and flint chippings have been found over the occupation stratum (K.D. X and Fig. 4) of the chalk floor. At this stage, however, the earlier debris was sealed off with clay (K.D. IX).

The foundations are substantial, trench built, and about 3 feet deep below the building level. Only 18 inches survive above, but in many places this is only 12 inches below present ground level (35 feet N.O.D.). The walls are 20 inches thick, there being an additional internal and external offset, each 3 inches wide, all round the building (see Plate IIA). The internal offset was almost certainly employed to support a wooden floor. There is a substantial buttress at each corner (see Plate III).

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## TABLE I DATING OF KEY DEPOSITS

Key Deposit	Datable Objects in Deposit and Comments	Reference to text and Form No. of Samian
I	Potter's mark—early 3rd century 1 sherd plain Samian—1st century 2 sherds plain Samian—Ant. Plough level	Table IV, No. 1 D.27 1 of D.31 and 1 of D.33
II	Fibula—c. A.D. 50-65 1 sherd plain Samian—Claud. 1 sherd plain Samian—Nero/Vesp. 1 sherd plain Samian—Flavian 3 sherds plain Samian—Antonine Post Roman accumulation but note absence of 3rd and 4th century deposits	App. V, No. 7 D.24/25 D.15/17 D.35/36 2 of D.31 ; 1 of D.33
III	2 coins—A.D. 268-270 2 coins—First half 4th century 1 coin—Middle 4th century 2 coins—Second half 4th century Clearly forms part of the late Roman deposits	Table II, Nos. 22, 23 Table II, Nos. 29, 30 Table II, No. 35 Table II, Nos. 36, 37
IV	1 sherd decorated Samian—Hadrianic 1 sherd decorated Samian—Hadrian/Antonine 1 sherd decorated Samian—c. A.D. 150 Potter's mark—Claudius/Nero Fibula—Antonine 1 coin—A.D. 154-155 1 coin—A.D. 222-235 1 sherd plain Samian—Domit./Traj. The collapse of the Antonine building appears to have taken place fairly early in the 3rd century. (Derelict building level)	App. I, No. 1  App. I, No. 2 App. I, No. 3 Table IV, No. 2 App. V, No. 4 Table II, No. 14 Table II, No. 18 D.18/31
V	1 coin—A.D. 81-96 1 sherd plain Samian—Antonine There is no clear dating evidence here, but the clay seal must have been deposited towards the end of the Antonine period. (Final clay seal)	Table II, No. 6 D.31
VI	1 sherd decorated Samian—late Hadrianic 1 sherd decorated Samian—early Antonine 5 sherds decorated Samian—Antonine 2 potters' marks—Hadrian-Antonine 1 potter's mark—Antonine 1 mortarium sherd—late 1st, early 2nd century 1 mortarium sherd—early Antonine 1 fibula—Flavian 1 fibula—First half 1st century	App. I, No. 4 App. I, No. 5 App. I, Nos. 6-10 Table IV, Nos. 3, 4 Table IV, No. 5  App. III, No. 5 App. III, No. 6 App. V, No. 1 App. V, No. 6

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TABLE I—*continued*

Key Deposit	Datable Objects in Deposit and Comments	Reference to text and Form No. of Samian
	<p>1 fibula—Antonine  1 coin—A.D. 98-117  1 coin—A.D. 117-138  1 coin—A.D. 138-161  1 sherd plain Samian—Claud.  1 sherd plain Samian—Vespasian  1 sherd plain Samian—Domit.  3 sherds plain Samian—1st century  3 sherds plain Samian—Domit.-Traj.  1 sherd plain Samian—c. A.D. 120  1 sherd plain Samian—Hadrian  1 sherd plain Samian—Had.-Ant.  41 sherds plain Samian—Ant.</p> <p>1 sherd plain Samian—c. A.D. 150  1 sherd plain Samian—c. A.D. 175  Clearly a heavily occupied Antonine site</p>	<p>App. V, No. 5  Table II, No. 8  Table II, No. 9  Table II, No. 13  D.15/17  D.15/17  1 of D.18  3 of D.27  3 of D.18/31  D.33  D.33  D.31  7 of D.18/31; 10 of D.31; 20 of D.33; 2 of D.38; 1 of Walters 79; 1 of Curle 23  1 of Walters 79  1 of Walters 81</p>
VII	<p>1 sherd decorated Samian—early Flavian  1 sherd decorated Samian—Trajanic  1 sherd decorated Samian—Hadrianic  1 potter's mark—Trajan/Had.  1 mortarium—Hadrianic  2 mortaria—late 1st, early 2nd centuries  1 coin—c. A.D. 140  1 sherd plain Samian—Domit.  2 sherds plain Samian—1st century  1 sherd plain Samian—Domit./Traj.  1 sherd plain Samian—c. A.D. 120  6 sherds plain Samian—Antonine</p> <p>Clearly this clay seal was deposited in the early Antonine period</p>	<p>App. I, No. 11  App. I, No. 12  App. I, No. 13  Table IV, No. 7  App. III, No. 2  App. III, Nos. 3, 4  Table II, No. 12  D.15/17  2 of D.18  D.18/31  D.18/31  1 of D.18/31; 2 of D.31; 2 of D.33; 1 of Walters 79</p>
VIII	<p>2 sherds plain Samian—Claud.  1 sherd plain Samian—Flavian  2 sherds plain Samian—1st century  1 sherd plain Samian—Domit./Traj.  There is nothing inconsistent with occupation ceasing early in 2nd century. (Bakery occupation level)</p>	<p>2 of D.18  D.18  1 of D.18 and 1 of D.27  D.18/31</p>
IX	<p>1 sherd decorated Samian—Tiberius/Claud  1 sherd decorated Samian—early Flavian  1 potter's mark—Tiberius/Nero  1 potter's mark—Flavian  2 fibulae—mid 1st century  1 coin—Vespasian  1 sherd plain Samian—Claud.  1 sherd plain Samian—c. A.D. 50-60</p>	<p>App. I, No. 14  App. I, No. 15  Table IV, No. 8  Table IV, No. 9  App. V, Nos. 2 and 3  Table II, No. 4  D.18  D.18</p>

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TABLE I—*continued*

Key Deposit	Datable Objects in Deposit and Comments	Reference to text and Form No. of Samian
	1 sherd plain Samian—c. A.D. 90 1 sherd plain Samian—1st century This clay seal appears to have been laid down just before A.D. 90. (Bakery Clay Seal)	D.15/17 D.27
X	1 sherd decorated Samian—Vespasianic 1 mortarium—Claud. 1 fibula—c. A.D. 60-70 1 coin—A.D. 41-54 1 coin—A.D. 79-81 5 sherds plain Samian—Claud.  2 sherds plain Samian—c. A.D. 50 2 sherds plain Samian—Nero 6 sherds plain Samian—1st century  The occupation must have ceased by A.D. 90 if not a little earlier. (Chalk floor building occupation level)	App. I, No. 16 App. III, No. 1 App. V, No. 8 Table II, No. 2 Table II, No. 5 1 of D.15/17; 1 of D.18; 3 of D.27 1 of D.27; 1 of D.18 2 of D.27 1 of D.15/17; 2 of D.18; 3 of D.27
XI	4 sherds plain Samian—Claud.  1 sherd plain Samian Of very early date. (Original turf level)	2 of D.15/17; 1 of D.24/25; 1 of D.18. Type 1 D.27
XII	1 sherd plain Samian Of very early date. (Base clay)	D.27

and four other clasping buttresses on each side (see Fig. 4). The tops of the wall were quite flat as found, with imprints of a tile bonding course.

The building is divided into three rooms by two cross walls, the most northerly room looking out to a metalled road, probably having been a shop. The only doorway found was on the cross wall of the shop, and it is merely represented by a depression in the surface of the wall, with a well-finished top. There are further depressions on either side of the doorway, which probably contained bonding tiles.

The complete south-east corner of the building is missing (see robber trench, Fig. 6) and there is also a gap in the west wall (see Fig. 2). It will subsequently be shown that this destruction occurred early in Phase III, and that the flints were probably used for the Antonine flint floor.

In each of the two rooms (other than the shop) an oven was found. Oven No. 1 was fragmentary, but had clearly been made in the shape

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of a horseshoe with chalk blocks, with the entrance laid with three massive tiles (each one measuring 12 in. by 6 in. by 2 in.). The long axis of the horseshoe was 43 inches in length (see Plate IIA). Oven No. 2 (see Plates IIB and IV) was well preserved, except that the once domed roof had collapsed into the interior.

The oven was circular internally with a diameter of 2½ feet. It was provided with two openings, the larger one flanked with chalk blocks

### "SHOP SECTION"

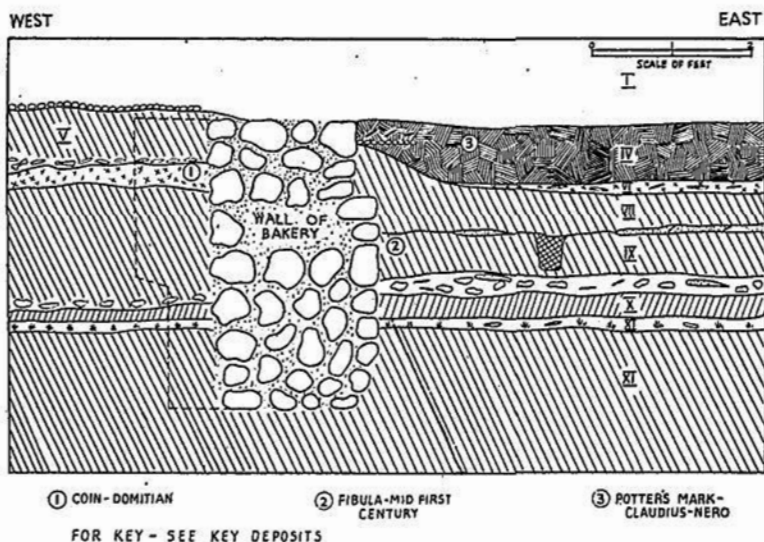
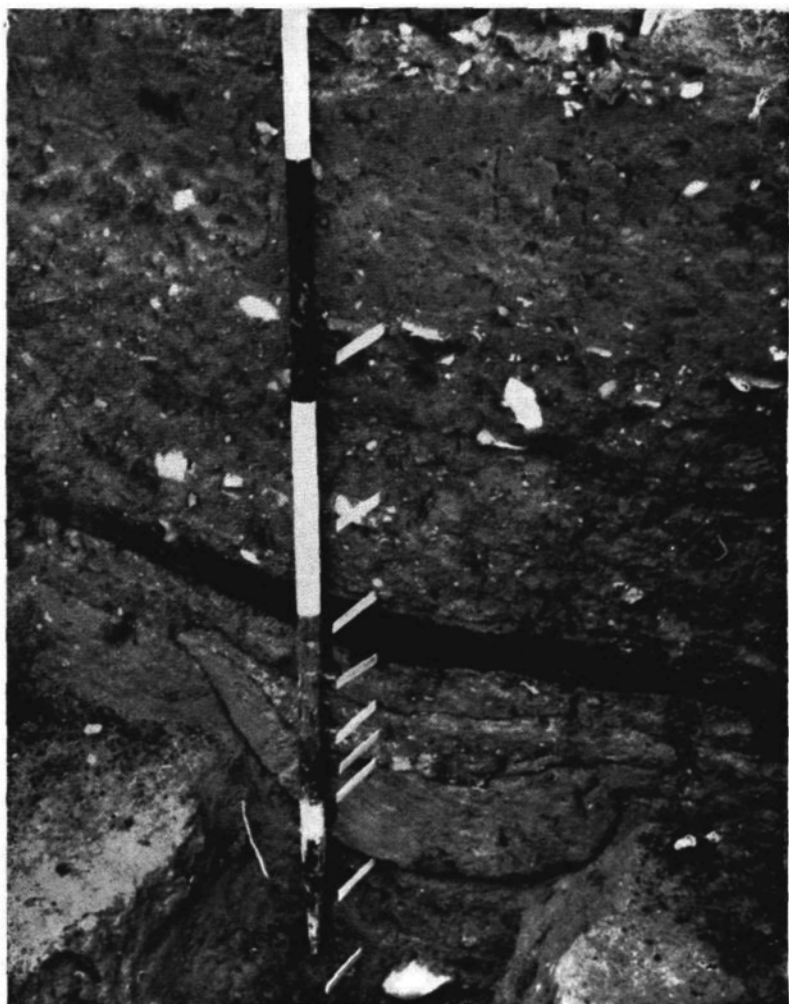


FIG. 4.

and a tile (12 inches wide) and the smaller with chalk blocks (8 inches wide). The larger opening was approached by means of a baked clay ramp, which also covered the floor of the oven and the other opening. The sides of the oven had been lined with clay and the brush marks to smooth the clay could be seen. An interesting feature of the oven was that it was perfectly clean inside—no charcoal at all could be found. There was, however, a burnt and charcoal layer outside both ovens, the surrounding area of which had been baked quite hard.

As far as the purpose of the building is concerned, there are several features of unusual interest which enable this question to be answered with some degree of certainty. First of all there is the evidence of the building itself, which in some respects resembles a granary. The arrangement of the latter is well known and consists of a long building, with a number of buttresses and some form of raised floor to guard



Part of Gully and Stratification.



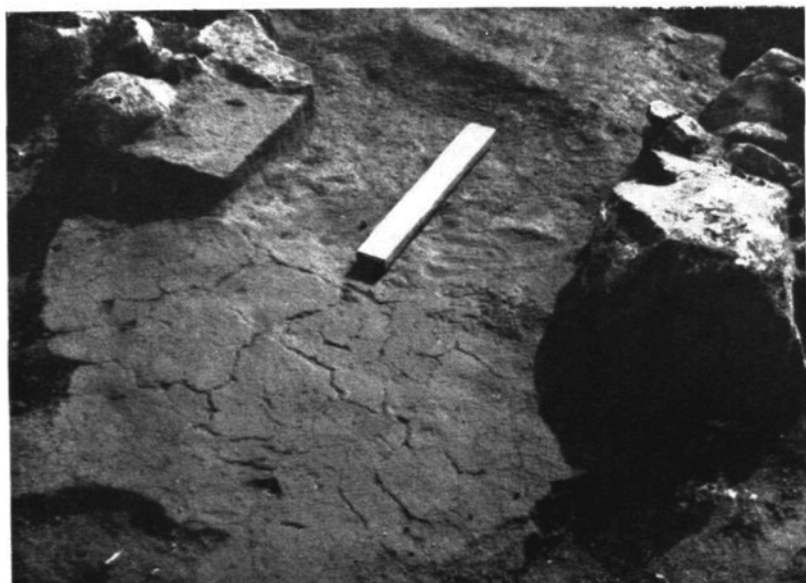
A. Oven No. 1 and wall showing offset.



B. General view of Oven No. 2.



North-east corner buttress.



Baked clay ramp of Oven No. 2.

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against dampness. The Springhead building does not have many buttresses, but the raised floor was probably achieved by means of the offset. The building, therefore, may indicate some association with grain, although no burnt wheat was found.

The next clue is provided by the ovens. Oven No. 2, in particular, is very similar indeed to two represented on a sculptured tomb in Rome to Marcus Vergilius Eurysaces (15). He was a most successful

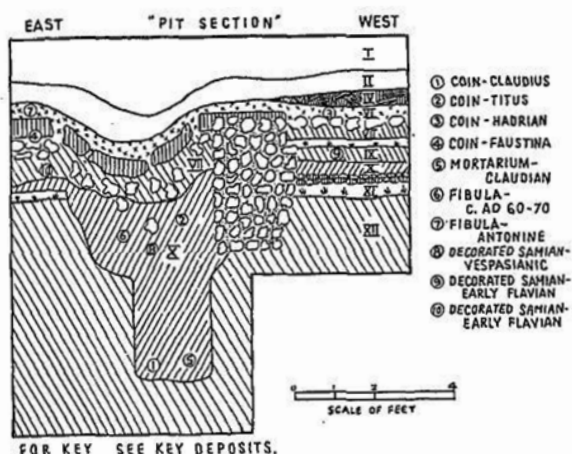


Fig. 5.

baker, and his tomb is erected in the form of a bakehouse, with sculptures of the various processes. The same ramp and dome is present in his ovens. The final clue was provided by a large fragment of a mill stone found near Fig. 6 and sealed partly in the robber trench of this building. This clearly implies the grinding of grain.

Thus it appears that the building, which was possibly of two storeys (i.e. the buttresses) was used for storing grain, grinding it into flour and baking it into bread. This would then explain the shop, where it would be sold. It appears at first sight to be unusual to grind wheat and bake in the same building, but this was the usual practice in Rome, the Latin for miller (*pistor*) being the same as the word for baker. It appears, therefore, that there was a bakery in the settlement which would indicate quite a substantial sale and, therefore, a well populated district.

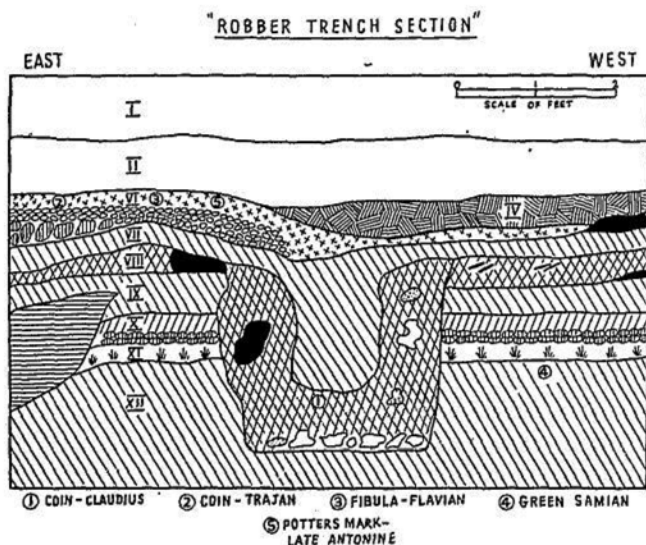
### PHASE III

Soon after the bakery became derelict, a casual burial, that of a new-born child, was made in the debris.

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Another feature, deposited at much the same time, was a rectangle of flints  $3\frac{1}{2}$  ft. by 5 ft. Underneath had been a pit  $2\frac{3}{4}$  ft. in diameter and 3 ft. deep, but unfortunately containing no datable materials. It seems that this pit was cut at the Bakery period and had been filled, and covered with flints (to prevent sinking) before the next clay seal was deposited.

The third phase commenced about A.D. 130 and extended to the beginning of the third century. The previous level (K.D. VIII) was



FOR KEY - SEE KEY DEPOSITS

FIG. 6.

sealed off with clay (K.D. VII) (after the burial and the laying down of the flint rectangle) and on top was laid the heavy flint floor of the Antonine building. This floor effectively sealed the centre cross-wall of the bakery. At the same time, a road was constructed at the side consisting of a base of chalk 5 inches thick, and a well laid gravel surface 2 inches thick (subsequently referred to as the pebble/chalk road). This partly overlaid the robber trench of the bakery.

The road and the Antonine building must have been extensively used. There was a large amount of pottery and many small finds over both, and it was from here that nearly all the terra sigillata came. It is very interesting to note that both ovens were also retained in use at this time, Oven No. 1 bearing considerable traces of repair.

As far as evidence for the construction of the building is concerned, there can be little doubt that it was mainly wattle and daub but well

finished off with painted plaster. The remains of the north cross-wall and the west and east walls of the bakery may also have been utilized to a certain extent. Some of the plaster (from impressions in the back of it) seems to have been laid directly on to the wattle, and thick plaster and wattle were found, as well as numerous nails. Only one post hole was found, and this was ripped out of the west wall of the bakery. The roof was probably tiled, although the remains were not very extensive, but it can be assumed that any tiles would have been robbed for fourth century use.

Some time after the construction of the pebble/chalk road, a chalk/flint road was made which partly overlays the former road. This appears to have been laid later in the second century and is a minor road (although well constructed) at the side of the Antonine building, connecting it to a nearby main road. The road construction is rather interesting with an 8-inch thick flint base, a rammed chalk surface (4 inches thick) in some places studded with pebbles. Some slag also appears to have been used in its construction.

When the chalk/flint road was laid late in the second century, the pebble/chalk road west of the building area was destroyed except for about 10 yards. The whole area was then used as a large rubbish dump, and many small objects were found. Unfortunately these were not well sealed, since the road itself was only 20 inches below the ground level, and the upper strata of the deposits have been badly disturbed by the plough.

#### PHASE IV

No structural remains were found associated with the final third-fourth century phase. These are undoubtedly to be found near Site A, since the late deposit actually found contained fourth-century coins, red colour-coated and other fourth-century pottery.

It is interesting to see, however, that the fourth-century deposit only occurs at the south end of the building and that the Antonine building was quite deserted. During the third century (quite early) the building fell into decay and the *derelict layer* is full of plaster, sherds of pottery, oyster shells and other debris.

Even when the Antonine building had become quite derelict it was used as a rubbish dump and many hundreds of oyster shells and bones were found over the debris of the building and roads. It was even found necessary at one stage to seal off the dump with a clay layer.

#### THE SECTIONS

##### *Figure 4. (Shop Section)*

The original turf layer (K.D. XI) extends completely across this section with some first building occupation soil (K.D. X) on top of it.

This was followed by a layer containing numerous fragments of flint chippings, mortar and charcoal, clearly the building level of the bakery.

These two strata were then cut through by the trench-built foundations and a clay seal (K.D. IX) deposited over the whole area inside the wall, to cover the building debris and the derelict first building. At this stage the wall was finished off by a careful facing with mortar, indicated by drippings on the clay seal. There was also a post hole, possibly associated with scaffolding. This stratum is below the offset on which was probably placed a wooden floor, since there is little occupation debris (K.D. VIII) on top of the clay seal.

When the bakery became derelict, it was sealed off with clay (K.D. VII). A small amount of Antonine occupation material (K.D. VI) was found over this clay seal (greater outside the building as might be expected) but contained some blackened earth, much scattered charcoal, oyster shells, mussel shells, bones, and a few fragments of slag.

The next stratum corresponds with the derelict building layer (K.D. IV) in which is a hearth possibly used by a late fourth-century occupant. Outside the building is a final clay seal (K.D. V) on the late Phase III refuse, on top of which was a single layer of pebbles. Possibly this was associated with the late occupant.

The wall was well-faced, and the dotted line represents a clasping buttress. It is possible that the roof was of wood, since no tiles of any sort were found associated with the bakery levels. Tiles were found associated with both of the other buildings.

#### *Figure 5. (Pit Section)*

This section is of great interest and helps to establish the key deposits. Primarily the wall of the bakery cuts into the pit underneath. The pit stratigraphically is contemporary with the chalk floor on the west of the wall and is the rubbish pit for that building. The filling of the pit consisted of a sandy soil mixed with hundreds of oyster shells, fragments of tile, pottery, etc. As far as dating is concerned, there is much evidence in the form of decorated Samian, plain Samian, coins, brooches and coarse ware. The pit was open in Claudian times, and up to Flavian times. The shape of the pit also indicates that it was dug originally as a well, but that efforts were discontinued.

The remainder of the section is quite normal for the site. The original turf layer is there on the base clay, and this is followed by the usual occupation strata and clay sealing layers. On the east may be seen the chalk/flint road, on which was found some slag, whelk, mussel and oyster shells. The slag was not sufficient to have been a metallurgy, but may have been used in road building, or be the remains of a furnace (see later).

On the west is the flint floor, with the Phase III occupation level

and the derelict building layer on top. This Phase III layer, particularly in the area surrounding the section, contained many small finds, as did also the derelict building layer.

*Figure 6. Robber Trench Section*

The outstanding feature of this section is the robber trench, by which the south-east corner of the building was traced. This clearly antedates the Phase III strata, since it is covered by the Antonine clay seal and part of the pebble/chalk floor.

The turf layer also occurs in this section, with the rammed chalk floor of the first building, and occupation soil on top of this, but no signs of post holes were found. Under the turf layer was found a sherd of Claudian Samian.

The robber trench cuts through the chalk floor. The only traces of the actual wall were two small flints, with mortar attached. Why only part of the wall was robbed is problematical, unless it was that the remainder of the walls were incorporated in the Antonine building. The mill stone fragment was found near this section. There appears to have been a pit east of the robber trench, filled with green sand, but this was quite clean. This sand was also used for lining the gully (see Fig. 7). There is again a clay seal over the chalk floor building, followed by the bakery occupation soil, which was also the filling for the robber trench, except where the Antonine clay seal had sunk in.

The pebble/chalk road is over the east side of the robber trench, and this, together with the Antonine clay seal, was covered with occupation soil containing much plain Samian and many other datable objects. At the west side may be seen traces of the extensive charcoal layers on both the bakery and Antonine clay seals, associated with the oven in use at both periods. Over this was the derelict building level containing the usual rubble.

*Figure 7. Gully Section*

The prominent feature of this section is the gully, which cuts into the turf layer (see Plate I for photograph of gully and stratification). However, the early chalk floor does not exist at this point and neither is there any early occupation soil, although this is found in the filling of the gully.

The clay seal used to seal off the first building occupation partly fills the gully, which certainly was not in use at this point late in the first century. The clay seal sank into the gully to a certain extent and a repair was carried out with a chalk and clay filling. The top of the clay seal was baked hard, due to its proximity to Oven No. 2, in use at this time (i.e. the bakery occupation period). There was some bakery occupation soil over the top, containing charcoal from the oven.

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Over the bakery level is the Antonine clay seal (the flint floor does not extend this far) and before it was laid down there is evidence of some plastering of the Antonine building. On top of the clay seal is an extensive burnt earth and charcoal layer, indicating that the oven was also in use at this time. The burnt layer also contained a certain amount of baked daub (but not sufficient to have come from a nearby wall), two fragments of tile and a burnt nail.

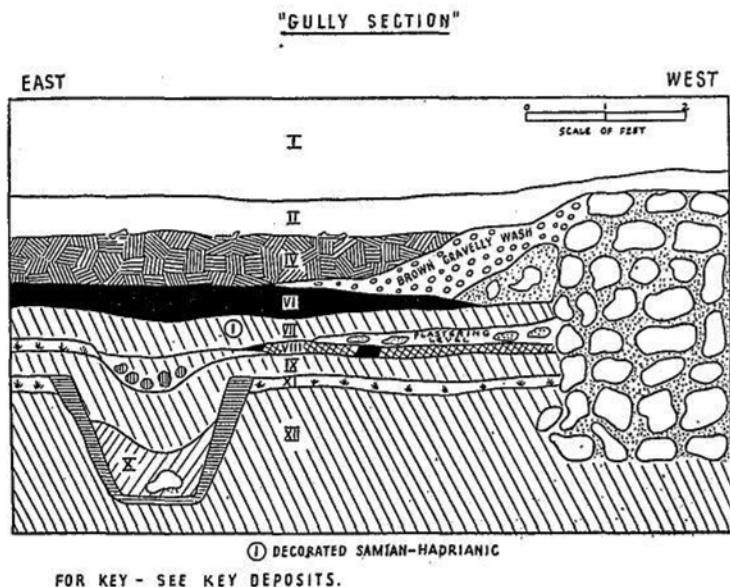


FIG. 7.

Over the top is the extensive rubble layer of the derelict building level. There were many animal bones under this, and in the layer were tile fragments, nails, much pottery, oyster shells and the like. Some of this rubble had also found its way into the top soil.

### *Figure 8. Fourth-Century Section*

This section is in complete contrast to all of the others. Instead of the usual remains of early and late first-century occupation, the soil was completely stripped to base clay in Antonine times. This includes a partial destruction of the wall.

In the base clay was a pit and a post hole (containing Antonine pottery) but there was nothing to indicate the purpose of either. There was a lining of flints, however, in the pit which sealed an Antonine mortarium sherd.

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

Over the Antonine occupation layer was a late occupation layer, containing third- and fourth-century coins and pottery. This was clearly the edge of a third-fourth century occupation area, but it may be noted that in complete contrast to the rest of the site, there were very few small finds in the Antonine or later strata.

### CONCLUSIONS

Even from the slender evidence so far available, the pattern of occupation on Site A appears to be quite clear. There was a settlement at a very early period, possibly as early as A.D. 43, which is quite consistent with the proximity of the invasion port. There are hints of Belgic influence in pottery and fibulae but so far there is no indication of a pre-Roman occupation, but this possibility cannot be ruled out.

The early settlement was of wood, but towards the end of the first century a flint building, the bakery, was constructed. This was possibly a result of the building wave inspired by Agricola and in this the settlement may follow the general pattern. However, there is an important difference in the next phase compared with other settlements, in that about A.D. 130 this first stone building was destroyed and replaced with a wooden structure. In most places it appears that wooden buildings were replaced by stone at this time.

The explanation can only be decided by future excavation, and the main Antonine settlement could no doubt have had its centre elsewhere. There is no doubt, however, from the large number of small finds, that there was an extensive community in the Antonine period which survived in some force until the first quarter of the third century—at least.

There is only a hint of the final phase, the main centre of which is somewhere south of Site A. That it existed, however, is certain, and there is much fragmentary pottery to indicate a late third/fourth-century occupation. It is interesting to note, however, that the Antonine Site A was deserted and not built over in the fourth century. Does this indicate a contraction in the living area in the fourth century as at Verulamium? Only future excavation can answer this question.

Site A has only provided a hint of what is to be found at Springhead, and excavation will proceed to find answers to the many obvious problems, to provide a picture of a provincial Roman settlement and post-station and to identify the settlement with Vagniacae of Iter. II.

### THE FINDS

The small finds on Site A were extremely numerous and interesting, and detailed accounts are given below. A few have been singled out for special attention, and they are all preserved at the Museum of the Gravesend Historical Society, Milton Chantry, Gravesend and can be viewed by arrangement.

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

### THE SEEDS

One of the most important finds at Springhead was the carbonized seeds, found in Key Deposit VI near Fig. 8. These were identified as *Atriplex patula* or the Common Orache, by the British Museum (Natural History). Hundreds of seeds were found in a cluster, and it was clear that this number must have been deliberately collected for use in some way.

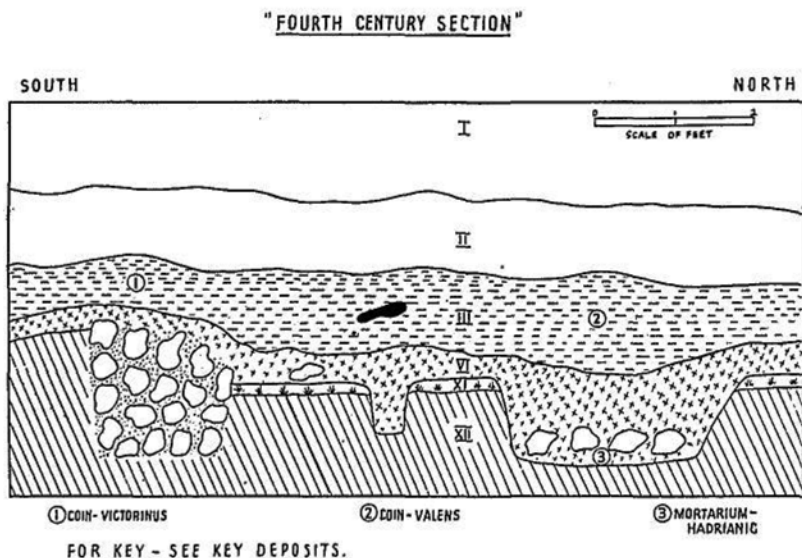


FIG. 8.

The problem is clearly to establish what this use was, since today the plant is a weed. Actually there are hundreds of species of *Atriplex*, and a consideration of some of these affords several clues.

The Red Orache (*A. hortensis*) (16) is a plant cultivated for its red foliage, which is due to the development of anthocyanin pigment. Species of *Atriplex* (Salt Bush) (16) appear to form useful fodder plants in dry countries. These plants contain up to 30-40 per cent salt in their ash. In the genus *Atriplex* (17) there is the Mountain Spinach or Garden Orache (*A. hortensis* L.), which was introduced from Tartary about four hundred years ago, has since run wild but is still occasionally grown in gardens.

It seems not unreasonable from the above facts to assume that *Atriplex p.* was once cultivated by the Romans in this country, either for fodder or even human consumption, and that the plant has since run wild. This is confirmed by the fact that seeds of *Atriplex* sp. were

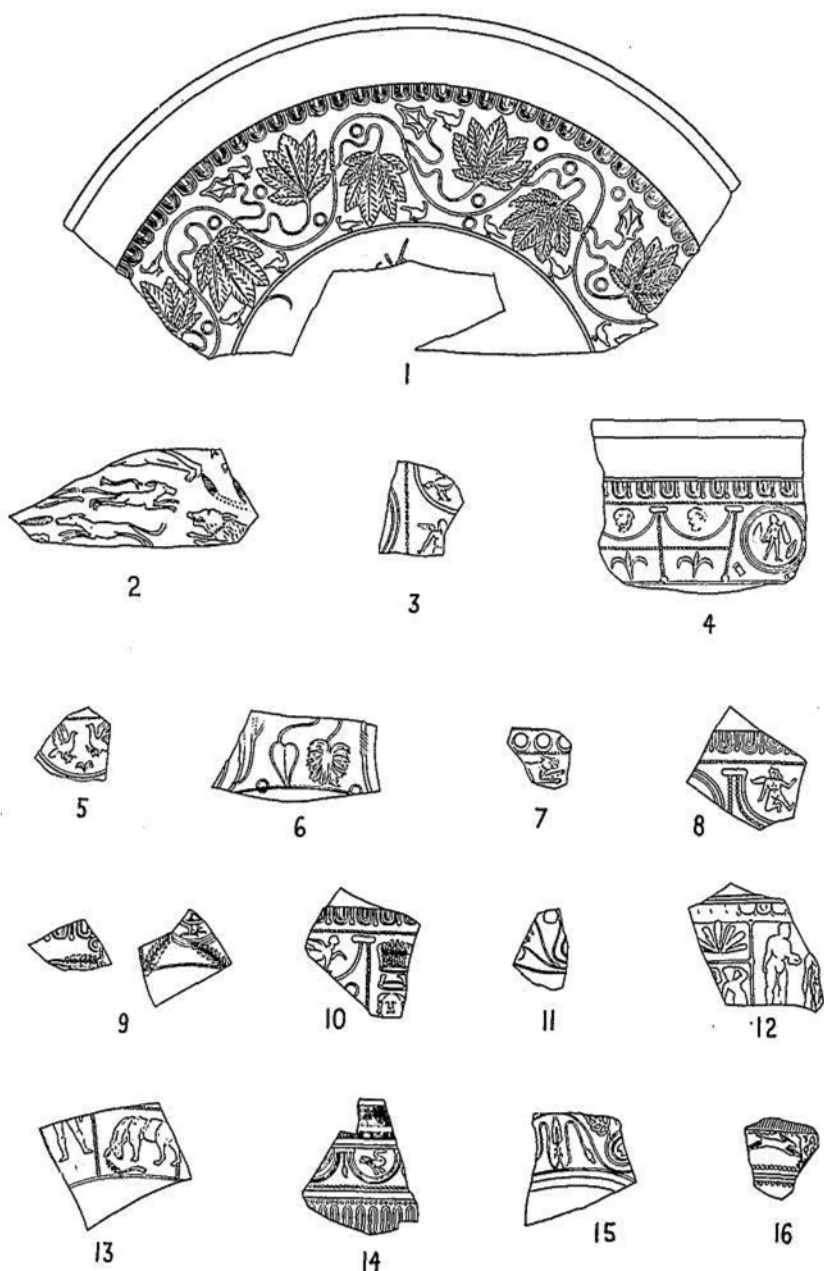


FIG. 9.

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

found at the Roman Military Station, Newstead (18). From this it would appear that the species *Atriplex* was of importance in ancient times, which may be a new and important contribution to agricultural history.

### INDUSTRIAL REMAINS

There is definite evidence of much industrial activity at Springhead, particularly in working metals : iron, lead, bronze and brass.

As far as bronze is concerned, Mr. Hull writes regarding one brooch (No. 1) : " I conclude this is an unfinished casting and indicates that brooches were made on the site." This is the main evidence for the working of bronze, but a few bronze droppings have also been found.

As far as brass (orichalcum) is concerned, only one fragment has been found. However, this had clearly fallen from the spout of a crucible, since one side was very rough (in contact with the rough crucible) and the other curved and smooth (clearly due to a pouring action. The composition of the brass is as follows :

Copper	..	45.01%
Zinc	..	23.84%
Tin	..	19.85%
Lead	..	11.30%

This is of great interest and illustrates the difficulty of drawing a line between the composition of brass, bronze and pewter. It is, however, yellow like brass and was quite free of verdigris, i.e. it appears to be corrosion-resistant.

In many places over Site A there was much iron slag and ore, indicating the working of iron. However, some of it was found over roads, which indicates its use for road metalling, although there was far from sufficient to make a continuous layer. It seems hardly likely, however, that high quality ore would be used in road-making, and the finding of parts of a furnace base, and walls with fused slag and flux adhering, definitely indicate iron smelting. The ore had an average iron oxide content of 72.4 per cent and the slag 22.7 per cent.

As far as lead is concerned, two rivets were found as well as several indeterminate fragments. One of these had the following composition :

Iron	..	present
Silver	..	0.002%
Tin	..	0.08%
Copper	..	0.004%
Bismuth	..	trace
Antimony	..	0.01%
Cadmium	..	absent
Arsenic	..	absent

ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

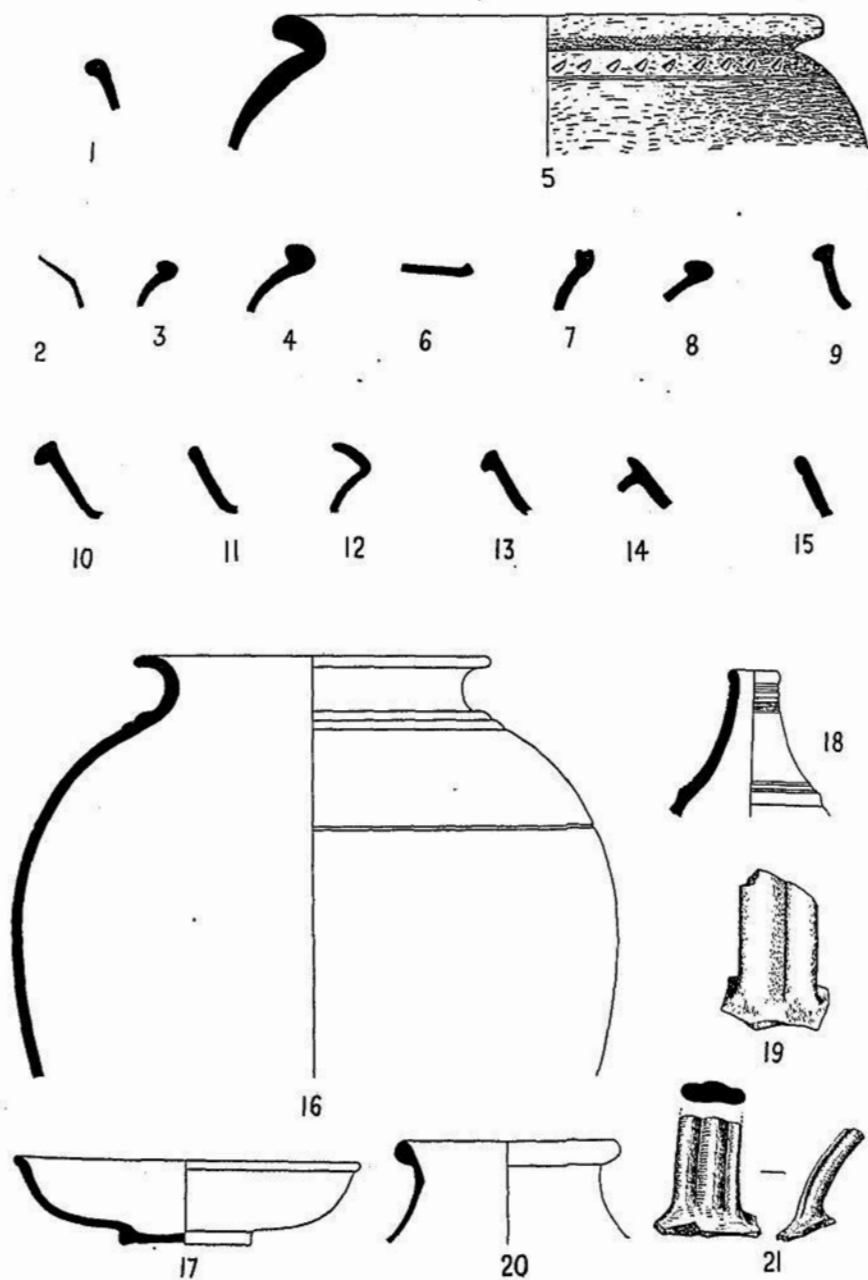


FIG. 10.

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

This analysis indicates quite a high state of purity and a very advanced extraction technique. In view of the considerable importance of the study of these leads, two of the finds on Sites B and C have been anticipated. Two lead fragments were found and a detailed chemical study of these has been made. It is hoped that this will throw light on Roman metallurgical techniques and the origin of the lead.

The first object found (in a late second-century context) appears at first sight to be an axe mould. It was rather thick, made of lead with the outer surface covered with a ground stone or sand, and the inside surface coated with iron oxide. The inside was shaped very much like an axe (a film of iron oxide was found all over the inner surface) as if an axe had been inside.

Now it is clear that an iron axe could not be cast in a lead mould, so that the problem exists of trying to establish why the shape of an axe-like object was found inside a mass of lead. The following theories suggested themselves :

- (1) The iron had been tempered inside the lead sheath ;
  - (2) The iron axe had been covered with a lead sheath to function as a blunt instrument ;
- and (3) The iron had been covered with lead to act as a protective cover.

Alternative (1) was untenable, since cast iron cannot be tempered.

Alternatives (2) and (3), however, had certain merits, and possibly the investigation would have finished there had it not been that additional facts were discovered. A close examination of the object revealed certain flow lines which indicated with little doubt that the lead had been poured around the iron object. Then a detailed chemical analysis was made (spectroscopically) with the results given below :

Copper	..	0.047%
Tin ..	..	0.66%
Silver ..	..	0.0067%
Zinc ..	..	0.0016%
Iron ..	..	0.00094%
Antimony	..	0.0048%
Cadmium	..	0.012%
Bismuth	..	<0.0005%
Nickel ..	..	Not detected

The outstanding feature of this lead, compared with the one given above, is the very high tin content. Could it have been that this tin had been added to give some special characteristic to the lead, such as to make it harder ? It is almost certain that the tin was deliberately added and that the lead was not a natural alloy.

An extraordinary stroke of fortune decided the matter. A large

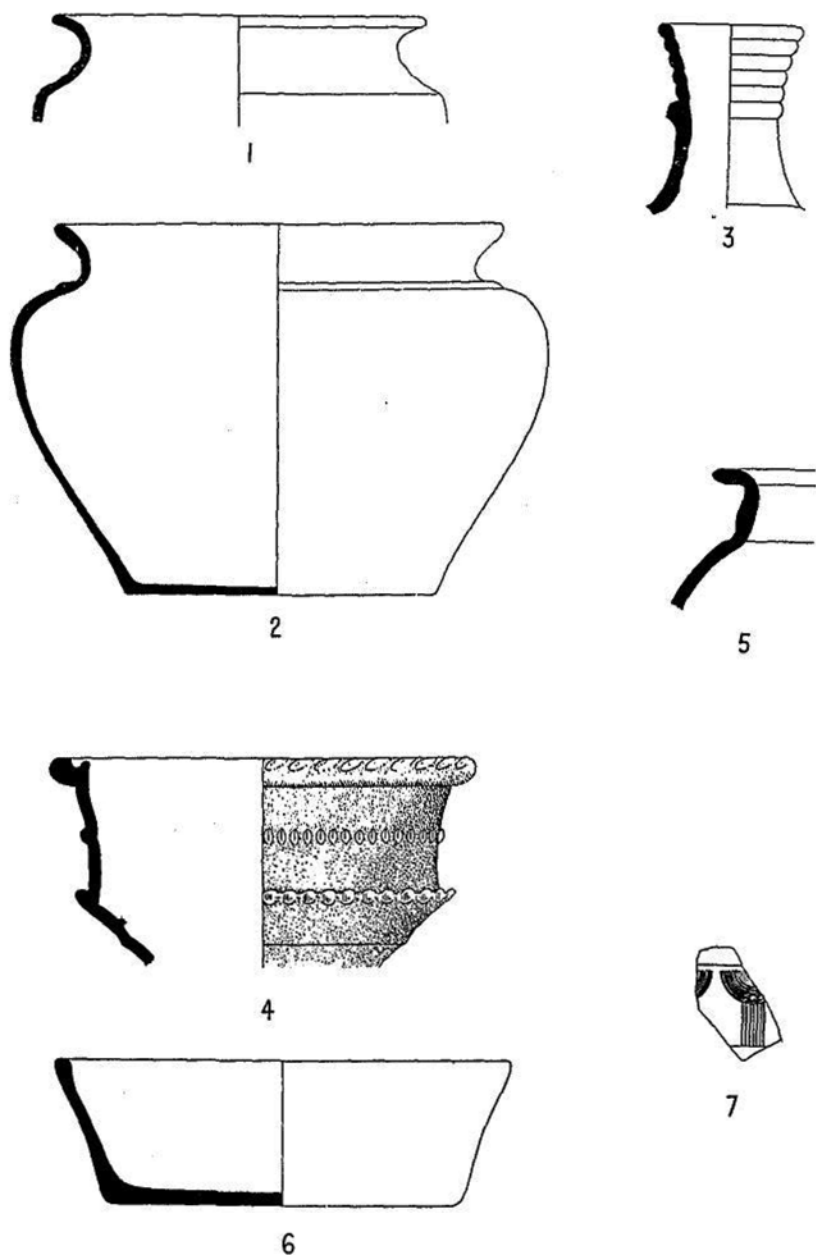


FIG. 11.

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

stone was found (Site C) containing a hole in which was an iron rod, cemented in with lead (second century). The lead had been poured around the iron, into the hole in the stone and made a very secure joint indeed. Could the original lead have served this purpose since (a) it had been poured round an iron object and (b) it had clearly been in contact with stone on the outside and the particles of stone could only have been picked up when the lead was molten ?

For this argument to be true it seems reasonable to assume that the lead would have to be the special alloy with the high tin content. The lead was accordingly analysed, with the following result :

Copper	..	0.031%
Tin	..	0.63%
Silver	..	0.0103%
Zinc	..	0.00077%
Iron	..	0.0014%
Antimony	..	0.0092%
Cadmium	..	0.022%
Bismuth	..	0.0005%
Nickel	..	Not detected

It is clear that this lead is also the special alloy and it therefore seems reasonable to assume that the first lead object found was merely the cement to the iron foot of something else. Although confirmation of the use of a *lead cement* will obviously be required, this discovery is clearly of first-class importance to the history of metallurgy.

It is proposed to study lead ingots from a variety of sources, and leads from various sites to establish the trade routes of the different leads and, if possible, a new method of dating. This may be possible from variations in trace elements which may have changed as supplies worked out and new mines came into operation, etc. The field is wide but may well repay study.

There is much evidence that bone was worked on the site. Some bone pins had clearly been turned whilst others had been worked by hand, and a small collection of partly worked bones was found.

It is also obvious that the playing counters were turned on a lathe which was probably worked by a treadle. One of the counters found had the lathe marks clearly visible as well as the point for securing the object on the revolving table.

### THE COINS

Many coins have been found at Springhead and district over the past 150 years, most of which have been lost and not recorded, although many were only surface finds. These finds included a hoard (19) of 114 coins, the latest Emperor being Tetricus II.

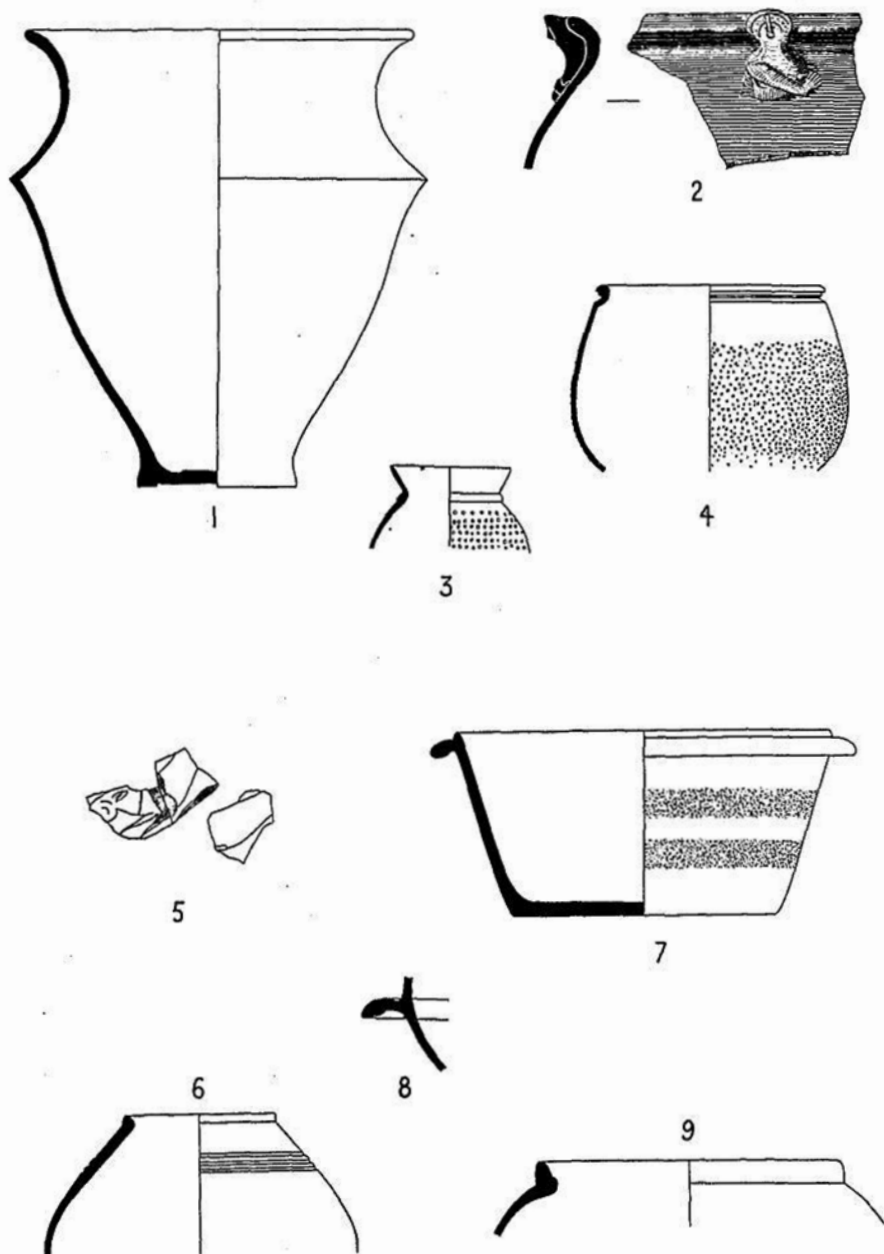


FIG. 12.

# ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

The earliest and latest coins found during the present excavations were of Claudius and Valentinian II respectively.

Details of the coins are given in Table II.

TABLE II  
THE COINS

(The coins were identified on site by Mr. E. W. Tilley and finally by R. A. G. Carson, Esq.)

Coin No.	Key Deposit	Position of Find and Description
1	VIII/VII	Robber trench, Figure 6. As. Cohen 84; M. & S. p. 129, 66. Claudius I.
2	X	In pit, 1st century. Figure 5. 2 AE Dupondius. Cohen I; M. & S. p. 129, 67. Claudius I.
3	II	Over pebble/chalk road. 2 AE (As). Cohen 6; M. & S. p. 132, 82. Antonia.
4	IX	In Bakery clay seal, near Figure 5. Denarius. Obv. illegible. Head laureate right. Vespasian. Rev. illegible. Seated figure left.
5	X	In pit, 1st century. Figure 5. 2 AE (As). Cohen 85; M. & S. II, p. 106, 775. Titus.
6	V	Outside walls N.W. corner of Bakery, Figure 4. 2 AE (As). Cohen 122; M. & S. II, p. 196, 333. Domitian.
7	II	Over pebble/chalk road. Dupondius. Obv. Head to right. 1st/2nd century. Rev. Standing figure left. In field S.C.
8	VI	Above pebble/chalk road, Figure 6. Denarius. Cohen 272; M. & S. II, p. 268, 353. Trajan.
9	VI	Over Antonine flint floor, Figure 5. Denarius. Cohen 99; M. & S. II, p. 374, 297. Hadrian.
10	VI	At side of pebble/chalk road. Dupondius. Cohen 724; M. & S. II, p. 381, 360. Hadrian.
11	IV	Over pebble/chalk road. Dupondius. Cohen 724; M. & S. II, p. 381, 360. Hadrian.
12	VII	In chalk/flint road over 1st century pit, Figure 5. Denarius. B.M.C. III, p. 23, 139. Faustina I.
13	VI	Over Antonine flint floor near Figure 5. Dupondius B.M.C. III, p. 330, No. 1969. M. & S. III, p. 142, 932. Antoninus Pius.
14	IV	Just under plaster layer of Antonine building, near Figure 5.
15		As. B.M.C. AP. 1983. M. & S. III, p. 142, 932. Marcus Aurelius.
16	IV	Derelict building layer, near Figure 7. 2 AE As. M. & S. III, p. 194, No. 1405a. Faustina II.
17	VI/III	At side of pebble/chalk road, probably after Antonine occupation. Denarius. Cohen 468. M. & S. I, p. 117, 196. Septimius Severus.

# ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

TABLE II—continued

Coin No.	Key Deposit	Position of Find and Description
18	IV	Just under plaster layer of Antonine building, near Figure 5. Denarius. M. & S. IV, Part II, p. 71, 7. Severus Alexander.
19	III	Near destroyed south-east wall of Bakery. Antoninianus. Cohen 199. M. & S. V, Part II, p. 362, 315. Postumus.
20	III	Near destroyed south-east wall of Bakery. Antoninianus. Cohen 199. M. & S. V, Part II, p. 362, 315. Postumus.
21	III	Near destroyed south-east wall of Bakery. 3 AE. Obv. illegible. Bust radiate right. Rev. Standing figure left. Postumus.
22	III	Over destroyed south wall of Bakery, Figure 8. Antoninianus. Cohen 101. M. & S. V, Part II, p. 392, No. 61. Victorinus.
23	III	Over destroyed south wall of Bakery, near Figure 8. Antoninianus. Cohen 87. M. & S. V, Part I, p. 214, 36. Claudius II. Gothicus.
24	III	Over destroyed south wall of Bakery, near Figure 8. 3 AE. Antoninianus. Cohen 37. M. & S. V, Part II, p. 407, 70. Tetricus I.
25	III	Over destroyed south wall of Bakery, near Figure 8. 3 AE. M. & S. V, Part II, p. 407, 56. Tetricus I.
26	III	Over destroyed south wall of Bakery, near Figure 8. 3 AE. Obv. Ricus PF AVG. Bust radiate right. Late 3rd century.
27	III	Over destroyed south wall of Bakery, near Figure 8. 3 AE. M. & S. V, Part II, p. 424, 270. Tetricus II.
28	III	Over destroyed south wall of Bakery, near Figure 8. Barbarous imitation of radiate coin. Late 3rd/4th century.
29	VI/III	At side of pebble/chalk road. Cohen 4. Helena.
30	VI/III	At side of pebble/chalk road. 3 AE. Cohen 254. Constantine I.
31	III	Over destroyed south-east corner of Bakery. 3 AE. Cohen 508. Constantine I.
32	III	Over destroyed south-east corner of Bakery. 3 AE. Cohen 690. Constantine I.
33	III	Over destroyed south-east corner of Bakery. 3 AE. Cohen 518. Constantine I.
34	VI/III	At side of pebble/chalk road. Cohen 114. Constantine II.
35	III	Over destroyed south wall of Bakery, near Figure 8. 3 AE small. Cohen VII, p. 468, 188. Constantius II.
36	} III	Over destroyed south wall of Bakery, Figure 8. 3 AE. Cohen 47. Valens.
37		Over destroyed south wall of Bakery, Figure 8. Obv. DN VAL ENTINIANUS PF AVG. Valentinian II. Bust diademed and draped right.
38		Rev. VICTORIA AVG. GG. Victory advancing left with wreath and palm. In ex. LVG.

# ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD



1



2

(ATILIANI M)

3

AVITVSPEC

4



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CAN

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WIFHOEIO

9

Fig. 13.

## THE POTTERY

A considerable amount of pottery was found at Springhead, there being upwards of 20,000 sherds. These include 800 sherds of plain and decorated Samian ware and 1,000 datable coarse ware rims.

The majority of this pottery is confined to the Antonine period, although the full range of Roman occupation is included. First there have been traces of Belgic *combed* ware, followed by a sprinkling of Claudian and Flavian pottery, represented mainly by Drags. 29, 30 (decorated) and 15/17, 18, 24/25 and 27. The Antonine pottery is outstanding for its quantity represented mainly by Drags. 37 (decorated) and 31 and 33 (plain). One bowl of Drag. 37 of Hadrianic date was two-thirds complete, but not one complete pot has been found. There was also much coarse ware.

Late second century, third and fourth centuries are not so well represented, but examples of all have been found. These include *roughcast* ware, Castor ware, Rhenish ware, New Forest ware, red colour-coated ware and imitations of Drag. 38. The amount of fourth-century pottery is not inconsiderable, although most is very fragmentary.

It has clearly been necessary to reduce the amount of pottery by a considerable degree for the purposes of the report. However, plain and decorated Samian, potters' marks, mortaria and coarse ware are all reported on to a certain extent.

## TERRA SIGILLATA

The plain Samian has been reduced to tabular form (Table III) from which the incidence of various types at the different periods may be clearly seen. As would be expected, Drags. 31 and 33 represent the bulk of the forms, but Drags. 18 and 18/31 are quite well represented. Antonine pottery is by far the most prominent, but first-century types are not inconsistent with a reasonable occupation at that time.

The decorated Samian is described in Appendix I and illustrated in Fig. 9.

The potters' marks are summarized in Table IV, described in Appendix II and illustrated in Fig. 13.

## COARSE WARE

The mortaria are described in Appendix III and illustrated in Fig. 13.

The main body of coarse ware has had to be reduced to manageable proportions by a system of classification. Fortunately about 500 datable rims have been reduced to 15 standard forms and these are illustrated in Fig. 10. The frequency of occurrence of these is given

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

TABLE III

## ANALYSIS OF POTTERY TYPES. PLAIN SAMIAN

	Claudian	Nero	1st century	Flavian	Late 1st century	Late 1st-early 2nd century	Early 2nd century	Antonine	2nd half 2nd century	Early 3rd century	Mid 3rd century	Total No.	Total percentage
Drag. 15/17	5	1			2							8	3.1
" 18	5		19	1	2							27	10.5
" 18/31				1		14	3	8				26	10.1
" 24/25	2											2	0.8
" 27	4	2	11									17	6.6
" 31								81	1			82	31.8
" 33							2	49	2		1	54	21.0
" 35				4		1	1					6	2.3
" 35/36				1								1	0.4
" 36									3			3	1.2
" 38							1	3				4	1.6
" 42			1									1	0.4
" 44								1				1	0.4
" 45										3		3	1.2
Curle 11					2		2					4	1.6
" 23								7				7	2.7
Ritt. 1	1											1	0.4
" 9	1											1	0.4
Walters 77								1				1	0.4
" 79								7				7	2.7
" 81									1			1	0.4
Total No.	18	3	31	7	6	15	9	157	7	3	1	257	
Percentage of Total No.	7.0	1.2	12.1	2.7	2.3	5.8	3.5	61.1	2.7	1.2	0.4		

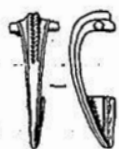
in Table V, where it will be seen that by far the most common is the Antonine pie-dish rim (Fig. 10.10).

In addition to these standard forms, a few of the more interesting examples have been recorded. All coarse ware pottery is described in Appendix IV.

## FIBULAE

The fibulae are described in Appendix V and illustrated in Fig. 14. Perhaps the most interesting of the fibulae is No. 1, which appears to

ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD



1



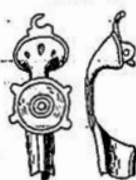
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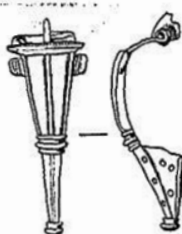
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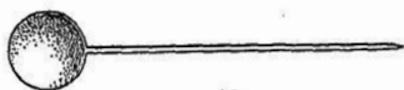
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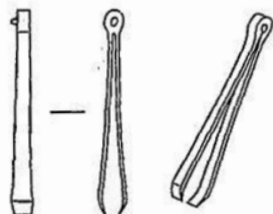
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11



13



12

Fig. 14.

# ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

TABLE IV  
POTTERS' MARKS

No.	Fig. No.	Potter	Form	Key Deposit	Dating	Position of Find
1	13.1	Cracuna	D.33	I	Early 3rd century	Surface
2	13.2	Corius	D.33	IV	Claudius-Nero	In shop, Figure 4
3	13.3	Atilianus	Walters 79	VI	Hadrian-Antonine	Over Antonine road flint/chalk
4	13.4	Avitus	D.33 ?	VI	Hadrian/Antonine	Over Antonine flint floor
5	13.5	Elvillus	D.33 ?	VI	Antonine	Over Antonine flint floor
6	13.6	Miccio	D.33 ?	VI	Late Antonine	Over pebble/chalk road, Figure 6
7	13.7	Osbimanus	D.33	VII	Trajan-Hadrian	In flint floor of Antonine building
8	13.8	Cantus	D.33	IX	Tiberius/Nero	Near section, Figure 4
9	13.9	Frontinus	D.31	IX	Flavian	Near section, Figure 7

TABLE V  
FREQUENCY OF OCCURRENCE OF COARSE WARE FORMS

Figure No.	No. of Rims Found	%
10.1	28	5.78
10.2	16	3.30
10.3	43	8.88
10.4	21	4.34
10.5	10	2.06
10.6	11	2.27
10.7	9	1.86
10.8	27	5.58
10.9	10	2.06
10.10	139	28.76
10.11	15	3.10
10.12	81	16.72
10.13	41	8.47
10.14	15	3.10
10.15	18	3.72
	484	100.00

ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD



1



2



3



5



4



6



7



8



9

Fig. 15.

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

be an unfinished casting, and Mr. Hull concludes that it was made on the site. Since it is of Flavian date, it does indicate fairly early industrial activity.

### MISCELLANEOUS FINDS

Full descriptions and illustrations of other finds are given as follows :

<i>Find</i>	<i>Appendix</i>	<i>Figure</i>
1. Bronze objects ..	VI	14 and 15
2. Iron objects ..	VII	16 and 17
3. Bone objects ..	VIII	18
4. The Charcoals ..	IX	—
5. The Bones ..	X	—
6. Graffiti ..	XI	17
7. Other objects ..	XII	18

### ACKNOWLEDGMENTS

Our thanks are first of all due to the farmer, Mr. P. Bartholomew, who has allowed us to excavate since 1951 on his valuable arable land at some considerable inconvenience to himself.

Our thanks are also due to many authorities who commented on the finds, including M. R. Hull, Esq., M.A., F.S.A., for commenting on the fibulae ; R. A. G. Carson, Esq., for his comments on the coins ; J. W. Brailsford, Esq., F.S.A., for his comments on many of the small objects ; R. P. Wright, Esq., M.A., F.S.A., for his comments on the graffiti ; Dr. F. C. Fraser for his comments on the animal bones ; F. C. Balfour Browne for comments on the charcoals ; A. Warhurst, Esq., B.A., A.M.A., for comments on various small objects ; A. Melderis, Esq., for comments on the seeds ; and Mrs. J. E. Morey for comments on the stones.

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Finally, the author wishes to thank the British Museum, Maidstone Museum, the Gravesend Public Library and British Insulated Callenders Cables Ltd. (for the lead analyses) for much assistance, and the President, Chairman and Council of the Gravesend Historical Society for much help, advice and encouragement at all stages of the work.

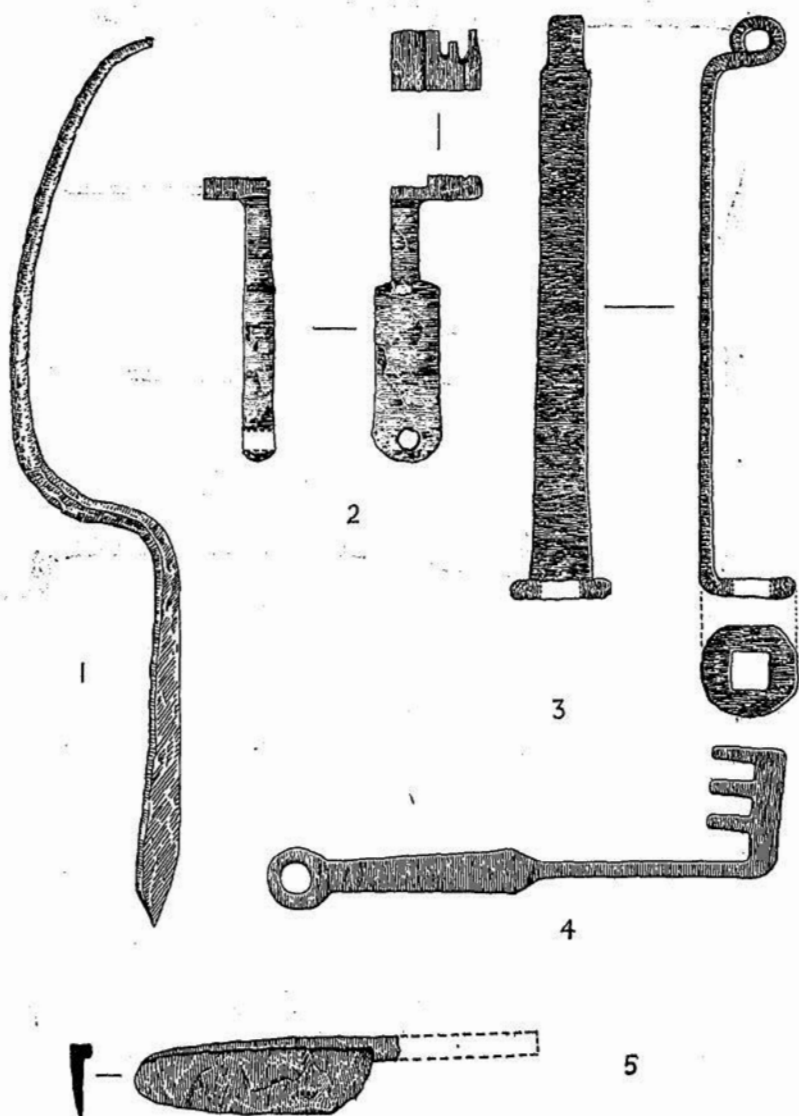


Fig. 16.

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD



TA

6

PA

D M R

 $V_1$ 

9

10

7

VAK

8

△△△△△

28

Fig. 17.

# ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

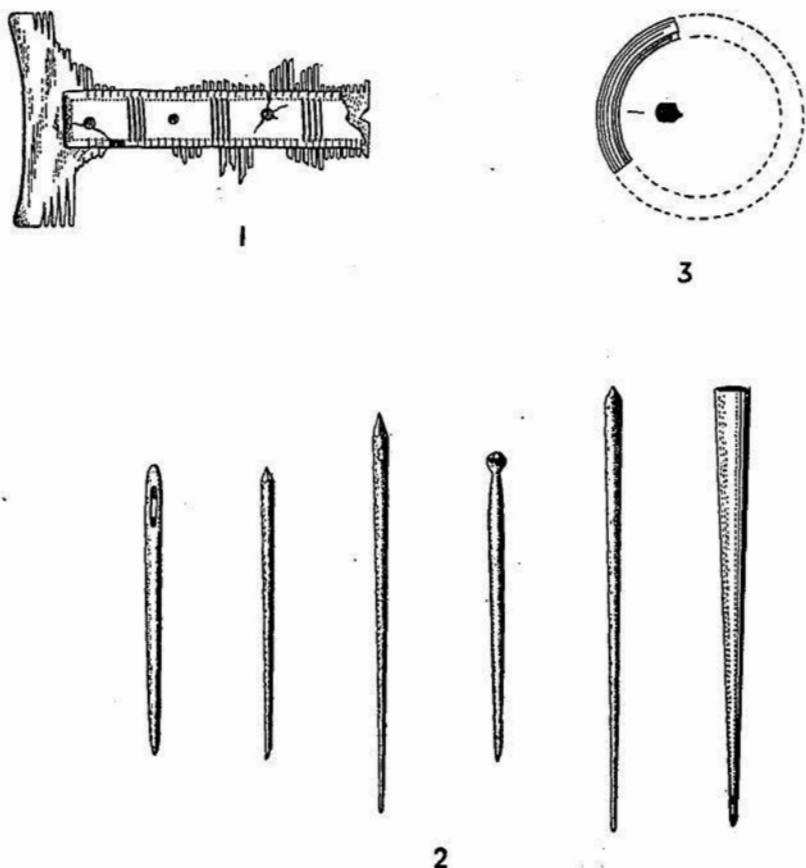


Fig. 18.

## REFERENCES

- (1) The Romano-British Settlement at Springhead, W. S. Penn, *Arch. Cant.*, LXV, 171, 1952.
- (2) *History of Kent*, E. Hasted, Vols. 1, 2 and 3, 1797.
- (3) *History of Gravesend*, A. J. Philip, Vol. 1, 1914.
- (4) *V.C.H.*, Vol. 3 (*Victoria County History of Kent*).
- (5) Hasted, Vol. 2, 422-3, 1797.
- (6) Dunkin, 135.
- (7) *V.C.H.*, Vol. 3, 91 (see Ref. 62).
- (8) *Arch. Cant.*, XI, xlii.
- (9) Dunkin, 140.
- (10) Dunkin, 144.

- (11) H. Ross, *Arch. Journ.*, XXII, 63.
- (12) R. F. Jessup, *Antiq. Journ.*, VIII, 338.
- (13) *V.C.H.*, Vol. 3, 29; *Antiq. Journ.*, VIII, 339.
- (14) *Arch. Cant.*, LXVIII, 103.
- (15) *Cicero and the Roman Republic*, F. R. Cavell, Pitman, 1948, 70.
- (16) *The Shorter British Flora*, Prime and Deacock, Methuen, 1948, 222.
- (17) *British Plants and Their Uses*, Edlin, B. T. Batsford Ltd., 1951, 50.
- (18) *Newstead*, Curle, 1911, 360-1.
- (19) *Arch. Cant.*, XVII, 209.

## APPENDIX I

### DECORATED TERRA SIGILLATA

1. FIGURE 9.1. D.37, K.D. IV. Found over Antonine flint floor with plaster rubble.

This was the largest fragment found on the site and is about two-thirds complete. The large leaf scroll is its outstanding feature.

(1) The absence of a demarcating motif indicates second century.

(2) The cable motif of the tongue first appears at the turn of the first and second centuries and the asymmetrically placed tongue also indicates second century. Since the terminal swelling is not at an obtuse angle, however, this would indicate fairly early in the second century.

(3) The use of this type of scroll is fairly widespread. The main leaf used is similar to Wroxeter, XXV, 3 assigned to first half of second century. A somewhat similar scroll is figured in Silchester XXIII which may be CINNAMUS. Great similarity is also shown to a scroll of CINNAMUS (also with rings and fowl free in the field) dated Hadrian/Antonine (O. and P. XXXI, 37), although the tendril bindings are not the same.

(4) The tendril binding is the astragalus type (O. and P. XXXII, 34, 35, 36) which may be assigned to latter end of first century or beginning of second century. It is rare in the Antonine period.

This could well be an early pot of CINNAMUS of Lezoux. Probably Hadrianic.

2. FIGURE 9.2. D.37, K.D. IV. Found over Antonine flint floor.

A typical bowl of PATERNVS with animals and spindle-shaped ornaments free in the field. See bowl found at Wingham, Kent (Walters, C.R.P. XXXI, M.1463). Bowls found at Warrington, Wroxeter, Colchester, Corbridge, Silchester, Hengistbury and London. Probably pot of PATERNVS of Lezoux. Date: Hadrian/Antonine.

3. FIGURE 9.3. D.37, K.D. IV. Found over Antonine flint floor.

(1) The cupid contained in the festoon is dated Trajan/Antonine in O. No. 440 (Lezoux).

(2) The divided metope would normally indicate comparatively early in the second century, but medallions, festoons and astragalus bordering and dividing motifs indicate later and possibly East Gaul. Date : c. A.D. 150.

4. FIGURE 9.4. D.37, K.D. VI. Found over Antonine floor.

(1) This sherd has a narrow rim and a glaze dulled by wear.

(2) The ovolo is divided from the decoration by a bead row, the tongue is placed asymmetrically and the terminal is quite simple. This would all indicate second century and possibly Antonine.

(3) The divided metope with large medallions and festoons is typically Antonine.

(4) The two bearded masks, facing left, are figured in O. Nos. 1216 and 1218, both of Lezoux, the former dated Antonine and the latter Trajan/Antonine.

(5) The gladiator is very much like O. No. 1057 dated Trajan/Hadrian and of Lezoux.

Thus, although there are many features of this sherd which may be Antonine, there are also several early features. The date may, therefore, be late Hadrianic rather than Antonine.

Probably Lezoux and late Hadrianic.

5. FIGURE 9.5. D.37. K.D. VI. Found over chalk/flint road.

(1) Bead row divides ovolo from decoration and indicates second century.

(2) Two birds are in festoon which could be Antonine.

(3) One bird is flying left and one right. Both are figured by Oswald No. 2324, Lezoux, Trajan/Antonine (former) and O. No. 2316 (Lezoux) Trajan/Antonine.

Probably Lezoux and early Antonine.

6. FIGURE 9.6. D.37. K.D. VI. Found over chalk/flint road.

This pot has a compound stalk scroll, with a large divided leaf and ivy leaf. There is probably a medallion in the concavity of the scroll. Similar to O. and P. XXXI, No. 37, by CINNAMUS of Lezoux, and Antonine.

7. FIGURE 9.7. D.37. K.D. VI. Found over Antonine flint floor.

(1) The usual ovolo, shaped like a hanging ear-ring, without tongue, and bead row below would indicate Central and East Gaul, and fairly late Antonine.

(2) The animal free in the field (Antonine), shows no sign of degeneration and is not figured by Oswald. It appears to be a vicious dog.  
Date : Antonine (c. A.D. 160).

8. FIGURE 9.8. D.30. K.D. VI. Found over pebble/chalk road.

(1) Bead rows separate ovolo from decoration and also panels of medallions. A second century feature.

(2) The tongue of the ovolo has a knobbed terminal bent at an obtuse angle which is probably Antonine. Very similar to an ovolo of CINNAMUS (Newstead II, XL, IV).

(3) Medallion and festoons typically Antonine.

(4) Cupid as O. No. 431 (Lezoux, Antonine) and O. No. 431A (Rheinzabern, Antonine).

Probably CINNAMUS of Lezoux and Antonine.

9. FIGURE 9.9. D.37. K.D. VI. Found over pebble/chalk road.

(1) There is no bead row separating ovolo from decoration which could mean second century and East Gaul.

(2) The corded tongue indicates second century and DIVIXTUS of Lezoux.

(3) Bead row dividing individual motifs indicates second century.

(4) The motif is unusual and consists of a medallion containing a bird, the medallion being at the centre of four leaves emanating from the corners of the metope. No analogy can be found.

(5) The fine glaze indicates no degeneration and therefore not late in the second century.

(6) The bird is similar to O. Nos. 2296 (Lezoux and Hadrian/Antonine) and 2296A (Lezoux and Antonine).

Possibly DIVIXTUS of Lezoux and Antonine.

10. FIGURE 9.10. D.37. K.D. VI. Near section, Figure 4.

(1) The bead row separating the ovolo from the decoration and dividing metopes indicates second century.

(2) The head is similar to O. No. 1269 which is given as Rheinzabern, Antonine and La Madeleine, Hadrian.

(3) There is rather an unusual feature separating the panels, with a crown over a head.

(4) The style of metope decoration would indicate Antonine.

Date : Antonine.

11. FIGURE 9.11. D.29. K.D. VII. Found in section, Figure 5.

(1) Moniliform tendril binding is early, possibly extending to early Flavian period.

(2) The scroll is also early. Similar scrolls and bindings are to be

found in Camulodunum XXV Nos. 1 and 7a, both dated early Claudian.

Date : Early ; early Flavian being terminal date.

12. FIGURE 9.12. D.37. K.D. VII. Found near section, Figure 6.

(1) The finish is poor, but the wavy line dividing the ovolo from the decoration taken with the bead row separating metopes would indicate turn of first and second centuries.

(2) The divided metope taken with absence of medallions indicates Trajanic. Similar bowl Wroxeter I, XIV, dated c. A.D. 110.

Probably Lezoux and Trajanic.

13. FIGURE 9.13. D.37. K.D. VII. Found under Antonine flint floor. Figure 7.

(1) Bead row separating ovolo from decoration would indicate second century.

(2) The type of divided metope would indicate Trajanic period and is typical of South Gaul.

(3) The bear is similar to O. Nos. 1609 (Antonine) and O. 1610 (Hadrianic) both of Lezoux.

(4) A similar type of decoration was found at Wroxeter (I., p. 37, 13) in a well dated deposit of A.D. 90-120 and again Lezoux.

Probably Lezoux and Hadrianic.

14. FIGURE 9.14. D.29, K.D. IX. Found near section, Figure 7.

(1) The rim is hardly everted which would indicate Tiberian example. The decoration is divided into two zones by the central moulding which is not rouletted.

(2) The lower frieze has a godroon which is probably pre-Flavian.

(3) The upper frieze contains discontinuous festoons containing animals, almost separated into metopes by tassels. This should indicate Flavian but there is no sign of pinnate leaves, arrow heads or other Flavian motifs. Nearest analogy is bowl by PRIMUS who worked A.D. 40-51 and A.D. 76-83. A bowl by PRIMUS (Silchester, VIIa) is dated A.D. 40-51. There is a lower frieze on another bowl at Silchester (IXA) similar to the present upper frieze, dated before A.D. 45.

(4) The bird is probably the Nile goose (Knorr, Rottweil 1912, p. 7, Pl. II, No. 10) La Graufesenque.

Probably PRIMUS of La Graufesenque and Tiberius/Claudius.

15. FIGURE 9.15. D. 29, K.D. IX. Found in section, Figure 5.

This is a lower frieze consisting of a continuous winding scroll with an unusual filling in the concavity. This consists of an upright palmette type leaf from which curves away two other similar leaves. This is a

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

most unusual feature in Claudian pottery (very few examples are figured in the pre-Flavian pottery of Camulodunum) and is more consistent with an early Flavian period.

Date : Early Flavian.

16. FIGURE 9.16. D.29, K.D. X. Found in pit, Figure 5.

(1) The upper frieze is divided from the rim by a bead row and from the lower frieze by a central moulding (without rouletting) and widely spaced beads on each side of it. An early feature.

(2) The frieze is divided into metopes (with rosettes at the corners) containing animals and *arrowheads* alternately which is a pronounced Flavian feature (see bowl by PASSEUS London, Walters, C.R.P., Pl. XXII (M.352).)

(3) For Hare see O.2077 La Graufesenque. Claudius/Vespasian. Nero/Vespasian.

Date : Probably Vespasianic.

## APPENDIX II

### NOTES ON POTTERS' MARKS

#### 1. CRACUNA

This potter has also been found at Trèves and Xanten.

#### 2. CORIUS

A potter of La Graufesenque.

#### 3. ATILIANUS

A Lezoux potter. His activity may be dated to between A.D. 140 and A.D. 190, since eighteen of his pots have been found at Pudding Pan Rock. One stamp is recorded from Colchester (Walters, M.1683) and his moulds have been found at Lezoux (Dech. i, 157) and Moulins.

#### 4. AVITUS

This is a well-known Rheinzabern potter of Hadrian/Antonine date. See Curle 232, Förster, 215, 238 and Ludowici, I, 10, III, 8. Found at London (Guildhall), Rheinzabern and Rückingen.

#### 5. ELVILLUS

Probably a potter of Lezoux. Found in Britain at Richborough (I, p. 68, No. 26), Cirencester, Colchester, Corbridge, Leicester, Litlington near Royston, Westbury (Devizes Mus.), York and London (B.M.). Seven stamps of this potter were found at Wroxeter, dated c. A.D. 160.

#### 6. MICCIO

A Rheinzabern potter. Found at Corbridge in Britain.

#### 7. OSBIMANUS

An unusual stamp probably of Lezoux and Trajan/Hadrian. Similar stamps occur at Wroxeter (I, p. 56, No. 82) and Oswald gives

similar stamps found at London, Cirencester, Corbridge and Stanwix (Carlisle). (Stamps on Terra Sigillata.)

8. CANTUS

A potter of La Graufesenque. Also found at Augst.

9. FRONTINUS

A potter of La Graufesenque. Normally dated Flavian but Ritterling thinks it may be after A.D. 80. (Hofheim, p. 250.) Another dated find (A.D. 80-110) was at Neuss in the Bregenz-cellar find. Probably its date is therefore soon after A.D. 80 and the present find position confirms this. Also found at Newstead (p. 236), Wroxeter, London (*London in Roman Times*, No. 92), Richborough (I, p. 69, No. 29), Camelon and Rottweil.

APPENDIX III

MORTARIA

1. FIGURE 13.10. From first century Pit, Figure 5, K.D. X.

Rim fragment of hard, pale, buff clay. Grit particles on rim and inside surface. Graffito on rim MAXIMA. (See Appendix XI, No. 6.) Coll. Roman Britain type 7 (Richborough, Claudian). Bushe-Fox Type 34.

Date : Claudian.

2. FIGURE 13.11. From destroyed south wall, Figure 8. K.D. VII.

Rim fragment of hard cream coloured clay. No grit particles. Variant of Wroxeter Type 66.

Date : Hadrianic.

3. FIGURE 13.12. From near section, Figure 7. K.D. VII.

Rim and spout fragment of white pipe-clay. Sparsely gritted. Inside surface smoked by fire. Wroxeter Type 54. Richborough IV, Type 508.

Date : c. A.D. 80-120.

4. FIGURE 13.13. From near section, Figure 7. K.D. VII.

Rim and side fragments of hard, pale, buff clay. Studded on rim and inside surface with white stone particles. Wroxeter Type 38.

Date : c. A.D. 80-110.

5. FIGURE 13.14. From near section, Figure 7. K.D. VI.

Rim and spout fragment of hard, pale, buff clay, early bead and roll type. Studded on inside surface with white stone particles. Herring-bone stamp on rim of double row separated by line, inner diagonals shorter. Wroxeter Type 58 (late first century-early second century). Richborough IV, Type 507 (first century). May, Silchester Type 128.

Date : Late first/early second century.

6. FIGURE 13.15. From near section, Figure 4. K.D. VI.

Rim fragment of hard grey clay, buff interior (haematite wash). Two grooves on outside edge of the rim. Wroxeter Type 74 (end of first century to well into second century).

Date : Early Antonine.

#### APPENDIX IV

##### COARSE POTTERY

FIGURE 10.1. Table V

Pie-dish, fumed grey ware, but also other fabrics, with black glaze (cf. *Arch. Cant.*, LXIII, 102, No. 29 from Canterbury). Early first century.

FIGURE 10.2. Table V

Hard, fine grey ware from rim of carinated beaker. Mid first century.

FIGURE 10.3. Table V

Bead rim with internal projection. Grey clay with rough surface (cf. *Arch. Cant.*, LXVIII, 176, Nos. 9 and 10 from Joyden's Wood). Flavian.

FIGURE 10.4. Table V

Bowl, hard black matt fabric with in-curving side and internally projecting rim (cf. *Arch. Cant.*, LXVIII, 176, No. 9). Flavian.

FIGURE 10.5. Table V

Large storage jar, coarse brown gritted paste, light reddish-orange on surface. Zone of stabbed decoration above girth groove. Second half first century.

FIGURE 10.6. Table V

Lid, hard fumed grey ware, with rough black surface (cf. May, Silchester, Plate LXXIX, No. 7). Late first century.

FIGURE 10.7. Table V

Jar, with high shouldered pear-shaped outline of coarse buff clay (cf. p. 182, Nos. 50 and 53 from the Earthworks at Charlton). Late first century.

FIGURE 10.8. Table V

Olla, hard fumed grey ware, bearing relationship to Figure 10.3. First century.

FIGURE 10.9. Table V

Bowl with down-turned rim, with diagonal line decoration. Grey ware with traces of black glaze (cf. *Arch. Cant.*, LX, 77, No. 6 from Canterbury). Late first/early second centuries.

FIGURE 10.10. Table V

Pie-dish with angular rim. Hard fumed grey clay with scored

lattice pattern round the outside. Very common, sometimes black glaze (cf. Richborough I, No. 46). Antonine.

FIGURE 10.11. Table V

Pie-dish, straight-sided, grey ware (cf. *Arch. Cant.*, LXVI, 28, Nos. 113 and 114 from Lullingstone). Antonine.

FIGURE 10.12. Table V

Olla with outbent rim. Black clay with black glaze (cf. *Arch. Cant.*, LXVIII, 178, Nos. 22 and 23 from Joyden's Wood). Very common between A.D. 150-200.

FIGURE 10.13. Table V

Pie-dish, fumed hard grey clay with trellis pattern (cf. *Arch. Cant.*, LXVIII, 116, No. 73 from Canterbury). A.D. 160-190.

FIGURE 10.14. Table V

Oblique-sided bowl, bead and flange rim. Black burnished ware with tooled interlacing arcs (cf. Lydney Park. Fig. 27, No. 43). Fourth century.

FIGURE 10.15. Table V

Dish, hard black clay, with girth groove near rim (cf. Richborough III, No. 345). Fourth century.

FIGURE 10.16

Narrow-necked jar or vase. Two cordons on neck and decorated with row of incised girth lines. Speckled grey clay with dull orange slip (cf. Richborough I, No. 5). Late Celtic/Claudian.

FIGURE 10.17

Shallow plate, hard grey clay (cf. Richborough III, Nos. 209, 210). Claudian.

FIGURE 10.18

Bottle, hard grey clay. Claudian.

FIGURE 10.19

Two-ribbed handle, reddish/orange clay, cream slip (cf. Richborough II, No. 143). Claudian.

FIGURE 10.20

Butt beaker. Smoothed buff ware (cf. *Arch. Cant.*, LXVIII, 120, No. 85 from Canterbury). Early first century.

FIGURE 10.21

Three-ribbed handle of buff clay (cf. Richborough I, No. 35). Mid first century.

FIGURE 11.1

Jar with recurved rim. Coarse grey fabric with orange/buff slip (cf. *Arch. Cant.*, LXIII, 101, No. 24 from Canterbury). Mid first century.

FIGURE 11.2

Wide-mouthed olla with recurved, thickened lip and cordon on shoulder. Hard grey clay (cf. Richborough IV, No. 384). Pre-Flavian.

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FIGURE 11.3

Jug with five-ringed neck, moulded lip and handle missing. Hard sandy pinkish clay (cf. Richborough IV, No. 374). A.D. 70-90.

FIGURE 11.4

Incense cup, with three rows of impressed decoration. Hard, rough buff clay (cf. Richborough IV, No. 421 for general type). Dated A.D. 75-100.

FIGURE 11.5

Jar, reddish fabric with dark brown surface (cf. *Arch. Cant.*, LXVIII, 122, No. 104 from Canterbury). Late first century.

FIGURE 11.6

Pie-dish, inturned rim reeded on top. Smooth light brown surface. First century.

FIGURE 11.7

Sherd with decoration of concentric incised semi-circles above incised vertical lines. Hard grey-black clay (cf. Richborough III, No. 283, A.D. 80-120).

FIGURE 12.1

Carinated beaker, with slightly raised disc beneath. Burnished grey ware (cf. *Arch. Cant.*, LXVIII, 86, Nos. 2 and 3 from Upchurch Marshes). First quarter, second century.

FIGURE 12.2

Olla. Crude figure on side with crossed arms. Probably used as handle. Antonine.

FIGURE 12.3

Poppy-head beaker, thin buff ware with black glaze (cf. *Arch. Cant.*, LIX, 73, No. 3). Antonine.

FIGURE 12.4

Roughcast beaker, bulbous type with unusual everted rim (cf. Verulamium No. 9, Fig. 27). Late second century.

FIGURE 12.5

Hunt cup, with running deer (cf. May, Silchester, Plate XLIV, No. 1, and *Arch. Cant.*, LXVIII, 181, No. 33 from Joyden's Wood). Late second century.

FIGURE 12.6

Beaker of hard grey clay, small rim with two grooves on neck. Late second century.

FIGURE 12.7

Bowl with oblique sides and flange. Hard grey clay and dull orange coating. Two burnished regions on side (cf. Richborough I, No. 121). Mid fourth century.

FIGURE 12.8

Imitation Drag. 38. Brick red fabric with bright red slip (cf. Collingwood 32). Fourth century.

FIGURE 12.9

Beaker with rim recessed for cover. Hard coarse buff clay with orange slip (cf. Richborough IV, No. 469). Fourth century.

APPENDIX V

FIBULAE

(Reported on by M. R. HULL, Esq., M.A., F.S.A.)

1. FIGURE 14.1. K.D. VI. Above pebble/chalk road. Figure 6.

A small and well-preserved brooch after the general type of a derivative of Colchester A/B but it is not clear whether it was intended to be sprung or hinged.

The head is possibly blundered, or possibly unfinished. There is a faint suggestion either that the crest (not a hook) has been pierced or that piercing has been attempted, but not carried out. If intended to be sprung the wings should be quite flat; they are, however, small and cylindrical, as if for a hinged brooch. But there is no provision for a hinge.

It may be concluded that this is an unfinished casting and that brooches were made on the site. It was intended to be like B.M. 56.6.27.60 and several like it at St. Albans.

Date: Flavian.

2. FIGURE 14.2. K.D. IX. Figure 4.

A curious little brooch with hinged pin and belonging to the Hod-Hill type, but not at all typical. The head looks stouter than it is, the bow has a deep, round-bottomed furrow (in which are two oblique cuts which may have held niello) and on each side of it the marginal ridge is minutely beaded, with slight swelling each side near head.

Date: Mid-first century or a little later.

3. FIGURE 14.3. K.D. IX. Near section, Figure 7.

A very slender brooch of Colchester type. Spring of 6 turns held by hook; wings very thin and plain. If the pin really belongs the catchplate must have been rather long. There are several examples at Colchester, e.g. 1042.31 and Jos. 10009 E, compare Swarling No. 4.

Date: Mid-first century or earlier.

4. FIGURE 14.4. K.D. IV. Near section, Figure 7.

Flat brooch in form of a stag, broken. The body is recessed for enamel which may have been blue on the body and red on the thigh. Compare a very similar example at Wroxeter (which, however, is not looking backward). Shrewsbury Museum, B.135.

Date: Antonine.

5. FIGURE 14.5. K.D. VI. Over chalk/flint road, Figure 5.

Trumpet-headed brooch of a common type. Spring of 6 turns in small box behind head. On head three recesses filled with remains of whitish enamel. Central disc enamelled white in centre, red outside. (Many parallels could be quoted.)

Date : Antonine.

6. FIGURE 14.6. K.D. VI. Over chalk/flint road.

Penannular brooch of very thin, round section, the ends flattened and rolled back, but much smaller than usual. The pin is slightly ornamented by a small roll on the loop at the top. A well-known early type, see Cam. Report, Fig. 59.

Date : First half first century.

7. FIGURE 14.7. K.D. II. Unstratified.

A one-piece brooch with spring of 8 turns held in a hook. The wings have two sharp grooves and the bow is faceted or chamfered. The type is Cam. III, p. 310.

Date : c. A.D. 50-65.

8. FIGURE 14.8. K.D. X. In pit, Figure 5.

A somewhat similar brooch with spring of 8 turns, much corroded. The catchplate pierced by 2 holes.

Date : c. 60-70.

9. FIGURE 14.9. K.D. IV. Near section, Figure 7.

Large brooch of Hod-Hill type but it belongs to a peculiar and interesting group which is growing in numbers each year. The characteristic is that of small iron rods put transversely through the bow with a small knob or ball on each end. (These are, of course, usually missing.) Examples in which the bars go through the foot instead of the bow are not so numerous. There is one in *London in Roman Times*, Fig. 26, 14, and a huge one from Colchester illustrated in "*Camulodunum*," Pl. XCVIII, 159, and there is a very fine one from the Weisenau cemeteries near Mainz in the *Mainzer Zeitschrift*, VIII, 49.

The date is the same as for Hod-Hill type generally—about mid-first century.

## APPENDIX VI

### BRONZE OBJECTS

(Reported on site by Mr. E. TILLEY and also by J. W. BRAILSFORD, Esq., F.S.A.)

(1) COCHLEAR OR EGG-SPOON. Figure 14.10. K.D. VI. Found in section, Figure 4.

Martial (Ep. XVI, 121) refers to its use for picking periwinkles or snails out of their shells with the aid of the pointed end and for eating eggs with the bowl.

Wheeler, *London in Roman Times*, Pl. XLV, No. 4. Curle, Newstead, Pl. LXXIII, Fig. 6.

(2) LIGULA. Figure 14.11. K.D. VII. Found in section, Figure 4.

(3) PAIR OF TWEEZERS. Figure 14.12. K.D. IV. Near section, Figure 7.

(4) PENDANT. Figure 14.13. K.D. VI. Near section, Figure 5.

There are several variations of this type of pendant from different parts of the country, although their use and origin are not obvious. The present specimen (Antonine) may have been copied from a horse's barnacles, and consists of two serrated limbs fitting over the nose of the horse, which when pulled together drive the toothed edges into the flesh. This contrivance is still used in Spain in place of the bridle and bit. Alternatively for use as an ornament, the saw-edge being omitted to avoid fraying the clothing.

See Fig. 52. British Museum, *Guide to Roman Britain*.

(5) SMALL BRONZE RING. K.D. IV. Near section, Figure 5.  
0.7 in. diameter with no decoration.

(6) NAIL. K.D. IV. Over Antonine flint floor.  
Has a large hollow domed head.

(7) NAIL. K.D. VI. Over Antonine flint floor.  
A small nail 0.9 in. long with a plain circular knob.

(8) BUTTON. K.D. VI. Over Antonine flint floor.  
A circular disc of sheet bronze 1.2 in. diameter pierced with a hole (diameter 0.125 in.) slightly off centre.

Similar buttons were found at Lullingstone.

(9) BRONZE FRAGMENTS. K.D. IV. Near section, Figure 6.

Mr. J. N. Brailsford is of the opinion that these are several fragments of a mirror, silvered one side but undecorated the other.

(10) CRESCENT-SHAPED OBJECT. Figure 15.1. K.D. VI. Found near section, Figure 7.

This object is hollow and is possibly a scabbard fitting.

(11) PINS. Figure 15.2. K.D.s II, IV and VI.

Ten pins or fragments of common types were found, probably of Antonine date but found in Antonine and later strata.

(12) AXE-SHAPED OBJECT. Figure 15.3. K.D. VI. Near section, Figure 5.

This object is flat and Mr. J. N. Brailsford is of the opinion that it is a votive miniature axe-head. Alternatively it could be a spatula.

(13) LION'S HEAD. Figure 15.4. K.D. IV. Over Antonine flint floor.

This is a hollow bronze casting depicting a lion's mask on a hollow cylindrical mount. When found it had an iron fixing rivet on the inside

centre and there were traces of wood. It is probably a boss-cap or finial.

Cf. *Arch. Cant.*, 1950, LXIII, Pl. VIc.

(14) HANDLE OF LIGULA OR PROBE. Figure 15.5. K.D. III. Near section, Figure 8.

(15) NEEDLE. Figure 15.6. K.D. IV. Over Antonine flint floor.

Common type with the eye formed by splitting the shank and re-joining.

(16) LEVER KEY. Figure 15.7. K.D. VI. Over Antonine flint floor.

(17) BRACELET. Figure 15.8. K.D. VI. Near section, Figure 5.

This is an expanding type bracelet made up of two single lengths of bronze wire, coiled into spirals some distance from the ends, and then turned about each other and sliding on themselves. Its large size suggests that it is an armlet.

(18) L-SHAPED OBJECT. Figure 15.9. K.D. VIII. Near section, Figure 4.

Possibly a votive offering. Similar to model axes found at Wood-eaton, Oxon. (*Oxoniensia*, XIV, 39, Fig. 8, Nos. 2 and 3) but blade not very pronounced.

## APPENDIX VII

### IRON OBJECTS

(Reported on site by Mr. E. Tilley)

(1) HOOK KEY OR LATCH LIFTER. Figure 16.1. K.D. X. Near section, Figure 4.

This key is of Early Iron Age type and may be pre-Roman or early Roman. For its use, see Ward, *The Roman Era in Britain*. Cf. Richborough IV, Fig. 346. Verulamium XI, p. 220.

(2) KEY. Figure 16.2. K.D. VI. Over Antonine flint floor.

(3) KEY OR HASP FROM LOCK. Figure 16.3. K.D. II. Over pebble/chalk road.

This is either a padlock type key or the hasp from a lock (see Wheeler, *London in Roman Times*, Pl. XXX, A, No. 5).

(4) KEY. Figure 16.4. K.D. VI. Over Antonine flint floor.

(5) KNIFE. Figure 16.5. K.D. VI. Over Antonine flint floor.

(6) KNIFE. Figure 17.1. K.D. VI. Over Antonine flint floor.

(7) KNIFE. K.D. VI. Over chalk/flint road.

(8) SOCKETED ARROW HEAD. Figure 17.2. K.D. II. Over chalk/flint road.

## ROMANO-BRITISH SETTLEMENT AT SPRINGHEAD

- (9) **AWL OR BIT.** Figure 17.3. K.D. III. Near section, Figure 8.  
This has a pointed butt, of quadrangular section.
- (10) **SKEWER.** Figure 17.4. K.D. VI. Over pebble/chalk road.
- (11) **LATCH LIFTER.** Figure 17.5. K.D. VI. Over pebble/chalk road.

## APPENDIX VIII

### BONE OBJECTS

(Reported by Mr. E. Tilley)

- (1) **COMB.** Figure 18.1. K.D. III. Near section, Figure 8.  
The two rows of teeth are cut from a single piece of bone and held between rectangular bone strips by iron rivets at least four in number. These strips are bevelled on each edge and the surviving end, and decorated with groups of four cuts between the rivets, and vertical cuts along the bevelled edges. Normal late Roman type. Cf. Rich. IV, Nos. 216 and 266 (c. A.D. 400).
- (2) **GAMING COUNTER.** K.D. IV. Over Antonine flint floor.  
An interesting specimen showing the lathe marks.
- (3) **GAMING COUNTER.** K.D. VI. Over pebble/chalk road.
- (4) **PINS.** Figure 18.2.  
Many pins and fragments of pins were found over the Antonine flint floor, the pebble/chalk road and the chalk/flint road. In Key Deposits II, III, IV and V. Most are of Antonine date. The simplest are mere skewers of bone shaped by hand and with ill-formed heads but some have been turned on the lathe. The heads may be grouped as follows : "plain pointed," "plain flat," "bi-conical," "circular knob" and "decorated with incised lines."
- (5) **NEEDLES.** Figure 18.2.  
Found as for pins. Most were shaped by hand but a few were turned on the lathe. The eyes are made by drilling two small holes close together, although some were burnt through.
- (6) **BONE CHIPPINGS.** K.D. VI. Near section, Figure 5.  
A small heap of bone chippings was found, which appears to be waste from the manufacture of bone objects.

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## APPENDIX IX

## THE CHARCOALS

Many fragments of charcoal were obtained from the site and a selection was identified by F. L. Balfour-Browne of the Department of Botany, British Museum of Natural History. The report is as follows:

<i>Specimen No.</i>	<i>Type of Tree</i>	<i>K.D.</i>	<i>Position of Find</i>	<i>Approximate Date</i>
1	Hazel	VI	Section, Figure 5	Antonine
2	Hazel	III	Section, Figure 8	4th century
3	Oak	VI	Over chalk/flint road	Early 3rd century
4	Oak	VI	Over pebble/chalk floor	Antonine
5	Lime	IV	Section, Figure 4	Late 2nd century
6	Oak	IV	Over Antonine flint floor	Antonine
7	Oak	VIII	Section, Figure 4	Late 1st century
8	Oak	VI	Over chalk/flint road	Early 3rd century
9	Oak	X	Filling of robber trench	Early 2nd century
10	Oak	III	Section, Figure 8	4th century

## APPENDIX X

## THE BONES

Many hundreds of bones were found on the site, mainly the remains of food (one bone had been sawn in half). Specimens were identified by Dr. F. C. Fraser of the Department of Zoology, British Museum of Natural History. The following is his report :

<i>Specimen</i> No.	<i>Animal</i>	<i>Fragment</i>	<i>K.D.</i>
1	Ox	Incomplete lower jaw	III
2	Ox	Metacarpal	IV
3	Ox	Metacarpal	VI
4	Ox	Molar	VI
5	Ox	Molar	VI
6	Ox	Incisor	VI
7	Horse	1st thoracic vertebra	III
8	Horse	Terminal phalange	IV
9	Horse	Incisor	VI
10	Ox or Horse	Rib fragment	IV
11	Sheep	Fragment of cranium	III
12	Sheep	Fragment of cranium	IV
13	Sheep or Goat	Upper jaw fragments with teeth	VI
14, 15, 16	Sheep or Goat	Incomplete lower jaws	VI
17	Sheep or Goat	Hyoid fragments	VI
18	Sheep or Goat	Proximal phalanges	VI
19	Pig	Fragment of lower jaw	VI
20	Dog	Canine	XII
21	Domestic Fowl	Tibio-tarsus	VII

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### APPENDIX XI

#### GRAFFITI

The graffiti have been reported on by R. P. Wright, Esq., M.A., F.S.A.

- (1) FIGURE 17.6. K.D. VI. Near section, Figure 7.  
TA cut on underside of base of poppy-head beaker.
- (2) FIGURE 17.7. K.D. VI. Near section, Figure 5.  
VA ? cut on sherd of Drag. 33. Part of the upright of the third letter survives.
- (3) FIGURE 17.8. K.D. IV. Over Antonine flint floor.  
VA (R) ? cut on a sherd of Drag. 33. The third letter seems to be "R" but could be otherwise interpreted.
- (4) FIGURE 17.9. K.D. VI. Over Antonine flint floor.  
PA cut on the underside of a two-thirds complete Drag. 33 pot.
- (5) FIGURE 17.10. K.D. VI. Over pebble/chalk road.  
DMR cut on shoulder of rim and shoulder sherd of a grey clay olla.
- (6) FIGURE 17.11. K.D. X. In pit, Figure 5.  
MAXIMA cut on the large hooked rim of a Bushe-Fox Type 34 mortarium. The letters cut after firing are partly broad, partly thin. Part of M precedes. I and M are ligatured. The mortarium may well have had no more than MAXIMA, a feminine name cut on it.

### APPENDIX XII

#### OTHER OBJECTS

- (1) STONES. Reported on by Mrs. J. E. Morey of Geological Survey and Museum.

- (a) K.D. IV. Over Antonine flint floor. Part of bangle.

The specimen is made from a soft brown and speckled rock with shaley partings. It is composed of limonitized quartz, limonite, minute spherules of siliceous material, small flakes of sericite and micaceous material, and a quantity of finely crystalline calcite.

The rock is probably a shale (origin unknown).

- (b) K. D. VII. Under Antonine floor. Fragment of carved circular moulding. A medium-coarse, grey-white, shelly and oolitic limestone with a well-crystallized ground mass of calcite. It is undoubtedly a Jurassic oolite, but it is a difficult stone to match precisely.

- (2) BONES

Two fragments of bones both Key Deposit VI and found over Antonine flint floor. The composition of the stone was as follows :

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A fine-grained, compact grey-brown siltstone composed of grains (up to 0.1 mm. diameter) of quartz, limonite, micaceous materials, feldspar, cherty silica, accessory apatite and zircon.

### (3) QUERNS

Segment of quern found Key Deposit III near Section 5. Neidermendig lava.

### (4) PART OF SHALE BRACELET. Figure 18.3. K.D. VI.

Found over Antonine flint floor. Circular in section with outside edges flattened and a ridge around the inner surface. The specimens are made from a soft brown and speckled rock with shaley partings. They are composed of limonitized quartz, limonite, minute spherules of siliceous material, and a quantity of finely crystalline calcite. The rock is probably shale.

### (5) PLASTER

Much plaster was found in Key Deposit IV over the Antonine building. Some had wattle impressions directly on the back while some was attached to daub. The plaster had simple line designs on it in Vandyke brown, signal red, orange and green on a cream background. There was also the suggestion of a leaf. Much of it, however, was plain cream and it is probable that the walls were plain, with a line design around the borders.