CAESAR'S CAMP, KESTON

By the late Mrs. N. Piercy Fox, B.A., F.S.A.

Introduction

Extensive excavations were carried out by the writer, with the assistance of Dr. M. W. Thompson, M.A., Ph.D., F.S.A., of the Inspectorate of Ancient Monuments, during the years 1956–9. A preliminary survey of the Camp was made to decide the best sites for excavation, permission having been given by the landowners—Seismograph Service (England) Ltd.—and by the then Ministry of Works, who also provided four experienced workmen for a period of two weeks in 1958, under the direction of Mr. J. S. Wacher, B.Sc., F.S.A. No previous excavations had been carried out at the Camp.

My thanks are due to Dr. M. W. Thompson, for generous assistance throughout the excavation; to the numerous helpers whose hard work made the excavation possible, in particular Messrs. M. Snow, L. Smith, Clark and Hedges; to Seismograph Service (England) Ltd., for permission to excavate, help and co-operation, including the loan of an office; to Professor G. W. Dimbleby, B.Sc., M.A., D.Phil., for visiting the site and carrying out the pollen analyses; to Professor S. S. Frere, M.A., F.S.A., for assistance in the interpretation of the evidence; to Dr. I. W. Cornwall, B.A., Ph.D., F.Z.S., for the analyses of soil samples; Mr. M. Snow, for surveying the Camp and drawing the sections; and to Mr. I. J. Bissett, for drawing some of the pottery.

Description of the Site

The Camp lies on the Blackheath Pebble-Beds and is approximately 430 ft. A.O.D. at the northern end, rising to approximately 500 ft. at the southern extremity and occupying an area of 43 acres. On the southern slope beyond the Camp lie outcrops of the Woolwich Beds, Thanet Sands and the Upper Chalk. The Camp has long been known, and an inaccurate plan was published by Hasted in 1775.

The Camp was surveyed for the Society of Antiquaries by Thomas Milne and engraved by James Basire in 1790, when the defences were almost complete. The engraving was published in *Vetusta Monumenta*, vol. iv, pl. x (Fig. 2). Shortly after this survey, William Pitt the Younger, who lived at Holwood, levelled the northern and eastern sides of the Camp, which left only the defences on the western side intact, the southern defences having been levelled at least a century earlier.

No finds have been recorded from the interior of the Camp. The defences as shown on the 1790 plan consisted of three banks and two ditches on the western side, two banks and one ditch on the northern and eastern sides; but on the strategic southern sector, which controls the only level approach to the Camp from the chalk country to the south, only the line of the defences is recorded. An examination of the ground shows that in the southern sector also the defences consisted of two banks and two ditches. The Camp is strategically sited in relation to the natural trackways, and at least six gateways or breaches are shown on the 1790 plan.

Plate I, A and B, show the defences before excavation.

THE FIRST SEASON'S EXCAVATION IN 1956

This was planned to answer three questions: (1) How were the defences constructed? (2) What was the date of the defences? (3) Were the numerous gateways shown on the 1790 plan original entrances or later breaches?

THE SECOND SEASON IN 1957

This was planned to confirm the evidence obtained in 1956 and to explore the principal entrance—the west gateway.

The site chosen for the 1956 excavation was the south-western angle of the Camp. A section was cut right through the three banks and two ditches which form the defences on the western side of the Camp. The section was 140 ft. long, with a minimum width of 8 ft.; but across the inner ditch, which is 29 ft. wide, the section was 12 ft. wide and was cut through 12 ft. of filling to reach a vertical depth of 14 ft. 9 in., in the V of the ditch (Fig. 3). A second section was cut through the back of the inner rampart. The defences consist of an impressive flat-topped inner rampart, basal width 56 ft., with an inner ditch 29 ft. wide and 14 ft. 9 in. deep; then an outer rampart, basal width 23 ft., with an outer ditch 22 ft. wide and 8 ft. deep and a counterscarp bank (Fig. 3). The maximum height of the existing inner rampart above the Iron Age turf line is 8 ft., and the outer rampart 4 ft. 6 in.

In addition to these defences there are two natural banks and valleys which form parallel outer defence lines on the western side of the Camp. Around the whole site there are protective belts of woodland growing on clay, marshy valleys and sloping hill-sides, which together must have made the Camp an immensely strong fortification. The inner rampart is dominant and is sited to take advantage of whatever slopes the dissected promontory plateau provides except on the south side, where the defences cut across the flat plateau, leaving the promontory headland outside the defences.

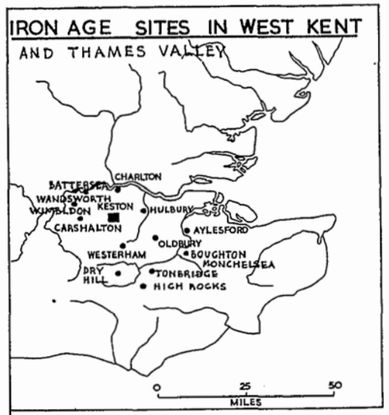

FIG 1

CAESAR'S CAMP HOLWOOD PARK KESTON KENT

SECTION THROUGH THE WESTERN DEFENCES SITE I. 1956

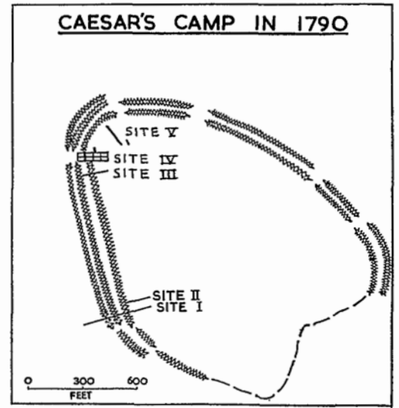

FIG 2

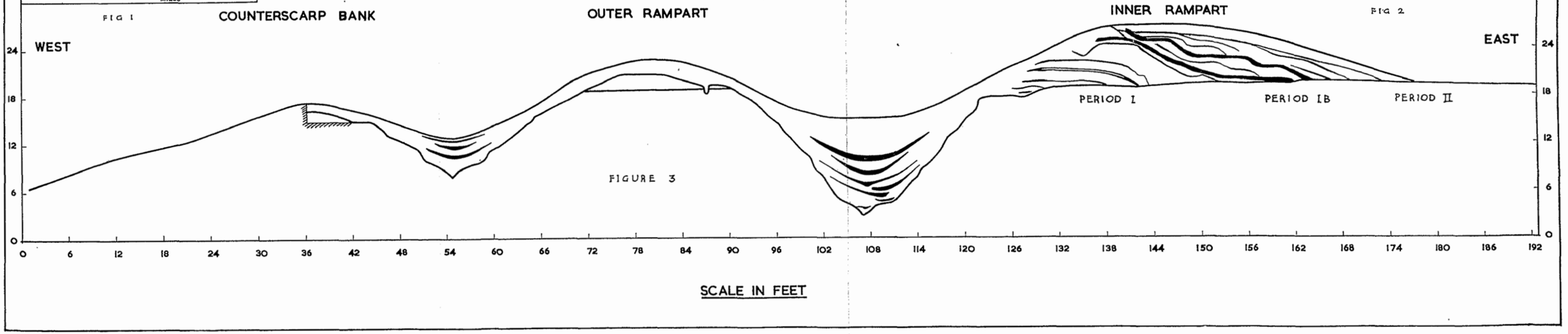

FIGURE 3

SCALE IN FEET

FIGS. 1, 2 and 3.

[face p. 186

Photo: Dr. E. V. Piercy Fox

A. Western Defences: the inner Ditch between Ramparts, outer Ditch on the left.

Photo: Dr. E. V. Piercy Fox

B. Defences on the North-East.

[*face p.* 186

Photo: Dr. E. V. Piercy Fox

A. West Gateway, showing Flint Revetting, South Side.

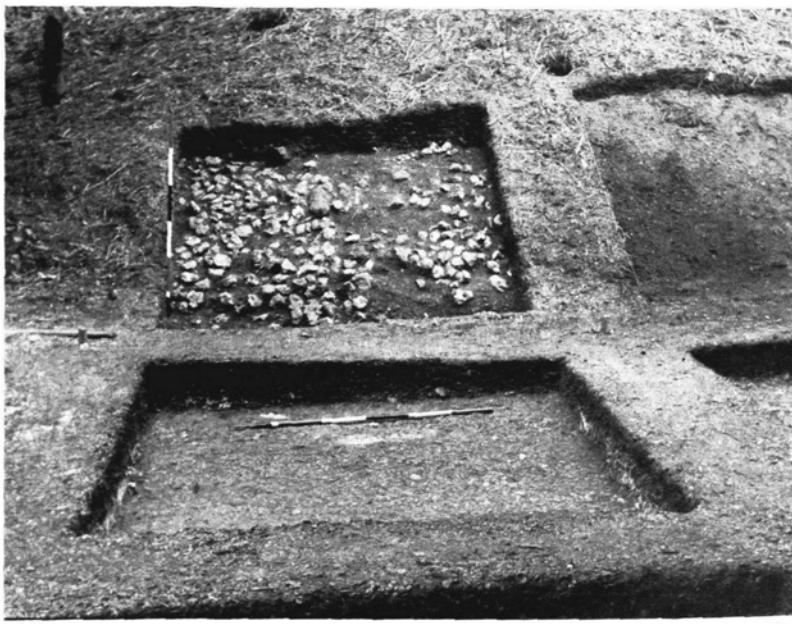

Photo: Dr. E. V. Piercy Fox

B. West Gateway, showing Flint Revetting, North Side.

The principal entrance—the west gateway—is most impressive, and the inturn is greatly exaggerated by siting the gateway in a small natural valley which runs 450 ft. into the interior of the Camp.

The excavation has shown that the inner rampart is a complex structure; all the evidence points to three periods of construction designated Period I, Period IB and Period II. Iron Age B sherds were recovered from both sections in 1956.

When the sections were completed, the site of the south-western gateway shown in the 1790 Plan was examined The inner ditch was found and followed for 75 ft. This proves that the inner ditch continued beyond the south-western gateway, and crossed part at least of the strategic southern sector. The south-western gateway as shown on the 1790 Plan is most probably not an original entrance.

The 1957 Excavations—Site III

The main section, which was cut through the inner rampart and inner ditch close to the principal entrance, the west gateway, confirmed the evidence obtained in 1956 The inner rampart, which is here most impressive, still stands 9 ft. 6 in. above the Iron Age turf line. It has two structural periods:

Period I —The building of the first rampart.
Period IB—An addition to the first rampart, to make it higher and flat on top.
Period II —A major addition to raise the back of the rampart and form a flat crest at least 8 ft. wide.

A hearth was exposed on the Period I surface on the inner side of the rampart. Sherds were found and, as in 1956, all recovered were Iron Age B.

The pottery is important. The sherds include coarse A-derived wares; curvilinear B sherds from two vessels; other B sherds of notably good quality; but no Belgic wares. Four B sherds were sealed under the Period I turf line, which is itself sealed by the ramparts of Period IB and Period II (Fig. 3). B sherds occurred at all levels in the Period IB and Period II ramparts; and it follows from this evidence that the inner rampart in all three stages belongs to Iron Age B. It is clear that each rampart had a life of its own, for the stages are marked by well-developed turf lines—one of which has yielded pollen showing major changes in vegetation.

The 1958 Excavations—Site IV

The third season was devoted to the excavation of the west gateway —the only entrance of the Camp which has survived undamaged. The

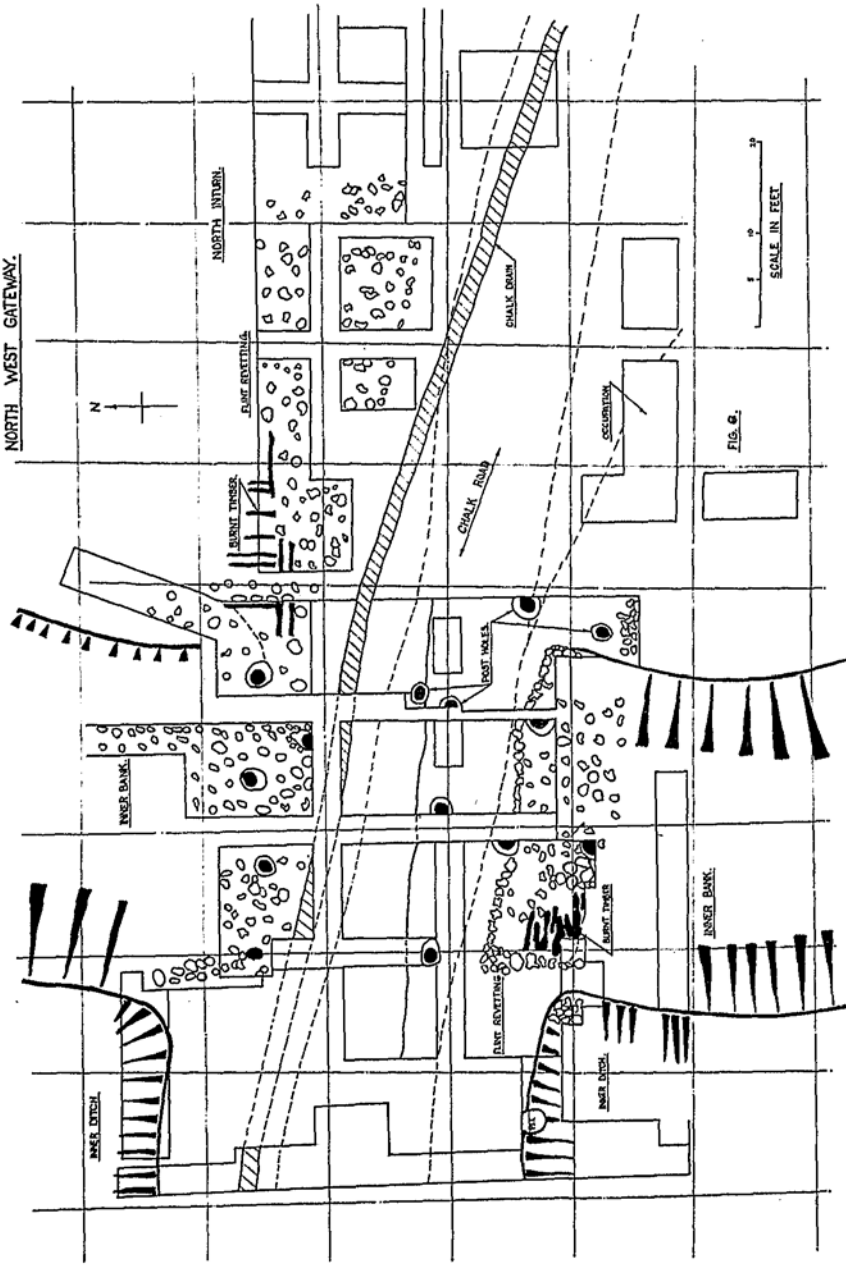
NORTH WEST GATEWAY.
N
NORTH INTURN.
FLINT REVETTING
BURNT TIMBER
CHALK ROAD
CHALK DRAIN
EXCURSION
FIG. 2.
SCALE IN FEET
POST HOLES
INNER BANK.
INNER DITCH
BURNT TIMBER
FLINT REVETTING
INNER BANK.
INNER DITCH

FIG. 4.

gateway is situated in a flat-bottomed valley running 450 ft. into the interior of the Camp. The causeway between the ends of the inner ditch is 40 ft. wide, and the flat bottom of the gravel valley here forms a natural trackway some 16 ft. wide. Later wear has hollowed out a narrower roadway.

At the end of 1957, an exploratory section was dug between the lips of the inner ditches, cutting an ancient chalk road and a chalk drain. A grid was laid out to facilitate excavation, and later extended eastwards. The two weeks' excavation of the gateway by Mr. Wacher showed three phases:

In the first phase, only the front of the inner bank was revetted with flints, which were laced with a rather haphazard structure of timbers. The ends of the bank forming the gateway seemed in this stage to have been revetted with timber only, and a series of post-holes can be related to this phase.

In the second phase the flint revetting was carried round into the gateway; and again a further series of post-holes relating to this phase was found, allied with post-holes set further back in the substance of the bank This would seem to suggest a system of timber ties.

In the third phase, the flint revetting was carried further into the gateway, and now enclosed the inturn banks—again with timber lacing. Unfortunately, this was only visible on the north side, the south side inturn bank having been cut away by an estate road which ran through the gate. Only the tail of this bank had survived. The gateway was never much more than 15 ft. wide, but appeared to be fairly long. Much of the timber lacing in the bank had been burnt; can this be related to a violent destruction? The excavation was continued with an exploration of the inturns. The most striking feature is the north inturn, some 85 ft. long, with the burnt timbers and severely comminuted flints of a massive revetting destroyed by fire *in situ*.

The 1959 Excavations

The grid was extended to cover the whole of the northern inturn, and the area behind the much shorter southern inturn, where an occupation deposit was discovered. Sections were cut into the inner rampart on both sides of the gateway, to study the structure of the gateway and the rampart as a whole. The work was concluded in 1960 with the mechanical filling-in and restoration of all the sites.

In 1956, a group of Belgic sherds was discovered about a quarter of a mile down the south-east slope of Holwood Hill. In the third year trial trenches on a valley crest inside the Camp cut through a very heavy scatter of Mesolithic flints (Site V). The other side of the valley which lies on Keston Common, was searched and, in a corresponding

position, a floor exposed in section was found. From this floor a Thames pick and other Mesolithic material has been found.

In 1962 a drainage trench was dug completely across the interior of the Camp from north to south. None of these trenches revealed any Iron Age material.

Only Iron Age B sherds have been found associated with the construction of the defences, and in the interior of the Camp.

TURF LINES—SEQUENCE AT CAESAR'S CAMP, KESTON

Site I:	Period I		Inner Rampart
		Phase IA	
		Phase IB	
	Period II		
Site II:	Period I		Inner Rampart
		Phase IA	
		Phase IB	
	Period II		
Site III:	Period I		Inner Rampart
	Period II		
Site IV:	Period I		West Gateway
	Period II		

THE POTTERY

(Fig. 5.)

1. Very fine solid paste, with micaceous specks. The surface is black, well-polished, with incised lines and punched dots in a curvilinear pattern. The incising tool has slipped. The profile is very rounded. (Site II, Period II.)

2. Dark brown, quite hard fabric, very roughly tooled on exterior. Interior of lip reddish and well finished. Paste fine, with micaceous flakes and fine grits. (Site IA, Period II.)

3. Ten sherds (two rims, one base), from the rampart jacket.

4. Finely-polished leather brown ware. Fabric, sandy with slightly reddish outer surface. An occasional grit, not quite uniform, softer in one place at least. Grit is very fine gravel. (Site IA, Period II.)

5. Large vessel, good reddish colour in places. Very smooth fabric, with grit dissolved out. (Site IA, Period II.)

6. The fabric is black with a rather attractive reddish finish. The black core has a similar texture to shell-grit ware, but is all black and very hard baked. The pale terracotta exterior has numerous dissolved-out shell-grits; but it is a hard, fine and quite pleasing surface and

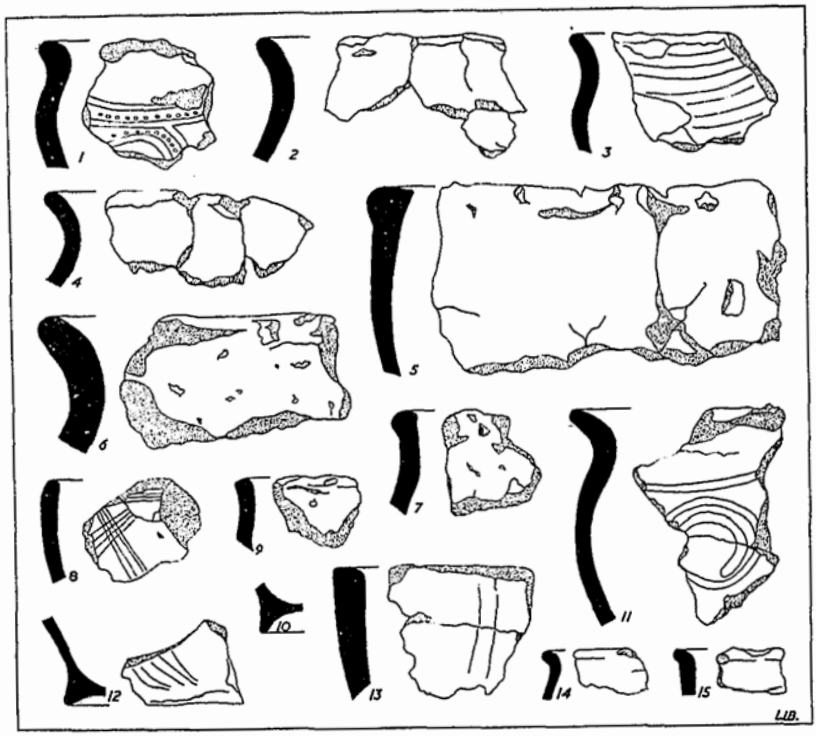

FIG. 5. ($\frac{1}{4}$)

emphasizes the difference between the site and Crayford. (Site II, Period II.)

7. Rim. (Site IIIA, Hearth, Period I.)

8. Eight brown sherds, very friable grey paste, tooled and smoothed surface, with scored pattern. Typical red surface under slip on both sides of fabric. (Site IV.)

9. Coarse ware, black hard shell-grit. Very poor, like much of Crayford. (Site IA, Period II.)

10. Polished brown base. (Site IA, Period I.)

11. Polished over a rather coarse fabric. The vigorous curvilinear design is incised or gouged shallowly. Paste is grey, with micaceous specks, and occasional grits. Inside mouth and lip reddish under polished surface. Tool marks visible. Hard and well fired fabric. Cf. *Arch. Cant.*, lxxxi (1966), 153, nos. 25–6. (Site IA, Period I.)

12. Base of Iron Age B ware, cf. Site III, Period I. (Site IV.)

13. About forty sherds of coarse ware on brown jacket-rim, score zone and base. (Site IV.)

14. Fragment of rim—polished thin Iron Age B ware. (Site IV.)

15. Numerous fragments of chevron pot; rim and shoulder. (Site IV.)

(For parallels, cf. *Arch. Cant.*, lxxxi (1966), 149–52. *Ed.*)

The small finds included fragments of whetstones and of a loom weight (Sites I and II); a small piece of silver from a harness or belt, found in brown turf line just below chalk road (Site IV); a fragment of a bronze terret (Site IV); a fragment from a loom weight, found in the north inturn (Site IV).

Report on Soil Samples from Rampart Sections

By Dr. I. W. Cornwall, B.A., Ph.D., F.Z.S.

Eleven samples were taken, representing visibly distinct layers in the stratification of the rampart sections (Site II and Site I, the Middle Bank). The material was very pebbly coarse sand, derived from the Blackheath Pebble-Beds on which the site rests. Minerals present are silica, ferric oxide and hydroxide (limonite), and little else. All the samples were completely non-calcareous.

pH values and the concentrations of humus and of iron oxides were determined for each sample, with the following results:

Sample No.	pH	Alkali-soluble Humus (%)	Iron, as Fe_2O_3 (mg./100 g. Dry Soil)
Site II:			
8	5·4	1·8	235
7	5·5	0·3	90
6	4·5	2·2	875
5	4·7	0·25	300
4	4·1	2·8	435
3	5·1	0·17	455
2	4·7	0·5	610
Middle Bank Site I:			
4	5·7	0·4	90
3	6·2	0·02	90
2	5·2	0·34	515
1	4·4	0·05	475

The figures in the table occupy the positions of the corresponding deposits in the sections, those of the Middle Bank representing the surface-soil of the time of its construction (the land-surface before any Iron Age structures). The lower three of Site II, an apparent soil, if

proved to be so, must have formed on the surface of an early low bank. The remainder represent the modern soil formed on the material piled up over this in the completion of the rampart as seen today.

The soil-type throughout is a well-developed podsol, with very acid humus, so that not only water-soluble and alkaline-earth bases are washed out, but even the sesquioxides of iron, manganese and aluminium are mobilized and washed down the profile.

The podsol is characteristic of initially base-poor siliceous parent rocks under a cool, moist climate, frequently under heath plants or birch-pine forest. The deciduous trees now occupying the site were probably largely planted in the eighteenth century, and are not the natural flora of the prevailing soil-conditions; indeed, many are of species not indigenous to Britain, such as *Robinia pseudacacia* among others. Dr. Dimbleby's pollen-investigation will probably throw light on the floral sequence shown by the section.

The podsol character of the soils is well shown by the experimental results.

At the summit we have (no. 8) the modern A_1, dark humus-horizon, very acid with accumulated, poorly-humified plant-remains (1·8 per cent.) and somewhat impoverished in iron. The iron-content of the parent material of this soil is shown by no. 5, a value of 300 mg./100 g. This is distinctly lower than the 475 mg./100 g. of no. 1 from the Middle Bank, which is the presumably unweathered 'natural'. This suggests that the make-up material of the reconstructed rampart consists, at least in part, of already weathered and leached soil-material, scraped up from the surface nearby.

Sample no. 7 is clearly a bleached A_2-horizon, poor both in humus and in iron. Only the humus actually in transit through it is found, and practically all the iron has been dissolved out and carried further down the profile. A marked concentration of both is found again in no. 6, the B-horizon. The decrease in humus and iron in no. 5 shows that we have reached the parent-material of this profile, the C-horizon, material somewhat weathered before the rampart was thrown up.

Nos. 4, 3, 2 represent what seems to be a second podsol-profile in the body of the bank (Site II). The pH and humus figures bear out this conclusion, indicating that they are A_1, A_2 and B-horizons, respectively. The iron concentration in no. 2 supports this also, but the iron figures for nos. 4 and 3 are rather high in comparison with the corresponding values for the modern soil. This perhaps indicates that the second profile is less mature than the modern. This would fit admirably with the theory that it was a soil of a few decades, or even a century or so, in age—representing the weathering of an interval between the first construction and that of a major reconstruction and strengthening of the defences. If so, its parent material must

have been more ferruginous than that of the reconstruction, perhaps more like no. 1, the subsoil (C-horizon) of the buried soil below the Middle Bank. On the other hand, the relatively high iron content in nos. 3–4 could be, at least in part, secondary—due to some percolation of iron-bearing solutions from above.

It seems to be established by a 3 points to 1 majority, however, that this really *is* a soil-profile (pH, humus and the concentration of iron in a B-horizon at no. 2). In that case, it does not show fully the typical podsol iron-leaching, and so is immature.

The Middle Bank samples 4, 3, 2, 1, represent a third podsol; this time the mature profile of a soil, for the formation of which some 8,000 years of post-glacial time are available, in existence at the site before any Iron-Age disturbance of the natural soil-régime. The horizons represented are the A_1 (humus), A_2 (bleached), B_1 (humus illuvial) and C, the relatively unweathered Blackheath Pebble-Beds. The figures are quite typical. In view of the marked bleaching shown by the iron-figures for nos. 4 and 3, there is but slight concentration of iron at 2 or 1. It is likely that, in such porous material, much of the dissolved iron has been carried deeper than the layers reached by the sampling, forming an iron pan at the level of the subsoil water-table. This has been observed before (Cornwall, *P.P.S.*, xix (1953), 129 ff.).

Report on Site III, 1957—Soil Samples

Twelve samples were examined, from two sections, on the north and south faces, respectively, of a cut through the rampart at Site III.

The problem was to prove, or disprove, the existence of a buried weathering-surface, marking a possible halt in the construction of the bank, for which the field-evidence in both sections was a somewhat bleached layer (podsol A_2-horizon?) through which the two series of samples were run.

At the outset, the fact that the layers exposed in the two sections are not by any means identical, shows that samples taken from these faces cannot be regarded as strictly representative of the bank-structures as a whole, since there are evidently considerable lateral variations. Despite local differences, however, the investigation showed some qualitative agreements between apparently corresponding layers on the two sides.

All samples were examined for colour, both in the fresh condition and after ignition for charcoal and other extraneous acid-insolubles; for pH and their contents of phosphate, organic matter and iron.

The acid-soil-conditions prevailing are shown by the pH-values—all close to 4·6 and without significant differences among themselves.

In samples S.4 and N.3 there was a notable deficiency of phosphate.

The former also showed a low humus-content, while the latter gave evidence of iron-eluviation and (alone among the samples) a small quantity of charcoal. All of these features might be significant, as indicating the presence of a buried surface at a slightly higher level, though neither in the field nor as a result of the chemical estimations could any sign of a corresponding A_1-horizon be seen. There nevertheless seemed to have been some eluviation of humus, iron and phosphate at the level of the samples, suggesting that this was an incipient A_2-horizon. One difficulty in this interpretation is that (save in the case of the phosphate figures) experimental results do not tally on opposite sides of the section. Both samples, for example, are noticeably paler in colour than their immediate surroundings—but this is due in the one case (S.4) to low organic content; and in the other (N.3) to less iron. In both cases, the other constituent (iron in S.4, humus in N.3) is present in amount not significantly lower in comparison with neighbouring samples. The few tiny grains of charcoal found in N.3 scarcely serve to clinch the argument, for they do not imply the presence of an actual hearth, but only a scatter of occupation-rubbish on a surface which need not have been exposed for more than a few days, at most, during the construction of the rampart.

Notwithstanding the manifest gaps, and even contradictions, in the evidence, it *does* seem significant that *all these considerations apply only to these two samples* in the whole set of twelve. This suggests that they do, indeed, correspond to a surface exposed (if only briefly) to weathering-agencies and admixture of human débris—in other words, a short pause in the construction of the rampart.

The bank make-up subjected to weathering was evidently not everywhere identical at the outset of this weathering (patches here and there of material from different horizons of the prevailing podsol and its subsoil being mixed indiscriminately). Thus, its eventual condition, after only slight exposure, would not be expected to be identical, even at a distance of only a few feet between the samples. In any case the period of weathering can only have been very short, or a greater degree of uniformity in the profile would certainly have been attained.

The fort, with its multiple defences, represents a very large job of earth-moving for people without mechanical aids. Either it was done by a very large labour-force, or it took a very long time. Whether any estimate of the available labour is possible or not, it is a not unreasonable guess that, *even within a single phase of construction*, parts of the unfinished rampart may have lain open to the weather for years before being completed. Even five years (certainly ten) would produce an appreciable degree of leaching at such a temporarily exposed surface, even in the absence of much vegetation-cover, owing to the

content of organic matter already in the material when it was thrown up. This would account for the absence of a distinguishable A_1-horizon of humus-accumulation.

Report on Pollen Analysis

By Professor G. W. Dimbleby, B.Sc., M.A., D.Phil.

Introduction

The primary reason for investigating this earthwork by pollen analysis was to correlate types of soil profile with their contemporary vegetation. The technicalities of the soils are themselves of little significance archæologically, and will be reported in detail elsewhere; but the pollen analyses provide information about the landscape and vegetation before and during construction of the earthwork, and are therefore of direct interest to the archæologist.

The soils proved extraordinarily rich in pollen and a long list of species was recorded. As is normal, the greatest concentration of pollen was at the soil surface, and the quantity fell away down the soil profile. A corollary of this is that subsoil material is poor in pollen, whilst it can be assumed that pollen-rich material is derived from the top few inches of a soil.

Material Analysed

Sampling for pollen analysis was carried out later than and sometimes on different sections from Dr. Cornwall's sampling for chemical analyses. Consequently, direct correlations cannot be claimed. Two of Dr. Cornwall's surface samples (S.3–4, Site II (Period IB)) have been analysed for pollen, but in general this is not desirable since the sampling technique differs for the two purposes.

The following series of samples were taken and analysed:

(*a*) *Site I*—from the lower layers of the inner rampart (Period I) down through the old land surface ('blue' turf line) to the subsoil.

(*b*) *Site III*—as (*a*) above.

(*c*) *Site III*—through the turf-line separating Period I and Period II of the inner rampart.

(*d*) *West Gateway*—two short series were analysed through apparent turf-lines in a section through the defences of the gateway on the north side.

(*e*) *Miscellaneous samples*—to establish, or rule out the existence of other turf lines. These were done as *ad hoc* investigations for the excavator; the results have been reported to her and will not be referred to again in this report.

INTERPRETATION

(*a*) and (*b*) *The Old Land Surface*

From the first series of analyses, it is quite clear that, up to the time when the first stage of the inner rampart was constructed, the site had been covered with dense oak forest. Hazel, birch and holly were associated with oak, and there was some bracken there, but the light-demanding grasses and heather (as well as other herbs) were absent or very poorly represented. Moreover, there is evidence from the analyses that this condition of high forest had existed for a long time—probably centuries. The only significant change that might be noted is that bracken had been becoming more abundant for a time before the construction of the rampart; but though this may have been due to some local opening of the canopy, the forest still remained dense.

The 'blue' turf line on Site III showed essentially the same pattern, though with minor differences such as might be expected on a site so far away. Oak was still completely dominant—again with birch, holly and hazel as the main associates; though here the holly was better represented than the hazel. Bracken was more abundant here, and was of longer standing; but again the light-demanding grasses, heather and herbs were still very sparse.

The rampart material overlying the buried soil on Site I showed the heterogeneousness typical of made-up or disturbed soil. The woody species were still dominant, but the layers differed in the proportions of heather, grass, oak and birch pollen: in fact, the relatively high amount of heather and grass pollen in the zone 3–6 in. above the 'blue turf line' suggests that this material was brought to the site from some place where the forest was more open.

(*c*) *Period I Turf Line*

This turf line was sampled for pollen analysis at Site III. In contrast to the 'blue' turf line on this site (which was immediately recognizable in the analyses by the change from pollen-poor rampart material to the pollen-rich soil surface) the Period I turf-line was not clear-cut, although indubitably there. The reason, of course, was that the overlying material (the material of the Period II extension) was topsoil and therefore itself pollen-rich. This conclusion is corroborated by the fact that the material was greyish and leached—not the orange colour of subsoil.

The pollen spectrum in the Period II overburden is very similar to that of the Period I turf line, suggesting that topsoil of this period has been built up to form the extension of the inner rampart. This spectrum contrasts strongly with that of the 'blue' turf line. Oak has given way to grass as the dominant vegetation, though timber was still

standing in the neighbourhood. Cereals were being cultivated in the immediate area, and the high incidence of weeds of cultivation confirmed this. Though heather occurred sporadically, there was no continuous heath, and the landscape was essentially one of farming within a generally wooded area.

It is not possible to estimate the duration of exposure of the Period I surface of the inner rampart at Site III, though the amount of pollen in the surface and its degree of downwash into the rampart suggests that it was considerable.

On Site II where Period I has two phases—IA and IB—Dr. Cornwall sampled the IB turf line and showed that there was definite evidence of soil development, which would agree with the evidence from the pollen. The sample of this surface which Dr. Cornwall took for his analyses was subjected by me to pollen analysis, and the close similarity of its pollen spectrum to that of the Period I turf-line on Site III leaves no doubt that the two turf-lines are contemporary. Sufficient time has therefore to be allotted to the Period I turf-line on Site III to allow for the development of the two turf-lines (IIA and IB) on Site II.

(*d*) *Stratification of the Gateway Defences, North side*

Two series of samples were submitted—one of three samples across the blackish surface referred to as the 'Burned Jacket'; and the other of five samples across another dark zone, the 'Second Jacket'.

Analysis showed that the dark colour of the Burned Jacket was due to charcoal. The black layer itself, in contrast to the material overlying it (Sample I), is very poor in pollen. It could be argued that the fire would have destroyed whatever pollen was in the soil—or again that this layer had been covered.

The Second Jacket is very different. The dark layer contains more pollen than the samples above it, and has a distinct spectrum. This spectrum is closely similar to that of the Period I turf-line at Sites II and III, and I would not hesitate to regard it as contemporary—even though the amount of pollen present is much less.

There is a close similarity between Sample No. 1 of the Burned Jacket Series and Sample No. 1 of the Second Jacket Series; and these spectra are paralleled by no others in these analyses Their similarity is therefore more than coincidental, and the description of the material as leached pebbly gravel in each case confirms their identity.

Rampart Material. The pollen analyses suggest that the rampart material in Period I came from various places—some not in the immediate neighbourhood, though it is not possible to give even a lower limit of proximity. The same heterogeneity appears in the Period II material too, the pollen spectra being generally richer in the non-

woody species. Similarities of pollen spectra can be regarded as highly significant, but differences probably indicate little more than heterogeneity of origin.

Appendix

Defensive Ditch South of Holwood Hill

The writer has been interested for a long time in a huge ditch (437 ft. long, 66 ft. wide, with an estimated vertical depth of 25 ft.) which flanks a section of the Downe Road from Keston Church to Holwood Farm. As the road frontage was developed and houses built, the ditch was filled in—in some cases completely, and in other cases only sufficiently to make a causeway for the entrance-drive.

The strategic importance of the site is not obvious, but a topographical study of the Holwood area, made with the aid of relief models showing the physical features, geology and vegetation, restored on a geological basis, makes it clear that the ditch crosses a narrow neck of chalk of great strategic significance. This neck of chalk is flanked on both sides by valleys, whose clay-derived soils would carry heavy woodland before they were cleared; and it connects the desirable and open inland chalk belt to the south with the bold bastion of Holwood Hill, which is naturally protected on three sides by a dense growth of woodland. The site of the Camp, fortified by woods and marshes, shows in its control of all natural lines of movement that insistence on accessibility and control of cross-valley traffic noted in Belgic Verulamium.

The Camp could exercise control over a wide area, from the North Downs Trackway to the Thames. The ditch controls the only level and unforested approach to the Camp from the open chalk country to the south and east; and it would seem to be a strategic outlier of the huge defences of Caesar's Camp No banks are visible, and if the ditch is an outlying defence, it could have been designed against penetration by chariotry and cavalry.