

ALSTED: Excavation of a Thirteenth-Fourteenth Century Sub-Manor House with its Ironworks in Netherne Wood, Merstham, Surrey, 1968-1973

by Lesley L. Ketteringham

SUMMARY

This report describes the results of the excavation of a thirteenth-fourteenth century sub-manor house with its industrial complex in Netherne Wood, near Merstham, Surrey. Documentary research has revealed that it was probably the sub-manor of Alsted, all trace of which has been lost and although there is no irrefutable evidence, its circumstances and position leave little doubt as to its identity.

The first building, of which there are chalk foundations and the remains of a sandstone and flint wall, was probably built in the second quarter of the 13th century (Period 1). Associated with this building is an imported French jug, an aquamanile and the beam of a copper alloy *trebuchet* type coin balance.

At about AD 1270 the first building was demolished and replaced by a timber-framed aisled hall, solar block and kitchen, the latter building being later incorporated into the hall, while a new flint-built kitchen was constructed to the north of the main block (Period 2). Associated with this period is a roof ventilator and a variety of decorated jugs.

During Period 1 smelting and forging iron were being carried on in a corner of the demesne in small bowl furnaces and pit hearths. In Period 2 a timber-framed house was constructed, apparently for a smith, and iron-working was carried on until the abandonment of the site in the mid-14th century. After a period of about fifty years the smith's house was refurbished, sheds, stables and outhouses built and a large forge was constructed on a flint-and-clay platform to the east of the site, which was operated for a short time at the turn of the century (Period 3). Immediately prior to the building of the house in Period 2 and its repair in Period 3 two small kilns were constructed probably for the manufacture of tiles for the roofs of the buildings. A complete plan of the iron-working area was recovered.

ACKNOWLEDGEMENTS

The excavation in cleared woodland was undertaken by the Archaeological Group of the Bourne Society under the direction of Miss Lesley Ketteringham and Mrs. Mary Saaler, supported by funds from the Society and from the Surrey Archaeological Society. The land was to be re-planted with trees, but has since been sold for probable development. Grateful thanks are due to the staff of the Department of the Environment for advice and particularly to Dr. G. C. Dunning for his encouragement and support.

The land containing Site 2 was administered by the Redhill and Netherne Group Hospital Management Committee who gave permission for a limited area to be excavated. The land containing Site 3 was owned by the Banstead Urban District Council (now the Reigate and Banstead District Council) who also kindly gave permission. Both sites have been filled in, but the tops of the foundations have been left visible. Grass has been sown on the soil.

Site 1 is in the garden of Mr. Roy Balthazar's house adjacent to Netherne Wood and it was largely due to his kindness in allowing an excavation to take place in his garden that the discovery of the rest of the site was possible.

Thanks are also due to Mr. Peter Kench for drawing the maps, to Mr. Roy Scott for photography, to Mrs. Mary Saaler for dealing with the pottery and to the many other specialists who have contributed to the reports appended.

Field notes and plans are deposited with Caterham Public Library. The finds have been deposited in the Guildford Museum, Castle Arch, Guildford.

Publication of the report has been assisted by a generous grant from the Council for British Archaeology.

THE SITE (TQ/293559)

Nothing was known to the present local inhabitants of the existence of the site and it is unmarked on any known maps. It was discovered when part of Netherne Wood was cleared in the winter of 1968/9, when linear banks and a few pieces of broken building stone and flints were revealed. Otherwise nothing showed above the surface.

It was realised that a medieval building of some importance might be in the neighbourhood when, during the previous summer, pieces of roof tile, pottery and building stone were found in the garden of a modern house about 150 yards (137m) away (TQ/294558). Excavation of this area (Site 1) produced 13th-14th century pottery, areas of gravel and blackened soil and indeterminate spreads of flints, but nothing which could then be interpreted as building foundations. The land had been cultivated and the soil was much disturbed.

Site 1 adjoins the wood south of Netherne Lane and a search of the wood itself produced a number of sherds, but the tangle of untended undergrowth precluded visual discovery of significant earth formation. In the fields along the edge of the wood were numerous pieces of medieval roof tile.

At the beginning of the winter a ditch was cut from Netherne Lane into the west end of the wood by Banstead Council for the drainage of the Lane. It sliced through a heavy accumulation of large flints and tile and ended by chopping the corner off a large slab of Merstham sandstone 250 feet (76m) from Site 1. This was found to be part of a hollow square formed of three stone slabs, burnt and covered with tiles and charcoal (Site 3).

It was evident that somewhere close at hand was a large establishment of medieval date and thus it was that the site of the manor house was recognised in the following February.

The site stands on a spur of the North Downs above the 500ft (150m) contour with wide views to the north,

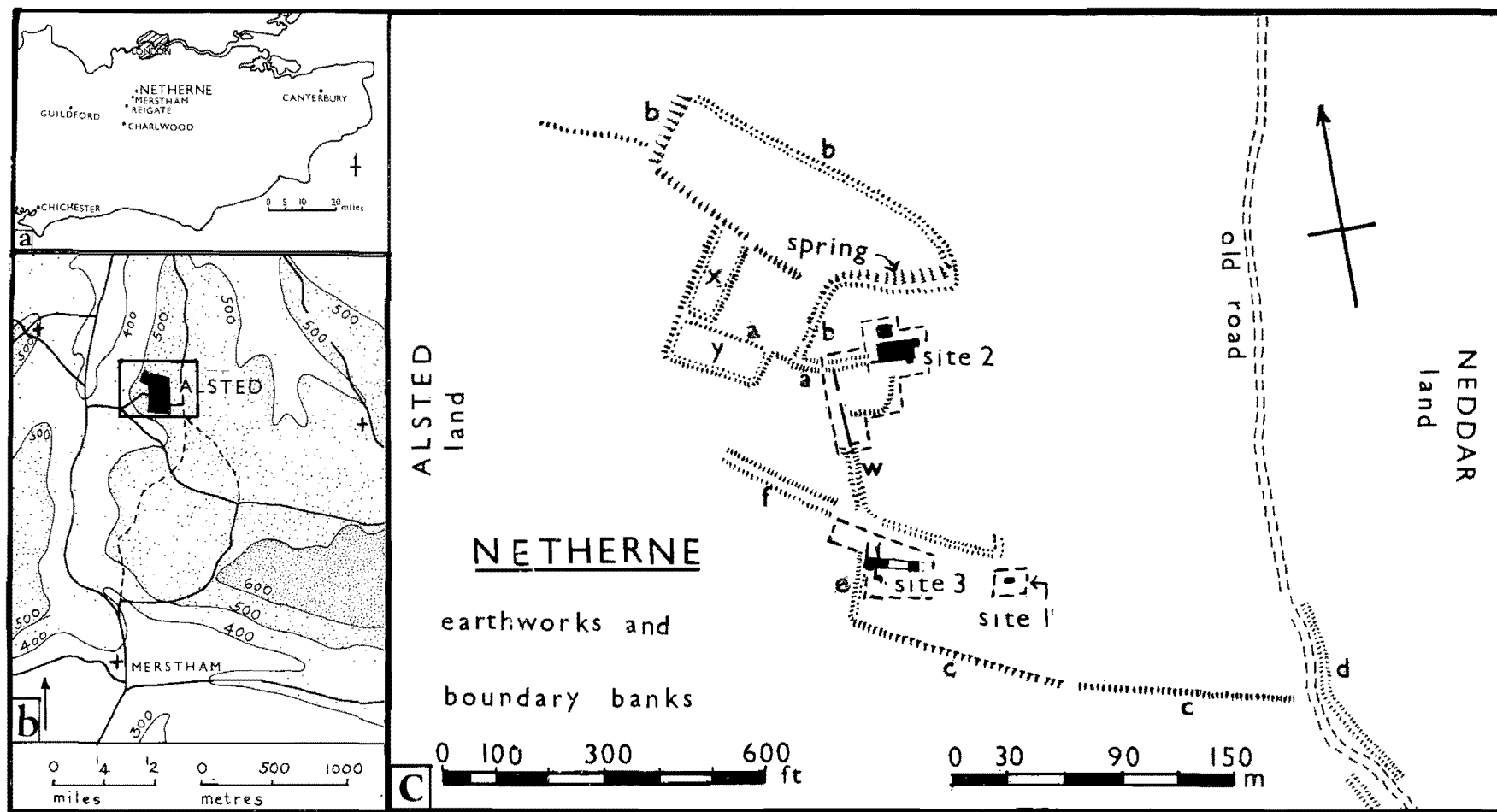


Fig. 1. The location of Alsted, in Merstham, now Banstead, Surrey.

west and south. From the west can be seen a considerable length of the valley through which the Croydon-Merstham-Nutfield road ran, the spur forming a neck with a similar spur on the opposite side of the valley over 200ft (60m) below. The township of Merstham lay just over a mile further south down the valley (Fig. 1b).

The chalk of the North Downs is here about 350ft (106m) thick, lying over the Upper Greensand belt from which stone has been quarried since early medieval times. The tops of the hills are capped with varying thicknesses of clay-with-flints and pockets of sand and gravel have also been found on the site.

Water was available from a spring in the side of a narrow gully about 50 yards (46m) north of the Kitchen (Period 2). No well was found but this does not exclude the possibility that there was one, except that with fresh water available so close it may not have been thought necessary to carry out this difficult project, which would possibly need to have been at least 200ft (60m) deep to reach the water table. The gully is still very damp.

A shallow layer of topsoil covers the clay-with-flints. When the topsoil is cleared the surface is extremely hard in the summer and very sticky in winter, which would have necessitated the spreading of any approach paths and the area around the house with layers of gravel, chalk and pebbles. No drainage ditches have been found, but the land slopes gently down to the west.

The present climax vegetation is poor woodland with hazels, thin ash, spindly oaks, a few large elms, wild cherry, silver birch, etc. The undergrowth is brambles, campion, willowherb, a large variety of grasses and a profusion of stinging nettles. There is also a good growth of excellent raspberries and some old, small-fruited apple trees which may be the descendants of trees which once grew in the manor garden.

It is fairly certain that other outbuildings and walls still lie beneath the planted areas around the site as there are ridges and scattered flints showing above the surface. The forester remarked that he had struck hard patches of flint during his work.

This land has now been sold for development, but the site has been registered with the Department of the Environment and is now an Ancient Monument (Surrey, No.158).

THE MEDIEVAL SURROUNDINGS

The exact extent of the sub-manor of Alsted or Aldersted¹ at Period 1 is not known, but it is probable that before c. 1269, when the son of the house married an heiress and the fortunes of the family increased (see Historical background, p. 66), the holding may not have been more than the land contained in the north-west corner of the parish and manor of Merstham, bounded by Netherne Lane on the east and the bank running parallel to Netherne Lane on the south. This would have measured approximately 120 acres pre-standardisation. Six of the fields surrounding the house were known as the 'Ladylands' in 1522² and comprise 60 acres (modern) (Fig. 2).

In the extreme north-east corner of the Manor of Merstham is Netherne Farm (now Netherne Hospital) which, as Neddre or Neddard, was also in existence during this period. This tenement also comprised about 120 acres, with Netherne Lane dividing the two

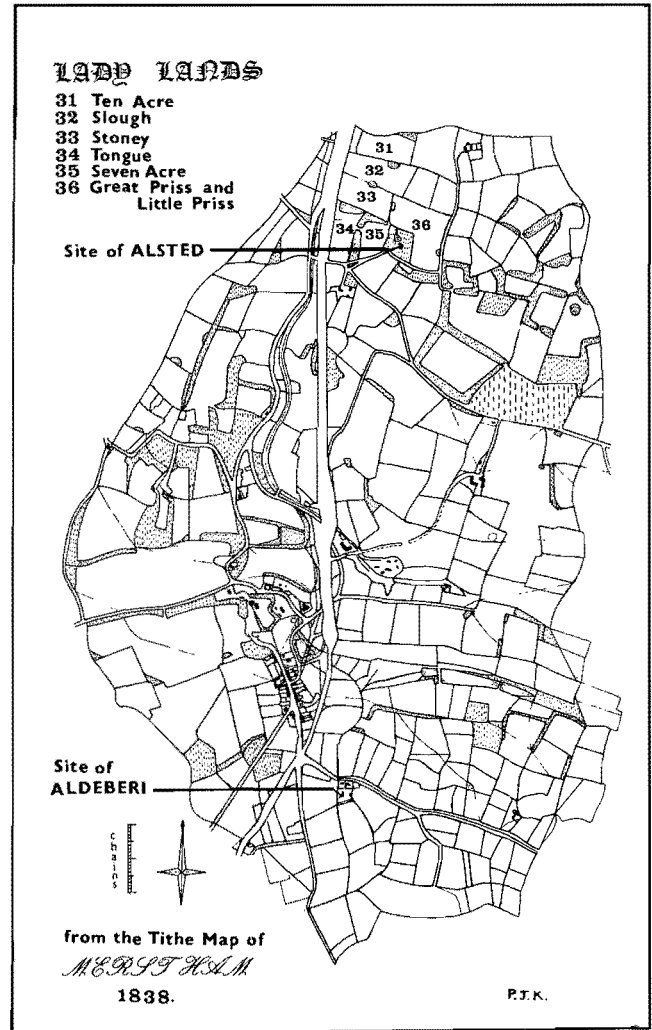


Fig. 2. Based on the Tithe Map of Merstham with permission of the Somerset County Record office, Taunton.

holdings. By 1522 Alsted (now Alderstead) estate had spread out over the hills covering approximately 360 acres, but Neddre had not gained any ground (Fig. 3).

South-east of the township of Merstham lay the sub-manor of Aldeberi (or Albury) (Fig. 2). In 1522 this estate, comprising approximately 190 acres of low-lying farmland and woodland also belonged to the lord of Alsted in the 14th century.³ No records of transactions of land holding relating to these two sub-manors have been found to indicate that the holdings had changed during the previous two hundred years, except that the two estates were held in 1522 by two different families. If this is correct the lord of Alsted would have held approximately 550 acres by the middle of the 14th century, or nearly one half of the entire manor and parish of Merstham.⁴

The terrain varies from typical grass-covered North Downs hill land to marshland in the valley to the south-east. All types of farming would have been possible including sheep-rearing which became very popular in the middle of the 14th century and may possibly account for the spread of the estate over the hill lands. Blechingley, the wool-bleaching and fulling township is in the neighbouring manor to the south-east and there is an old road which links the two villages.

It is likely that the township, and therefore the manor, of Merstham derived its chief income from stone-

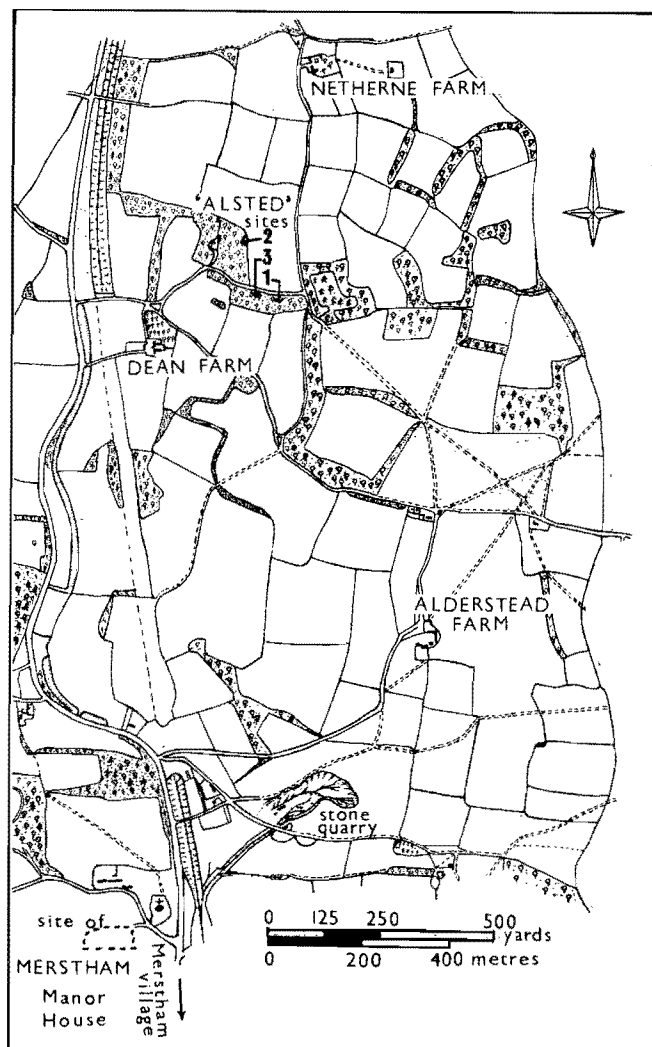


Fig. 3. North-east Merstham, based on the O.S. map, c. 1870. Crown Copyright reserved.

quarrying. The soft, calcareous sandstone, known also as Reigate stone,⁵ was used in 1259 for the building of Westminster Abbey and in the following century for Windsor Castle and for Old St. Paul's.⁶ The same stone was used for the Period 1 house at Alsted. It varies in colour from pale greenish grey to deep cream when dry and it is easy to work but very susceptible to frost damage and care must be taken when laying it to see that the blocks are not laid on their sides so that water can percolate into the stone and freeze. Care was not taken when the Period 2 house was constructed and many of the re-used stones were seen to have fractured vertically.

The road through the valley became very boggy during the winter months and in order to transport the stone a road ascended the steep hill through Aldersted land to join Netherne Lane and so on to Croydon, from where there was a good road to London (Fig. 3). The last part of this road was visible at the beginning of this century, but it is now ploughed out. The present Alderstead Farm stands where the road came to the top of the hill.

Part of the reason for the marshiness of Merstham was that one of the sources of the river Mole rises in Wellhead Field near the Church of St. Katherine, itself built on a knoll, and probably flooded the main street in wet weather. Another source of flooding could have been the spring which served Alsted,

running down the field known as The Slough higher up the valley to overflow on the road between the hills. This may have happened, particularly during the unusually wet period at the end of the 13th and in the first half of the 14th century.

Ironstone was found to be present in Charlwood, an outlying sub-manor of Merstham, near Horley in the Weald, and in 1362 the Earl of Arundel and Surrey who then held Charlwood of the Abbey of Christchurch, Canterbury, was granted licence to work it.⁷ This may have been the source of the iron which was forged at Alsted at Site 3 at the end of the 14th century. An earlier source of iron may have been Thundersfield Castle where a hide of land is mentioned as belonging to Merstham at the time of the Charter Bounds, AD 947.^{8,9}

The general aspect of the land and facilities of Alsted is that of a fair sized estate, including within its boundaries both hill and valley farming land, with a good water supply (which may have failed later), well-drained and wooded, with a prosperous industrial township close by. The chief manor of Merstham to which the lord of Alsted paid suit of court was held of one of the biggest landowners in the country, the Abbey of Christchurch, Canterbury. It was in reasonably close communication with London by road and with the south coast and Channel ports by a short link with the old east-west road which runs at the foot of the North Downs through Dorking, Reigate, Westerham, etc. The chief manor was administered by a bailiff appointed by the Prior of Canterbury.

THE EARTHWORKS (Figs. 1c and 4)

To the north and west of the house are large earth-bank enclosures lying within the fields known in 1522 as Little Priss to the north and Stoney Field and Seven Acres to the west. All three fields are within the area formerly known as the 'Ladylands' (Fig. 2).

Bank 'a' extends from the west end of Wall H for 400ft (121m) to Enclosure 'x', which measures 180ft by 60ft (54m by 18m).

Bank 'b' branches north and sweeps round the gully, turns west to the edge of the scarp along which it runs for 160ft (48m) and then returns to the gully, a total of over 1100ft (335m). Enclosure 'y', also measuring 180ft by 60ft (54m by 18m) lies at right-angles to Enclosure 'x' leaving a 25ft (7.6m) wide passage between the two enclosures entering from the west.

Bank 'c' runs east-west at 500ft (152m) south of the house for 920ft (280m), its east end meeting a footpath which was originally the road from Merstham going across the hills to the north of the village and used in wet weather when the valley road was swamped.

Bank 'd' On the east side of the footpath is another bank running north for 150ft (45m). The line of Netherne Lane then continues northwards between the ancient holdings of Alsted/Aldersted and Neddar/Netherne on the site of the old hill road.

It seems almost certain that Banks 'c' and 'd' are boundary banks. There is now no evidence of similar demarcation along the northern boundary, which was in fact the old parish boundary, though this is still traceable as a footpath. Modern road construction has erased the western boundary along the valley and the remainder of Bank 'c' has been ploughed out.

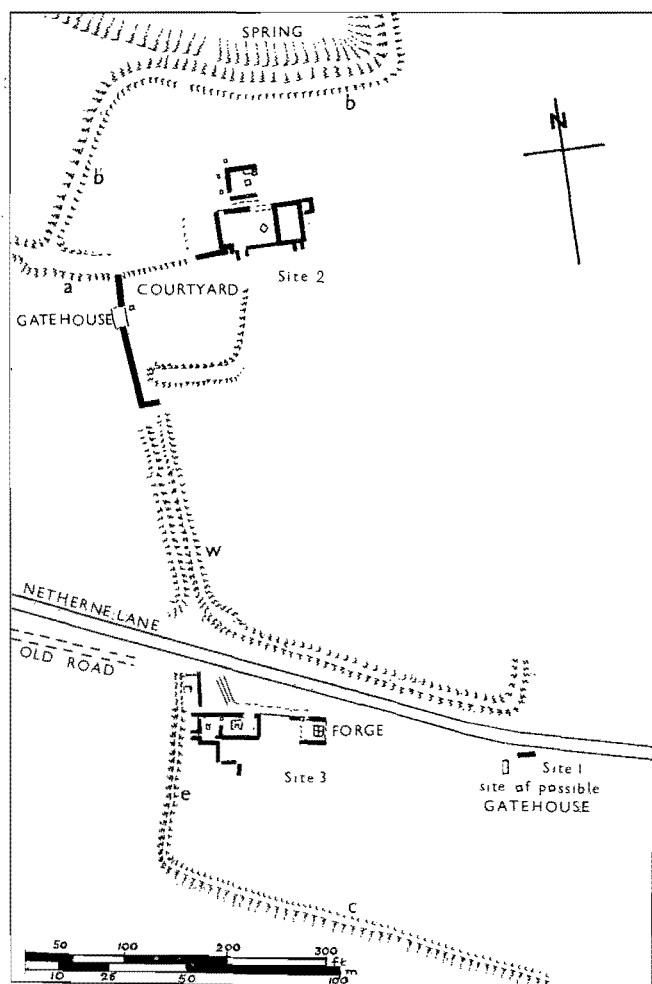


Fig. 4. General plan of the sites.

All these banks are of similar construction. They vary now from 5ft to 1ft (1.5m to 30cm) high and are built of clay with flint nodules, probably collected from the fields during the early period of cultivation. Bank 'c' had a ditch on the outside which is now silted up, but it must have stood at least 6ft high (1.8m) along most of its length. Bank 'a' was sectioned across the south wall of Enclosure 'x' where it now stands 5ft (1.5m) high. A few sherds contemporary with Period I were found there.

Bank 'b' was sectioned near a gap opposite the gully and was found to consist of packed flints rising to 8in (20cm) high at the inside face and 3ft 4 in (1m) high at the outer face. The flints covered an area $12\frac{1}{2}$ ft (3.8m) across and are obviously collapsed, indicating a reasonably formidable rampart at this point.

It is interesting to note that the old road from the junction of Banks 'c' and 'd' leads directly to the present Alderstead Farm, underlining the connection between the two establishments and that a sherd of 14th century green glazed pottery has been found at Alderstead.

THE METHOD OF EXCAVATION

Site 1

A 12ft (3.6m) grid was laid out and an area 24ft by 36ft (7.3m by 11m) was examined. The soil consisted

of 6in (15cm) humus over 1ft (30cm) sandy loam over 2ft (60cm) disturbed gravelly clay. The subsoil was clay-with-flints. The depth of topsoil over this site was greater than in the other two sites owing to cultivation.

Site 2

A 12ft (3.6m) grid was laid out covering the area thought to include the site but extendable in all directions as required. At first 2ft (60cm) baulks were left between the squares but on discovering that the subsoil was from between 4 to 10in (10 to 25cm) beneath the surface the baulks were removed and the whole site was stripped.

The excavation was limited by re-afforestation which had already taken place, but the house and most of its immediate surroundings were available for examination. The subsoil was clay-with-flints.

Site 3

A 12ft (3.6m) grid was laid out extendable in all directions, as for Site 2. There was only 6in (15cm) of topsoil covering most of the site as the area had never been cultivated. No baulks were left between the squares. The subsoil was clay-with-flints.

General

Excavation was carried out by hand trowelling and no machinery was used in any part of the site owing to the shallowness of the soil above the remains.

Site 1 was worked from 1968 to early 1969; Sites 2 and 3 from 1969 to 1973. It was done entirely by volunteers and continued every weekend with the exception of a few days in the winter months.

PREHISTORY--MESOLITHIC FLINTS

More than 230 struck flints were found in a derived position in the topsoil over the three sites. A few were found in the collapsed wall of a medieval building (Site 1). I am indebted to Mrs. Elizabeth Healey for the detailed report which will be found on p. 68.

A group of about 50 fire-crackled flints or 'pot boilers' were found on Site 1 but very few were recovered from the other areas.

SITE 1 (TQ 294558) c. AD 1240-1260 (Figs. 4 and 5)

In the north west corner of a garden of a private house on the south side of Netherne Lane pottery and broken roof tiles were found when the owner was clearing some previously uncultivated land. The pottery was dated to the 13th-14th centuries and an area measuring 36ft by 21ft (11m by 6.5m) was examined for possible foundations.

The soil profile is 6in (15cm) humus over about 14ins (35.5cm) sandy loam, which lies on gravelly clay. The depth of loam in this area is probably the result of earlier cultivation. There is no water in the vicinity.

The site was stripped when it was evident that there would be no stratification owing to the above mentioned cultivation. Sherds from three types of ware lay in the topsoil and on the hard, gravelly occupation surface, the majority of which was early Limpsfield and red oxidised ware with a few pieces of cream Surrey ware. Broken rough clay tiles with a grey

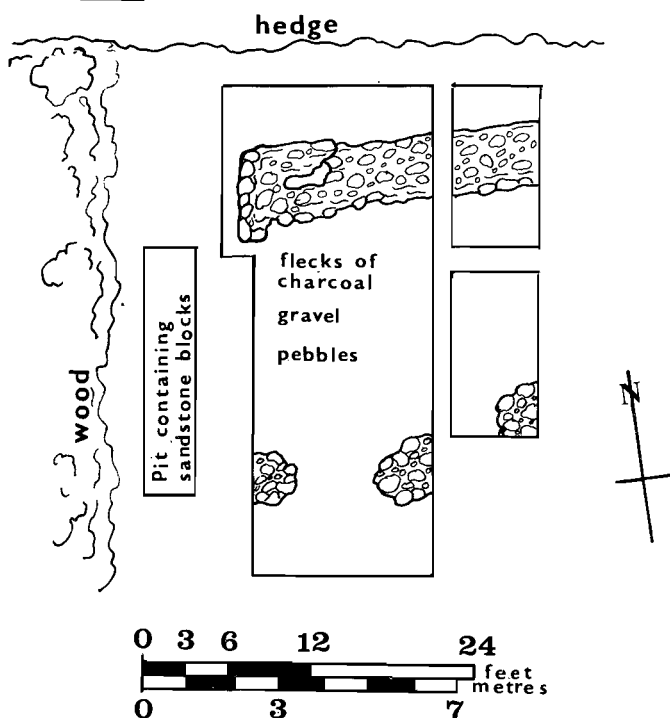
SITE 1

Fig. 5. Site 1. Netherne Lane runs east-west of the north of the hedge; the industrial site is to the West.

core and pieces of sandstone bearing toolmarks identical with those later found on Site 2 were also present, together with a few corroded unidentifiable iron objects. Part of the occupation level was blackened with flecks of charcoal and small pieces of coal.

The entire site was a confusion of apparently deliberately scattered flints, almost all of which were small and broken. Near the hedge, parallel to the lane was a long low bank of clay with large flints embedded in it, some of which were hard packed, extending about 13ft (4m) and of varying width from about 3ft to 6ft (1m to 2m).

Two years after the site had been filled in the owner uprooted a small tree within two feet of the western limit of the excavated area and discovered large shaped blocks of Merstham stone lying in a jumbled heap, apparently in a pit. Thirty to forty blocks were found, the average measuring 14in by 8in by 6in (35cm by 20cm by 15cm), all chipped, blackened or broken but with tooling identical to that used on Site 2. A little pottery was found of the same type as that described above, together with a small, broken iron knife with its tang (Fig. 34:10).

Among these blocks were parts of a large stone mortar (Fig. 31A).

Interpretation

Judged by the pottery and tooling, this site is contemporary with Site 2, Period 1, c. mid 13th century. It seems likely that a small building, partly built of flint with a tiled roof stood here. The large blocks of stone found in the pit may have formed part of the structure, in which case, although small, the building was likely to have been of some importance, possibly a gatehouse. The low bank of clay and flints was probably a wall in a collapsed condition, but it may also have been the result of deliberate destruction

and clearance of perhaps more than one wall. The west end appeared to have been squared off. No other identifiable foundations were found.

The structure may have been the source of some of the stone, flint and tiles used in the construction of the industrial sheds and buildings on Site 3.

SITE 2 (TQ 293559)

PERIOD 1 c. AD 1250-1270 (Figs. 6 and 7)

The First Floor Hall

Chalk and flint wall foundations of a rectangular building orientated east-west were found at a depth of 2ft 3in to 1ft 9in (68cm to 53cm) lying in shallow trenches with convex section 8in (20cm) deep in the centre—Walls A, O, P and N. The building measured 28ft 4in by 13ft 4in (8.6m by 4m) internally with walls 34in (86cm) wide giving an overall measurement of 34ft by 19ft (10.3m by 5.8m). Natural clay spread with chalk and some gravel formed a floor about 4in (10cm) thick. Footings of a flint wall, V, extended at right angles from near the centre of the south long wall, N, for a distance of 9ft (2.7m) (Plate III). Another short piece of wall 3ft (90cm) long extended north from towards the east end of Wall O containing a well-made post hole 10in by 6in (25cm by 15cm).

Of the walls themselves nothing remained except for five courses of west Wall A which was preserved as it was incorporated into a later building. Wall A was 34in (86cm) wide and was constructed of outer and inner skins of squared sandstone blocks filled with large flints, chalk and rubble set in a bonding material of crumbled chalk and clay. The stonework was well cut, the blocks averaging 14in by 10in by 6in (35cm by 25cm by 15cm) though the joints were wide.

Towards the east end of the building was an area of blackened earth 4ft 6in (1.37m) across bordered by a semi-circle of small squared sandstone blocks. This was cut across by a later wall foundation and was probably a small circular hearth.

Finds

Very little pottery was found inside the building but there were several small iron nails and part of a horseshoe. The coin balance beam (Appendix 10, Fig. 38:18; Pl. XIII) was found in the chalk floor. Outside Wall P was a quantity of pottery but it was mixed with later sherds. It is possible, however, that the sherds from the imported French jug (p. 39, Fig. 30; Pl. IX), which were scattered among them belonged to this earlier period. Where pottery was found sealed beneath levels or built into walls of a later period it was always of a rough light grey Limpsfield type or the soft red local ware with occasional pieces of greyish-white Surrey ware.

Interpretation

This small, compact rectangular building was probably a first floor hall built in the late Norman style of Boothby Pagnell.¹⁰ Stonework found re-used in the Period 2 structure showed that a large part of the walls would have been constructed as described for wall A and that the doors and windows had well-cut, straight-chamfered jambs (see Building Materials, p. 14). Thick, large clay tiles, some of them glazed, were also found built into the Period 2 walls, indicating that this building had a tiled and crested roof.

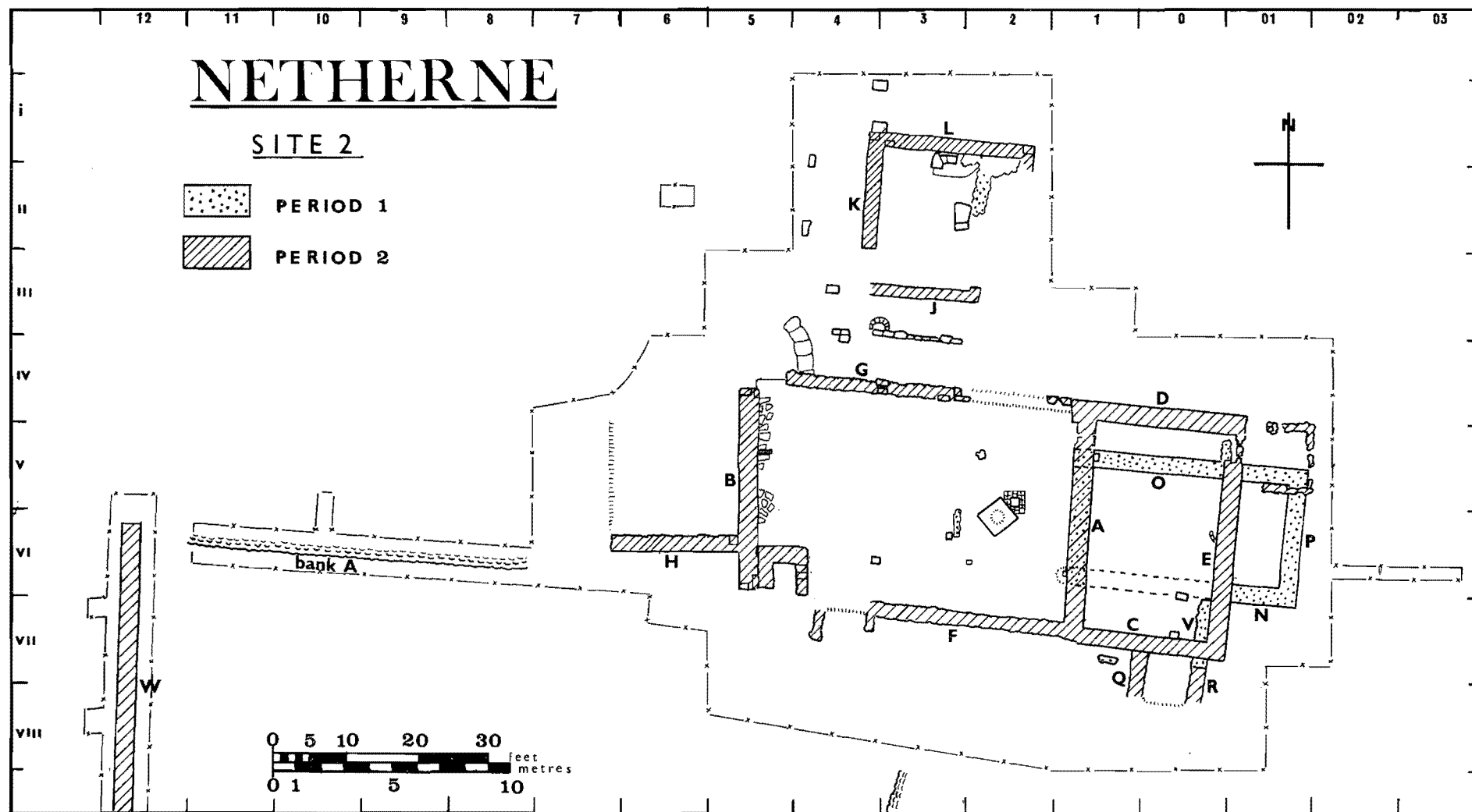


Fig. 6. Site 2: general plan, Periods 1 and 2.

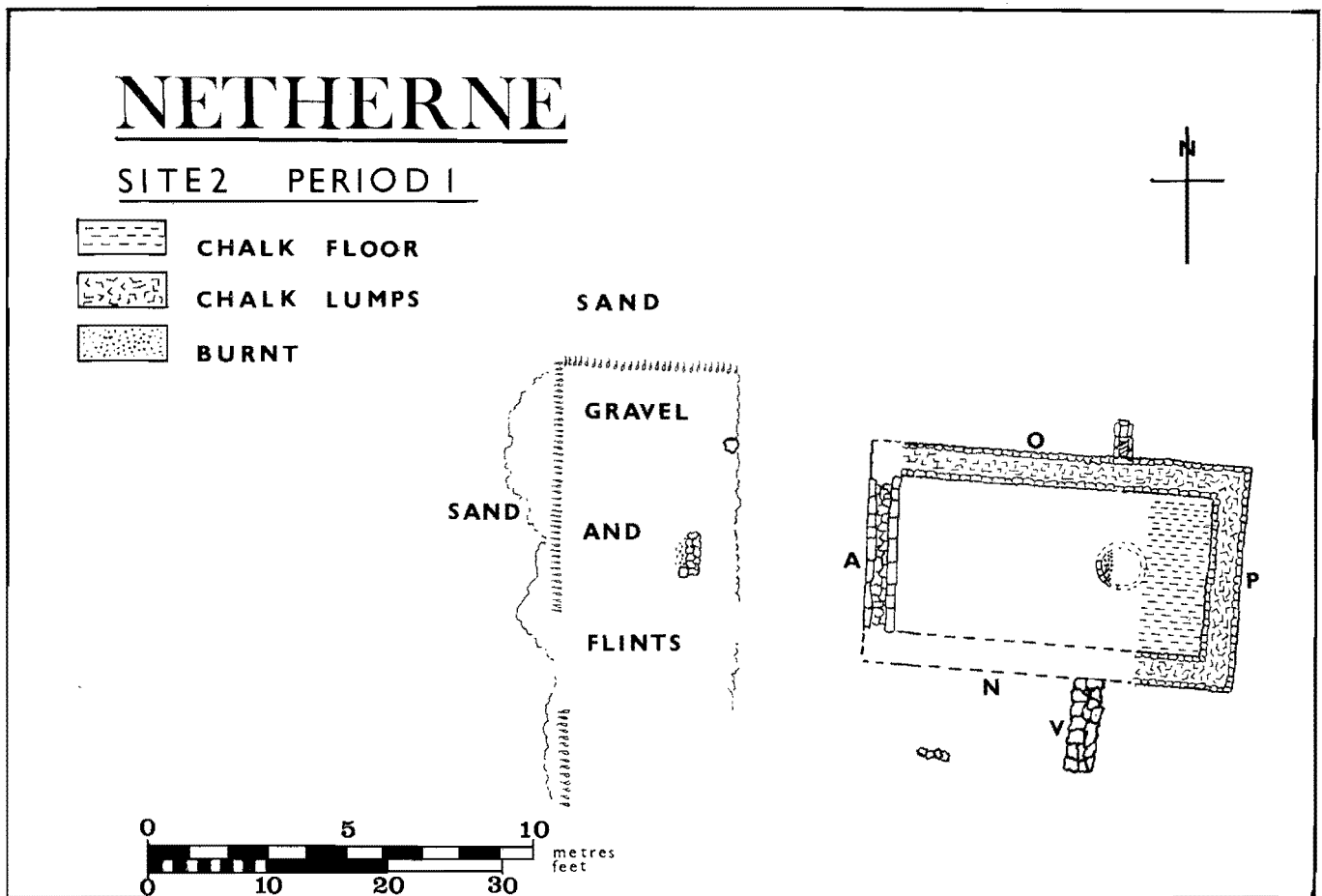


Fig. 7. Site 2: Period 1—plan of the first stone-built house, showing the hard, rectangular platform to the west, which may have supported another building.

An outside stairway may have ascended the south wall N over the supporting wall V.

There was no sign of foundations for a chimney for heating the Great Chamber, but a brazier may have been used for this purpose.

One window at least was of two lights with a central mullion fitted with a loophole for a shutter bar (p. 15 Fig. 11b) and others were square-headed as demonstrated by two lintels found in the Period 2 construction re-used as doorsteps (Pl. V). There was a string course, portions of which were found scattered throughout the site in Period 2 when some were used as padstones. No sign of moulding or carving was found.

The undercroft was not lower than the natural ground level and the entrance to it is not known. The floor of the Chamber above was probably built of wood, as no stone groining was found.

Though well-built, this structure seems to have been demolished within a fairly short time, the condition of the door and window jambs showing very little weathering. Many of the roof tiles are believed to have been re-used later which would account for their much more worn appearance. There was no evidence of burning. The impression, therefore, is of a fairly prosperous but moderate sized sub-manor house standing in about 100 acres of land. As was usual at the time, iron smelting and forging were being carried on at a short distance from the house among the other occupations necessary for the running of a self-contained community.

A Possible Barn or Earlier Hall (Fig. 7)

Although no actual foundations or postholes of a separate wooden or timber-framed building were discovered, it is possible that such a building existed to the west of the Period 1 house.

A raised rectangular area of clay and pebbles lay crosswise beneath the Period 2 Hall, surrounded on three sides, east, north and west by sand. It was about 15ft (4.5m) wide but the length is uncertain except that it was probably not more than 30ft (9m). There was a very large flint nodule 10in (25cm) below the Period 2 floor level 6ft (1.8m) from the north-east corner of this hard area and irregular clumps of large unfaced flints may have been demolished footings. No pottery was found on the surface. A corner of Period 2 hearth cut into the eastern edge of this hard floor.

A line of rough flints 6ft (1.8m) long against which stands a block of blackened sandstone in the centre of the floor may be the remains of a hearth.

Interpretation

Presumably this would have been a thatched or shingled building. It could have been a barn contemporary with the Period 1 house or it may have been an earlier house, bearing in mind the Saxon origin of the name Aldestede (later Alsted). Apart from the above indications, nothing further was found either to confirm its existence or to add to our knowledge of its construction.

PERIOD 2 c. AD 1270-1350 (Figs. 6, 8 and 9)

Occupation of the site appears to have been continuous as there is no evidence of an intermission between Periods 1 and 2. The pottery from both periods was mixed where that from Period 1 was not sealed by later floor levels and there was no sterile layer of soil between the two periods. There is no reason to suppose from documentary evidence that the first house ever stood empty, but pottery from Period 1 of the earlier Limpsfield type ware and the soft red local ware was found in the walls of Period 2.

The Solar Block

Substantial foundations and the lower courses of four flint and sandstone walls, A, D, E and C formed a rectangular building orientated north-south lying across the foundations of the Period 1 house (Fig. 6). This structure measured externally 32ft (9.7m) by 17ft 6in (5.3m) at the south end and 19ft (5.7m) at the north end with walls 32in (81cm) wide, i.e. D, C and E, which stood two courses high. These three walls were slightly thinner than those of Period 1 and although the inner skins were also of sandstone much more flint was used in the outer skins. The filling was of flint, chalk and rubble set in clay and crumbled chalk as before (Pl. VI).

Wall A, 34in (86cm) thick, stood five courses high, about 2ft 6in (76cm), and contained the old Wall A of Period 1. It was extended at either end using stonework from Period 1, some being window and door jambs (rybats) (Pl. IV). The two joins were visible showing a marked difference between the neat masonry of the earlier period and the less careful construction of Period 2. Over a hundred dressed stone blocks had fallen from the west face of Wall A into the Hall. There were no foundation trenches for these walls, the flint and sandstone lying directly on the earth.

A re-used square-headed door lintel formed a doorstep at the north end of Wall A (Pl. V). It was 1ft 3in (38cm) above floor level and would have required a step both from the Hall and down into the Undercroft on either side of the doorway. A similar re-used lintel was built into the northern end of Wall E where a door led out into the Bathhouse or Garderobe (see below). In this case it was at ground level. Between the two doorways was a hard clay, chalk and flint passage 5ft (1.5m) wide.

In the southeast corner at 3ft 6in (1.1m) from Wall E and 5ft (1.5m) from Wall C was a large padstone, 2ft by 1ft (60cm by 30cm), while on the eastern side of Wall A were two more padstones, each standing on the chalk foundations of Period 1 walls O and N and each 6ft (1.8m) from the outside Walls C and D. If there were corresponding padstones on Wall E, one may still be under a tree which has disturbed the stonework at this point at the northern end of Wall E but that at the southern end was missing. A similar padstone lay against the north side of Wall C (see Fig. 8).

The floor of the Undercroft was of gravel laid over the levelled up floor of Period 1. The entire length of the floor along Wall A was reddened by burning to a depth of 3in (7cm), but there was no sign of burning on the wall itself. This may have been protected by a coating of plaster, a thick layer of which lay over the floor, some of it coloured pink.

Upon the floor and plaster lay a deep layer of roof tiles, some glazed and crested, and just to the right of

the doorway in Wall A was a spread of pale grey clay-like substance resulting from a pile of Fullers Earth.¹¹ Above the tiles was a very thick layer of flints.

Finds

An almost complete pipkin lay in the south-east corner of the Undercroft (Fig. 26:84). Four small flint balls, three of them touching, lay against Wall D (Appendix 16, p. 65) and two shutter hinges were found near Wall E (Fig. 34:5). A small copper alloy casket key and several nails were also in this area. A small piece of the pink plaster showed an impression of fabric (Pl. XVI).

The 'Stairs and Landing' Support Walls

From the east end of Wall C two flint walls 1ft 6in (46cm) thick, Q and R, extended southward for 7ft (2.1m). There was a hard clay and cob bank connecting them at the south ends. The area enclosed formed a small room 6ft by 6ft 6in (1.8m by 2m) internally with a good chalk floor.

Finds

A quantity of sherds, mostly of cooking pots, and an iron ornamental shutter hinge were found on the chalk floor (Fig. 34:7). Sealed beneath the floor was pottery of the earlier period, including the cooking pot in rough orange-red ware with large grits (Fig. 25:52).

The Exterior Chalk Spread

Around the south-east corner and along the east wall of the Solar Block was a thick rammed chalk spread at least 9ft (2.7m) wide. It was found that most of the area outside Wall E was the chalk and gravel floor of the Period 1 House thickened by additional chalk coverings to a depth of 6in to 8in (15cm to 20cm).

Finds

Much pottery was found on this wide path, but in the loose soil beyond the eastern limit of the chalk was even more pottery of both periods mixed. A silver penny of Edward I was found here (see Appendix 11, p. 63).

The Bath House or Garderobe

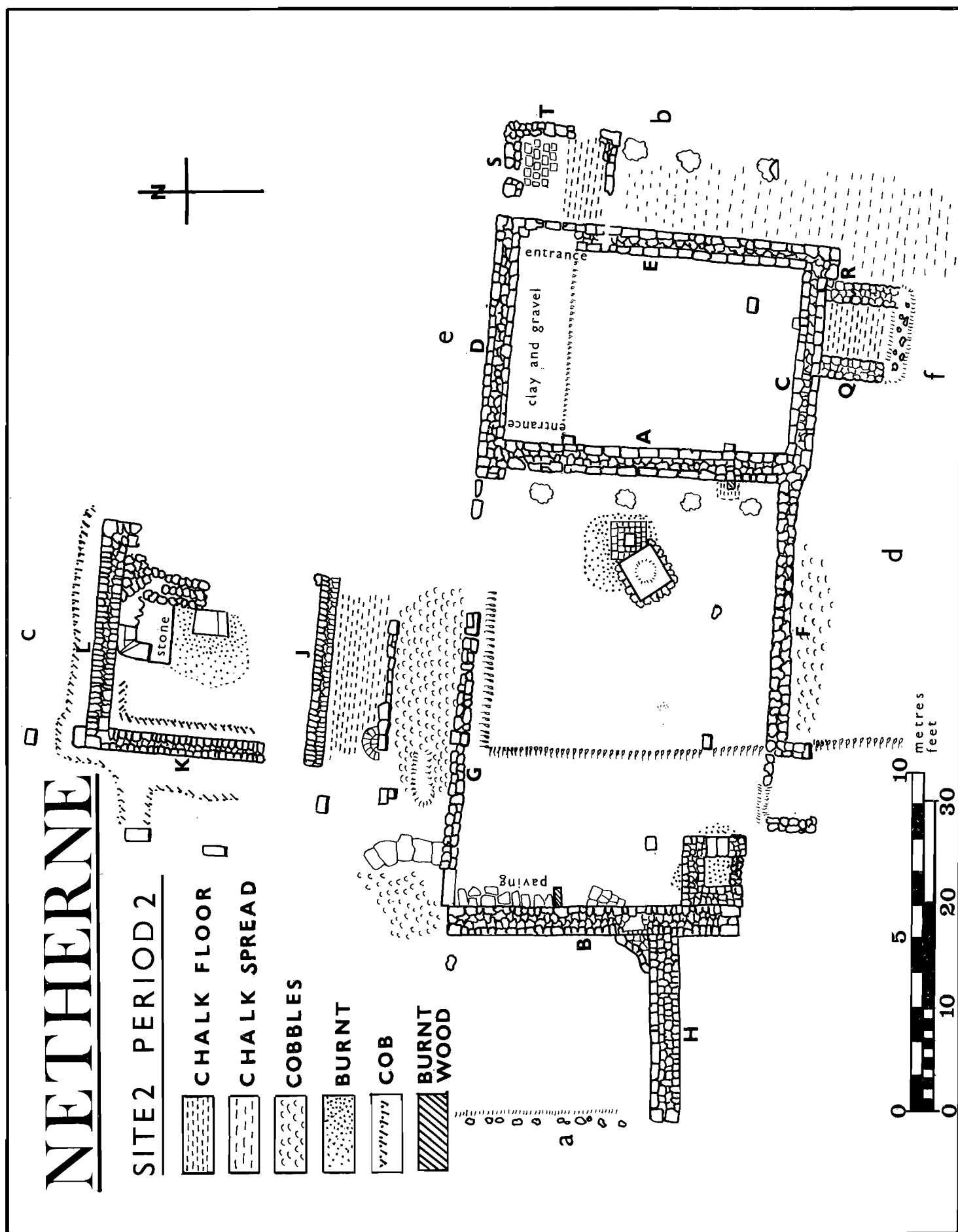
At the north end of Wall E was a small room 10ft (3m) square externally with light footings of flint and re-used sandstone blocks about 1ft (30cm) wide—Walls S, T and U. The floor was divided almost in half, one half being of rammed chalk and the other of sand on which lay a covering of roof tiles, not stacked or jumbled as though fallen but fitted together and quite flat as though intended as a flooring. The chalk half of the floor was found to be the top of the foundation of Period 1 north Wall O.

Finds

Sherds of a large pitcher and a small pipkin, similar to that found in the Undercroft, were found in this room and immediately outside lay a broken but almost complete pottery ventilator, including its fitment for fixing it to the roof (see Appendix 5, p. 51, Fig. 32A).

The Great Hall

To the west of Wall A lay the Great Hall, measuring externally 32ft by 48ft (9.7m by 14.6m). The two long walls, G and F, were raised on flint footings much thinner than those of the Solar Block, being



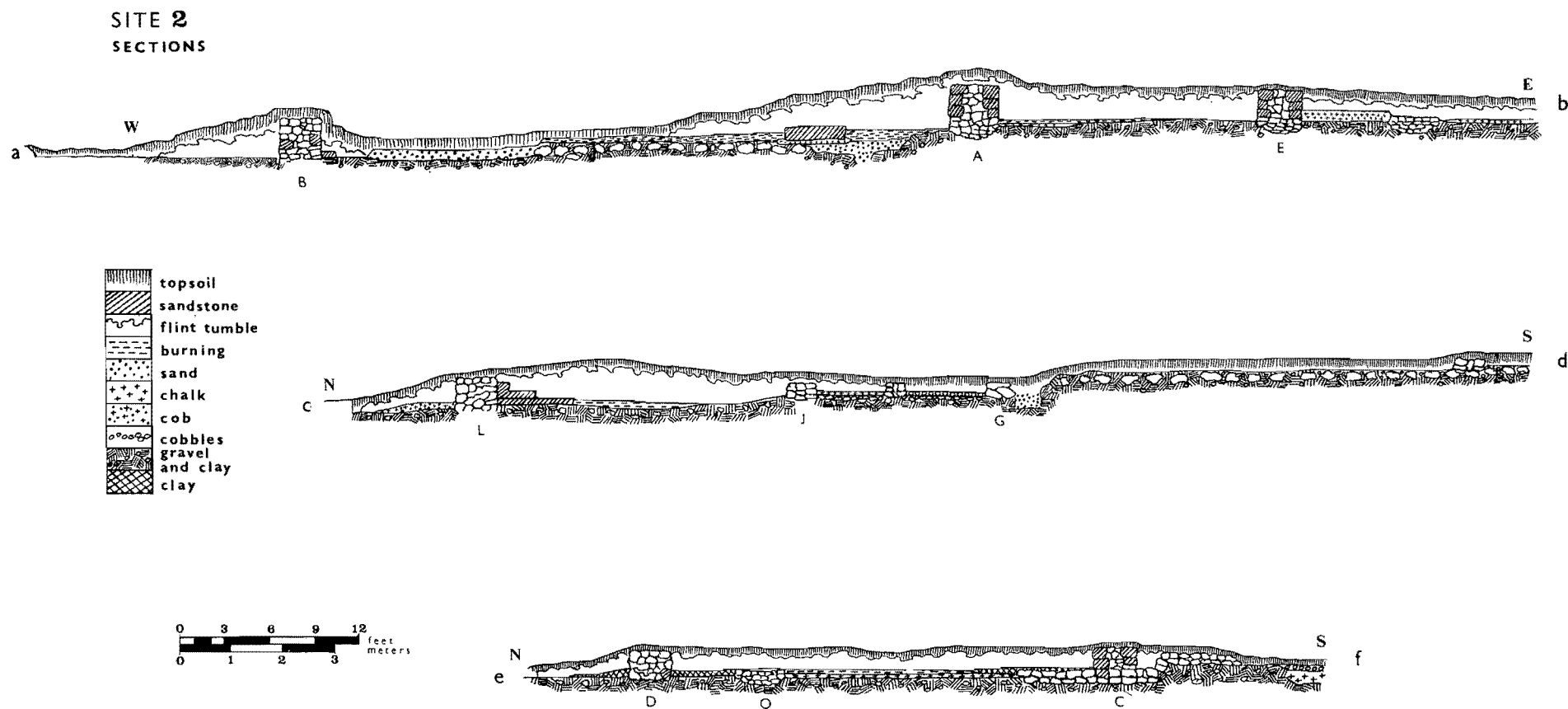


Fig. 9. Site 2, sections a-b, c-d, e-f (see Fig. 8).

approximately 1ft 6in (46cm) wide and constructed of a double line of large flints laid directly on the earth.

Padstones were found in Wall G at intervals of 16ft, 12ft and 6ft (4.9m, 3.7m, and 1.8m) from Wall A, though nothing similar was found in Wall F.

Connecting these two walls at the west end was Wall B, a very strongly built flint wall 34in (86cm) thick with sandstone quoins at each end and a few squared blocks within the structure. Wall B is slightly out of alignment with Wall A, its north end being 2ft (61cm) further from Wall A than its south end. The base of Wall B is 10in (25cm) below the floor level of the Hall and it still stands 2ft 6in (76cm) high.

The Hall seems to have been divided in two at a point 28ft (8.5m) from Wall A. The eastern section formed a square room the gravel floor of which was slightly higher than that to the west of this line as it lay on the hard area of Period 1 (see Fig. 7). This area was covered with dark fine humus and was almost completely devoid of pottery or other objects except for a narrow strip along the base of Wall A. The lower end measured 28ft by 16ft internally (8.5m by 4.9m).

Two padstones for pillar bases were found on a line 6ft (1.8m) from Wall F, but none were found in a similar position in relation to Wall G. The charred remains of two beams or posts were found against Walls A and B. The burnt beam or post by Wall A 6ft (1.8m) in from Wall F is in line with the two pillar bases. These are the only two burnt structural objects on the site.

No roof tiles were found either inside or outside the Hall.

The Hearth (Plate VII)

A single block of sandstone measuring 5ft 3in by 4ft 9in by 10in deep (1.6m by 1.4m by 25cm) weighing by estimation about 2 tons was set diagonally in the floor of the eastern end of the hall, its eastern corner being 7ft (2.1m) from the Solar wall. It was laid on a bed of cob, 2in (5cm) thick, inset into the floor so that the top of the hearth was raised about 4in (10cm) above floor level. Around the sides were large flints packed well in clay and the centre was hollowed and blackened.

A curious construction lay on its north-east side. This was a 4ft (1.2m) square platform of small square sandstone blocks laid neatly in a double line around a 1ft (30cm) square slab of sandstone, blackened but not hollowed. It was thought at first that this was an earlier hearth as the large hearth cut through its southwest corner, but the level of the surface is no lower than the level of the surface of the large hearth. On examination it was found that the central slab was only 2in (5cm) thick. It is probable that it was in use at the same time as the large hearth and one suggestion is that it was a kind of hob. No explanation has so far been forthcoming as to why it was placed closer to the Solar wall than the hearth itself, thus constricting even more the space between the hearth and the wall. Its surface, though blackened, was not fire damaged.

The floor around the hearth and particularly around the 'hob' is burnt red and flecked with charcoal for a depth of from 4 to 7in (10 to 18cm).

The Porch

The main entrance to the Hall was at the south-west corner, facing south, in Wall F, where there was a

porch measuring 6ft by 5ft internally (1.8m by 1.5m). The footings were of large flints set in clay, but there were many sandstone blocks and flints fallen in the vicinity and it is likely that the walls were at least partly of flints with stone quoins. There was also a number of roof tiles.

Between the doorway and the end wall of the Hall, Wall B, was a small 6ft (1.8m) square structure of solidly built flint walls 2ft (60cm) thick surrounding a 2ft (60cm) square hollow, in which the fill was reddened and impregnated with pieces of charcoal. In the side facing towards the door were two large blocks of sandstone, reddened by fire and standing in burnt, dark soil. There is no stone floor in the hollow and the flints on the inside of the walls were not heat cracked.

This structure would appear to be a chimney, but its situation is so awkward, opening as it does almost on to the main entrance door, that this explanation seems impossible. There was no other place where the main door could be as the rest of the flint footings in the wall were intact. The structure was not big enough inside to contain even a spiral stair and it stood at the end of what should be the Screens Passage, in the normal place for the door.

Finds

Inside the Hall itself were remarkably few finds, except in a narrow strip along the west face of Wall A, where there was probably a wooden dais. A copper alloy belt chape, an iron spoon bit, a hone and a large square-headed nail were among a few small objects in this area. A child's marble was found beside the Hearth (see Appendix 16, p. 65), an iron staple was still *in situ* driven into Wall B about 1ft (30cm) above the floor. A flanged socketed arrow-head may have derived from Period 1.

Outside Walls G and F was a large quantity of pottery from both periods representing a considerable range of utensils.

The First Kitchen, later Converted into the Services (Figs. 6 and 8).

Wall H, of similar width and construction to Wall B ran westwards at right angles from Wall B for a distance of 16ft (4.9m). It was finished with stone quoins and lined inside with squared sandstone blocks. Its foundation was level with that of Wall B and it also stood 2ft 6in (76cm) high. A low clay and flint bank ran north from the west end of Wall H.

3ft (90cm) from the corner of Walls B and H on the inner face of Wall B was a small section of the wall 1ft 6in (45cm) wide where the flints were smaller and more neatly laid than in the rest of the wall. Behind this section the wall was found to be packed only with earth while beneath it was a small platform of blackened sandstone blocks. When the new kitchen was built a layer of chalk blocks was laid over this platform and extended into the corner and along Wall H for 4ft (1.2m), forming a low triangular bench.

The floor was gravel and pebbles stamped into the clay.¹²

Along the east side of Wall B was a paved passage, at the same level as the base of the wall. The stones were weathered and worn smooth at the edges. Beneath the stones was some rough grey and soft red pottery.

Finds

Numerous sherds of jugs and dishes were found in this area, including many from cooking pots and jars of Period 1, the much abraded local red ware and the rough Limpsfield type. Close to Wall B was an up-turned dish covering a quantity of mussel shells (see Appendix 14) and nearby was a clump of carbonised hazelnuts, perhaps about 1lb (0.5kg) originally. Two small eggshells, about the size of bantams eggs, filled with clay quickly disintegrated after recovery.

Roof tiles in a very weathered condition including part of a finial, were found all over and around this area.

The Later Kitchen

A new kitchen was built to the north of the Hall, perhaps at the end of the 13th or at the beginning of the 14th century. This would have conformed with fire precautions and was probably the last permanent structure to be built on the site.

Its flint walls were neatly and firmly constructed of knapped flints set in clay. Walls L, K and J, each 1ft 6in (46cm) thick, formed a rectangular building 22ft by 20ft (6.7m by 6.1m) on the north, west and south sides, but there was no sign of an east wall. A 5ft (1.5m) gap between the south end of Wall K and Wall J may indicate the position of a doorway.

Almost in the centre of this building was an open hearth 3ft 6in by 2ft (1.1m by 60cm) by 8in (20cm) deep, a single slab of sandstone. This was deeply burnt black and the earth surrounding it to the north, west and south was burnt dark red, with charcoal fragments. Its eastern side lay against a double line of large flints 1ft 6in (46cm) thick, which may have been part of the support of a hood. This feature joined the north wall L, where there was a mass of flints in the corner of the room.

In the centre of the north wall L was half a well-built stone hearth for a wall fireplace which would have required a hood and chimney. The missing half was replaced by the mass of flints mentioned above and it is suggested that this was an oven.

The two hearths were at different levels, the fireplace being 4in (10cm) higher than the central hearth and lying above burnt earth, but there is no doubt that the two were in use together at least towards the end of the period as both were above the surface of the floor which was slightly lower towards the centre and both had identical pottery on and surrounding them.

Inside Walls L and K decayed plaster lay 4in (10cm) deep and, extending along the entire length of Wall K on the outside, was a thick layer of decayed plaster 9ft (2.7m) wide lying over a chalk floored passage (see Appendix 4, p. 51). The whole structure was buried beneath fallen roof tiles and flints, sufficient to indicate that the three walls were probably constructed entirely of flint.

Two large padstones lay 9ft (2.7m) outside Wall K and may have supported posts for a lean-to or penthouse over the chalk floor. Another large padstone lay 6ft (1.8m) from the west end of Wall L.

Finds

There was a considerable quantity of pottery on the burnt gravel floor of the kitchen, including more than half of a large decorated jug (Fig. 27/94).

The Kitchen Penthouse

A good chalk floor lay along the outside of Wall J, 6ft (1.8m) wide by 20ft (6.1m) long, contained by a line of re-used building stones, many of which were pieces of string course from the Period 1 House. Some larger and flatter stones appear to have been padstones around the westernmost of which was a circular platform of roofing tiles 3ft (90cm) in diameter. Pottery from the earlier period was found beneath the chalk floor, including part of an aquamanile (see p. 47). Part of the area between the Kitchen door and the back entrance to the Hall was paved with large thin slabs of stone.

The Passage between the Kitchen and the Hall

Between the Kitchen Penthouse and the Hall and extending along both Walls D and G of the Hall was a cobbled pathway. This would have been subjected to rain runoff from both the Kitchen and Hall roofs, but no drain was discovered. However, there is a distinct drop in the level of the land west of the Kitchen as the entire site slopes gently westward and this may have been sufficient to carry away the worst of the water. It was noticed during excavation that the ground very quickly drained, even after heavy rain.

Finds

Much pottery was found along this passage together with a few iron objects, notably a hammer head and links from a heavy chain (Fig. 34:11, 20).

The Courtyard

Between Wall H and Boundary Wall W stretches a flint faced bank, 65ft (20m) long and 3ft 6in (1m) high at present—Bank A. This was the north side of an almost rectangular courtyard, the floor of which is from 1ft 6in (46cm) to 3ft 6in (1m) below the surrounding ground surface. It was not possible to trace any postholes along the top of the bank owing to the very rough nature of the terrain.

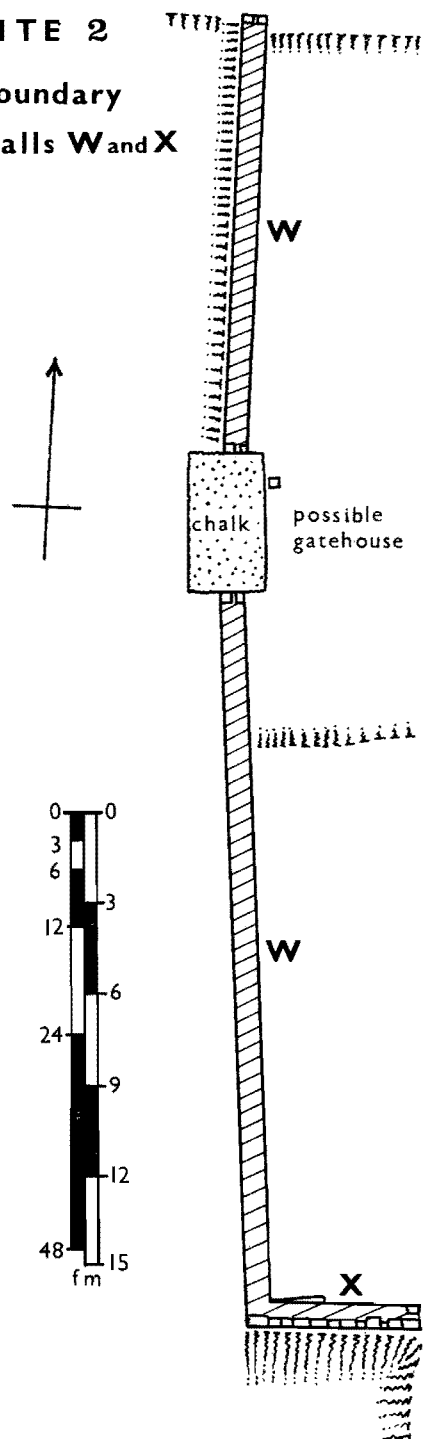
The original floor was of very hard packed clay, gravel and pebbles on the natural clay. Period 2 pottery was found on the floor level.

The Boundary Walls (Fig. 10)

A strongly built flint wall, W, 34in (86cm) wide, with stone quoins, extends south for 144ft (43.8m) from where Bank A joins it at right angles at its north end. 48ft (14.6m) south from this point is a 16ft (4.9m) gap in which there is a good, thick, chalk block floor, 8ft (2.4m) wide. The wall recommences on a slightly different alignment and runs for a further 80ft (24m) where it terminates at a corner from which a re-entrant extension runs east for 16ft (4.9m), also ending with stone quoins, Wall X.

Wall X was investigated on both sides. Inside the angle of Walls W and X there is a particularly fine piece of faced flint wall, very closely packed and smooth. The floor level, 1ft 4in (40cm) below the present ground surface produced some pottery.

Wall W stands on a bank outside which there is a ditch over 2ft (60cm) deep along its northern section. It still stands 14 to 18in (36cm to 46cm) high. After building back the fallen flints on a section of the wall it was estimated that it must have stood at least 4ft (1.2m) high from the inside, but about 6ft to 7ft (1.8m to 2m) high, including the ditch from the outside. Tile sherds were found along its length on both sides, some with traces of sandy mortar.

SITE 2**boundary****walls W and X**

The area contained by the corner of Wall X and the continuation of Wall W southwards was examined. On the outside of Wall X there was an occupation level about 1ft 4in (40cm) below the present ground surface (second floor), corresponding with the inside, but beneath this was a deep ditch filled loosely with flints. There is an indication that Wall X was constructed over some other wall or building which had been demolished to form a platform to support this corner, as there was another floor or occupation level beneath the flints (first floor). This theory has some reinforcement from the appearance on the inside of Wall X of the first course of flints which lie more correctly at rightangles with Wall W for a distance of 5ft (1.5m) than the rest of the wall. There was no further construction on the inside below this course.

The reason for this sudden angle in the wall is not apparent, indeed it blocks what appears to have been a path between the double banks G and E and the continuation of Wall W, but the corner of walls W-X must have been impressive when viewed from the outside, i.e. approaching up the path.

Finds

On the chalk floor in Wall W was found a pin hinge (Fig. 34.1) and an iron rowel spur (Fig. 35:23). There was a little pottery and some pieces of iron cinder on the upper floor and a few body sherds of older pottery amongst the loose flints below.

The South West Entrance Approach

The line of Wall W continues south for 120ft (36.5m) as a clay bank faced with flints, becoming a double bank flanking a path for at least 80ft (24m) towards its southern end, Banks E and G. After a gap where Netherne Lane cuts through it, Bank E is traceable along the edge of the wood to where it joins Bank C forming the south-west corner of the demesne.

Building Materials—Periods 1 and 2**TILES** (Fig. 11a: A, B, C)

Large clay tiles, $12\frac{1}{2}$ in by $7\frac{1}{2}$ in (31cm by 19cm) with two round peg holes at the upper end, about $\frac{1}{2}$ in (1.3cm) in diameter, were used throughout the two periods. They vary in thickness from $\frac{3}{8}$ in to $\frac{3}{4}$ in (1cm to 2cm) and are of coarse red pottery with a grey core. They are often distorted. The ridge tiles were glazed green or brown, having an angle of about 80° and are surmounted by an ornamental crest of three loops to a 15in (38cm) tile. There were also

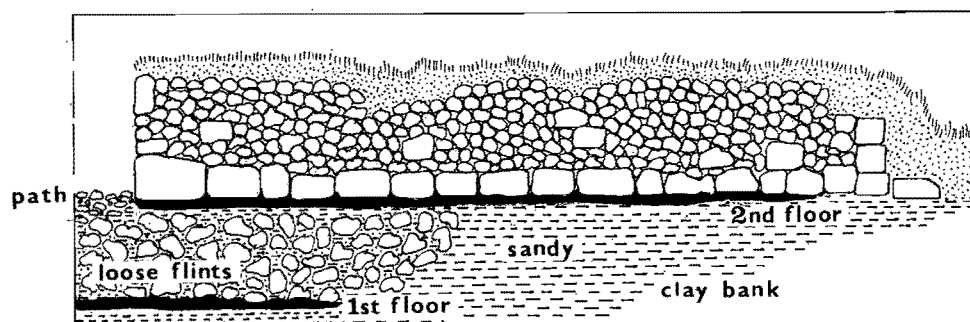


Fig. 10. Boundary walls, with section at face of Wall X, showing the corner with Wall W built over a flint filled pit or a destroyed building.

edging tiles half as wide as the normal tile, with one peg hole.

STONWORK (Fig. 11b)

General

Door and window jambs and lintels, string course, quoins and other shaped stones were found built into the Period 2 walls where they were preserved. They are all very well cut, with $\frac{1}{2}$ in to $\frac{3}{4}$ in (1 cm to 2 cm) wide diagonal chisel marks on the inner faces, but the outer face is always finely cut with close vertical tooling. Some of the stones bear fan-shaped axe-slashing marks, occasionally with the chisel overriding them, presumably to trim them more accurately. Some of the stones show the stone-cutters' guidelines still scored on the surface (Fig. 11b: C and Fig. 18: C). Their excellent condition shows that they were not long exposed to the weather.

The shaping of these stones is simple but accurate. Straight-chamfered corners with clean, sharp angles give what must have been a sturdy but attractive appearance to doors and windows. One of the window jambs has a small channel cut diagonally across its upper surface to accommodate an iron hook for a shutter (Fig. 11b: B).

It was found that in all cases where close tooling was employed the stone was set so that the lines were vertical, presumably to assist rain run-off.

No masons' marks have been discovered. The stonework in general is similar to that of Merstham Church (St. Katherine's) second building, c. AD 1220.

Jambs (rybats) Three sizes of jambs all of the same pattern and a further three stop-chamfered bottom corner stones which do not fit any of the jambs were found (Fig. 11b: D).

Doorways Both of the doorways into the Solar Undercroft of Period 2 have as thresholds what appear to be re-used door lintels from Period 1. Some Period 1 doors would therefore have been square-headed (Pl. V).

Windows The window jambs were rebated for shutters. At least one window was of two lights with a central octagonal keeled mullion bearing one stone loop for a shutter bar (Fig. 11b: A). It is considerably weathered on the external surface though internally (the keel, loop and part of the base) it is sharp and clean. No trace of glass or lead came was found.

BONDING MATERIAL

There were traces of a sandy mortar on some of the roof tiles. The only bonding material used in the walls of both periods was clay and crumbled chalk.

CHALK

Small chalk lumps were used as foundation for the Period 1 house and for all chalk floors. Larger lumps of chalk were used in the filling of the walls. No chalk was found on an exterior surface.

FLINT

Large unknapped nodules of flint were used as footings for timber-framed walls. Knapped flints were used in wall construction, Walls W, X, H and B being good examples. Walls L and K showed careful selection of small, long flints with one knapped end. Rough

flints and rubble were used in the filling of the Period 2 Solar walls.

TIMBER

Only one piece of timber was identifiable, the charred post or beam at the foot of Wall A. This was *prunus avium*—wild cherry. (See Appendix 12.)

General Interpretation of Site 2

At some time during the last half of the 13th century, possibly after the son of the house had made an advantageous marriage to an heiress in c. 1270 (see Historical Background, p. 66), a major reconstruction took place. The original house, though substantially built, was small and at this period when it was considered not so necessary to build for defence it was becoming fashionable to bring the hall down to ground level where it could be much enlarged. Living quarters for the family were situated in the Great Chamber over an Undercroft in the solar block at one end of the Hall. At the other end were the kitchen and services.

THE SOLAR BLOCK

The old Period 1 house was pulled down except for Wall A and a new Solar Block was built lying across the line of the old house, incorporating within its west wall the original Wall A. An outside stairway approached the main entrance to the Great Chamber on the first floor, running up alongside Wall C to a landing over the small room between Walls Q and R.

One of the windows from Period 1 appears to have been re-used complete as its mullion and shutter bar loop was found smashed on the chalk floor of the small room beneath the landing. It is curious that much of the shaped stonework from the Period 1 house was not re-used for the purposes for which it was originally intended and this may indicate that the upper floor of the Solar was not entirely stone built. The interior of the Chamber was plastered and coloured pale pink.

Inside the Undercroft were traces of its being used as a storeroom. The heap of Fullers Earth could have been used as a substitute for soap. The padstones against Walls A and C were probably for the support of wall posts.

In addition to the outside staircase there may have been an interior ladder or stairs from the Hall to the Chamber represented by the charred beam or post lying against Wall A in the Hall.

The Bathhouse or Garderobe, entered from the door in Wall E may have served either purpose. No other site for a garderobe was found and there was no pit in this small room, but buckets could have been used. The ventilator would have been desirable for either purpose (Plate XI).

THE GREAT HALL AND SERVICES

The new Hall would have been timber framed on flint footings and may have originally ended on a line from the west wall of the Porch to the padstone in Wall G 12 ft (3.7 m) from the west end of the wall. This would have produced a hall 28 ft (8.5 m) square internally, separated from its end wall (now vanished) by a screens passage 6 ft (1.8 m) wide. Since Walls G and F were of timber framing on light flint footings with no foundation trenches it is reasonable to assume that the west wall would have been of the same con-

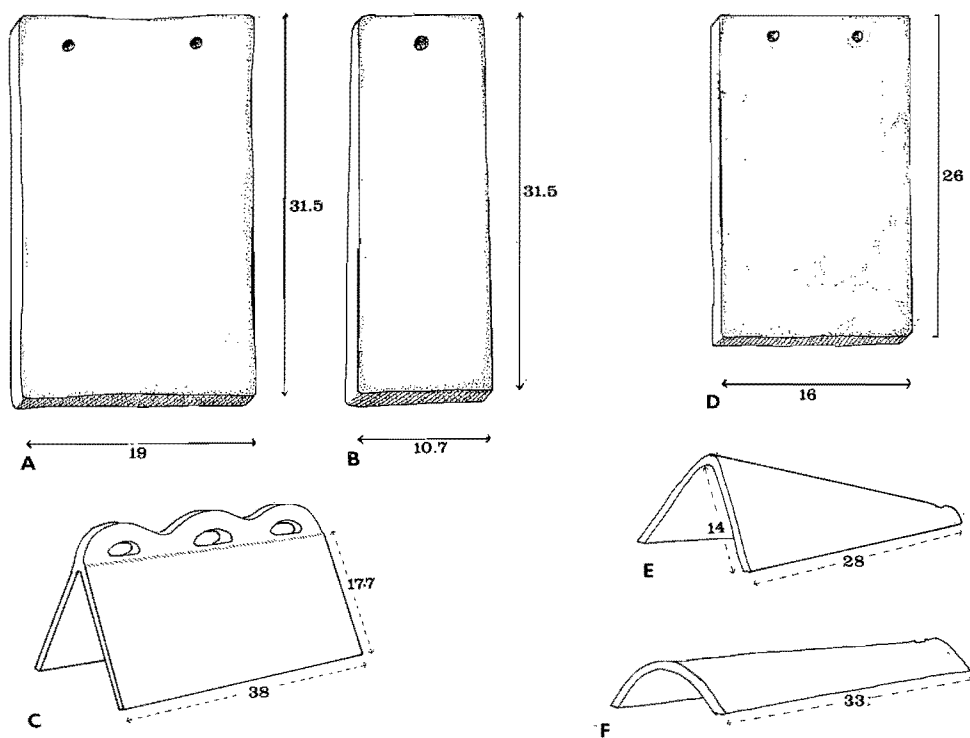


Fig. 11a. Roof tiles. Site 2: A-Normal tile; B-Half-tile; C-Crest tile. Site 3: D-Normal tile; E-Hip tile; F-Ridge tile. Measurements in centimetres

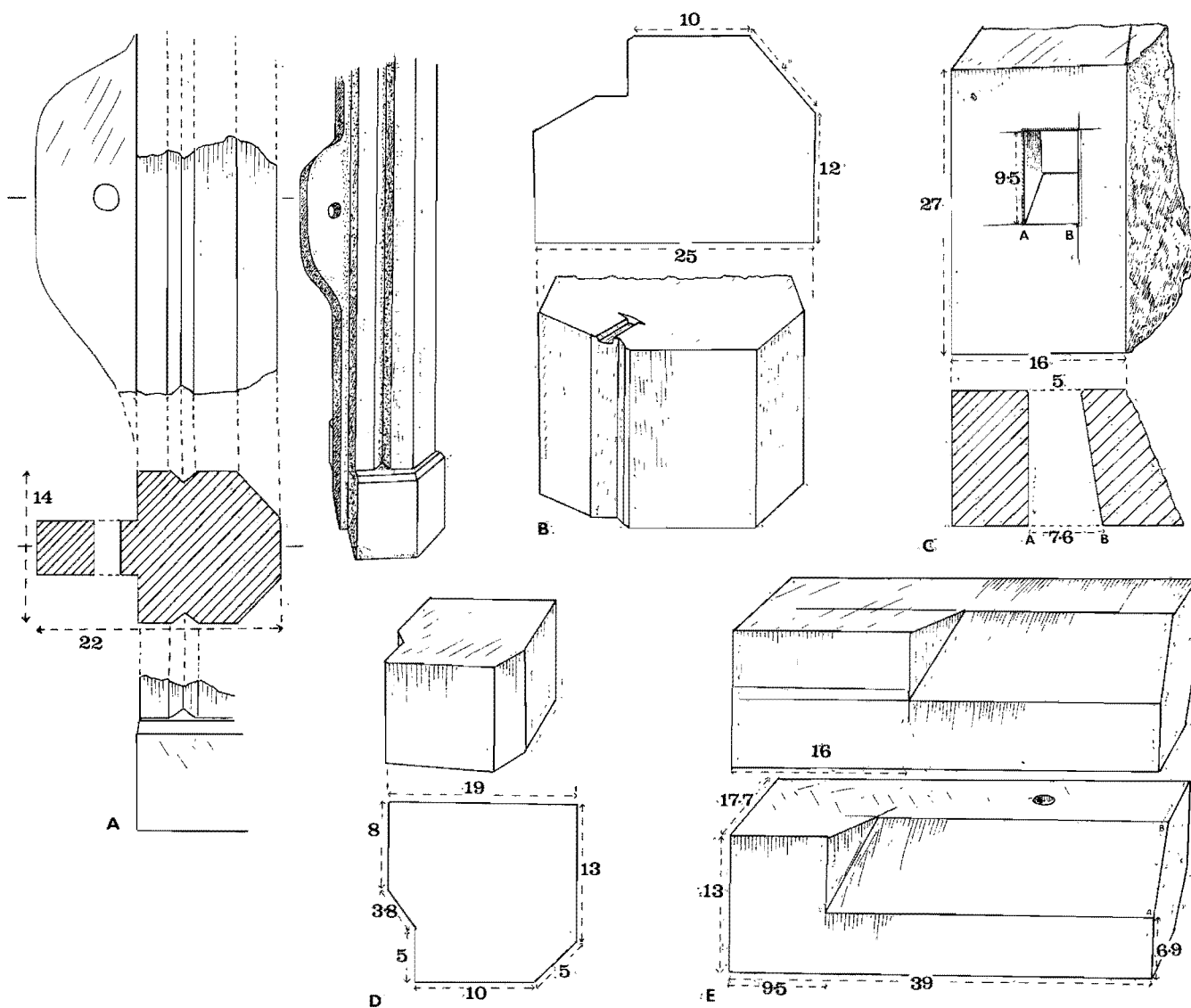


Fig. 11b. Site 2: Stonework from Period 1 House. Measurements in centimetres.

struction and no difficult task to dismantle without leaving a trace. The 6ft (1.8m) space between the above mentioned padstone in Wall G and the next one to the east would then have contained a door in the usual place, opposite the porch; the west wall of the Hall would have been in more correct alignment with Wall A and two spones constructed between Walls F and G to the respective pillars at the west end of the Hall would complete the usual design for an aisled hall of this period, except that there was no provision for the Services.¹³ The positions of the padstones indicate that the Hall was of two and a half bays plus the six-foot passage.

A separate kitchen was built in line with the Hall containing a fireplace and an oven in its south-east corner. Although the construction of the walls is quite different from that of the Hall, the fact that re-used shaped stone blocks were incorporated shows that it was not a Period 1 building. Part of this structure may have been used as a Buttery and Pantry. The stone paved passage was also laid down at this time, which is another indication that Wall B was not originally part of the Hall as this passage is lower than the floor level of the Hall and its condition shows that it was not under cover.

When the new Kitchen was built the original west wall of the Hall appears to have been removed and the space between the old kitchen and the Hall roofed over, thus incorporating Wall B into the Hall and enlarging the Hall by approximately 10ft (3m). The paving was covered with 10in (25cm) of clean sand, bringing the area up to the level of the Hall floor. The old oven in Wall B was sealed up and the chalk block platform was built into the corner. Judged by the number of jug sherds and food remains found in this building it was thereafter probably used as a Buttery and Pantry, although there was no entrance into it direct from the Hall.

Wall G of the Hall was now extended to the corner of Wall B where a new doorway was inserted, indicated by the stone doorstep. The old doorway could easily have been walled up. It seems to have been at this period that the square structure at the south-west end of the Hall was built, as its foundations are not lower than the new floor level, also it is not bonded into Wall B.

The apparent absence of padstones for pillar bases along the north side of the Hall could be explained by there being only one aisle. This would have given a 22ft (6.7m) span for the tie beams or arch braces, which is acceptable, but the plan of the building seems to call for two aisles.¹⁴ One of the padstones may still exist under a tree stump and the other may have been removed.

A narrow wooden dais, not more than 5ft (1.5m) wide ran along Wall A. Four hard-packed flint and chalk pads may have helped to support it (see p. 12).

The absence of roof tiles over the Hall area suggests that it was thatched or shingled.

THE KITCHEN PENTHOUSE

The chalk floor to the south of Wall J of the Kitchen was clean and may have been covered by the extended kitchen roof supported on posts where padstones appear in the line of stones which form either a curb or footings for a light, possibly wooden, wall. Over 100 short iron-nails were found between this chalk floor and Wall G of the Hall, most of them closer to

the Kitchen than the Hall. This would have formed an airy room away from the heat of the Kitchen.

A similar penthouse or covered passage may have been constructed over the chalk floor outside Wall K, but here there were no footings and no nails.

THE WATER SUPPLY

No well was found on the site, but there was a spring in the gully to the north of the kitchen. It is possible that the spring was not very reliable and in order to collect water a pit was dug at the east end, about 5ft (1.5m) square and 3ft 4in (1m) deep. It was lined with timbers laid horizontally and given a bottom of hard packed flints. Some large blocks of stone lay across the west end of the pit forming a solid surface on which to stand. There is still water in the pit.

No medieval pottery was found either in the pit or in the black mud which surrounds it and it is possible that the pit was dug at a later date, but the spring, which now only trickles in wet weather, may have produced more water in the 13th/14th centuries.

SITE 3—THE INDUSTRIAL AREA (TQ 293558) c. AD 1250-1405 (Fig. 12)

Within the corner of Boundary Banks C and E over 400 ft (120m) south of Site 2 are the remains of a complex of buildings which were used in connection with the production and forging of iron and perhaps for other purposes. There are three main periods.

PERIOD 1A (Fig. 13)

Hearths

Two small hearths were found within 10ft (3m) of each other (Figs. 13 and 22) in Sq. III-1 and Sq. III-2. At this period Sq. III-1 was a pit roughly 12ft (3.7m) in diameter by about 2ft (60cm) deep, possibly artificial, and it was against the east wall of this pit that *Hearth No. 1* was constructed. This was a bowl furnace 11in (28cm) deep by about 10in (25cm) across the mouth, set in flints and lined with clay. The bowl was filled with black, charcoally soil with pieces of thin slag at the bottom and adhering to the sides. A ring of flints surrounded the mouth of the bowl and the clay of the lining was not hardened. If there was any superstructure it was not possible to define it as it would have been levelled when later floors were built over it. This hearth was Coghlan Group A(b)¹⁵ as there was no outlet for tapping slag and it was below the level of the surrounding ground.

Hearth No. 2 was a saucer-shaped depression about 2ft (61cm) across and 6 in (15cm) deep, in Sq. III-2, on the higher level, containing black, charcoally soil with traces of coal and iron debris (see Appendix 4). It lay in a foundation of flints lined with hard, grey-burnt clay. This lining spread out around the hearth in an irregular patch about 7ft by 4ft (2m by 1.3m) surrounded by a border of thin hard red-burnt clay. Small pieces of iron cinder lay at the bottom of the hearth and there was no outlet for tapping molten slag.

Finds

Rough red and grey pottery was found in proximity to both these hearths contemporary with that from Site 2 Period 1.

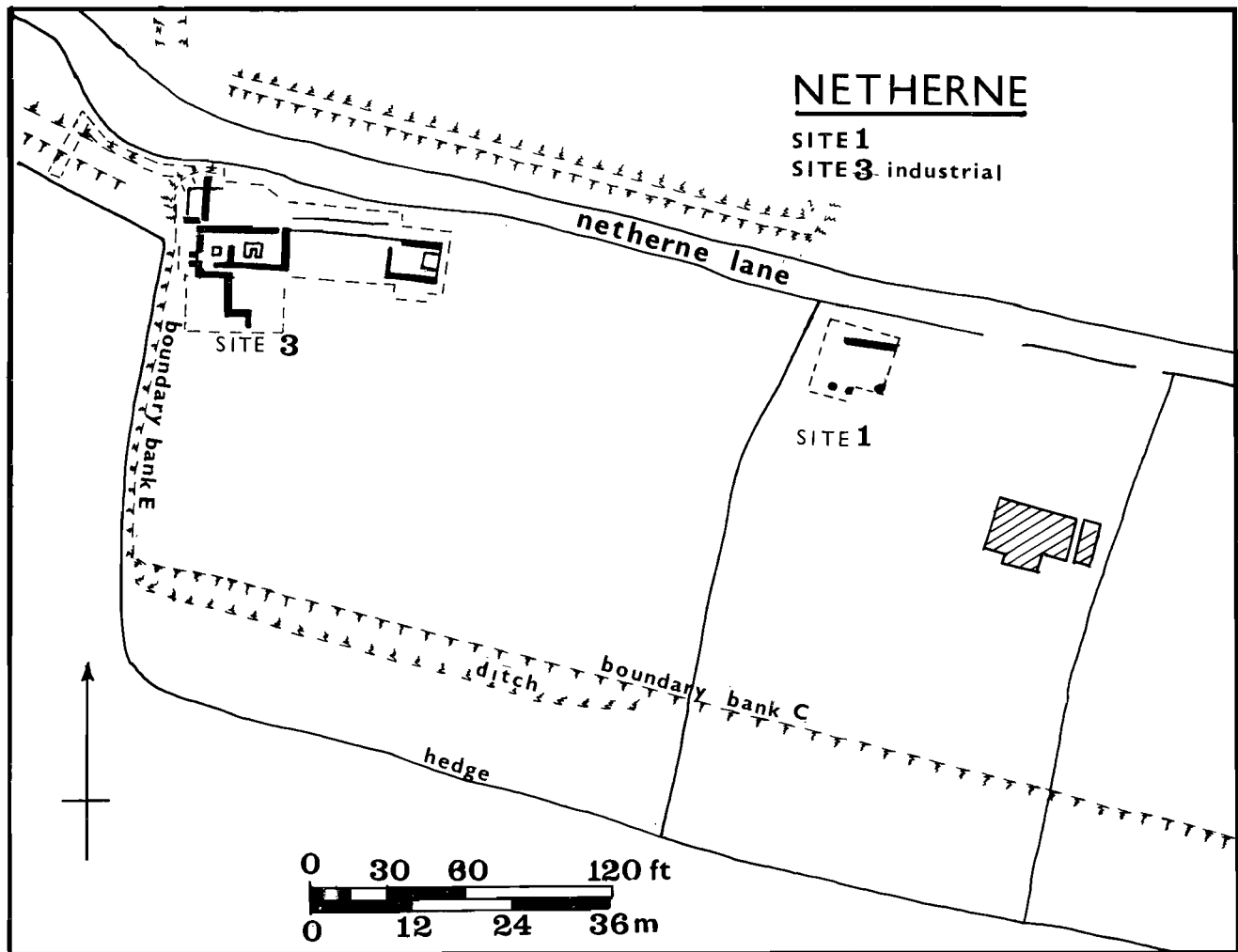


Fig. 12. Plan showing the position of the Industrial Site 3 in relation to the Boundary Banks.

Interpretation

The character of the two hearths is quite different and it is suggested that although it is clear that No. 1 was used for smelting, No. 2 may have been for forging.

No structures were found contemporary with these hearths, the use of which may have been seasonal.

PERIOD 1B (Fig. 13)

After a time, perhaps a few seasons or less, both hearths were demolished and covered over, No. 1 with clay and No. 2 with soil.

A new furnace was built in a small flint-and-clay platform against the north bank of the iron-working pit, Sq. II-1. This consisted of two small pits side by side, one being wider and deeper than the other (Figs. 13, 14 and 22).

Hearth No. 3 was 1ft 9in (53cm) across by 9in (23cm) deep above which the sides sloped upwards and outwards for a further 5in (13cm). The west side which was the more slanted, was encrusted with slag and there was a large lump of slag in the bowl beneath. The entire bowl was lined with thin layers of slag and was sunk in a lining of flints covered with clay. The clay of the bank behind it was burnt grey and hard. There was no outlet for tapping slag so this was also a Group A type bowl furnace, although it was not below the surrounding ground level.

Hearth No. 4 was shallower. An oval depression lined with clay and flints 10in (25cm) wide by 6in (15cm) deep. Unlike the other hearths it was lined with brittle vitrified ash and filled with soft grey ash.

Finds

A Limpsfield type sherd was found in *Hearth No. 4*. Small nodules of 'blister' bronze were found at this level (Appendix 8, Pl XIV) and also some bronze slag. Very little iron ore was found throughout this site but one piece has been analysed and pronounced to be of very good quality (Appendix 6).

Charcoal and coal were being used.

Interpretation

Iron-smelting and copper alloy working were being carried on at this time, which is contemporary with Site 2 Period 1. There may have been many such hearths and furnaces in the area, each probably not used more than a few times. The scarcity of iron ore shows that it was used with care and not wasted, since it was probably brought in from a distance. No ore-roasting furnace was found, but the modern road which runs alongside the site may have obliterated this and perhaps other hearths.

PERIOD 2A c. AD 1270

Over the entire area where iron-working had been taking place a floor of clean clay was laid. On this

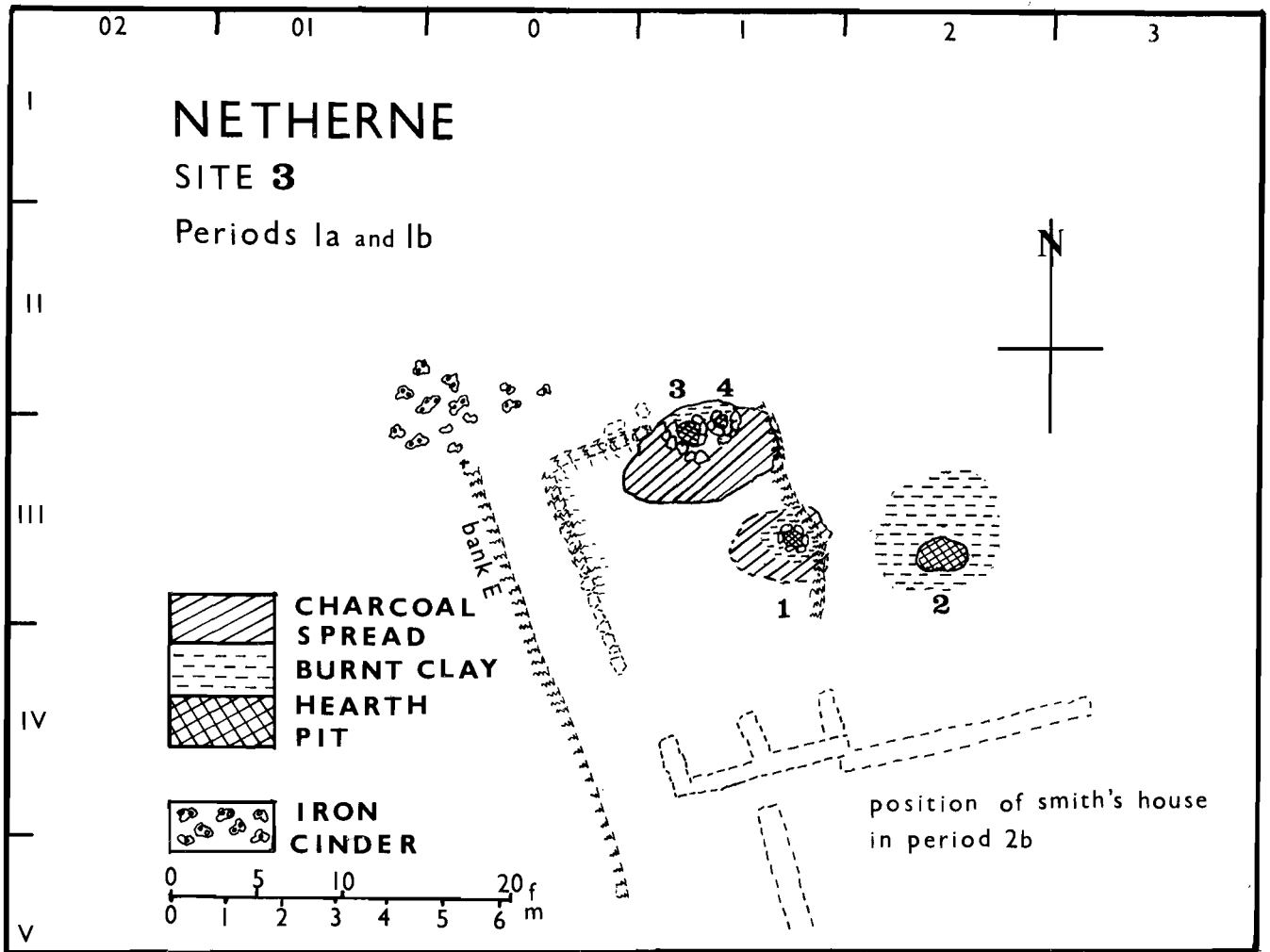


Fig. 13. Site 3, Period 1a and 1b. Early iron-working hearths.

floor, roughly circular, about 12-14ft (3.5-4m) diameter was found a layer of dense black charcoally deposit 1-1½ in (2.5 to 2.8cm) thick. This was covered by another layer of clay and the process was repeated at least twice more (Fig. 15).

Interpretation

It is possible that charcoal burning was taking place.

PERIOD 2 INTERMEDIATE

The charcoal burning area was neatly squared off with a flint and clay bank along the north and west sides the inside of which was faced with flints. Each side measured 12ft (3.5m). The floor was again covered with clay.

A Possible Tile Kiln (Fig. 16)

Within this enclosure was a structure of which very little remains other than the large flints of which it was built spread across the floor and the first course of stone blocks and flints which show part of its original shape.

Two parallel low stone and flint walls about 7in (18cm) high by 10in (25cm) wide and about 6ft (1.8m) long, though this may not have been the original length, stood on either side of a space about 3ft (90cm) wide. The northern wall was parallel to and about 2ft (60cm) from the north bank of the enclosure. There were some small lumps of burnt clay and a few pieces of

iron refuse inside the structure, but these were not adhering to it and were probably derived. The clay floor around and between the west ends of the walls of the structure was burnt red and hard and the surrounding ground surface was blackened with pieces of charcoal and coal mixed into it, but there was no iron refuse at this level. A small heap of clay stood against the east end of the south wall.

About the centre of the enclosure and to the south of the structure was a heap of flints and clay in which was a hole 11in (28cm) diam. by 8in (20cm) deep. Inside the hole was reddened clay and charcoal. It is not certain whether this feature was connected with the main structure.

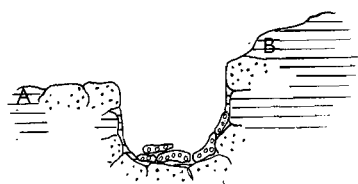
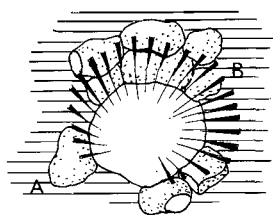
Interpretation

It is believed that this structure may have been a tile kiln. The west end shows unmistakable signs of fierce heat, though of the actual firebox there was no sign. The east end was too destroyed for one to be sure of its length or shape but it seems certain that this was neither an iron smelting furnace nor a forge, particularly as there was no iron debris at this level. For the same reason it does not appear to have been an ore-roasting hearth. Tile wasters were found in the vicinity though not in any great number.

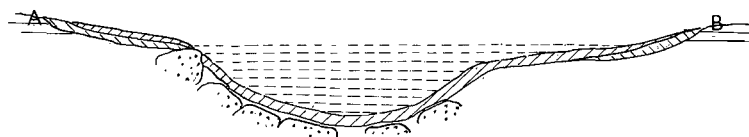
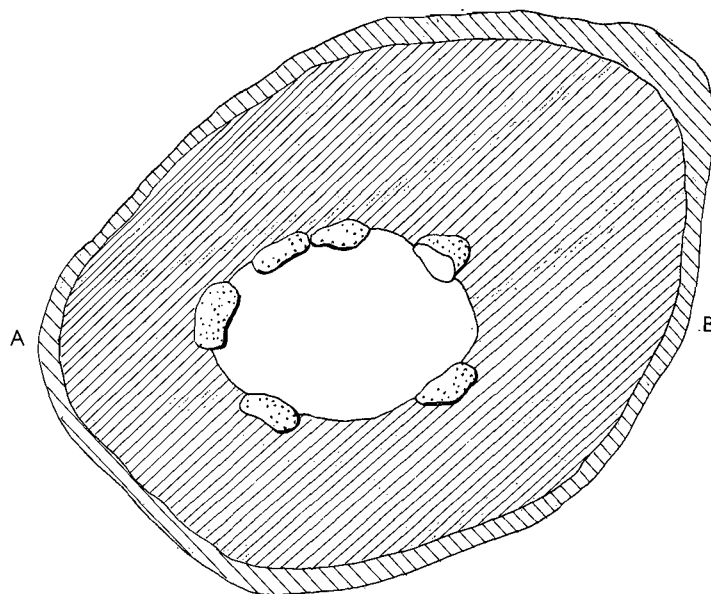
It is suggested that at this period the house was about to be built (see below p. 21) and tiles were required for the roof. All the ingredients for making roof tiles were to hand, clay, sand, fuel and water and this

SITE 3

PERIOD 1A

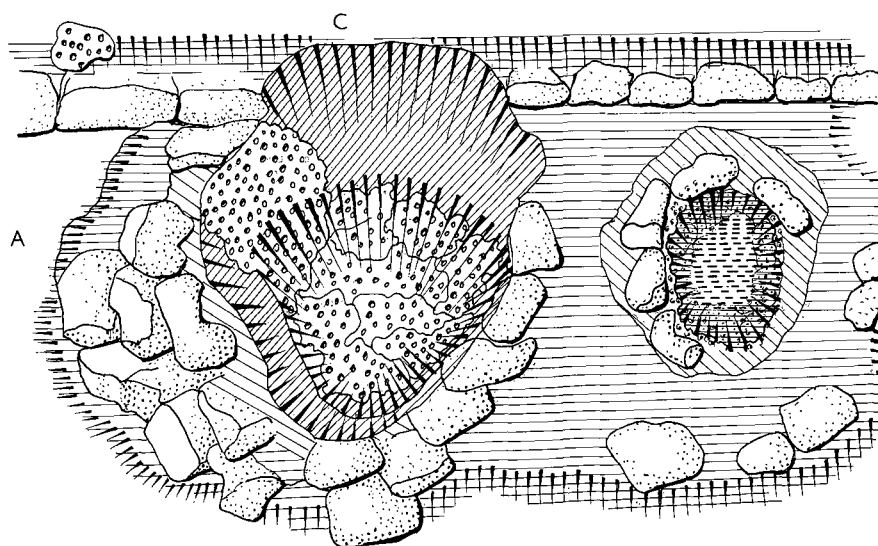


No. 1

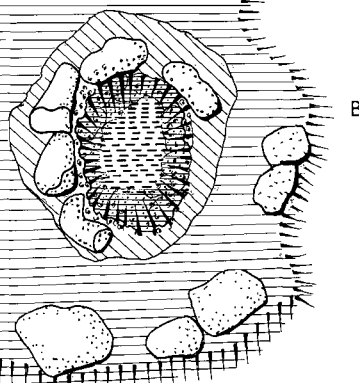


No. 2

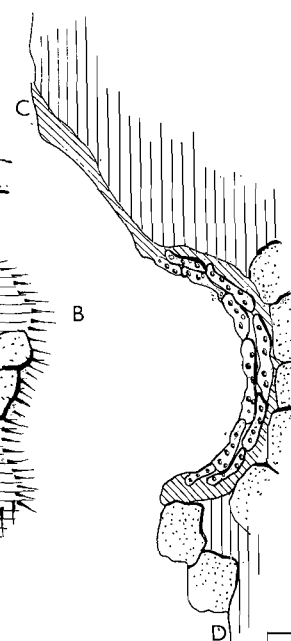
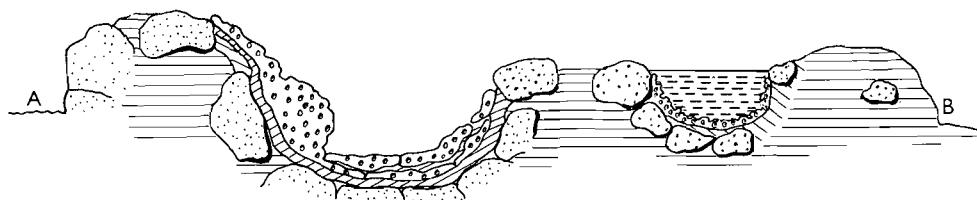
PERIOD 1B



No. 3



No. 4



	YELLOW CLAY
	BURNT GREY CLAY
	BURNT RED CLAY
	ASH
	VITRIFIED ASH
	SLAG
	FLINT

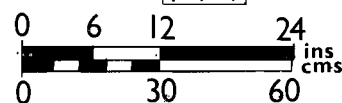


Fig. 14. Site 3, Period 1a and 1b. Detail of four iron-working hearths.

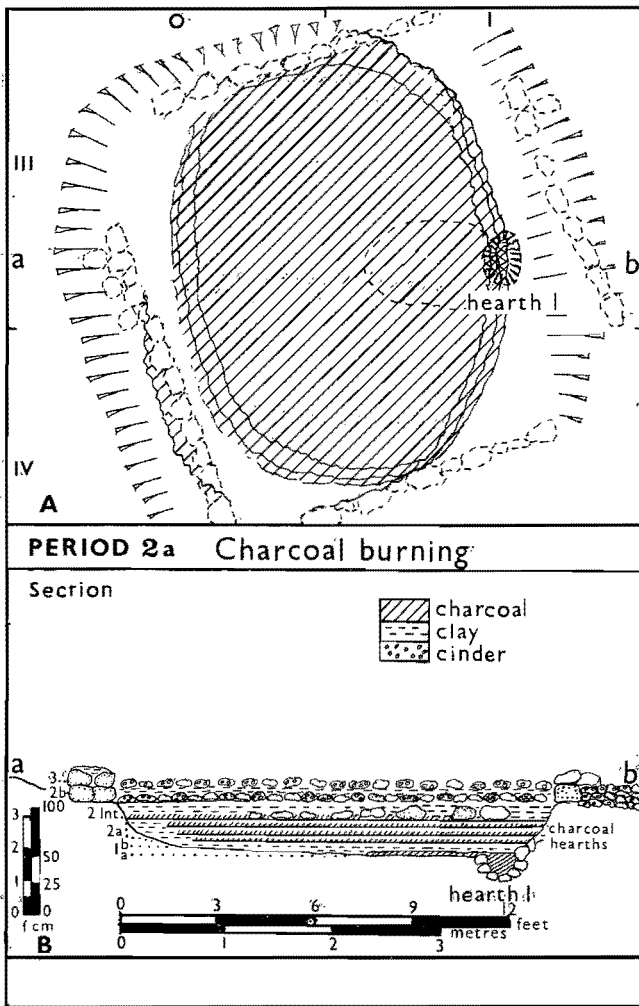


Fig. 15. Site 3: Iron-working area. A-Charcoal-burning hearths. B-Section, all periods, showing charcoal hearths beneath the kiln and furnaces of later periods.

small kiln was probably built to make sufficient tiles for this purpose and then destroyed. Charcoal burning may have taken place in order to make fuel ready for the kiln, although coal was also used and some patches of grey wood ash were found in the blackened floor.

The tiles for this house were different from the tiles for the manor house, Site 2 (Fig. 11a; D, E, F.) which would have been made at least thirty years earlier. It is possible that a tiler may have been contracted to do this work.

PERIOD 2B c. AD 1270-1340 (Fig. 17)

The House

South of the area in which the possible tile kiln had stood are the flint and stone footings of what was probably a timber-framed house measuring 20ft by 12ft (6.1m by 3.7m) internally. In the centre of this building was a small sandstone hearth measuring 23in (58cm) square, edged by a double row of broken roof tiles (Fig. 18A). At the south end of the house was a short screen or spere inside the doorway which led out to a cobbled yard via a paved area. Two short walls extended west from a doorway toward the south end of the west wall, indicated by a stone doorstep. Another entrance seems to have existed through the north end of the west wall where there is a gap and

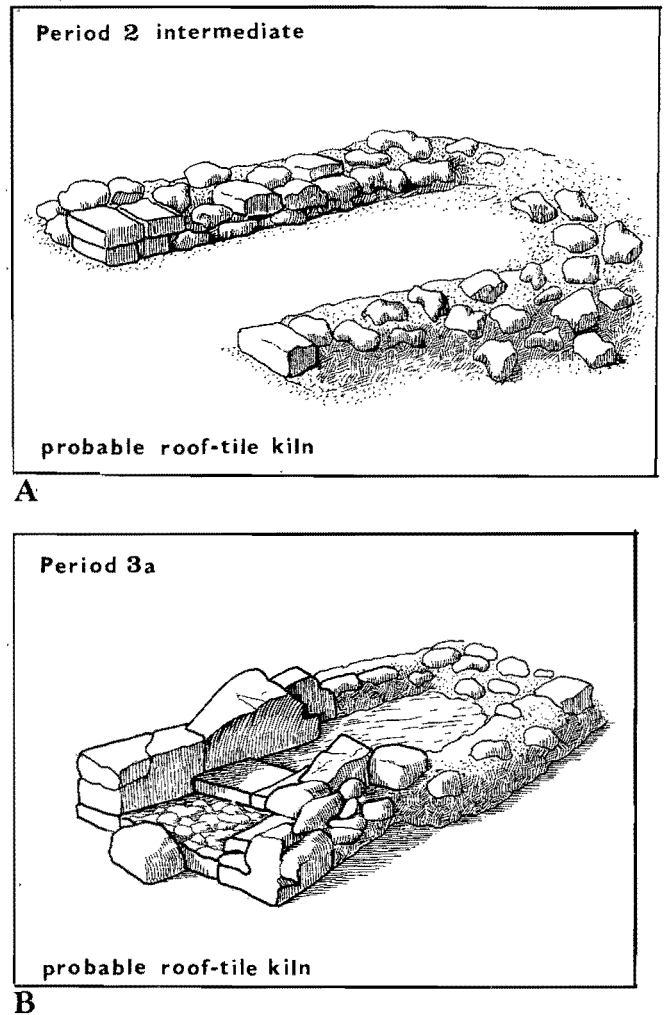


Fig. 16. Site 3: Probable roof-tile kilns. A.c. AD 1270 in Sq. III-1; B.c. AD 1395 in Sq. IV-8.

some large, flat flints set in the trampled sandy gravel floor of the house.

The north wall of the house had been built across a low mound of iron refuse from Period 1. It is curious that no attempt seems to have been made to clear this mound which actually intruded into the house and formed a low bulge against the north wall about 3ft (90cm) long by 10in (25cm) high in the middle. The footings were 1ft 3in (38cm) wide of large, carefully laid flints set in clay, but at the corners and wallplate bases were large squared blocks of sandstone. The east wall was complete only for its south half, leaving a large gap in which a door may have existed into the Hearth Enclosure.

Finds

Apart from a few body sherds of soft local red ware and grey Limpsfield ware, nothing was found in this building at this level, but it was surrounded by a horizon of roof tiles.

The Hearth Enclosure

Attached to the east side of the house was a rectangular structure 16ft by 12ft (4.9m by 3.7m) containing a large hearth formed of three well-shaped sandstone blocks, two of which were laid north-south and

the third east-west across the north ends of the other two. Between the north-south blocks was a space 1ft 3in (38cm) wide. The east side was 2ft 3in (69cm) wide and the other two were 2ft (61cm) wide. The whole hearth measured 5ft 6in (1.6m) square and the blocks were 8 in (20cm) deep. A line of fist-sized flints was packed along the outside edges of the east and west blocks, but not along the north block. The three blocks showed signs of burning and the east side was deeply fire-cracked and blackened, but the surrounding clay and gravel were not reddened, except for a small amount in the central channel (Fig. 18B).¹⁶

This hearth was also in use during the last period of occupation and it is not possible to tell when the greatest extent of burning took place.

There may have been an entrance into the enclosure direct from the house as the party wall ends half way across the building. There is also a wide gap at the east end of the north wall which, like the south wall had low but well-built flint, stone and clay footings. The entire east wall is missing except for a few large flints which may be the remains of footings, but the structure may have been open at this end during this period. There is no evidence of roofing over the structure.

Finds

A silver halfpenny of Edward III (See Appendix 11) was found near the line of the east wall.

The Iron Working Area

At the northwest corner of the site where the possible tile kiln of Period 2 Intermediate had been demolished and the materials of which it was built spread across the floor, a good covering of clay and cobbles was laid. A small bowl furnace was constructed in the north-west corner measuring 1ft 6in (46cm) diam. by 11in (28cm) deep. This pit was lined with stone and clay and surrounded by two courses of flints. It was filled with black soil, pieces of charcoal and coal, broken iron objects, slag with burnt clay attached and lumps of black porous burnt material containing fine drops of slag and hammer-scale.¹⁷ Rising from the back of the pit was a narrow flue cut into the clay bank. It was about 1ft 6in (48cm) long and adhering to the side near the bottom was a lump of slag. The surrounding ground level was blackened and there was much iron refuse mixed into it.

The Yard

The yard to the north of the house appears to have been used as a tip for iron slag and cinder. This refuse was also used in the paths surrounding the house and in the roadway between the iron-working area and the forge (Period 3) but enough was left to form a low mound over 15ft (4.6m) long. This mound, together with the same material mixed with the floors in the iron-working area weighed over two tons.

Much of the mound was spread out over the yard and then covered with a good layer of cobbles which were laid particularly thickly along each side of the house, perhaps to act as drainage for water dripping from the eaves.

Interpretation

With the expansion of the property which took place c. 1270 a permanent house was required, perhaps for

a smith. This was probably a house of 2 bays, 8ft (2.4m) wide on the ground floor, with a half bay containing the entrance passage. The short walls outside the west wall may indicate a garderobe. As there was no sign of plaster the timber and wattle walls were probably daubed with clay. It was roofed with clay tiles.

The purpose of the large hearth in the Hearth Enclosure is not known. It does not seem to have been a domestic hearth; in any case the house itself was already equipped with a hearth. The walls were very close to the hearth which may have had a hood as there is no sign of a roof over the enclosure.¹⁸

The small furnace in the north-west corner of the iron-working area hardly seems to warrant the building of the house and it has been suggested that the large hearth was a ground level forge. This would be reasonable except that there was no trace of hammer-scale on the clean floor. It is possible that there was another forge or forges which were not discovered.

It is probable that at this period the road between the north-west corner of the Industrial Area and the valley road leading to Merstham was constructed, indicating greater communication between the Manor and the village. (Fig. 12.)

PERIOD 3 c. AD 1395-1405 (Figs. 17 and 19)

A considerable period of time, perhaps fifty or sixty years, elapsed between Periods 2 and 3. Had there been occupation throughout this time much more pottery would have been found. Almost all the pottery on this last occupation level was of good quality off-white, Cheam and some hard red ware. The grey Limsfield type had disappeared. Some of the finds can definitely be dated to the end of the 14th century or early 15th century and sandstone blocks used in the construction of the forge and its building are re-used window jambs, string-course, etc., apparently robbed from Site 2.

PERIOD 3A c. AD 1395

A Possible Tile Kiln and Clay-Puddling Tank.

Forty feet (12m) east of the old Hearth Enclosure are two structures which are believed to have been a tile kiln with a tank for puddling the clay to make the tiles for the new roof over the long shed which was to be built between the Hearth Enclosure and the Forge.

The Tank

This is the more complete structure as it was preserved intact when the forge was built over it. Measuring 7ft (2.1m) square, the north and south walls were composed of extremely hard-packed flints in yellow clay 1ft 6in (46cm) in height and width and the east and west walls were of sandstone blocks set in clay to the same height. The floor of the tank was of flint over which lay 6in (15cm) of clean clay and the walls were lined with clay. There was a layer of brownish substance covering the south-western part of the floor which proved to be mostly organic on analysis.

The Possible Tile Kiln (Figs. 16b and 20, Pl. VIII)

Standing close to the tank and in line with it was a structure which at first looked like a small pottery kiln. Two slabs of sandstone formed a hearth 1ft 4in

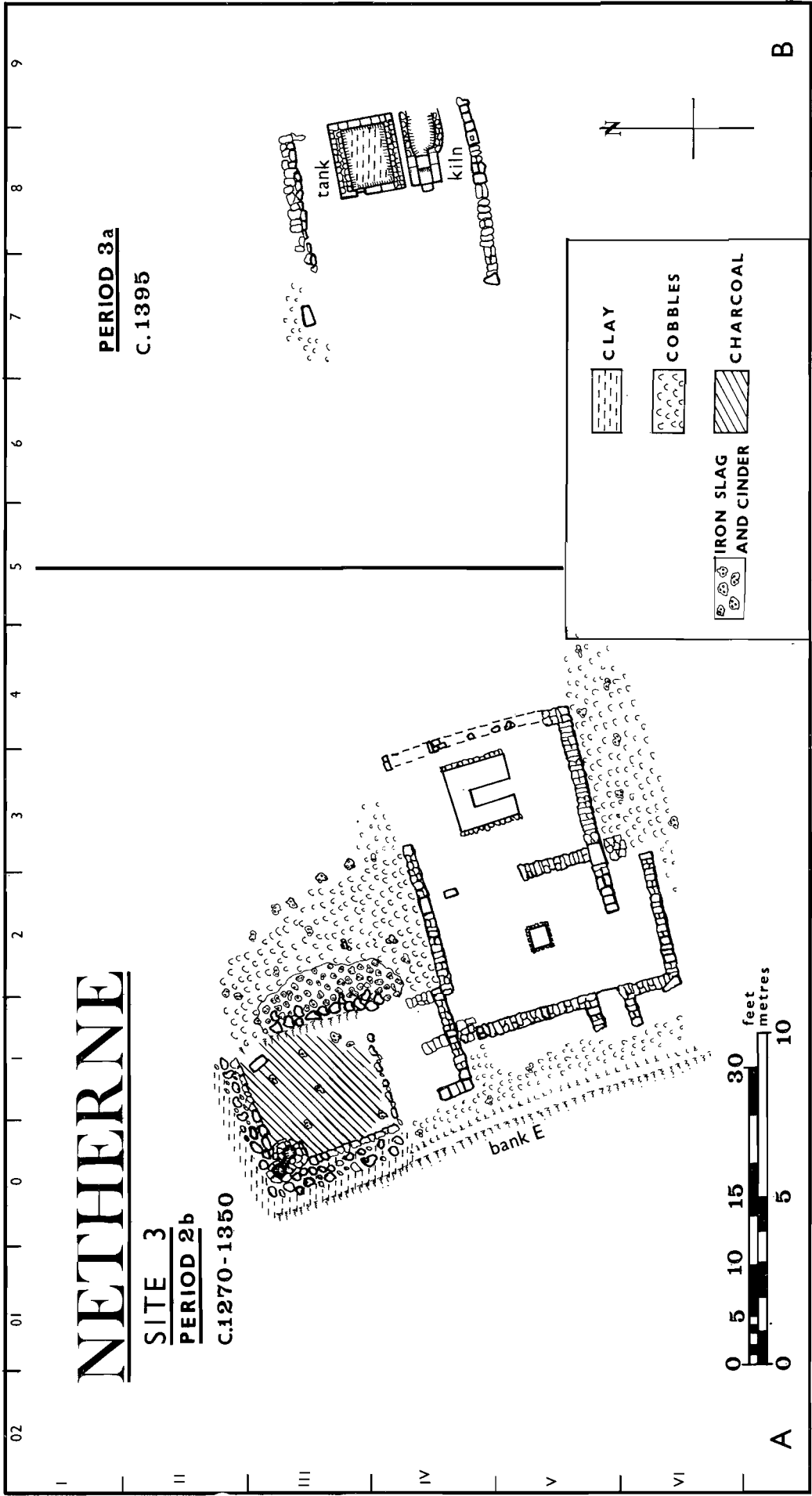


Fig. 17. Site 3, Periods 2b and 3a.

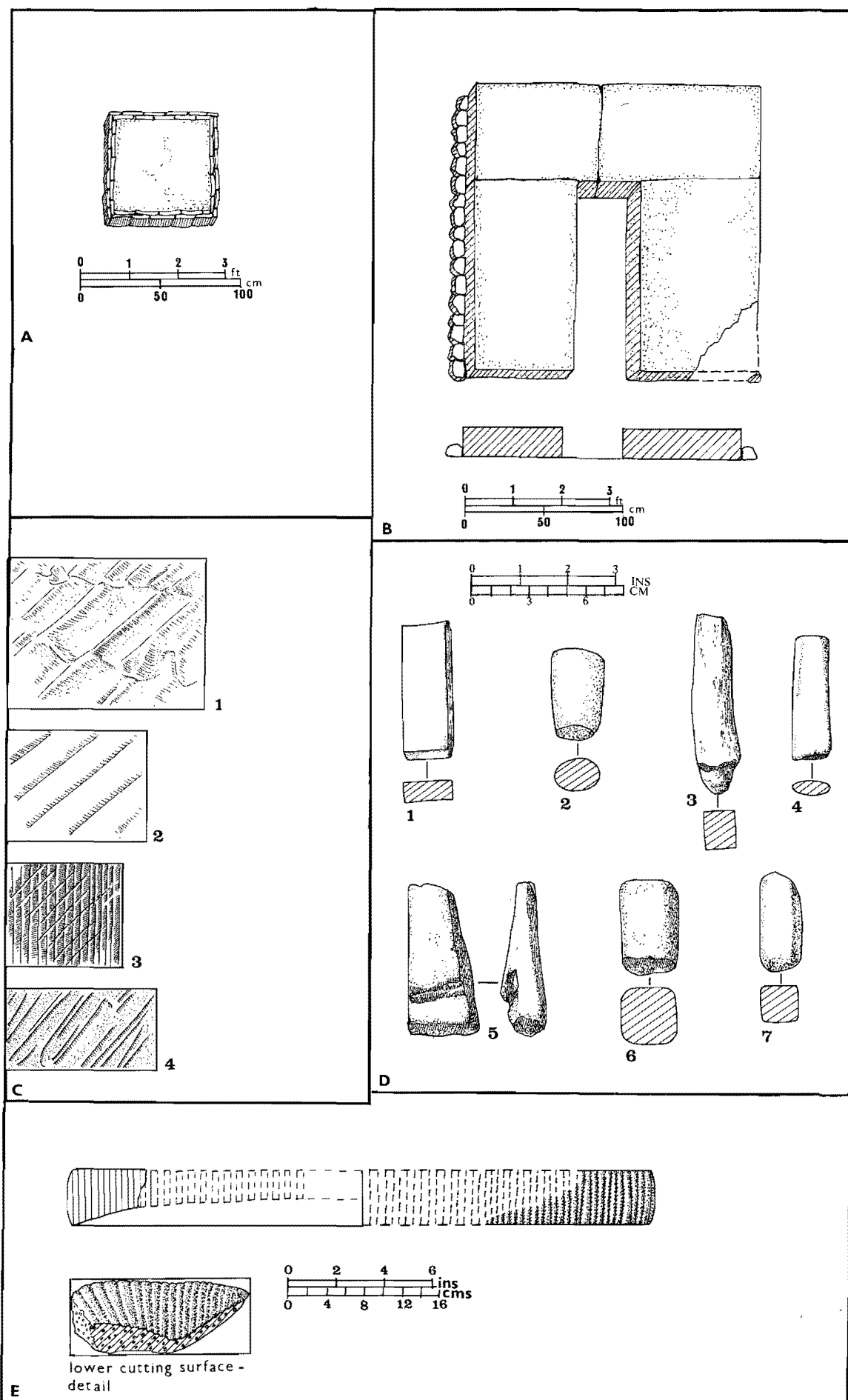


Fig. 18. A. The domestic hearth in the smith's house (Periods 2b and 3); B. The large hearth in the enclosure adjoining the smith's house (Period 2b); C. Examples of tool marks on building stones, drawn from rubbings; D. Hones (Appendix 1); E. The upper stone of a pot quern.

(41cm) wide by 2ft 4in (71cm) long set between sandstone slab walls each 1ft 3in (38cm) high from the ground. The line of the north wall of the hearth, or firebox, was continued parallel to the tank wall for about 4ft (1.2m) as a low, very hard bank of clay and flint, but its original length is uncertain as the east end was destroyed. The south wall, composed of the same material, appeared to curve slightly, forming a D-shape, but it is not possible to say exactly what the internal measurements were as both walls had been demolished and the flints pushed into the oven. At the junction of the oven walls with the firebox walls the clay was burnt red and very hard. Lying across the back of the firebox was a long slab of sandstone, one side of which was burnt black and fire-damaged, as were the insides of the firebox slabs and particularly the front hearth slab.

Finds

All the pottery found in these two features was contemporary with that from Site 2, periods 1 and 2 with the exception of half the base of a Cheam-type pot which was found lying loose inside the oven of the possible kiln.

Interpretation

The above two features are considered together. It is believed that the same sequence of events took place as for Period 2. At the end of the 14th century, fifty or sixty years after the manor house was abandoned, it was decided to erect a large forge on this site (see below,) and to repair the small house and make it habitable for a smith. Between the house and the forge a long shed was to be built, the roof of which would require a considerable number of tiles, probably between 5000 and 6000 for the shed alone. Also the house needed re-tiling which is evident from the number of broken tiles lying around it at the Period 2 level. A small kiln was therefore built to produce the tiles on the spot and a low-walled tank was erected in which to puddle clay.

The situation and shape of these two structures must have been planned with the object of using them in the construction of the forge when their purpose was served. Had this not been so they would not necessarily have stood in line with the shed so that when the complex of buildings was finished the whole formed a long, narrow structure, thus saving labour and materials for building extra frames and gable ends.

The possibility that the kiln was for pottery, which, in the first instance, seemed more probable from what remains of its shape, is ruled out as there is no heap of pottery wasters.

Consideration has also been given to the idea that it was a ground level forge and the tank was to contain water for quenching, but this interpretation, too, is unlikely for the following reasons:-

1. The actual shape of the firebox, narrow and enclosed on both sides, would make access to the fire difficult.
2. It was more usual to have a hood over the forge hearth, so that there was room for a bellows-man and a smith to work together (see Fig. 39c).
3. There was no hammer-scale.
4. When the tank was filled with soil and rubbish as part of the platform on which the forge was constructed, several lumps of burnt red clay were found in it. These are likely to have come from a kiln.

5. Tile kilns are usually themselves constructed of tiles which can withstand fierce, prolonged heat, but the local firestone of which this feature was made is also known for this property. Some burnt tiles were, however, found on the site and could have been incorporated in its construction.

The main factors against its being a tile kiln are the shape of the oven and its small size, but owing to the deliberate destruction as soon as its work was finished and the possible trimming at the east end to fit the platform for the forge which was then constructed over it, it is not possible to say exactly what shape or size it was. Tile wasters were found on the site.

The brown film of organic material on the bottom of the tank suggests that the tank stood open for a while, probably during the autumn while the shed was being built.^{19,20,21}

PERIOD 3B c. AD 1395-1405 (Fig. 19)

The Forge (Figs. 20 and 21)

No parallel has so far been found for a forge of this type during the medieval period.

The old Tank was filled in with soft soil containing pieces of red burnt clay, charcoal, coal, early type pottery, flints, stones, etc. The two side walls of the Tank were raised to a height of 1ft 9in (53cm) and the back wall was built up to the same level with clay and stone blocks, some of which were shaped door and window jambs. The space between the Tank and the possible Kiln was also filled in with clay and flints and the rear part of the Kiln was levelled and filled in. The rectangular platform of earth, flints, etc., thus obtained measured 7ft by 9 ft (2.1m by 2.7m).

Two raised level surfaces of sandstone were now laid on the north-east and south-west corners of this structure measuring 3ft 6in (1.1m) square and 3ft by 2ft 6in (91cm by 76cm) respectively. The north-west corner was lowered slightly, given a bottom of packed flints and clay and surrounded by a low curb of stone string-course blocks, probably robbed from Site 2. This pit was filled with soft blackened soil containing flecks of charcoal. The south-east corner was too damaged to be sure how it was surfaced.

The north-east surface was blackened but not fire-damaged, giving the impression that it was smoke rather than fire which had passed over it. The south-west surface was deeply fire-damaged and blackened. The pit in the north-west corner seems to have been the actual fire-pit judging both from its construction and position.

The whole structure was probably covered by a tiled hood. Fallen tiles lay thickly over it, some of which were mortared together in clumps. Two slots were built into the front of the structure to admit timber uprights, each 8in by 4in (20cm by 10cm) and burnt wood was found in one of them. It is a curious fact that although the sandstone was severely blackened and fire-damaged there was little sign of cracking on the flints. The clay in the structure was reddened but not baked hard.

The Anvil Base

Lying in front of the fire-pit at a distance of 14in (36cm) was a large flat block of sandstone, D-shaped and tooled, obviously re-used. It was 3½in (9cm) thick and was in an ideal position to serve as the base for a wooden block on which the anvil would have stood. A

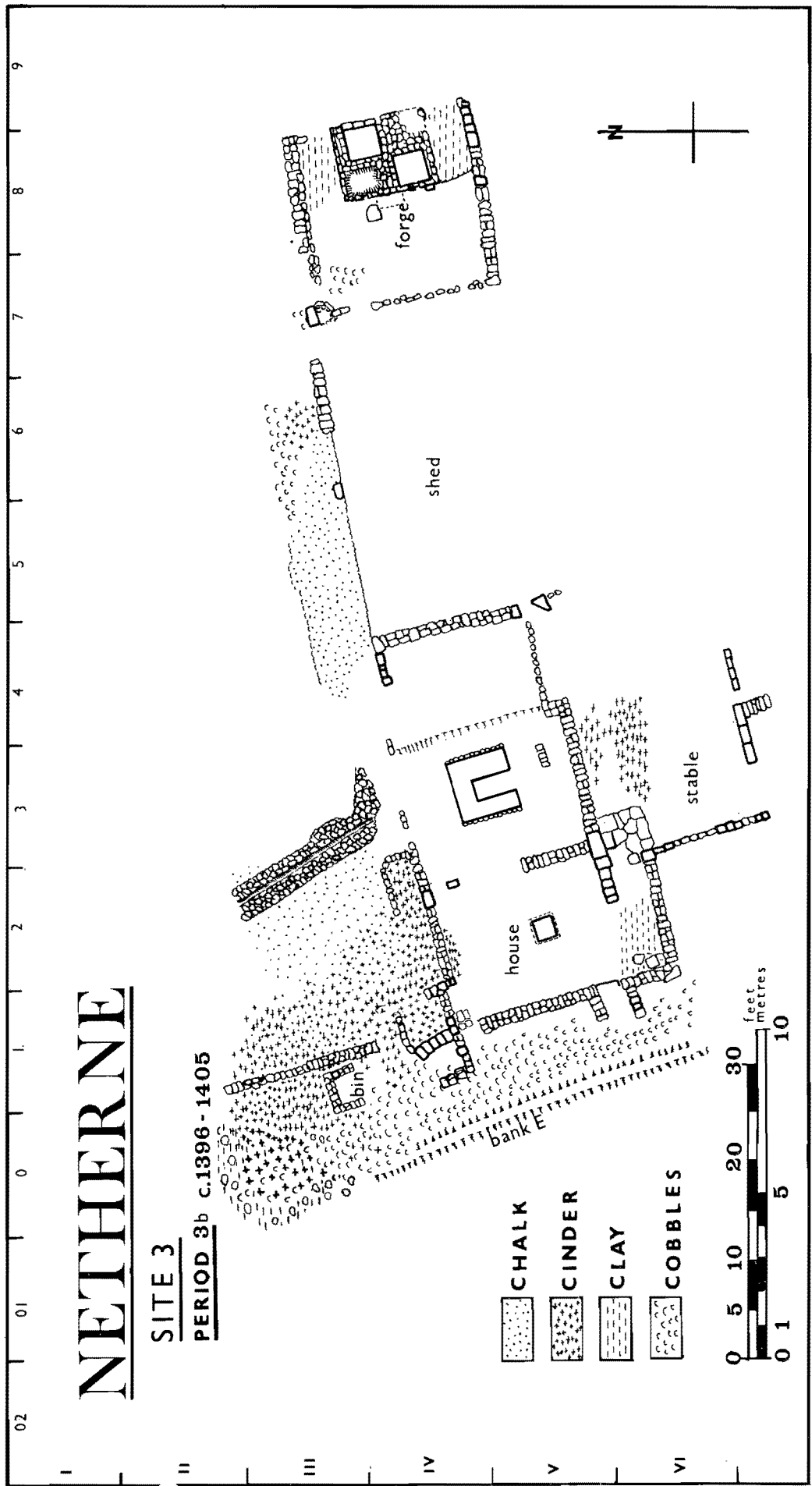


Fig. 19. Site 3, Period 3b

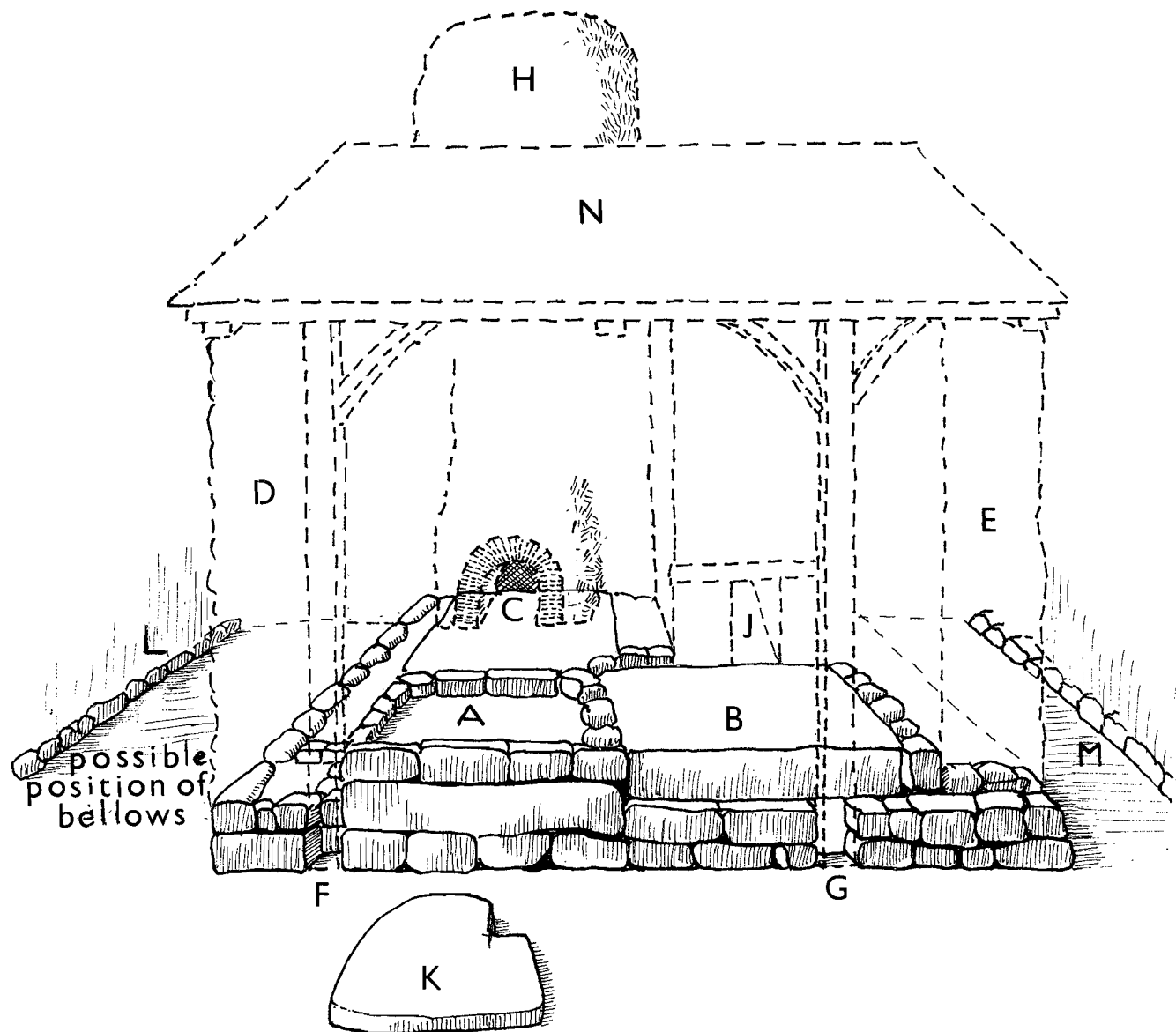


Fig. 21. Suggested reconstruction of the Forge in Site 3, Period 3b. (Dotted lines are conjectural)

- | | |
|---|---|
| A. Firepit | J. Charcoal shute |
| B. Burnt working surface | K. Anvil base |
| C. Tile-lined chimney | L. M. Footings for east and west walls of enclosure |
| D. E. Solid flint-and-clay walls | N. Tiled roof |
| F. G. Slots for timber posts | |
| H. Flint-and-clay chimney outside rear wall | |

small piece was cut out of the perimeter of this block. This must have been done deliberately as the guide lines for the cutting are still visible on the surface of the block. The fact that this was done on the spot is proved because the missing piece was found built into the wall of the forge. Fitted into the notch was a block of rotten sandstone 2ft 6in long by 9in wide and about 8in high (76cm by 23cm by 20cm) which may possibly have been a trough for holding water for quenching. Beneath the Anvil Base was a thick layer of dark working floor of Period 3a. The floor surrounding it and along the entire front of the forge was covered with soft, dark, charcoally earth in which were mixed fragments of coal together with brown minute flakes of hammer-scale which had collected particularly in the crevices at the base of the stones of the forge wall, but there was none beneath the anvil base.

The Forge Building

The north and south walls of the building were erected on flint and sandstone block footings most of which were re-used shaped pieces. There is no trace of an east wall but there may have been a light structure between the Forge and the two side walls as there is a definite change in colour and texture of the floor levels and outside the building; outside being clean, sandy gravel contrasting with the dirty occupation floor inside the building.

Outside both sides of the building, level with the Forge hearth, lay masses of fallen flints, but between the hearth and the west end of the building there were no flints. This indicates that on either side of the hearth the walls were entirely or largely built of flints, but where protection from the heat was not so necessary

they may have been of wood. There was no sign of daub. Roof tiles lay along both sides of the building.

The development of the various iron working hearths and tile kilns is shown in Fig. 22.

The House

This building was probably repaired and rendered habitable. The footings of the north wall had at least three layers of cobbling, cinder and chalk resting against them. Plain ridge tiles and hip tiles were found. The timbers may still have been good from the earlier period and the small domestic hearth was used again, though a fresh floor of sand was laid down, sealing the earlier pottery.

Finds

Good quality Cheam ware with green glaze predominated but was not very prolific, the inside of the house being remarkably clean.

Close by the hearth but three inches beneath the floor was a silver Soldino dated to the end of the 14th century (see Appendix 11, p. 63).²²

The Hearth Enclosure Extension

The east wall of the Hearth Enclosure was demolished and a further 10ft (3m) were added to it, making a room 24ft by 16ft (7.3m by 4.9m). A partition may have remained along the line of the old wall, however, as the floor of the new extension was at least 8in (20cm) above that of the old part. Roof tiles lay thickly along the north and south walls and the interior was very clean.

The large hearth was covered with burnt wood, ash and roof tiles but there was no evidence of burning in any other part of the building. There was a large posthole in the centre of the east wall, the only one found on the site.

Finds

Cream, green-glazed pottery and a few pieces of red pottery were found in this building, together with two pieces of 'butter pot' beside the hearth. Pieces of a large stone mortar were built into the southeast corner (see Appendix 2, p. 48).

Possible Stables

To the south of the house an enclosure 16ft (4.9m) square was constructed on rather poor stone footings. The flint and iron cinder floor was dirty and many pieces of rubbish such as horseshoes, nails, buckles, etc., were found here.

The Shed

The space between the east end of the Hearth Enclosure and the Forge was now used as a Shed, 36ft long by 16ft wide (11m by 4.9m), and roofed with clay tiles. A wooden or wattle wall may have been fitted along the north side as the chalk road which ran between the Yard and the Forge had been neatly edged with larger chalk lumps and had not spread into the Shed. The sandy floor was remarkably clean and beneath the sand was a hard standing of clay and cobbles. There was no wall along the south side of the Shed. The House, Hearth Enclosure and Shed now formed a long, narrow complex, 76ft long by 16ft wide (23m by 4.9m).

The east end of the north wall of the Shed was built

on a short line of footings, 8ft (2.4m) long, and a large stone block may indicate a door through into the Forge in the northeast corner.

The Road

A short but well constructed road ran between the Yard and the Forge. It was 8ft wide (2.4m) and consisted of cobbles, iron cinder or slag covered by small chalk lumps to a depth of 6in (15cm).

The Yard

The entire iron-working area and the Yard were levelled and covered with iron cinder, slag and cobbles and finished off with a layer of chalk. The west wall of the House was extended across the Iron-working area. A three-sided construction on flint footings, 5ft (1.5m) wide, open toward the House lay on the west side of this wall. It contained many fragments of charcoal and may have been a charcoal bin.

A 5ft (1.5m) wide path of packed flints was laid diagonally across the Yard, down the centre of which ran a channel 8in (20cm) wide. The purpose of this feature is not known and it is not thought to have been a drain as it slopes slightly toward the Hearth Enclosure Extension rather than away from it. Its original length is not known as it fades out after 16ft (4.9m). Two ox-shoes were found in this path.

Finds

A quantity of pottery was recovered from this period. Most of it was of good quality white or cream Surrey or Cheam ware and much was green glazed. Copper alloy and iron objects were numerous including horse-shoes, tools, nails, dress ornaments, etc.

General

Although the life of the site covered a span of about one hundred and fifty years there was very little stratification except in the Iron-working area (Sq. III-1 and 2). Otherwise all Periods occupied a depth of no more than 6in (15cm) beneath the topsoil. The Iron-working area, however, showed good stratification through 2ft 10in (86cm) owing to the gradual filling up of the pit in which it was sited by successive layers of floors.

Coal was found throughout all periods on this site. (See Appendix 3, p. 50).

General interpretation of Site 3

Iron smelting and forging were carried on in small furnaces and hearths in the mid-13th century, producing sufficient ironware for use on the farm as required. No evidence of a permanent building to house a smith was found at this period and the use of the hearths may have been seasonal.

During the last quarter of the 13th century and first half of the 14th century, with the expansion of the land held by the manor and the increased prosperity of the owner a permanent artisan's house was built, preceded by a small tile kiln for manufacturing the tiles for roofing the house. Smelting was no longer practised.

After the abandonment of the house on Site 2 *c.* AD 1345 there was no occupation of the site until the end of the 14th century, when a large Forge was constructed. This was probably also preceded by a small Tile

THE DEVELOPMENT OF IRON-WORKING HEARTHES AND TILE KILNS

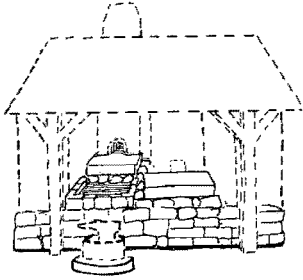
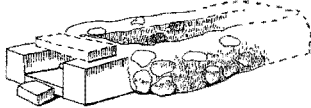




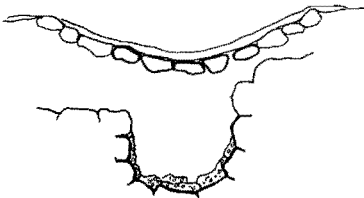
PERIOD	STRUCTURES not to scale	ASSOCIATED WITH	POTTERY	ESTIMATED DATE
3b	 (superstructure conjectural)	Hammer-scale forge cinder	Cheam	End of 14th Century
3a		Tile wasters burnt clay	Cheam	End of 14th Century
2b		Forge cinder	Later Limpsfield Surrey	First third of 14th Century and Last third of 13th Century
intermediate		Tile wasters burnt clay wood ash		c. 1270 AD
2a		Charcoal and clay floors	Local red later Limpsfield	
1b		Bloomery slag, vitrified ash, pieces of bronze slag	Early Limpsfield	Middle of 13th Century
1a		Ash Bloomery slag	Early Limpsfield	Middle of 13th Century

Fig. 22. Site 3: The Development of ironworking hearths and tile kilns.

kiln for producing sufficient tiles to roof the new buildings and was then demolished. The small House was refurbished and re-tiled and stables were added to it. A long Shed between the Forge and the House was erected and for a short time, perhaps not more than three or four years, forging may have been practised on a fairly large scale.²³ This period ended as suddenly as it began, since when the site has never been occupied or cultivated.

CONCLUSION

The lands of the sub-manor of Alsted existed in the 13th and 14th centuries at first in the north west corner of the manor and parish of Merstham, but later spreading over almost half the entire parish, including that of the sub-manor of Alberi.

The first building, of which there are only nebulous traces, may have been a small farm house or hall, built of timber, standing in about 100 acres. Nothing is known of this building from documentary evidence. It was not mentioned in the Domesday survey for Merstham, but there are many sites in Surrey which appear to have escaped the Commissioners and many others which were not very fully reported. Both the name and local tradition suggest a Saxon holding on this site.

This report therefore starts with the small sandstone and flint first-floor hall, constructed shortly before the mid-13th century, Site 2, Period 1. Almost complete chalk foundations were discovered together with eighteen feet of a wall still standing five courses high, showing the method of construction. Stonework from this period, re-used elsewhere, together with comparison with contemporary buildings still existing, provide further clues as to its original appearance. The earth banks which still surround a large part of the demesne show the extent of the original holding into which there may have been an entrance at Site 1, where traces of a small stone, flint and tile building were found. The hall, banks and possible gatehouse contain identical pottery.

In accordance with the normal practice, a certain amount of iron was being smelted and forged into objects for use on the demesne. The pit hearths used for this purpose were found but although pottery identical with that of Site 2, Period 1 was discovered on the site, none was actually in or very close to the hearths. However, since this pottery was found at the same level on Site 3 it is reasonable to suppose that the hearths were operating, possibly seasonally, during the mid-13th century.

When the Period 1 house was demolished at about AD 1270, the new aisled hall, solar block and kitchen were constructed of timber, flints and re-used sandstone blocks from the Period 1 house. The Period 2 structure shows that alterations were carried out during the probable seventy to eighty years of its existence. This was a time of prosperity and expansion for Alsted when its lands were increased from 100 to over 500 acres. At first a separate kitchen, possibly including the services, was built in line with the hall. A bathhouse or garderobe was added to the solar block and a strong flint boundary wall with a gatehouse was built along the west edge of the demesne. A courtyard measuring almost two acres was levelled between the boundary wall and the house. It seems to have been usual to enter the house from

across the courtyard at this time, so the new gatehouse may have replaced the old one on Site 1 as a main entrance. This in turn would suggest a new access road, probably the good chalk and flint roadway found on Site 3 leading away down the hill towards the village of Merstham. No sign of a path was found between Site 1 and the manor house, but cultivation of the field which lies between them and the construction of Netherne Lane may have obliterated any traces. There was an old roadway, now ploughed out but still visible as a cropmark running from the corner of Netherne Lane near Site 1 to the present Alderstead Farm, showing the connection between the two buildings. This was part of the hill road from Merstham to Croydon and the access road to Alsted may well have led from it.

Probably in the first quarter of the 14th century a new kitchen block was constructed to the north of the house. The west wall of the house was demolished and the space between it and the old kitchen services building was roofed over, thus enlarging the hall and incorporating the strong flint wall of the old kitchen into the structure of the hall.

During this period the iron-working site had developed from the primitive pit hearths of Period 1 to a permanent small ground level forge with a timber-framed house for the smith. The pottery from this level is identical with that found on Site 2, Period 2. Other hearths may have existed.

The last documentary evidence of the existence of Alsted as an occupied house was dated AD 1332 when tax was being paid on it.

The house seems to have been partly demolished in order to dismantle its timbers. It had not been strongly built, having no mortar in the walls and its hall roof was only of thatch or shingles. The footings were not laid in foundation trenches and it would probably not have lasted much longer without extensive repairs or rebuilding. There is no evidence of occupation in the area until the turn of the century, approximately fifty years later.

When, at about the end of the 14th century, the forge and its buildings were re-built and used for a short time, Period 3, the pottery found was of a quite different character. Good quality Cheam ware predominated while the local red ware was much harder and better made. An Italian coin dated AD 1382-1400, a spur and a dress ornament dated to the late 14th and early 15th centuries indicate the date of the last occupation of the site and a remarkable forge was constructed which, judged at least by its size, would have been capable of manufacturing a considerable amount of ironware. At this time there was no manor house closer than that which is now Alderstead Farm and Merstham village is even further away.

The excavation of this lost manor house shows its development from a small farm in the early 13th century to a prosperous estate in the mid-14th century when, after a short period of running down, it was abandoned. The development of manorial iron-working from the primitive methods of the early period to the sophisticated forge at the end of the 14th century has also been learned, (see Fig. 22) while documentary evidence has produced a history which suggests reasons for the various alterations in the three sites, thus presenting a probable portrait of a sub-manor house during the 13th and 14th centuries.

NOTES AND REFERENCES

1. A.R. Rumble gives the following note on the name ALDERSTEAD in his paper on 'The Merstham (Surrey) Charter-Bounds, A.D. 947' in *Journal 3* of the English Place-Name Society (1970-71): 'Aldestede, 1211, 1225, 1328; Aldested, 1290; Aldstede, 1328; Alstede, 1225, 1327, 1366; Alderstede, 1332; Aldersted(d), 1522'
'Unless two separate *stede* names have been conflated in the above forms, the one with first element *eald* 'old', the other with first element *alor* 'an alder', it would seem that the modern p.n. Alderstead is a corruption of 'the old *stede*' with the original first element 'eald'
If this is correct, there was already an old *stede* on the site in 1211, which may account for the possible pre-Conquest Hall floor, Alderstede being, of course, a Saxon name.
2. Jolliffe, H. H., Lord Hylton. 'A rental of the manor of Merstham in the year 1522'. *Sy. A.C.*, 20 (1907), 94-8.
3. *Cal. Inq. p.m.*, no. 32, vol. 2..27 Mar I Ed. III. Edmund de Passelee
4. PRO. Exch. K.R. Accts. Bundle 466, no. 30
5. *VCH* 1, 9-10
6. Salzman, L. F. *Building in England down to 1540*, 1952, 127-30
7. *Litterae Cantuarienses* (Rolls Ser.), vol. 1, no. 421
8. Rumble, *op. cit.*
9. Straker, E. *Wealden iron*, 1931, 35; Hart, E. and Winbolt, S. E., 'Thundersfield Castle, Horley: a mediaeval bloomery'. *Sy. A.C.*, 45 (1937), 147-8
10. Wood, M. E. 'Thirteenth century domestic architecture in England'. *Arch. J.*, 105, Supp., 1950, 107
11. This was recognised immediately as Fullers Earth from the upper strata at Nutfield, suitable for using as soap, by E. Stevens, ex-employee, Fullers Earth Union, Ltd., Nutfield, Surrey
12. A kitchen placed similarly in line with the Hall is at Thorpe Lodge, Ellington, Hunts., though that building was possibly a hundred years earlier. Tebbutt, C. F., Rudd and Moorhouse. *Proc. Camb. Ant. Soc.*, 63(1971), 37
13. Wood, M. E. *The English medieval house*, 1965, 139.
14. Wood, *op. cit.* in note 11, 109, Little Chesterford, Essex.
15. Coghlan, H. H. *Notes on prehistoric and early iron in the Old World*, 1956, 86
16. It was at first thought that this was a roasting hearth but there are no traces of roasted ore in the vicinity and at this period it is believed that ore was no longer being smelted on the site. Also Mr. H. Cleere is of the opinion that iron ore would not be roasted in an enclosed place owing to the danger of fire from the exploding ore.
17. The contents of the small hearth in the iron-working area, Period 2b, were examined by Dr. R. F. Tylecote, Department of Metallurgy, The University, Newcastle-upon-Tyne, who very kindly wrote as follows:
'Most of it is hammer-scale and fine, almost microscopic drops of slag. It is more than 80% ferro-magnetic and thermogravimetric analysis (TGA) shows a considerable loss of weight up to 400°C which suggests some degree of hydration. At 500°C the loss turns into a gain which goes on increasing rapidly with temperatures up to 1000°C. This is mostly due to the wustite-hematite oxidation and slightly due to the oxidation of the few small particles of metallic iron present.
From this analysis I am forced to conclude that we have in this sample a mixture of hammer-scale and fine slag with a few particles of metallic iron. It is unlikely to have arisen from a smelting process and is almost certainly the product of smithing... You asked me whether they could have re-used the hammer-scale. The answer is 'possibly' but the microscopic drops could not have been melted scales since their composition would have been somewhat different. But it is possible that they have united with other material in the hearth and formed a slag.'
18. Money, J. H. 'Medieval iron-workings in Minepit Wood, Rotherfield, Sussex'. *Med. Arch.*, 15(1971), 94-6
19. Berenden A. and others. *Tiles, a general history*, 1967. A precis of the very detailed and excellent information in the above work relating to a small kiln for firing roof tiles is given below:-
The kiln described measured 6ft (1.8m) long by 5ft (1.5m) broad. The oven was built on a flat stone floor supported by a series of low arches under which the heat and flames from the firebox at one end were drawn. The floor was perforated to allow the flames and heat to penetrate into the oven. The sides of the kiln were 4ft (1.2m) high and the centre of the vaulted roof, also perforated to allow the escape of smoke and gasses, was 6ft (1.8m) above the ground. The oven was therefore about 4ft (1.2m) high in the centre and about 2ft 6in (76cm) high at the sides.
20. Mrs. Elizabeth Eames of the British Museum was consulted about the possibility of the structures in Period 2 Intermediate and Period 3a being tile kilns. Although she does not know of tile kilns similarly built, using stone instead of tile in the construction, she confirms that the earlier structure most probably was a kiln for making the small number of tiles required for the first house, as its shape and size would have been adequate. Of the structure in Period 3a she is less certain as, although the firebox would be correct, the oven appears to be too small. However, since the other ingredients are present - burnt tiles, wasters, burnt clay debris and the reason for making a kiln at the time, based on the precedent of Period 2 Intermediate, she agreed that it is likely that this also was a tile kiln. I am grateful to Mrs. Eames for her advice.
21. Ordnance Survey. *Field archaeology in Great Britain*. 5th ed., 1973, 49
22. This coin may have been deliberately buried (see Appendix 11, p. 63).
23. Schubert, H. R. *The history of the British iron and steel industry*, 1957, 125. The following tallies very closely with Site 3, Period 3:-
'Permanent forges were very much larger, the term 'great forge' being occasionally applied to them. A permanent bloomery consisted of a forge house and buildings which served as workers' domiciles or as stables for the pack horses which carried ore and charcoal to the bloomery, with a yard between the buildings. Sometimes the plant was surrounded by a wall and perhaps also a ditch.'