

## THE SOUTH WING OF THE ROMAN 'FORUM' AT COLCHESTER RECENT DISCOVERIES

By M. R. HULL, M.A., F.S.A.

EARLY in the summer of 1953 part of the premises of Messrs. Kent, Blaxill was burnt out, and by November the site had been cleared. By the excellent co-operation of the firm and the architects, Messrs. Duncan Clark and Beckett, it was possible to cut a trench across the line of the south wing of the 'forum' before rebuilding began. It was also possible to watch the subsequent building.

The work thus fell into two parts, that done under my direction, and that done in excavating for the new building. Each operation had its advantages and disadvantages, and I am most grateful for the intelligent interest taken by two of Messrs. Hutton's workmen (Mr. W. Smith and Mr. R. Coan), and the patience of their Clerk of Works, Mr. Philip Hutton, without which this report could not have been written.

The first trench was 3 feet wide and 37 feet long north to south. After removing the brick footings and old floors of recent buildings there was less than a foot of dark sandy soil, presumably that of the gardens of the seventeenth-century houses. Below this lay several layers of little else but rubble from Roman buildings. Traces of masonry (or anything else) of the Norman period were sought, but none were found.

The building exposed had a single massive foundation, 15 feet broad from north to south, and was unquestionably Roman. It presented the appearance of having a well-built wall, only 18 inches thick, running east to west down its centre. Over this centre wall and northwards from it, extending beyond the north end of the trench, i.e., 25 feet or more, the rubble (B, C)<sup>1</sup> was so loose that it could not stand, and the trench had to be completely shuttered. It was noted, however, that the rubble seemed to lie in one continuous curved bank covering the masonry, and this was later amply confirmed elsewhere. South of the centre this bank was of yellowish loam and gravel, with a copious admixture of broken mortar and rubble, comparatively compact and stable. It was clear that the building had been robbed from the north.

<sup>1</sup> The letters refer to the section, fig. 3 A.

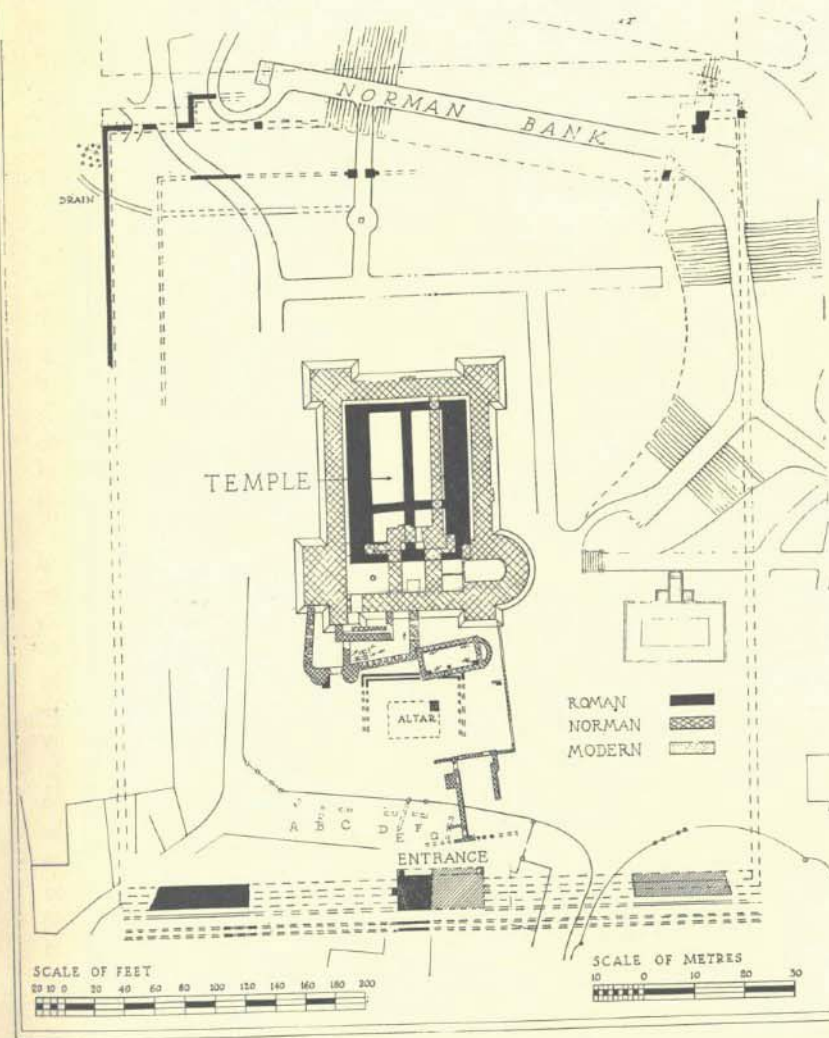


Fig. 1.—GENERAL PLAN OF THE TEMPLE AND 'FORUM' AT COLCHESTER.



Before the great demolition, which we ascribe to the Normans, the floors of the building had been robbed, and the wall-facings. There is about a foot of earth (D) lying, here and there, on the ruined floors, sealed down by the rubble of the demolition, and the line of a spoil-trench can be seen as a dip in the rubble, filled with mortar of a greyish colour or sometimes marked by dark earth. In all this layer very little was found. The few scraps of Roman pottery are all of fourth-century date.

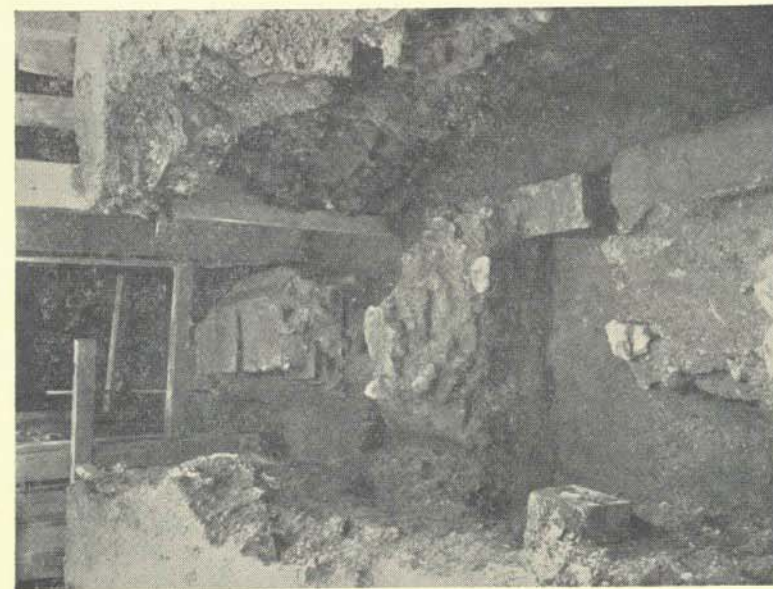
The surface here slopes slightly down to the south, owing to the former presence of the remains of the Norman rampart and ditch. The natural yellow sand lies at 9 to 10 feet below, at about 78.5 above Ordnance datum. Into it was cut the foundation trench for a wall 15 feet thick. On the south side the wall was built against the yellow sand, on the north two or three feet of the trench was in excess and allowed the face of the wall to be built free. It shows as four carefully built courses of dressed stone standing on six inches of concrete. Above this the face of the wall is covered by an inch or more of rough but even plaster, the lower edge of which shows that it marked ground level. The total height of wall remaining is over four feet.

On the south face the lower part of the foundation slants inward as it did further east. In the upper part the coursing is visible, in the lower it is obscured by the mortar of the joints (Pl. II); there is no plaster and there has not been any. The material of the wall throughout seems to be large water-worn cobbles of septaria, which are only dressed when used in the face. The mortar is yellowish. The stones are from a sea-beach, some bearing barnacles, and many perforated by boring molluscs.

The top of the wall, as found, is irregular, but seems originally to have been levelled off and used as two floors, one on each side of the central wall. On the north about  $2\frac{1}{2}$  feet of pink mortar floor, 3 inches thick, extended from the central wall (Y), and remains of it were seen later behind this wall on each side of Hole 15. It was never possible to discover its original form to the north, and in Holes 14 and 43 it could not be observed with certainty at all, but this could be due to the way in which the builders did the excavation work. This floor is smooth but coarse, and finishes against the red plaster skirting of the wall. It slopes a little, down to the north. It seems always to be broken as it approaches robbed masonry, so that there may have been masonry all along its north side.

The raw surface left by the removal of this pavement and of the ashlar blocks (when the very hard mortar on which it was bedded came away with the stone, as it frequently did) extended often south of both walls and piers. On this south side it was very difficult to

PLATE I.



A. PIER 3 AND WALLS, LOOKING EAST.



B. PIER 3 AND WALL 4, LOOKING WEST.



come to any firm conclusion regarding the nature of the floor. It was first noticed in a pilot shaft sunk by the architects, when, after penetrating the heavy deposit of rubble, the men came upon a level surface of very white mortar, which was quite hard.

When this surface was exposed in our trench, close alongside, it appeared to me to be of yellowish-brown mortar, but afterwards when it had been exposed to some frost, I asked the men to remove it,<sup>1</sup> and after they had removed what would come away freely they left a more or less smooth white surface, lying on brown mortar, the removal of which seemed to me too laborious to be undertaken. Later still, the whole top of the platform was cleared from here eastwards and one part of this floor (or rather, I think, *bed* for a floor) could be examined. It lay on the south edge of the platform opposite pier 2 (visible in Pl. I, X in fig. 3), and was almost two feet wide, north to south, sloping down further to the hollow left where the cement bed for the ashlar lay. Its composition was clear, about three inches of brown mortar, then a thin, hard white layer, then another three inches of brownish mortar.

Elsewhere I searched particularly for signs of marks to show either variations in this mortar or traces of what had lain upon it. But the manner in which the work was done, the labourers simply working away as fast as possible with heavy shovels and trampling on the part exposed, really made useful observations impossible. I had the impression that the mortar layer varied, but in no comprehensible manner. I think it is safe to say that it bore no marks of slabs of stone or tesserae, nor was it really ever smooth enough to have been itself a finished floor. The builders were of the opinion that the piece examined opposite pier 2 had been built upon, but I feel that if this were so we would have to suppose that pretty well the whole platform south of walls and piers was built upon, which I do not see can be contemplated.

The platform was erected to carry a structure built along its centre line, the visible remains of which appear to have belonged to five masonry piers linked by narrow walls bearing plaster skirtings. These were all recovered piecemeal, each discovery being made almost separately, and the measurements in each case could only be taken from the sides of the hole, sometimes with timbering in position, sometimes without. Consequently they are not reliable to an inch, and one might say not to a foot, were it not for the fact that, when plotted they fit in together so well that it seems we may rely upon them pretty closely.

<sup>1</sup> This was done following the suggestion of Sir Mortimer Wheeler that the masonry must be examined for joints.



The piers are normally built of a rubble concrete core, apparently continuous with the platform below, the mortar being yellow-brown. The core was usually well-defined, often having vertical and straight sides round the base to a height of eight or ten inches. Above this the core was usually damaged and receded towards the centre; the height remaining reaching two feet or more. But in one or two places the core was observed to overhang the flat face somewhat. The faces mark where ashlar blocks have been robbed, and one large example of these still lay in position at the south-west corner of pier 3 (Pl. I, A). It was so firmly bedded that it was difficult to remove intact even with modern tools. The ancient robbers must have broken many blocks, and a broken one was found abandoned against the east side of pier 2. They were laid, the builders told me, in 'hot' mortar; that is to say while the lime was freshly mixed and still warm, and this they assured me accounted for its great tenacity and hardness.<sup>1</sup>

This very hard mortar is easily recognized where it remains round the piers, but it sometimes adhered to the ashlar and parted from the platform, leaving a ragged hole, the division of which from the adjacent natural surface of the platform is not always recognizable. Nevertheless, in the end we have been able to put together what appears to be a fairly consistent picture of the plan of these piers with their ashlar facing.

The piers were united by thin walls, the ends of all of which had been cut away in the operation of robbing the ashlar of the piers (Pl. I, A & B). The walls themselves had been neglected almost as much as the cores of the piers, for they contained no ashlar, but were built of septaria and tile, with plaster mouldings on both sides at the base.

We will now describe these units in detail:

**PIER 5.** This is the most westerly found, and it is unfortunate that we do not know how far it is from the south-west corner of the whole building. This distance might reasonably be something like 18 feet. The shaft sunk is not shown on the architect's plan and is unnumbered. It was 4 feet north to south by 6 feet east to west and lies under the T-junction of walls, near the north-west angle of the new building. It was excavated 20 August, 1953, and I was unable to have access to it to measure as I would have liked. In the centre of the hole lay the core of a pier, surrounded by the hard mortar bed for the ashlar facing. The width of the core was not secured; we have assumed that it was as usual.

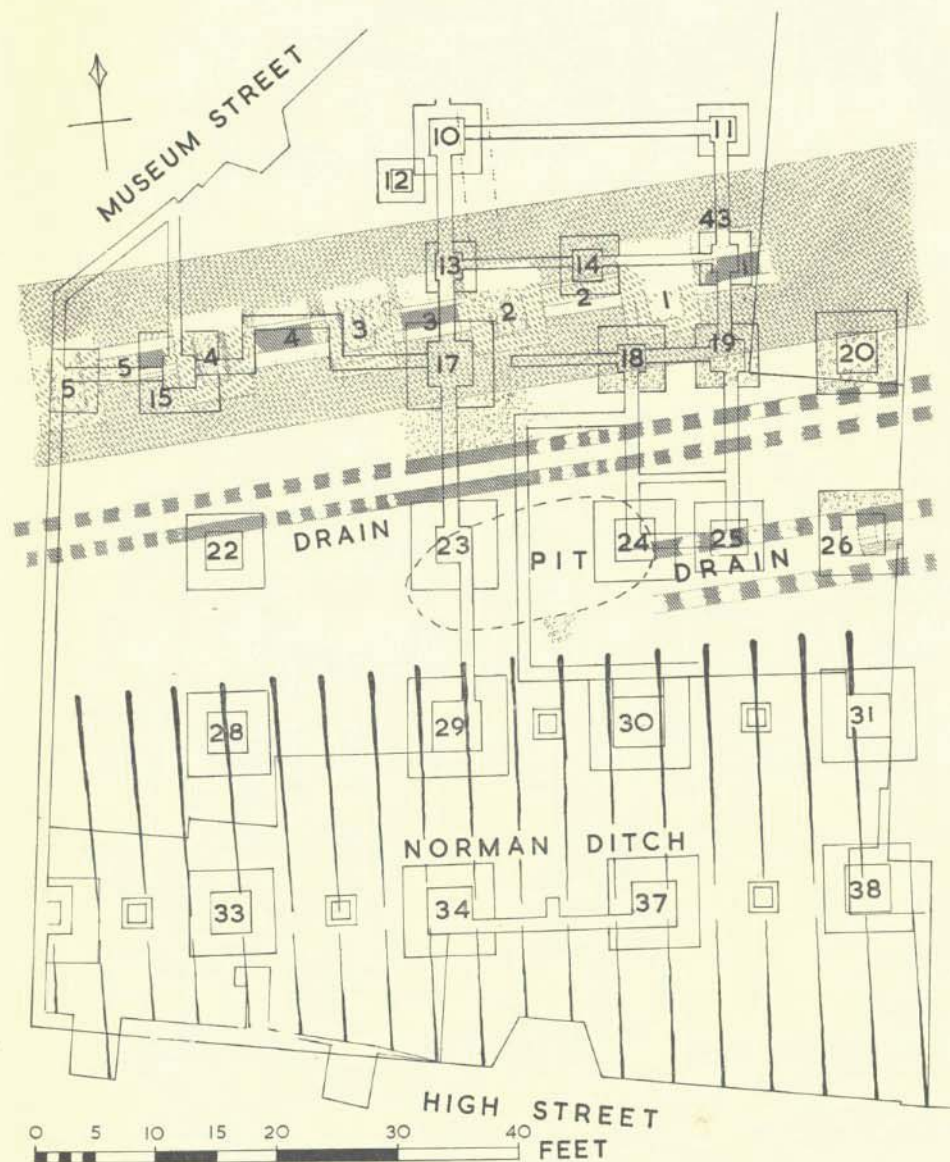


Fig. 2.—DETAILED PLAN OF THE KENT, BLAXILL SITE.

<sup>1</sup> I have since learnt that this explanation is without scientific basis.



WALL 5.<sup>1</sup> Only seen in Hole 15, where its broken end protruded from the west side. Its base begins with two courses of septaria laid on the platform, to a width of 31 inches. Upon this is a foundation of four courses of tiles, 5 inches high and 21 inches wide. Upon this the wall was built, 15 inches wide, with a 3 inch offset on each side, consisting of two courses of septaria crowned by one of tile.

The stone base had been concealed by the flooring; on the south face the tile base had been plastered with fine hard white plaster, half an inch to an inch thick, with a step or offset at half height. So far as we know this plaster would be continuous with the surface of the floor. On the north the floor was in position, of hard pink mortar about 3 inches thick, laid upon a white mortar.

On both north and south sides a plaster moulding had been added at a later date. On the north this was a plain, tall skirting some 12 inches high with a convex curve. The surface was not carefully smoothed. On the south the moulding was set high up, so as to cover the offset of the wall, and had two limbs, both convexly rounded. The upper was nearly vertical on the face of the wall, the lower was fatter and more horizontal, covering the offset. The under side was smooth, where it had been set on the floor. The plaster of both skirtings was of large crushed tile in very white mortar.

South of the wall and Pier 4 our floor was the rough top of the platform, lying six inches below the level of the pink floor to the north. Upon it lay a few inches of brownish soil, otherwise the earth covering the remains here was all black, and that north of the wall was mixed with mortar.

PIER 4, in Hole 15. The core of the pier was of the usual nature; the mark of ashlar was clear on its west and south sides. The former would take a block 18 inches high by about 20 inches wide and perhaps 4 feet 6 inches long, but several blocks would be used to fill this space. The space on the front was 8 inches high and 17 inches wide, length unknown. The south face of the core, behind, was covered with smooth mortar, as if plastered, but it was thin and rough, and bulged forward at the top. The width of the ashlar on the east is conjectural.

WALL 4. Was uncovered in our own second trench at leisure. As in the case of the others it had been broken at both ends by the stone-robbars. At the west end there was a good two feet left between the broken end and the end of our trench, and in this space there must have stood the ashlar of Pier 4, but no trace of it could be found on the platform.

This wall was built as the last, having a base of septaria supporting a base of tile upon which stood the wall proper, built of septaria and



SOUTH FACE OF PLATFORM, WITH PIER 2 AND THE PLASTER MOULDING OF WALL 3 (left).

<sup>1</sup> Sections of the walls are shown, fig. 3, B-E.



tile. On the north lay a portion of the same pink floor that we saw at Wall 5, on the south lay only the ragged top of the platform, at a low level.

The tile base consisted of three courses,  $7\frac{1}{2}$  inches high and 27 inches broad, reduced at the top by an offset to 26 inches, the thickness of the wall, which had been of septaria and tile (see section). On the north, as in Wall 5, there was plastering, but in this case, perhaps owing to the thicker wall, it amounted to a flat plaster on the face of the wall. On the south there had first been the hard white plaster, with offset half way up, and later a new skirting had been made in the white mortar full of crushed tile. This had not a clear double moulding such as was found elsewhere, but was moulded in a broad flat curve, laid very horizontally so that it is the widest of all these mouldings. The soil under the overhang of this (where the floor had been) was yellow loam full of small gravel.

PIER 3 (Pl. I, B.). Was excavated by ourselves. The rubble core was well-preserved, being 3 feet 3 inches wide and nearly 3 feet high. Its sides were all straight at the base, where ashlar blocks had been robbed. Only one block, at the south-west corner, remained in position. It measured 26 by 10 inches in plan. The height was between 8 and 10 inches, for the under side is quite rough and undressed. The upper surface on the other hand is not only well-dressed, like the other four sides, but is worn smooth as by foot-traffic. It is unlikely that it was thus worn while lying in its position in the ruins, so that this seems to be a stone re-used from another building.

The floor around this pier was carefully examined for us by Mr. R. Dumbreck. To the south the face of the pier was perfectly flat, and the hard cement for the ashlar extended for a width of at least 19 inches, finishing with a broken edge, so that it might have been more (see plan). On the west the end of the existing ashlar block seems to have been the face of the pier, so that the ashlar course had been narrower, for the core overhung somewhat. On the east side one block had projected into the core to an extent of  $19\frac{1}{2}$  by 7 inches, while the total extent of the thickness (at the south-east corner) had been 21 inches, as shown by the hard cement. Further back this decreased to 10 inches, but the east edge may be imperfect.

The evidence at this pier was better than at most, the width of the rubble was 2 feet  $1\frac{1}{2}$  inches on the south face and 3 feet 4 inches further back. Like most of the piers there was here some slight suggestion that the east and west sides of the rubble splayed a little wider apart towards the north. In the rubble one or two fragments were noted of the same bluish lava which was used in definite facing courses in the masonry found in 1932.



**WALL 3.** This was the first masonry found. It was broken at both ends by robbers, but the centre was in good order. The base was of septaria built in one with the platform, and upon this stood the tile base, of five courses, 21 inches wide. This reduced by offsets to a wall only 15 inches thick, built of two courses of septaria followed by one of tile. The offsets were covered by plaster; in the first period, on the south side only, by a skirting of fine white plaster, with a sharp offset at half-height. The height was  $11\frac{1}{2}$  inches, which is one Roman foot. In the second period the floor was raised a foot and a new skirting laid, consisting of a double-curved moulding 14 inches high and 12 inches broad, projecting 9 inches beyond the white plaster beneath. The under-side of this was perfectly smooth, showing that it lay on a perfect floor. The plaster this time was of large crushed tile in very white mortar, and the finish was almost a polish (Pl. III, A).

On the north side the skirting was also of pink mortar, but not, I think, of the same mix as on the south, moreover it ran into the pink mortar floor, with which it was continuous, so that I do not know whether this floor is of period one or period two. But the question depends on whether we have two floors on the north side at Wall 4.

**PIER 2.** The rubble core of this pier stood high. As at Pier 3 it extended eastwards towards the rear, so here it extended westwards. The trenches cut through walls and rubble to extract the ashlar on each side were very clear, and easily distinguished, for once, by a different shade in the mortar. In the eastern trench lay the remains of one of the stone blocks, abandoned presumably because it was broken. The south front of the rubble was 3 feet wide and quite rough, it projected one foot beyond the limit of the pink plaster, whereas the south front of Pier 3 was in line with the latter. But the southern part of this pier was destroyed by the pilot-shaft, so that the position of the ashlar face is quite conjectural. In the later clearance of this area we had hopes that we might determine the outline of the rear, or north, side of this Pier. But when the occasion came the builders were in such haste that no opportunity could be gained to examine the surface of the platform. As I watched I had the impression that there was no more to be seen than what we already had on the plan.

**WALL 2.** This was the one case where the builders really let us down. Traces of pink plaster along the south front were noted early in the clearing of the boiler room, but remained untouched in the bank until the last, when the work of clearing approached from the north side. I saw the earth removed up to the back of the wall, when there was revealed the pink plaster skirting of the north side in perfect condition, looking exactly like that of Wall 3. Mr. Philip Hutton

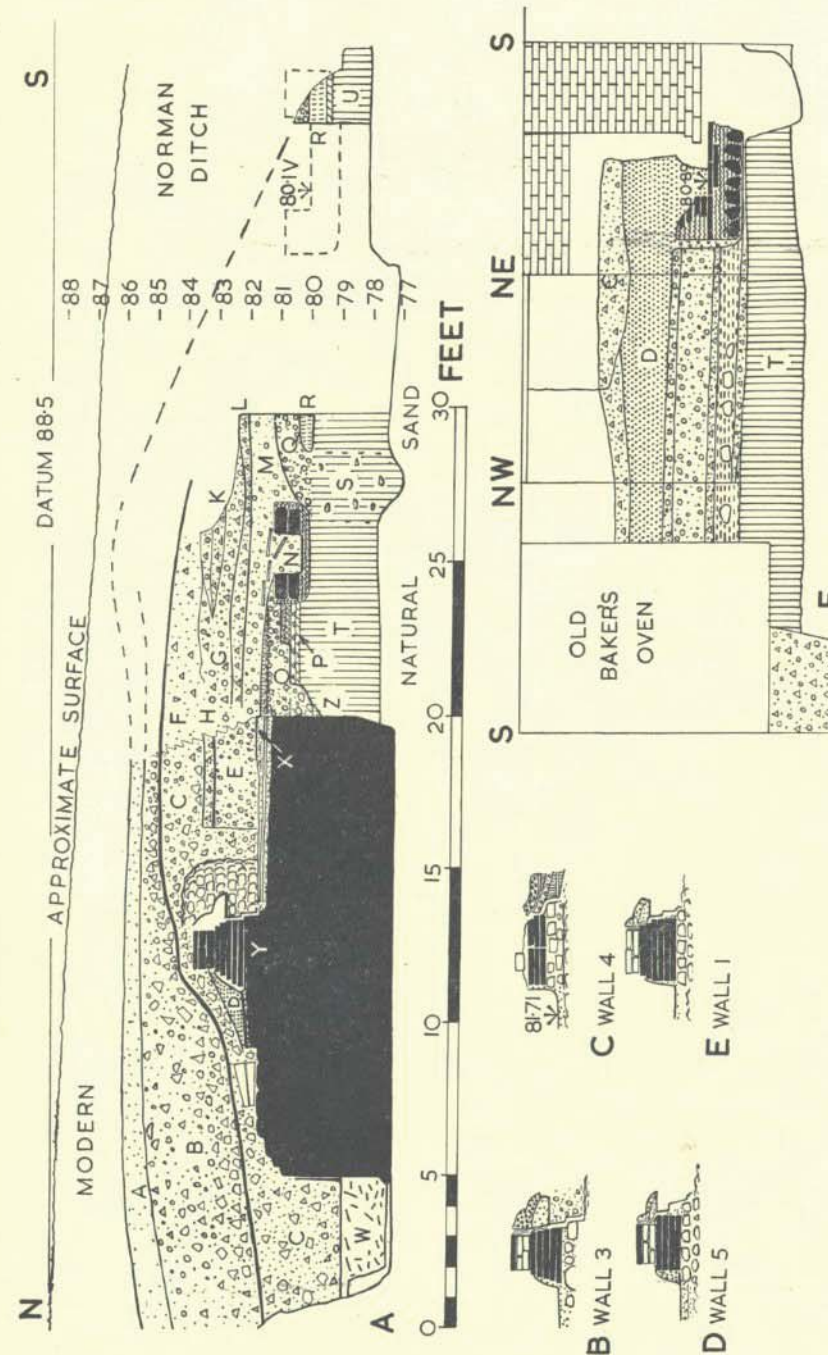


Fig. 3.—SECTIONS A TO F, KENT, BLANTILL SITE.



had said he would preserve anything found for me, but on return from lunch I found the men looking very guilty, and the whole wall broken out and removed except for some large pieces of the pink plaster.

This wall, so far as I can now guess, was a duplicate of Wall 3, but this cannot be regarded as certain. The men tried to tell me that there was nothing more there than the north skirting, but this I do not believe, or at least, find it hard to do so. If it was so I think the wall must have been much further south than any of the others. The exact position of the north skirting was not obtained and its position on the plan is assumed. I feel that the plaster we saw from the south was not the south side of the north skirting, but the broken edge of the south skirting, with which its height above the top of the platform would agree. Unfortunately we shall never know the truth.

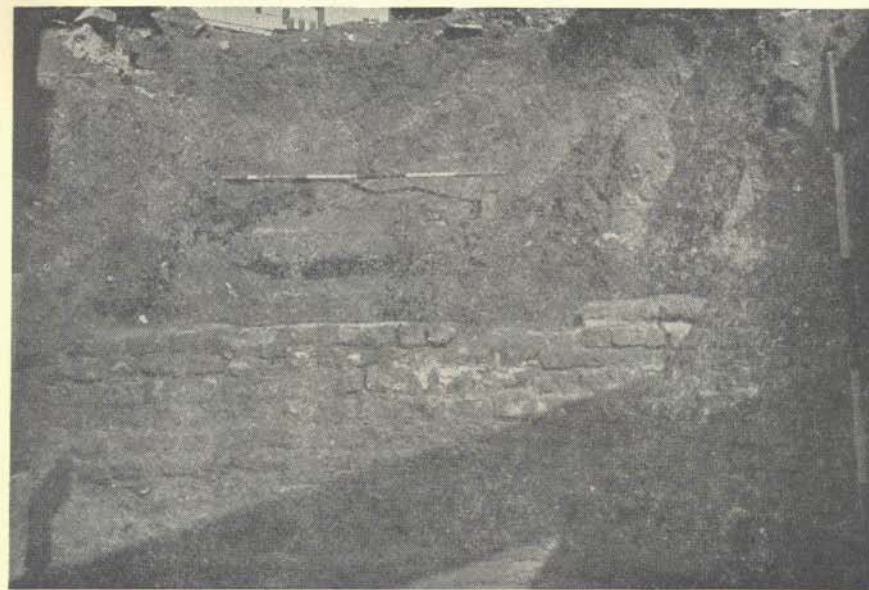
The pieces broken out and shown to me were rather strange; for some of the lower part of the wall adhered to the plaster, and it consisted of small pieces of tile in very dry mortar with many cavities. It seemed much less careful than the other walls, and reminded me of the pier removed at St. Martin's House in 1950.

PIER 1. This pier was scarcely recognizable, the robbers had practically razed it. All that was left was part of the trace of the hard mortar for the ashlar round it, and, in the middle, some large rough stones set in the top of the platform as a base for the rubble core. (*cf.* the large stone under Wall 3). Otherwise, however, it falls into its right position, and seems to have been of the regular dimensions. The exact dimensions of the ashlar are not certain, for some of the marks are ambiguous, as shown on the plan.

WALL 1. By the time we came to this wall we had gained experience of the regular spacing to be expected, and were ready for it. Unfortunately, this wall had been damaged more than the others. It was founded like the rest, with four courses of tiles on septaria, the tiles having one offset; above them were two more courses of tile each offset a little. The lowest tile course was  $24\frac{1}{2}$  inches wide, and the wall itself was 17 inches. Parts of two courses of septaria remained.

On the south we found the usual first skirting of white plaster with sharp offset. Upon it was laid the second skirting of pink or red still 10 inches wide, but broken, and its original shape uncertain, but apparently again different from the others. On the north side the pink skirting was thin, just sufficient to cover the tiles. Its continuation as a pink floor could not be clearly made out.

Owing to the piecemeal way in which the work was done, the accurate plotting of the remains was difficult, especially before the lines of the new building had been laid out. After this a plumb-bob could be used. It was even very difficult to lay out the line of the great



A. SOUTH FACE OF PLATFORM.



B. THE SMALLER DRAIN.



platform. In the end, however, we feel that the plan submitted is satisfactory. The centre line of platform and wall were definitely fixed in relation to the corner of the existing red brick building, and the south edge of the platform in relation to stanchion 23 of the new building. When plotted on these lines all discoveries fall into the correct positions where they were made. The only variation possible being a very slight swing about the position of the first point mentioned.

When drawn out at 4 feet to the inch, on an enlargement of the 1 : 500 map (where some little latitude must be allowed), the line of the platform strikes the masonry found in 1932 correctly on the west side.

The broad, tiled drain, the line of which we have, can also be projected, and joins accurately with the same drain on the 1932 plan. Our foundation joins the 1932 one about the middle of the west side, and the 5 feet thick wall found in 1932 begins to look like the easternmost pier of our series.

The next consideration is whether or not our foundation really runs through to join the masonry of 1932. In that year we were digging in a very confined space, and it was quite impossible to uncover the foundations of the east to west wall. On the other hand we did find an edge, or an offset, along the west side of the great foundation. I am, however, quite unable after this lapse of time to say whether we might then have missed seeing our foundation had it been present. I feel that had it been present we would have known.

Next, if it were present, the 5 feet wall should be one of our piers and I feel that it cannot be so. With the ashlar our piers seem to have measured at the very least 6 feet from south to north. This wall retains its facing (in the upper part) and this is of small (though well-cut) blocks. We know that the lower part of our ashlar was of large blocks, but we have hints that the upper part may have been of smaller stuff. This may account for the undercutting seen in 1932, which would then be due to the extraction of the large blocks lying low down. Indeed, we are now illumined on the fact that part of a large block actually remained in situ in the deepest part of the undercutting at the south-west corner of the great 1932 foundation. The facing higher up, here too, was of small blocks.

It is not impossible, therefore, that the style of the facing may have been similar throughout our building.

Despite the difficulty of measuring and aligning masonry at the bottom of deep excavations it is encouraging to find our plan coming out as consistently as it does. Thus Wall 3 appears to have been 6 feet 6 inches long, with Pier 2 on its east 6 feet 3 inches wide, and



Pier 3 on its west 5 feet 7 inches wide. Wall 4 seems to have been 6 feet 7½ inches long, and Pier 4 about 6 feet wide. The position of the core of Pier 5 (not at all accurately known) seems to indicate that Wall 5 was 6 feet 6 inches long, and Pier 5 5 feet 6 inches wide. Eastwards, the mark of the ashlar of Pier 1 suggests that Wall 2 was 6 feet 6 inches long, and the pier itself 5 feet 6 inches, with ashlar of uneven thickness. There is nothing to indicate how long Wall 1 was, but we assume 6 feet 6 inches.

The walls therefore seem to be quite standard at 6 feet 6 inches; the piers are not so uniform, but seem to have run alternately at widths of 5 feet 6 inches (nos. 1, 3, 5) and 6 feet (nos. 2, 4). Though equal in length, all the walls seem to have differed in some way, sometimes in thickness, always in outline of the red plaster moulding, and I strongly suspect, in the dimensions of the first white plaster moulding. The piers may have differed more than we know, for the outlines of the marks of the ashlar are only occasionally certain. The exact line of the face of the ashlar of Piers 3 and 2 is not certain. In the case of the former it was never properly uncovered, in the case of the latter it was cut away by the pilot-shaft sunk by the architects. There are other cases, such as Pier 1, where the signs are ambiguous or too vague for certainty. There also remains the doubt about the very flat face of the core on the face of Pier 3; one wonders whether it was actually faced or exposed.

Before going on to describe the nature of the loose and broken ruins lying over these remains we will complete the description of the Roman remains found in situ south of the great foundation. (Fig. 3 A and F.)

In the first trench cut, as we left the platform, the layer of white mortar was found to continue at a level about 6 inches lower. But it could perhaps originally merely have been thicker, and so have continued horizontal. It ran on southwards for 4 feet when we came upon a drain (N) built of stone and lined with plaster, running parallel to the platform. First impressions were that the walls of this drain were shoddy, but the plaster was strong, for the floor was all plaster and several inches thick, and so strong that the builder's men said it was special waterproof stuff. Our photograph failed and we have only the unsatisfactory Press photo. which we use (Pl. III, B), and which, nevertheless, does give some poor idea of how the alabaster blocks were visible in its walls.

When demolished this drain proved to be of inferior workmanship. The floor was of very thin plaster (the thickness noticed in section 1 was purely local), but thick under the walls, so that, with two courses of stone on top, the walls seemed to contain three courses, but the lower one was plaster. The walls were thinly plastered over, but it



FRAGMENTS OF COLOURED MARBLES.

Cipollino.	Purbeck,	White and pink.
Africano		Pavonazzetto.
Rosso Antico.		Giallo Antico.
Carrara.		

Scale of inches.



was possible to discern the white blocks of alabaster, which were almost continuous in the lower course on the north side, and frequent on the south.

One of the upper stones on the south side was the large lump of moulded plaster (no. D 6 below) lying face down. Not far away another stone in the wall had been cut from a larger stone carved, apparently, with a wreath. The other stones were either rough lumps of (Lincolnshire?) limestone, broken from larger pieces, or rough blocks of alabaster, rough only because of decay, for they had, it seemed, been well-shaped. The drain therefore was built of reused material, and I attribute the decay of the alabaster to the action of fire. The whole could have been salvaged from the ruins of the Temple after its destruction by Boudicca, and one can imagine that this drain might have been built in this comparatively shoddy manner in a rehabilitation scheme carried out at great speed.

Beyond the drain some trace of a street was sought, but there were only the layers R and Q which appeared to be earlier than the drain, but actually the ground was disturbed of old, and, more recently by a large pit full of black soil and pottery of seventeenth-century date.

The most notable point here was that the natural sand, found at approximately the same level as on the north side, was overlaid by a layer of soggy, clayey loam (T)  $2\frac{1}{2}$  to 3 feet thick, which was obviously placed in position, for it raised the surface two feet or more above the equivalent natural surface on the north, and, against the foundation, contained odd septaria blocks (at Z). Careful watch showed no pottery or other remains in it.<sup>1</sup> In the opinion of the builder's men it was laid to make the drain waterproof.

This first section was spoilt by the seventeenth-century pit. Later excavations for stanchions 24, 25, 26, fell on the line of the broad drain discovered in 1932 (Pl. VIII, A). This was first found in Hole 26, where excavations for cellars and a baker's oven had left the northern part of the drain in position. In Hole 25 a cellar or oven had completely removed it, but in Hole 24 part of the northern half was again seen, and the two exposures give the line on which this drain comes through this part of the site. It is parallel to the foundation, and the centre-line of the drain (assuming it to have been three feet wide as before) is 18 feet 6 inches from the south face of the foundation. In neither case could one gather anything of its relationship to any other levels. Its floor was at 80.59 above O.S. datum; that of the smaller drain was 80.36.

In the long, broad cut made between stanchions 23 and 24 (see

<sup>1</sup> Exceptions noted on p. 51.



section, fig. 3, R) some road-metalling was seen on the line of this drain, and since it rises higher than the bottom of the smaller drain it must also have interrupted the larger drain. Thus we have to expect that the latter stops or turns aside at stanchion 24.

Disappointingly, little evidence regarding the Roman street was found. It was hardly to be expected between the foundation and the smaller drain, but we hoped to find it south of the latter. In our first trench we were baulked by the large black pit which had cut nearly everything away. The west side of the trench, however, gave the impression that we were looking at the side of the pit. Upon the natural sand was a somewhat dirty layer of loam and pebbles, and upon this a confused layer, including black soil, and a large slab of fine pink concrete with broken edges, which I judged to be well out of place. Other odd pieces of this were found tumbled in the filling of the pit. Above the concrete was about 3 inches of broken plaster. Then there had been a thick layer of gravel, possibly a road which had been partly dug away, and then levelled with yellowish loam. Above this there was what appeared to be a road, consisting of over a foot of yellowish loam and gravel, with some mortar, and the top of it appeared to have formed a gravelled surface. Now the top of this lies at 82.77 feet, which is well above the top of the platform and fits in better with the level of the turf line over the Roman ruins.

I must register my lack of confidence in this part of the work. I felt that, although I drew in what I saw, so far as I could, there was something amiss, either in interpretation or in the soil before me. I felt, among other things, that lumps of the side of the large pit might have slipped and appear before me in a wrong order, but this could never account for something appearing *too high up* in the section, which I think this 'road' does. I am quite at a loss to account for heavy fragments of concrete—apparently flooring—being found at a low level outside (south of) the smaller drain.

Later, when this cut was widened to 10 feet or more (eastwards), it was found that the pit had spared a portion of road which lay (as I think did that just mentioned) upon the spongy pug under the small drain (fig. 3, above U). On the pug lay a 2-inch layer of grey clay stained with charcoal, and then a very fine road-metalling of extremely hard sand, pebbles, and mortar,  $6\frac{1}{2}$  inches thick (R). Above this there was a small fragment of a second metalling of a more loose gravel, also  $6\frac{1}{2}$  inches thick. The top of the larger remnant was particularly smooth and hard. Its level is at 80.96 feet—that is about level with the top of the wall of the smaller drain, and much lower (1.8 feet) than the gravelling just mentioned, which may correspond to the next layer above. Since this lies upon the pug it must represent the first



A. STONE WITH INCISED CARVING.

B. STONE BEARING PART OF A CARVED WREATH (?).  
Scale of inches.



Roman street (for there is none, and has never been one, lower). No other remains of a street, as such, were observed, chiefly due to the way in which the ground was disturbed by cellars and other old excavations. Before continuing with other gravel levels we will deal with the deposits covering the remains of the masonry.

In the first trench, which we cut ourselves, the rubble was found to be piled high over the centre of the foundation or platform. Indeed, it was covered by only about two feet of modern rubbish. It turned out to consist, northwards of the centre, of very loose lumps of mortar, stone and tile, in very confused layers, and south of the centre, of several layers of yellowish earth variously admixed with mortar and scattered rubble. (Modern deposits are here omitted.) The whole followed a general pattern whereby it was humped high over the centre and sloped down to north and south and this seemed satisfactorily equated with the Norman rampart.

Now we are told by Morant that the Normans had a wall with towers here, and we know that about 1683 Robert Northfolk filled in the Norman Ditch and built houses upon it. Accordingly, we were always aware that Norman remains might be encountered, with signs of Northfolk's activity. It can now be said, briefly, that the signs of cellars, cesspools, etc., of Northfolk's houses were certainly found, with an abundance of remains of clay pipes, and the Norman Ditch had certainly been filled in (with little or nothing in the filling), but of any Norman masonry there was no trace at all (but see p. 45).

The observation of the layers in the section of the bank of rubble presented many difficulties. In the first trench (Section I) observation was only partial, owing to the necessity to shutter the sides. Later, the broad cuts made by the builders without shuttering gave much better opportunity for observation, but sections were short and incomplete, and the surface had been lowered, so that it was difficult to make vertical measurements. The following is the best account I can give:

From work done east of Trench I it was clear that the main mass of rubble was divided by a former surface or turf line. Below this line the rubble was connected with the broken masonry, but divided from the broken top of the platform, at least in places, by yellowish earth often containing much gravel. This lower rubble (C) contained no chalk. Above the turf-line the rubble was quite different in character, being very loose and open, and full of lumps of chalk (B). The main mass of rubble, in each case, lay north of the centre of the walls and piers, south of this mortar and rubble appeared in most layers, but not in comparable quantity.

The rubble layers seemed to have been very uneven on top in



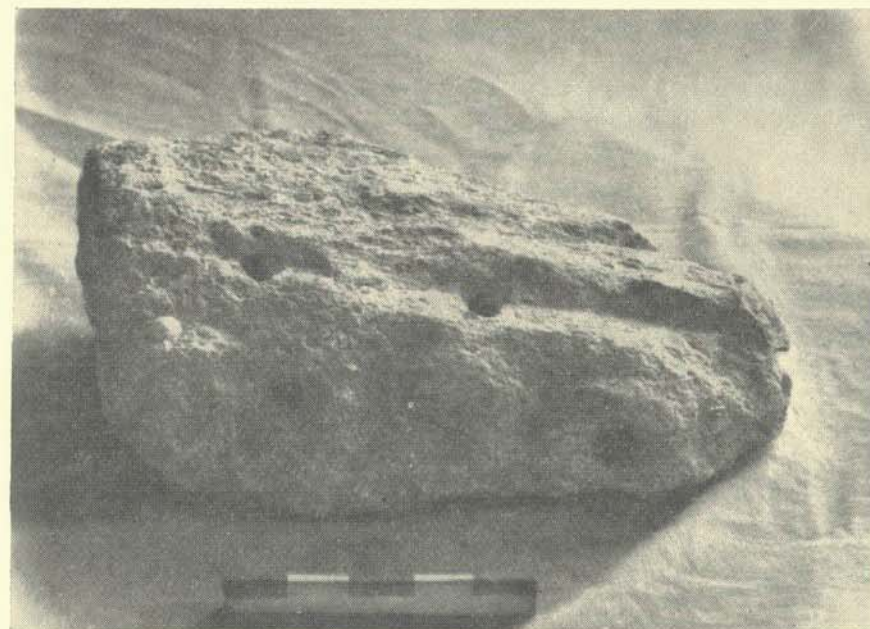
some places, and in our second trench, which ran westwards from the first one, along the line of the piers, we were cutting down straight into rubble, which, at least in one place, was lying on black soil (D) containing Norman and Roman pottery. Here I could not see the turf line. In both these trenches we found masonry remains as soon as we entered the rubble. Over Wall 3 there were two lumps of conjoined voussoir-tiles from an arch, and lumps of a thick slab of Puzzolana stone, with smooth top where marble slabs had been bedded. These were all jumbled up with blocks of septaria, broken tile and mortar. Immediately north of this, under all the rubble, two conjoined voussoir-tiles lay on the pink floor of the platform. In Trench II there was so much fallen rubble packed so tightly that it was quite difficult to decide when we had come down upon the firm masonry of a pier. Over Wall 4 there was a large piece of an arch, with a few courses of stone and tile above the voussoirs lying on its face. Here and there in the rubble other recognizable pieces were found, which are described among the finds. It was uniformly observed, throughout the work, that wall-plaster, whether coloured or plain, was absent, except for a few fragments of the large red skirting mouldings. There is, therefore, we feel, no question of any of the walls in the second period of the building having been plastered.

On the other hand there is evidence that both they and the floor were covered with marble. Many fragments of cut slabs, some thin, some thicker, were found lying along the top of the smaller drain (N). The marble is chiefly of Purbeck type, but foreign marbles also occur. Some of the thinner slabs have dowel holes in the edges for the iron-holdfasts. There are also fragments of mouldings and other carved work in marble, but no lettering or statuary.

Our knowledge of the stratification on the north side is poor. In Trench I natural yellow sand was found at a little over 9 feet from the surface on the south, and at 10 feet on the north. But the foundation trench (W) for the masonry had gone 18 inches lower. Its width appeared to be 3 feet, and it was full of fragments of fine white wall-plaster, with a fine, polished, ivory-like surface. This I cannot believe came from our building, and I think it may have come from the ruins of the Temple. Further east, when the boiler-house was excavated, I could not see traces of this foundation trench, which may not have been a continuous feature. There was only a slight indication of an old surface on top of the white plaster, its presence was better indicated by the unmistakable bottom edge of the rough plaster on the north face of the platform. This is at 78.25 feet and there never seems to have been another floor above it. The earth may, however, have accumulated slowly so as to raise the level, but the



A. CORNICE-MOULDING WITH DOWEL-HOLES.



B. SPRING-MOULDING WITH DOWEL-HOLES.



evidence is against this, for the only pottery found in the next 3 feet (including the lower rubble) was fourth-century. This is the same layer that underlay the fallen column, which lay north of Pier 4, in which some peculiar pieces of glass were found, one of them painted.

This fallen column is somewhat of a problem. We already knew from fragments of segmental tiles, that we had to deal certainly with built columns of nearly 3 feet diameter, and probably with others of smaller diameter, but hardly expected to find one fallen and recognizable. There was a length of at least 8 feet lying north to south, where it had fallen from some part of Pier 4; we could not determine which part. Its foot lay higher than its head, confirming our impression that the ground level on the north always lay below the top of the platform. It had been shattered in its fall, so that every stone and tile was loose, and much had been taken away by robbers; nevertheless, much of the shaft could be recognized. The remarkable fact was that I could find no trace of any facing plaster, from which I conclude that this column had stood erect so long that the plaster had weathered off completely. If so, it would have made a heap at the base, but this must have been disturbed when the building was robbed, and before the column fell.

It is time now to consider the extremely difficult stratification south of the platform. It is not at all clear whether anything lay on this site before the platform was built. The only evidence was in the south end of Section A (west side), and this was no more than a pebble surface on the sand at 79.3 feet; for the concrete, plaster, and gravel, a little higher to the south could have been put in at the same time as the pug and the smaller drain. I feel that the pug is contemporary with the platform, and was put in to carry the drain and a path (at P and O). The path was, at first, of concrete, but had been altered more than once (compare the successive paths at the larger platform further east), always, it seems in such a way as to continue the floor over the platform. The latest path was a rather poor one, of gravel. These paths drained into the smaller drain. One naturally begins to think of the drip from a portico, but no portico could have existed, for there is no stylobate, nor are there separate bases for columns.

Further east, the nature of this path becomes even more difficult. We are hampered by the lack of a full section, but it is clear that besides the gravel path which covered (if patchily as found by us) both the south part of the platform and the space to the drain, we have to deal with other features. The section along the south side of the platform (westwards from Hole 19) shows that the white concrete path was here 7 inches thick and particularly good, being of medium-sized



gravel in pure white mortar, at the east end, but in several layers of this and other materials, further west. Here too the gravel floor above is very thick, enough for a road, and shows in its lower part evidences of several repairs or alterations. Upon it there lies a layer of earth and rubbish, chiefly dark sandy soil with mortar on top. Above it is a second broad and level expanse of gravel about six inches thick, its surface approximately level with the top of the red mortar skirting. Above this there is a final accumulation of dark earth and mortar, which is capped by the very distinct turf layer. This consists of about two inches of clay, often accompanied by about an inch of very black material, probably containing much charcoal or soot.

We were fortunate to be able to obtain a section continuing these layers over the platform. In this section there is a remarkable feature. Between the white concrete path and the platform is a layer of a peculiar material, which is no other than a mixture of wood-shavings in mortar, which produces a kind of soft breeze. This lies on a filling of septaria in loose mortar and soil against the foundation, which we saw less clearly in Section A (at Z). The next three layers run up to the remains of Wall 5 as if they are all Roman. If so, the upper gravel belongs to a period when the building was old and neglected, for it covers the skirting, which is damaged.

Apart from one portion, which was cut under conditions precluding a record being taken, this section was continued further north from the platform than we had previously seen. It will be noticed that the critical point where the foundation trench might be found could not be touched. Otherwise the section shows much more clearly than our first trench the nature of the strata over the foundation. There are a number of confused tips of rubble lying in soil which is dark or light, according to the quantity of mortar loose in it, with, at one point in the upper layer, a large block of tumbled masonry. All this is quite parallel to the discoveries made by us in Trenches I and II. Despite its tumbled nature, all this rubble is fairly level on top, where it is sealed by the turf line.

Above the turf line, beyond question, we have the remains of the rampart of the Norman Castle, and on the left (north) the several tilted layers of rubble, gravel, and sand, point to the approximate position of the tail of the bank. It is quite clear that the turf line formed before the Norman bank was thrown up, and that after the turf line formed, there was an enormous bank of rubble laid upon the Roman ruins. This formed the core of the rampart, and was full of lumps of chalk. We have seen chalk in Norman connection under the rampart north of the Castle, and it seems that this rubble is perhaps not equivalent to another plundering of Roman ruins at this



A. DRESSED STONE WITH HOLLOW-MOULDING.



B. WHITE PLASTER MOULDING.

*Scale of inches.*



point, but to the cleaning up of the Keep site by the removal of waste material (which must have been very great) from the dressing of the stones and tiles used in building the Keep.

The following, therefore, is the sequence on the site:

1. Pre-Boudiccan, possibly nothing, at most something at present indefinable.
2. Post-Boudiccan, the great platform, built in conjunction with the greater platform further east, bearing an architectural screen comprising an arcade with columns at the piers, and mostly sheathed in marble. Reused material in the small drain probably comes from the Temple destroyed by Boudicca.
3. The screen receives repairs, and a new floor and skirting on the south side.
4. The building falls into disrepair.
5. A new street is laid down covering the plaster skirting.
6. The building is demolished, and the ruins ransacked for stone.
7. A turf line forms over the ruins.
8. Rubble is dumped upon the ruins, the Norman ditch is excavated, and its upcast thrown upon the rubble to form the Norman rampart.

Eight is Norman, and so may be 6 and 7. If they are, the turf line should represent the pause in building between the erection of the first 30 feet of the Keep and the completion of the upper part. The two layers of rubble could thus correspond to the two periods of building, and the second ties in with Mrs. M. A. Cotton's suggestion that the rampart was built after the Keep; it also has chalk tying in with the chalk layer found by her.

We are left with the most interesting possibility that the Street 5 is Roman, or may, we hope, be even post-Roman. Its surface is at 83.5 feet. In a section taken along the north side of a trench which followed the south side of the larger platform further east (in 1932) there is a similar layer of gravel lying upon the intensely black soil which covered the platform, with more black soil above it, and then the gravel of the Norman rampart. The parallel seems complete and it looks as if there was a late road running on this line, which is only seen along the south side of our platforms, the ground north of it, so far as we know, being then in a chaotic state.

For before this gravel could be laid down we must suppose that the Roman buildings were in decay. They had been spoiled for building-stone and marble (the latter to burn for lime), and of the former we have only a few pieces to show the nature of the rich spoil available, of the latter we have many pieces, but unfortunately only of



a scrappy nature, chiefly fragments of sheathing from walls and floors, but there are remains of panelling and carvings to show such things were present; there is, however, no trace of an inscription. Apart from a few pieces found in the rubble, all the marble was found in a limited area which extended along the line of the smaller drain. I can offer no suggestions to account for this. It would appear that when the robbers came to remove the marble from the building it was already in a dilapidated condition, and fragments of the marble lay scattered around—or possibly the robbers scattered it in taking it off—at any rate the pieces which had fallen along the line of the drain, and some into the filling of the drain, escaped observation when the bulk was collected.

The main destruction of the building followed, and over the larger platform, was succeeded by a period long enough for 2 feet 6 inches of intensely black soil to accumulate.

Finally, a word about the Norman ditch. Accurate observation on this was not possible because the work was done in stanchion-holes at great depth with complete shuttering. The line of the ditch is along the south side of the site, and is occupied by the cellars of the buildings, destroyed in the fire. These are of 'Tudor' and of modern brick, and it is not clear how far we may trust the simplicity of the story of Northfolk filling in the ditch and building houses, for the buildings west of the site, including Weddell's and Farmer's shops, are clearly older than 1683, and were therefore not built by Northfolk, yet they stand directly upon the filled ditch.

Although these cellars occupy so much of the ditch, much of its filling remained to be moved. The bottom seemed to lie approximately on the line of stanchion-holes 33 and 37, and was 18 feet below the High Street. The northern lip seemed to me to show somewhere about the north side of stanchion-hole 29, and, to the eye, it appeared as if the south lip must extend part of the way under High Street. The width was certainly not less than 36 feet. One would expect a width of 54 feet against a depth of 18 feet, but about 5 feet must be deducted from the 18 feet to allow for subsequent accumulation of earth. If we call the depth 13 feet, a width of 39 feet would be reasonable.

The filling was most disappointing. No layering or festooning could be seen in it, and the archaeological finds were few. In parts a great quantity of very large food-bones occurred. Now and then a few pieces of pottery were found, and these were particularly disappointing. The bottom, in which we had hoped for a good haul of distinctive Norman material, was no more productive than the filling—perhaps less—but it did produce one or two problems.



A. DRAIN FOUND IN 1932.



B. (1) POTTERY BALL. (2) LUG-HANDLE OF A VESSEL WITH GREEN GLAZE, 16th century.



Hole 30, on the north slope of the ditch, revealed, on its south side, at a depth of 13 feet 6 inches, a row of Roman tiles, lying flat about 6 inches above the natural sand, 'like a path', as the men reported. I did not see them in position. In Hole 29, next to the west, tiles, stones, and mortar, were lying on the sandy slope of the ditch, and in Hole 38 there was a layer nearly 2 feet thick across the bottom of the ditch, composed of masonry rubble. Much of this, in all the holes mentioned, was good, including whole Roman tiles and blocks of masonry. The general effect was to give the impression that after the ditch was cut some demolition had been carried out on masonry along the north side of it, from which a certain amount had rolled into the ditch and been left there. But as we have seen, we do not find that the strata show that any such thing was done, and one has to consider the possibility that this rubble in the ditch is from a Norman bridge or barbican, the foundation of which we have not found.

Throughout the work the analysis of nearly 40 samples of mortar carried out by Dr. Norman Davey, of the Building Research Station, Watford, has been invaluable in correlating and identifying different sections of the Roman work, and in the case of the masonry found in the ditch filling he has shown this is mainly of a certain type which is quite different in composition from any of the Roman samples, and may, therefore, be set down as belonging to Norman masonry which formerly stood on top of the rampart or formed a bridge or barbican.

The bottom of the ditch was further remarkable for the fact that it had a drainage ditch about 18 inches deep running along it.

There is left for discussion the fragments of the building which were found in the lower part of the rubble. Although there was so much of the latter, pretty well every stone which could be used for building had been extracted. The few significant pieces which remained are as follows:

#### A. MARBLES.

Over 200 fragments of marble slabs were found varying in thickness from about  $\frac{1}{2}$  inch to 1 inch or more. All are quite plain, none having any mouldings for panelling. One fragment alone preserves part of a carved astragaloid-moulding (Pl. IV).

We are greatly indebted to Miss M. O. Morris and her colleagues of the Geological Museum, who came to Colchester specially to examine the material and also took much of it back to their Museum for direct comparison with the specimens there.

Some of the Purbeck slabs have small dowel-holes in the edges which show that they have been attached to upright walls by T-shaped iron



clamps. The more detailed description we leave to Miss Morris, whose report is appended below.

#### B. OTHER STONES.

*Alabaster.* Great quantities of alabaster were found used in the construction of the smaller drain, and fragments occurred elsewhere. The specimens were damaged building blocks which had been dressed as ashlar, but in every case one side had been more or less damaged, presenting the appearance of having been eaten away by acid. We assume that these had been used in some early building, possibly the Temple of Claudius itself, and had suffered this damage from fire, after which they were used as waste material and built into the drain reversed, so that the best side was exposed. This material is a soft white alabaster with some red veining, but its source cannot be determined, nor can that of the one or two blocks of gypsum which were also found.

*Brown Shale.* Two pieces of brown shale must be mentioned. One about  $4\frac{1}{2}$  inches square and  $\frac{1}{2}$  inch thick, the other shaped like an ordinary Roman building tile, about 17 inches by 12 inches by 2 inches thick. The material resembles Kimmeridge shale.

#### C. INDIVIDUAL STONES.

(1) A piece of freestone, 13 inches wide by 5 inches high by 10 inches deep, slightly tapered backwards, bearing a deeply-incised pattern on the front. The top is cut in a peculiar manner, and the stone must have come from a decorated façade. The material seems to be the same as that of the next two (Pl. V, A).

(2) A small piece of a projecting cornice (Pl. VI, A).

(3) A fragment of an ornamental string-moulding (Pl. VI, B).

These bear very weathered carving and it appears that a restoration became necessary, for both stones bear several dowel-holes cut in them. I can only think that these were to peg a substitute over them, though I must admit that I have never heard of such a remarkable method of effecting a restoration.

(4) A piece of fine limestone, perhaps from Lincolnshire, preserving part of a carving, possibly part of a wreath. This was found in the walling of the smaller drain (Pl. V, B).

(5) Part of a stone bearing a deeply cut hollow-moulding. This also is a very fine limestone and the cutting is exceptionally good (Pl. VII, A).

#### D. OTHER REMAINS.

(6) Remains of white plaster have already been mentioned. The largest example is about 16 inches long and about 7 inches wide by

4 inches thick, and comes from a heavy convex moulding from panelling or the jam of a door. This fragment was also found with others built into the smaller drain and, therefore, comes from the earlier building (Pl. VII, B).

(7) Between the piers on the platform we found fragments of arches, in some cases several voussoirs were still joined together by their mortar. These are carefully made of good red clay. They measure 15 inches or 19 inches long by 10 inches wide and are 2 inches thick at the small end and perhaps twice that at the opposite end.

(8) Among the rubble there were very many fragments of tiles in a segment of a circle—in this case apparently about a 6th of a circle—but none could be found complete so that we cannot give the diameter. Some of these had been chamfered round the edge as if to assist in building bases which would be finished in plaster.

(9) There is one complete building tile, 16 inches by  $10\frac{1}{2}$  inches by  $2\frac{1}{2}$  inches, with one end chamfered before firing.

#### E. THE BUILDING STONE.

The Geological Museum Report shows that the limestone imported for building was more difficult to identify than might have been expected. The ashlar of the piers was of a shelly limestone which has now been identified as from Ham Hill in Somerset. The other limestone is identified as coming from Taynton (?) in Oxfordshire, and a third, of fine grain, has proved impossible to identify. It may have come from abroad but is more likely to be British, and if so its probable source is in the neighbourhood of Lincoln, where there may be an undiscovered Roman quarry. We are very grateful to the staff of the Geological Museum for the great trouble they have taken in working upon these stones.

### NOTES ON DECORATIVE AND BUILDING STONES FROM THE TEMPLE SITE, COLCHESTER.<sup>1</sup>

By MARGARET O. MORRIS, B.Sc.

Specimens of decorative and building stones from the Kent, Blaxill site at Colchester, collected by Mr. M. R. Hull during recent investigations at the site, have been examined at the Geological Museum.

Their variety is considerable and it is clear that their sources are widespread. In preface to the following notes it must, however, be emphasized that one can rarely be quite certain on geological evidence

<sup>1</sup> Published by permission of the Director, Geological Survey and Museum.



alone, without historical evidence in support, of the exact original source of a stone used in an ancient building.

The specimens can be separated into four groups.

#### TRUE MARBLES (Pl. IV).

These are marbles by geological definition—limestones or dolomites which have been completely metamorphosed and recrystallized.

Identification of the source of these is an essentially empirical process of attempting to match them with localized specimens in museum collections. The principal criteria are colour, texture, and pattern of veining and brecciation. There can, of course, be great variation in the pattern of a brecciated marble from a single bed in a single quarry, and it is particularly difficult to be sure of a good match if the specimens are small.

All the true marbles from the Kent, Blaxill site are certainly foreign.

*Africano Marble.*—There are sixteen specimens of a coarsely brecciated marble, varying considerably in colour and pattern, which after careful examination and comparison we think are all from one source. The marble consists of white, purple and pink fragments in a black or very dark green groundmass. We believe that this is the Africano Marble which was largely used in Ancient Rome.<sup>1</sup> The source of this marble is not definitely known, but it is said to have come from Asia Minor. Our slabs are mostly an inch or more in thickness.

*Rosso Antico.*—There are twelve pieces of an even-textured unpatterned marble of a deep red colour. These appear identical with museum specimens of Rosso Antico quarried in the Cape Matapan peninsula of Greece.

*Pavonazzetto.*—There are nine pieces of a white or pale cream marble, with purple and red veins, which correspond with museum specimens of Pavonazzetto, including one from the Forum Augusteum and others from a villa in Rome. It is recorded that this marble comes from quarries in Phrygia in Asia Minor. Our slabs are thin, rather less than .5 inch thick.

Both Rosso Antico and Pavonazzetto were extensively used in Ancient Rome.

*Giallo Antico.*—A thin slab of yellow marble with some red veins is closely comparable with museum specimens of the marble known as Giallo Antico or Marmor Numidicum, which is also known to have been used in Rome and is recorded as coming from quarries in Algeria and Tunisia.

*Cipollino.*—There are some small chips of a white and green banded marble which resemble specimens of Cipollino Marble—Marmor Carystium—from Greek quarries on the Island of Eubœa. The characteristic banded pattern is due to the presence of scales of mica and talc interlaced with the white calcite. Our fragments are .5 inch thick.

*Carrara.*—Two specimens of a white uniformly crystalline marble precisely match a fragment of statuary in Carrara Marble from the Claudian Aqueduct, Rome.

*Other Specimens.*—There are also fragments for which we have not been able to suggest a name—a brecciated white and pink marble, and a chip of black marble.

#### OTHER DECORATIVE STONES.

*Green Greek Porphyry.*—Among the decorative stones other than marble is a small chip, one inch square, which is a green porphyritic rock. It has a dark green groundmass in which are embedded lighter green felspar crystals. The petrological characteristics of this rock are highly distinctive and there is no reasonable doubt of its source. It is the Green Greek Porphyry obtained from quarries between Sparta and Marathonisi.

*Alabaster.*—Other stones which may have been used for decorative work on this site include several specimens of weathered alabaster—soft, white and fine-grained with some red veining—the massive variety of the mineral gypsum. There is no geological criterion by which the source of the alabaster can be established; it may be foreign or it may be from a British source.

*Tufa.*—There is also a specimen of calcareous tufa—soft limestone deposited by spring waters. Again, there is no special characteristic to indicate its source.

#### PAVING STONES.

There is a great variety of sawn slabs an inch or two thick, which are presumably decorative paving or facing stones. All these specimens are Purbeck Marble. We have no doubt that they come from the Purbeck Beds, near the top of the Upper Jurassic rocks in the Isle of Purbeck.

Purbeck Marble is a fresh-water limestone and consists very largely of myriads of shells of the small gastropod *Viviparus*. It is not a true marble in the geological sense, but a limestone hard enough to take a polish. The highly distinctive pattern of the polished surface is produced by the fossil shells. Some varieties of Sussex Marble, from the Weald Clay, of Lower Cretaceous age, resemble Purbeck Marble, but there are certain differences in tint and in the contained fossils.

<sup>1</sup> For notes on the sources of marbles used in Ancient Rome see *British and Foreign Marbles and Other Ornamental Stones*, J. Watson, Cambridge University Press, 1916, and *What Rome Was Built With*, Mary W. Porter, Henry Frowde, London and Oxford, 1907.



## BUILDING STONES.

The fourth group of specimens from the Kent, Blaxill site consists of massive building stones in large quantity. All of them are limestones, but there are at least four different types.

Dr. F. W. Anderson, Mr. R. V. Melville, and other officers of the Geological Survey and Museum, have kindly given much consideration to the nature and likely sources of these stones.

*Kentish Rag*.—One type can be identified with certainty. It is a tough fine-grained dark-grey sandy limestone, which is Kentish Rag, from the Hythe Beds of the Lower Greensand of the Weald.

*Ham Hill Stone*.—There is a great amount of coarse-textured limestone varying in colour from yellow-grey to yellow-brown, and chiefly composed of comminuted shell fragments. It is very like Ham Hill Stone, quarried from strata of Jurassic (Upper Lias age) in Somerset, and Mr. Melville has no doubt that this limestone comes from the Ham Hill neighbourhood.

?*Taynton Stone*.—Mr. Melville has also examined chips of a shelly oölitic limestone taken from a column found at Colchester. He judges this to be from the Great Oölitic Series of Oxfordshire, and it closely resembles Taynton Stone, which is known to have been worked by the Romans.

*Undetermined*.—Finally, there is a cream-coloured shelly limestone composed of small rolled grains of calcium carbonate and unidentifiable shell debris in a matrix of calcium carbonate. Some of the rolled grains may be recrystallized organic matter. We have not so far been able to suggest a source for this stone. It is probably of Jurassic age. It seems to have been used in Colchester in considerable quantity, and we might therefore expect it to be from Britain and not from a foreign source, but we do not know of any British limestone which matches it closely. It may nevertheless be from this country; the Lincolnshire Limestone has been suggested as a possible source. Alternatively it may have been brought from France.

## MUSEUM COLLECTIONS

The museum specimens used for comparison with the specimens from Colchester are in the collections of the Geological Museum. Two collections of stones from Rome, presented by Dr. St. Clair Baddeley and by Miss L. F. N. Preston, have been particularly useful.

I am indebted to Mr. A. W. G. Kingsbury for facilities to examine the Corsi Marbles at the University Museum, Oxford, in order to confirm certain comparisons.

M.O.M.

## THE POTTERY.

Pottery was scarce and much of it unstratified owing to the many comparatively recent disturbances on the site, and also the fact that it was not possible to watch closely the recovery of it all. It is, however, noticeable that the Roman sherds found in the later disturbances are practically all of late Roman type. The stratified sherds are nearly all of the same period, and it seems clear that post-Roman activities found practically no pottery but late Roman lying about.

The two earliest sherds are a fragment of base of f.140 and a rim of 266, both from the pug layer (T). The only others are mortaria rims, perhaps late first century.

The remainder presents a late fourth-century group and is illustrated in figs. 4 and 5.

There are many points of resemblance in *form* with the pottery from the late bath at Cobham (S.A.C.,<sup>1</sup> 1., 84, figs. 5, 6, 7, 8), and from the late fourth-century kiln in New Field, Farley Heath (S.A.C., xlviii, 38, fig. 3). There can be no doubt about the late fourth-century date of our group; and the proportion of fine red-coated ware, Castor ware, late mortarium forms, and gritted ware, is typical of the period.<sup>2</sup>

In the following description the number in brackets is the number in the field list. The number in the margin is that on the illustration.

The wares are divided into four categories as follows:

## 1. COLOUR-COATED WARES.

A. Tile-red paste (sometimes partly grey, owing to poor firing) with fine red coating, polished. It was intended to be Samian and, now that Samian glaze is said to be merely a clay slip, it is not really distinguishable from Samian. There are several varieties, indicating more than one place of manufacture. If the red slip is accidentally burnt it becomes black or chocolate in colour, and is then liable to be confused with the commoner and better-known class of colour-coated ware. The transition from the one to the other is only one of degree, and both could well have been made in the same pottery. The link is completed by No. 13, a typical piece of class A with a very fine slip, bearing the white painted scroll of C.

B. A duller red paste, with deeper red, usually matt coating.

<sup>1</sup> S.A.C., *Surrey Archaeological Collections*.

<sup>2</sup> I have been much concerned about the gritted rims, for they resemble those found at Rayleigh Castle, which should be Norman at the earliest, and on pursuing the matter I find a certain amount of support for the theory in various publications which speak of the late Saxon and early Norman gritted cooking-pots. However, I am now of the opinion that such resemblances are fortuitous and that our rims are Roman.



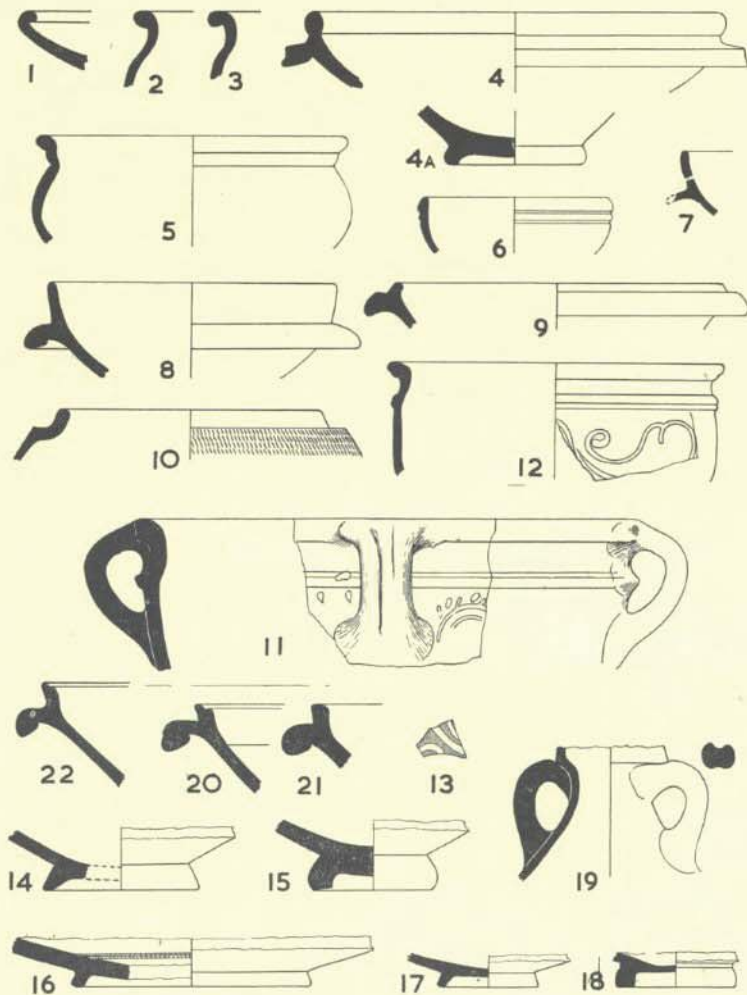


Fig. 4—ROMAN POTTERY FROM THE KENT, BLAXILL SITE. Scale  $\frac{1}{4}$ .

C. Colour-coating (usually chocolate to black, but bright red is common and other shades occur) on white, cream, red-brown, and red paste. The white and cream probably come from the Peterborough district (Castor) and/or Swanpool. The others are probably local. The Castor, as usually on late sites, runs to some unusual forms.

1. Rim, diam.  $8\frac{3}{4}$  inches, orange-red ware and coating, finely polished, resembling Samian, found in or under rubble over east end of platform (48). The type seems to imitate form Drag. 32.

Cf. Sandford, *Arch.* lxx, figs. 1, 5, which has no connection with Walters form 79 and is not c. 190 in date.

2. Rim of bowl form 314, with slight cordon and rouletting on neck, vermilion-red paste with grey core and bright glossy red coating. Black soil under mortar, layer D, fig 3 (21).
3. Rim of similar bowl without cordon and rouletting, hard light red, with bright red coating, or possibly only polished. Diam.  $6\frac{3}{8}$  inches. Under rubble in dark soil (46).

These two are of a well known fourth-century New Forest form, compare Hambleton, *Arch.*, lxxi, figs. 11, 70 and 74, and *A.C.*<sup>1</sup> lxxv, 51, nos. 34 and 35 (with painted decoration) and lxvi, 31, no. 148; also lxxviii, 109, 83.

4. Rim of mortarium, diam.  $9\frac{1}{8}$  inches, hard, micaceous, buff-red ware, flaking; surface blood-red, shading to black (uneven or accidental firing). Polished outside on lip. Grit small, fine, coral-line-pink. Under rubble in dark soil. (47).

- 4A. Base of the same, or another vessel, similar clay, grey at core where thick. Polished outside and under base, but burnt nearly black. Black soil (layer D) between pier 4 and wall 4 (34).

Cf. *A.C.*, lxxv, 58, no. 81. Colour-coated, etc., as ours, and deposited in second half of fourth century.

Worn fragment from ledge of a similar vessel; pale orange-red with thin orange-red slip. Unstratified (41).

5. Rim of bowl like nos. 2 and 3 but neck resembling a double-beading (Cf. *Cam.* form 48; Plate li). Very fine orange-red clay with similar darker coating. Diam. 6 inches. Black soil, layer D, fig. 3 (26).
6. Rim of small bowl of unclassified type; fine red-buff ware, with purplish-red coating darkened by fire and flaking off. Double groove outside. Diam. 4 inches. Unparalleled (?). Layer D (50).
7. Rim of bowl, form 316A. Red-buff ware with fine red polished coating; much damaged and diameter uncertain. Layer D by wall 4.

<sup>1</sup> *A.C.*, *Archaeologia Cantiana*.



8. Rim of similar bowl, bright red paste, slightly micaceous, with grey core, blood-red colour-coating, mostly flaked off. Diam.  $7\frac{1}{8}$  inches. Under tail of Norman rampart (39).

Rim of similar form, possibly the same ware, but red all through and slip not so dark. Layer D, fig. 3 (6). Cf. Hambleden, *Arch.* lxxi, figs. 12, 84 and 85.

9. Rim of bowl form 305, creamy paste with chocolate-purple coating. Layer D (46).
10. Rim of bowl form 308, very fine and hard red ware, overfired to grey (nearly stone-ware). Surface red to chocolate, rouletted. Layer D, fig. 3.
11. Rim of large bowl with at least one three-ribbed handle. Paste nearly white, with grey, metallic-chocolate coating, painted scroll in white. Layer D, by wall 4 (38).
12. Similar rim from a smaller and lighter vessel, no handle preserved; same ware, slip, and decoration. Layer D (6).

In 28 years' work on the masses of Roman pottery in Colchester I have not seen anything like these two rims, which seem to be Castor ware. Something similar has occurred several times at Richborough in polished grey ware and in colour-coated ware of local type: e.g. *Richborough*, I, nos. 128, 129, both attributed to mid-fourth century; and III, nos. 330, 331, dated similarly.

There is a chip in the same ware from a large vessel, and another, also from a large vessel, is decorated with rouletting and white slip, both quite similar. Unstratified.

13. Chip from a globular vessel of red ware, red-coated, decorated with white scrolls. Layer D, at wall 4.

There are several bases of vessels in fine red ware which merit publication.

14. Fragment of base, fine orange-red ware, with slip like Samian, large and tall, angular foot-ring. Unstratified.
15. Heavy base of bowl of thick dull red ware, with heavy foot-ring of squarish section. Unstratified (36).
16. Fragment of a heavy base, copying form Lud. Sb., with deep double groove inside, one groove rouletted. Foot-ring of large diameter, perhaps about  $5\frac{1}{2}$  inches. Surface almost resembling a glaze, unstratified.

Fragment of base of another wide bowl, in dull red ware. Of similar outline, but foot-ring rounded in section. Found in rubble (4).

17. Fragment similar to No. 14, same ware, but smaller. Under tail of Norman Rampart (39).

18. Base similar to No. 15, same ware, but smaller. Unstratified. This and 15 are almost certainly from copies of forms Drag. 38 (Form 316).

These bases can be paralleled at Canterbury, *A.C.*, lxiii, 110, 96 and 97.

Of ten other red fragments several come from large closed vessels (olla-shaped or even narrower in the mouth) and lack any colouring on the inside.

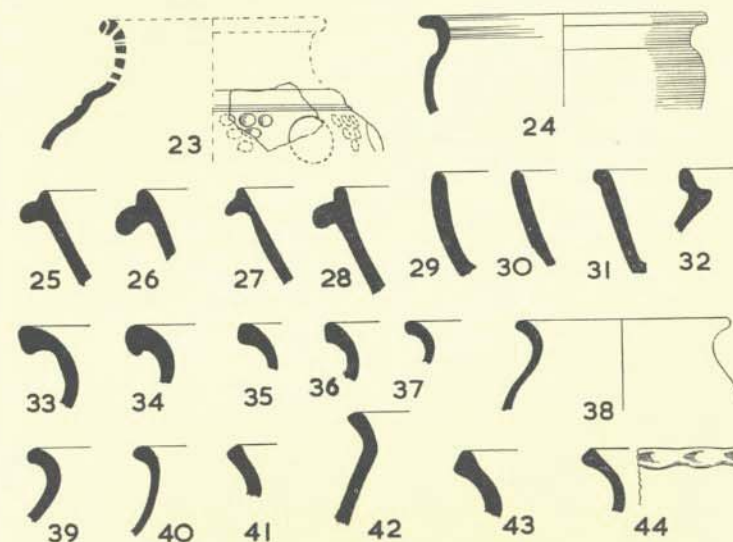


Fig. 5—ROMAN POTTERY FROM THE KENT, BLAXILL SITE. Scale  $\frac{1}{4}$ .

The colour-coated wares of more usual shades are:

a. *Of usual pattern.*

A fragment from a large bulbous beaker with applied overlapping scales (form 396), in bright red ware with chocolate slip, from layer D, fig. 2 (21).

A base of a tall beaker of form 319C, or 407A, with beaded foot and grooved beneath; red buff ware, chocolate coated. Level H (8).

b. *Of unusual pattern.* Besides numbers 11 to 13 there is:

19. part of the neck of a flagon or jug with one or two handles, red ware, chocolate-coated on the outside, possibly spoilt polish. Probably fourth century. Found under rubble with rim No. 40 (44).



## 2. WHITE AND BUFF WARES.

Rims of five mortaria, two of which are early but unstratified:

Thick buff ware, with small white grit, mostly gone, which ran over the rim. The form is 195A and the date should be around A.D. 100.

Whitish-buff, with sparse white grit; flange well above lip, form 496. Date, Trajan-Hadrian.

20. Rim of hard white ware, form 505, with deep groove on lip and slight one on flange. Small coralline grit. Level H (8).
21. Another rim, same form, without grooves; fine hard white ware, with pale-orange core; surface shading to biscuit colour. Grit small, coralline. From below yellow sand, Hole 11, under tail of Norman Rampart (39).
22. Three fragments of one rim, same form, grooved as number 14; fine hard red ware, white coated, with grey core. Part of spout remains. Grit small, coralline. Layer D in fig. 3, Hole 26.

This type of mortarium is well known in the fourth century. Cf. Hambleton, *Arch.*, lxxi, figs. 14, 121 and 122; Canterbury, *A.C.*, lxiii, 106, no. 66, and 109, 92; *Ibid.* lxi, 26, no. 18, "Late 4th to 5th-century", and 33, no. 55. Many other quotations could be given.

The remaining fragments are rather indefinite, a few fragments of buff ware lay on the top of the pug below the level of the lesser drain, but the only recognizable piece was part of a base almost certainly form 140. This might have made the pug date soon after A.D. 50, but, unfortunately, just here it shows a disturbance in Roman times and is mixed with pieces of mortar or plaster. The whole being sealed by the drain and path.

The remaining fragments are of no account, except that it is noteworthy that the cup-mouth flagon, form 156, is represented by only one unstratified fragment.

## 3. GREY AND BLACK WARES.

23. A fine grey fragment, polished outside, is of form 339, with large bosses and groups of small round impressions. Layer D, fig. 2 (26).
24. Rim and shoulder in the same grey ware, but not decorated, from Layer D, at Wall 4 (50).

These two belong to a series which Mr. J. N. L. Myres holds to be late Roman in date and verging on Saxon.

25. There are four rims of form 305 in coarse grey black
26. ware, two with red core. There are no examples of
27. 305B, and what we have are not typical 305A, because

28. the exterior is polished in bands only and not all over, with one exception which is crudely finished.

One rim was under the Norman rampart in Hole 11, one was in the filling of the Norman ditch, and another may have lain in Layer M, but this is not certain. This is a well known fourth-century form and further references are unnecessary.

29. Two rims resembling a deep worn f. 39 (side over 2 inches
30. high), are of good grey-black clay, black polished inside and out. Both were unstratified (41). Another chip is of form 40A, found
31. in rubble (48); another rim is of form 40B (36). Two sherds are from under the Norman Rampart, and a grey base with scored pattern on the inside is from the seventeenth-century pit.
32. A rim of black ware, with a little sparse white grit, is of the so-called Derbyshire type (form 276) from Layer D, fig. 2.
33. A coarse brown rim of unclassified form, unstratified.

Cf. Canterbury, *A.C.*, lxiii, 110, 95, and *Richborough* III, 346. Cf. *A.C.*, lxxv, 60, 93. Form Lullingstone, sandy-buff, fourth century, and cf. *Richborough* IV, 470.

The fragments of jars are unimportant; there are fifteen rims, some polished, some not. Most important is a fragment of form 266 which was stratified in the pug under the smaller drain. It should be Claudius-Nero, but could easily have come where it was in Flavian times (52). Of the rest, a large form 272 is recognizable, unstratified. The remainder are too small to identify. The body fragments include no typical form 278 or 279, and no rim can be identified as form 268, which is very remarkable. Two fragments might come from the late form 119 (3, 37), one was in the rubble, one under it, and there is one fragment with a panel of dots (as form 123) (35).

## 4. GRITTED WARES.

This is a most interesting section, comprising twenty-one fragments, many of which would be pronounced Roman without hesitation, but one has a waved lip which should be Norman and two or three rims so much resemble those found at Rayleigh Castle that one is forced to consider them with some care.

After careful consideration I have come to the conclusion that all these pieces should be regarded as Roman with the possible exception of the last three.

The ware is coarse, mixed with crushed grit (very fine, probably shell), the colour varying from black to yellow-grey, and light brown-red to light brown. One piece, No. 38, alone seems to have an almost glossy wash over the irregular surface.



34. Grey rim with grey to black surface and sparse white grit, unstratified.
35. Small fragment, same ware, diam. c. 6 inches. Under rubble (3).
36. Chip of rim, same ware, diam. about 6 inches, under rubble (46).
37. Rim, clay black to red with much white grit, diam.  $4\frac{3}{4}$  inches, under rubble by Wall 4 (47).
38. Larger fragment, similar in clay and shape, found with the preceding, diam.  $4\frac{3}{8}$  inches.
39. Similar rim but almost with a lip, similar ware, harder and thicker, diam. about  $5\frac{1}{4}$  inches. Under rubble (6).
40. Rough yellow-grey ware, with knobby surface and almost glossy wash, mottled. Diam. 4 inches. Found in rubble (4).
41. Rim with squarish lip, black clay with white grit, unstratified (11).
42. Similarly everted rim, but not hollowed inside, hard brown-red ware, *hand-made*. In Layer D at Wall 4. Possibly Saxon.
43. A large rim like No. 41, with which it was found, red with white grit.
44. Similar rim of hard red clay with white grit. The rim slightly waved or frilled as shown, unstratified, presumably Norman.

With these rims compare the following: *A.C.*, lxiii, 106, 70 (*hand-made*), and 76 to 80; with references to *Richborough* I, 57, 2149, 3, 333 to 334, all these are referred to the late fourth century, but the clay is not gritted; see also *ibid.*, no. 94, with reference to *Arch.*, lxxiv, 257, no. 21, described as very common, after A.D. 379. Similar rims have been found at Chester with examples of our 7, 8, and 9 (*Cheshire and North Wales Soc.*, xxxiv, 32, fig. 7, 1) and compare *ibid.*, xxiii, 55, 10, 8, calcite gritted, with crushed snail shell, references to *Segontium* 161, 163, fig. 78, 58, and Prestatyn, *Arch. Camb.*, 1938, 181, nos. 2, 6.

With our No. 42 compare Lullingstone in *A.C.*, lxxv, 59, 82, which is also *hand-made*, and *Richborough* III, pl. xl, 333

### The Contents of the Ditch

The bottom of the ditch contained no visibly distinct deposit, and no remains, such as potsherds, were found of an earlier date than thirteenth to fourteenth century. Even these were quite few.

From about midway up in the filling there was a greater amount of pottery and great quantities of food bones. These must antedate Norfolk's houses (1680) and, since the pottery is nearly all dateable to c. 1650 onwards, it seems reasonable to connect this deposit with

the period of the Siege of the Town in 1648, especially when the following analysis of the report on the bones<sup>1</sup> is considered.

The percentages are as follows:

Cattle	34.6	Sheep	24.3
Pig	17.9	Cat	12.8
Horse	5.0	Dog	3.8

Despite the small proportion of horses, the large proportion of cats associates this collection with the Siege, for the besieged were reduced to eating even the vermin, after slaughtering all domestic animals—especially, of course, the horses of the troops, which we know were butchered exactly here, in the Castle Bailey. The small number of horses in this lot of bones is partly made up for by the size of some of the joints, one in particular consisting of about 18 inches length of backbone.

The pottery of this period comprises the usual brown glazed wares, plus Delft, drug-pots, stone-ware and beer-jars, and only two pieces of this late material from the whole excavation call for comment.

Pl. VIII, B 1, is a ball of yellowish clay, about  $2\frac{1}{4}$  inches in diameter, with a small hole through the middle. It is cast in a mould, quite solid, with continuous parallel ribbing. Its purpose is quite unknown.

Pl. VIII, B 2, is a very curious, flat, lug-handle in green-glazed ware with an incised human face.

### Summary

The general nature of the building which extended across the S. side of the insula containing the Temple of Claudius is now to some extent revealed to us. It consisted—so far as we know it (see fig. 1)—of a massive central block set in a long façade erected on a platform 15 feet wide. Any suspicion that there may have stood here a range of buildings of commonplace utility, such as shops or offices is now quite disposed of, and it is natural to suppose that it was purely ornamental.

If that is true, then we have to try to imagine what kind of an architectural embellishment would at once appeal to contemporary taste and suit a plan such as we have before us. One naturally tries to turn to other known plans where a large temple court is separated from a main street by a purely decorative feature. No temple of the Emperor has ever been so far explored as to furnish us with this detail, nor has the writer, with the means to hand, been able to find any really similar lay-out. The Colchester plan, in this respect at least, is grander than

<sup>1</sup> We are greatly indebted to Mr. F. C. Fraser, of the Natural History Museum, for a detailed Report on the bones.



those of the Forum of August, Paris, and St. Bertrand de Comminges; it has something in common with the temple on the Schönbühl at Augst, where the surround of the temple is purely ornamental, but there is no architectural screen—for that is what we have here.

The massive platform was built to carry a series of solid piers which probably averaged about 6 feet wide by 8 feet deep. These were united by brick arches. On the breast of each pier, before, we think, and, certainly, behind, stood a column about 2 feet 6 inches diameter.

The arches were closed by thin, but carefully built, walls, so that the whole became a series of arched recesses or *exhedrae* which would be extremely effective as positions for statuary or reliefs or inscriptions—unfortunately we have not the smallest suggestion of such.

The central block is to be imagined as carrying a monumental gateway opening into the temple court, and the whole south front, facing the street, was carefully decorated with marbles from all over the Roman world.

The north side, as has been remarked, was much less carefully finished. Either it was invisible, even from the inside, or it was frankly utilitarian. It is not easy to imagine either, but one may point to the temple of Artemis at Gerasa as one solitary—though far more elaborate—parallel to our plan. There, there was a row of vaulted chambers, in the same position as our screen, and doubtless presenting to the street a very effective façade, which ours may well have been built to imitate. Further, the vaulted chambers are undoubtedly treasuries, and it may be suggested that each of our *exhedrae* was allotted to one of the British tribes and had a small lock-up behind it. This would provide a utilitarian aspect to the back of the screen—but the idea is pure imagination and without supporting evidence. Indeed, the imagination could provide a number of attractive solutions to the problem of the purpose and appearance of this screen, but in the absence of any evidence of inscriptions or statuary there is insufficient evidence for more than the broad statement that the temple court was divided from the street by a massive columnated arcade, to some extent sheathed with marble, and with a monumental entrance in the middle.

This purely ornamental feature need not have been begun before the insurrection of Boudicca in A.D. 61; it was certainly, we think, not finished until after that date. It seems probable that the ruins of the first temple supplied much material fit for it.

Its subsequent history was noteworthy among Roman remains, for it seems at all times to have been kept clean and free from the usual accumulation of pottery, bones, etc., which normally disfigured Roman buildings, even those of public importance. Considering the length of the Roman occupation, in this case from about A.D. 50 to

A.D. 400, the number of levels, or consecutive layers, is small for a place which was, beyond doubt, much frequented, and there is only one major period of repair indicated—apart from the first disaster of A.D. 61, which probably preceded this building.

There is no deposit of black earth and pottery until we reach the one such level which has to cover the whole period from A.D. 400 to A.D. 1066. We conclude that this very important public building was kept clean and in good repair throughout the Roman occupation, and even after the adoption of Christianity had seen the end of Emperor worship. It is even possible that in Colchester the Christians took over the Temple. But our present inability to date fourth-century pottery more accurately precludes any attempt to date the actual abandonment of the site.

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